

RELAY SINCE 1988

TOWARD

Enrich your design.

Solid State Relay



2016 Rev 2

CONTENTS

RELAY SINCE 1988

TOWARD

Enrich your design.

PhotoMOS-FET Relays

General-Purpose

- 45 Series [60V / 200mA] 36
- 37 Series [60V / 550mA] 39
- 48 Series [100V / 350mA] 42
- 34 Series [200V / 200mA] 45
- 31 Series [350V / 130mA] 48
- 30 Series [400V / 120mA] 51
- 30C Series [CURRENT LIMIT 400V / 120mA] 54
- 70 Series [60V / 440mA] 57
- 70 Series (1a+1b) [60V / 380mA] 60
- 74 Series [400V / 90mA] 64
- 74 Series (1a+1b) [400V / 100mA] 67

Hi-A Grade $\geq 1A$

- CC36 (ceramic) [60V / 1.2A] 71
- 47 Series [80V / 1.5A] 74
- 26 Series [40V / 2.0A] 77
- 36 Series [60V / 2.5A] 80
- 24 Series [40V / 3.5A] 83
- 28 Series [40V / 4.5A] 86

Hi-V Grade $\geq 600V$

- 38 Series [600V / 80mA] 89
- 40 Series [1500V / 45mA] 92

Low Leakage Current

- 24-pA Series [40V / 3.5A · 1a / 2a] 95
- 26-pA Series [40V / 2A · 1a / 2a] 98
- 45-pA Series [60V · 1a / 2a] 101
- 37-pA Series [60V · 1a / 2a] 104
- 47-pA Series [80V / 1.5A · 1a / 2a] 107
- 23RS-pA Series [RF·LOW Cx·1pF·37Ω] 110
- 30-pA Series [400V · 1a / 2a] 113

RF

- 21RS Series [40V / 250mA / CxR=10] 116
- 23RS Series [250V / 170mA / Low CR] 119
- 46 Series [80V / 80mA / 3pF / 1nA] 122

Photo Coupler

- MC117 125
- TB3063S 127

Mos Driver

- V / W 130

Terms 132

Packing Specifications 133

Package & PC Board Pattern 134

Packing Specifications 135

Load Connecting Method 136

Solid State Relays

- TC Series 137
- TM Series 140
- TG Series 142
- TMC Series 144
- TMV Series 148
- TS Series 152
- TNA Series 156
- TND Series 158
- TPA Series 160
- TPD Series 162
- TL Series 164
- TDA / TAA Series 168
- TDD Series 170
- TDB Series 172
- TAD Series 174
- SD (A) Z (10 / 80A) Series 176
- SD (A) Z (100 / 125A) Series 178
- SDD Series 180
- SDT / SAT (10-40A) 182
- SDT / SAT (60-100A) 184

PhotoMOS-FET Relays
General-Purpose

PhotoMOS-FET Relays
Hi-A Grade $\geq 1A$

PhotoMOS-FET Relays
Hi-V Grade $\geq 600V$

PhotoMOS-FET Relays
Low Leakage Current

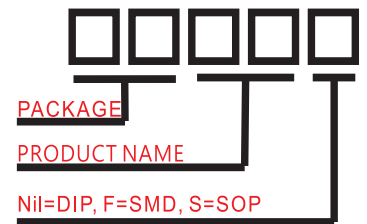
PhotoMOS-FET Relays
RF

PhotoMOS-FET Relays
Photo Coupler

PhotoMOS-FET Relays
Mos Driver

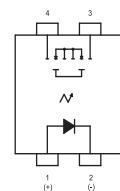
Solid State Relays

Photo MOS-FET Relay

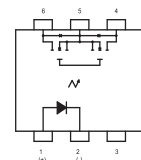


	4PIN	6PIN	8PIN
1a	AB	AA	
2a			AC
1b	AG	AE	
2b			AH
1a+1b			AK
DIP			
SMD			
SOP			

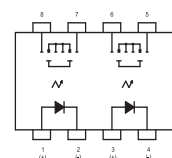
4pin Single-channel for AC/DC
4pin AC/DC 負荷兼用1回路



6pin Single-channel for AC/DC
6pin AC/DC 負荷兼用1回路



8pin Single-channel for AC/DC
8pin AC/DC 負荷兼用2回路

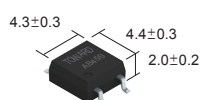


4.5A	AA28(F)							A*70(F)	A*74(F)
3.5A	AA24(F)							(NO)	380mA 100mA
2.5A		AA36(F)						(NC)	240mA 70mA
2.0A	AB26S A*26(F)		AA47(F) (1.5A)					60V	400V
1.25A			AB47S AB47(F)						
1.0A	CC36 (1.2A)		AC47S AC47(F)						
550mA		AB37(F) AA37(F)							
500mA		AB37S AC37							
360mA		AC37S							
350mA			AA48(F) AB48(F)						
310mA			AB48S AC48(F)						
280mA			AC48S						
250mA	A*21RS (13pf,0.9Ω)								
200mA		A*45(F) A*45S		AB34(F) AA34(F)					
180mA				AC34(F) AB34S					
170mA				AC34S	A*23RS (37pf,11Ω)				
130mA						AA31(F) AB31(F)			
120mA						AB31S	AA30(F) AB30(F)		
100mA						AC31(F)			
110mA						AC31S	AB30S AC30(F)		
85mA							AC30S		
80mA			A*46 (3pf,30Ω)					AA38(F) AB38(F)	
70mA								AB38S AC38(F)	
50mA									
35mA									AA40(F)
	40V	60V	80V	100V	200V	250V	350V	400V	600V 1500V

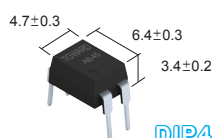


Photo MOS-FET Relay Family

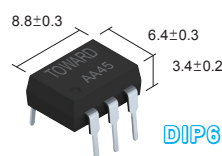
General - Purpose	Hi - A Grade ≥ 1A	Hi - V Grade ≥ 600V	RF Grade	AEC - Q101	Hi Temperature (105°C)
A*30-400V 120mA	CC36-60V 1.2A	A*38-600V	A*21RS 40V 13pf 0.9Ω	AB45S-Q/AC45S-Q 60V 200mA	AB45S/AC45S 60V 200mA
A*31-350V 130mA	A*24-40V 3.5A	A*40-1500V			
A*34-200V 200mA	A*26-40V 2.0A		A*23RS 250V 37pf 11Ω 10nA	AB47S-Q/AC47S-Q 80V 1.25A	AB47S/AC47S 80V 1.25A
A*37-60V 550mA	AA*28-40V 4.5A				
A*45-60V 200mA	AA*36-60V 2.5A		A*46-80V 3pf 1nA	AB38S-Q/AC38S-Q 600V 70mA	AB38S/AC38S 600V 70mA
A*48-100V 350mA	A*47-80V 1.5A				
A*70-60V 380mA				AA40-Q (AEC-Q101 on applied)	AA40
A*74-400V 90mA(N.C)					
AK74-400V (a+b)					
MC117-Telecom switch					
TB3063S-Photo-Triac					



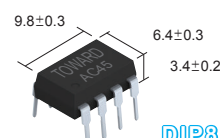
SOP4



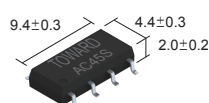
DIP4



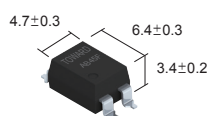
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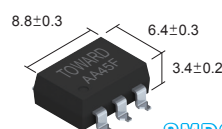
DIP8



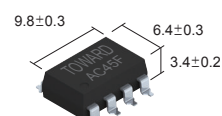
SOP8



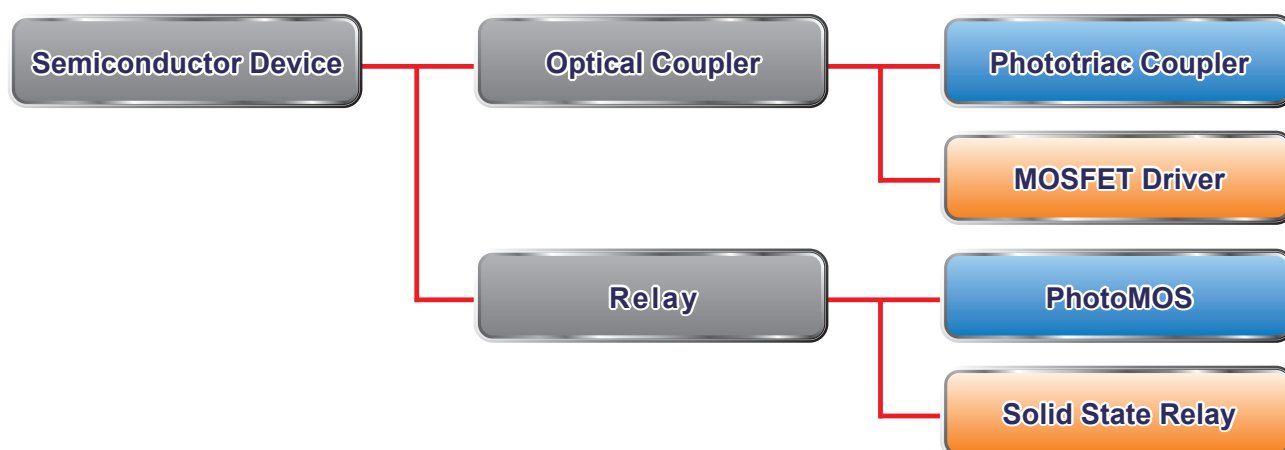
SMD4



SMD6

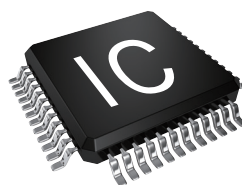
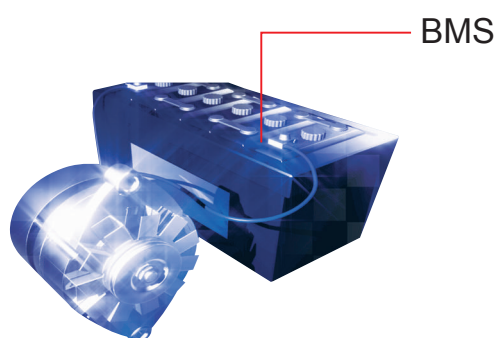
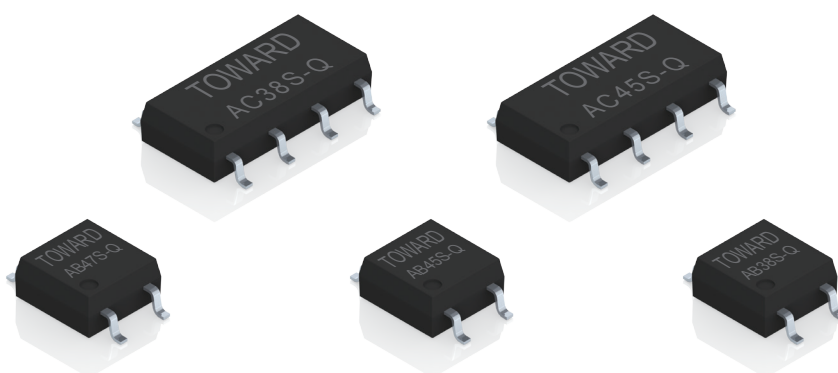


SMD8

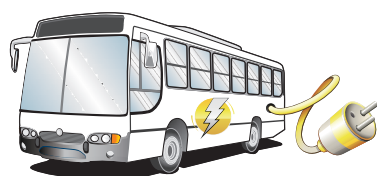


Automotive Parts Reliability Certificate

AEC-Q101 **PASS**



Charge System



PhotoMOS-FET Relay

Part	Contact Form	Package	Load Voltage	Load Current (max)	Peak Load Current (max)	Power Dissipation (max)	On Resistance		Output Capacitance
							Typical	Maximum	
26 Series	1A 2A	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	40V	2.0 A	5.0 A	600 mW	0.035 Ω	0.006 Ω	240 pF
24 Series	1A 2A	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	40V	3.5 A	8.0 A	500 mW	0.033 Ω 0.027 Ω (DIP6)	0.043 Ω 0.035 Ω (DIP6)	240 pF 810 pF (DIP6)
28 Series	1A	DIP-6 Pin	40V	4.5 A	9.5 A	500 mW	0.02 Ω	0.03 Ω	690 pF
21RS Series	1A 2A	SOP-4,8 Pin	40V	250 mA	0.75 A	300 mW (1ch) 400 mW (2ch)	0.9 Ω	1.25 Ω	13 pF
36 Series	1A	DIP-6 Pin	60V	2.5 A	6 A	500 mW	0.07 Ω	0.1 Ω	470 pF
37 Series	1A 2A	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	60V	550 mA	1.0 A	600 mW	0.75 Ω	1.6 Ω	45 pF
70 Series	1B	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	60V	440 mA	0.6 A	600 mW	0.75 Ω	1.0 Ω	165 pF
AK70 Series	1A + 1B	DIP/SMD-8 Pin SOP-8 Pin	60V	380 mA	1.0 A	600 mW	0.75 Ω	1.0 Ω	45 pF(NO) 165 pF(NC)
45 Series	1A 2A	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	60V	200 mA	0.6 A	600 mW	3.0 Ω	14 Ω	20 pF
47 Series	1A 2A	DIP-6 Pin	80V	1.5 A	5.0 A	550 mW	0.12 Ω	0.16 Ω	220 pF
46 Series	1A 2A	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	80V	80 mA	0.1 A	450 mW	38 Ω	50 Ω	3 pF
48 Series	1A 2A	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	100V	350 mA	1.4 A	600 mW	2 Ω	3.5 Ω	37 pF
34 Series	1A 2A	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	200V	200 mA	0.8 A	600 mW	4.2 Ω	8 Ω	130 pF
23RS Series	1A 2A	SOP-4,8 Pin	250V	170 mA	0.42 A	300 mW (1ch) 400 mW (2ch)	11 Ω	15 Ω	37 pF
31 Series	1A 2A	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	350V	130 mA	0.6 A	600 mW	20 Ω	24 Ω	55 pF
30 Series	1A 2A	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	400V	120 mA	0.6 A	600 mW	21 Ω	24 Ω	100 pF
74 Series	1B	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	400V	90 mA	0.6 A	600 mW	28 Ω	35 Ω	165 pF
AK74 Series	1A + 1B	DIP/SMD-8 Pin SOP-8 Pin	400V	100 mA(NO) 70 mA(NC)	0.6 A	600 mW	24 Ω (NO) 28 Ω (NC)	30 Ω (NO) 35 Ω (NC)	100 pF (NO) 165 pF (NC)
38 Series	1A 2A	DIP/SMD-4,6,8 Pin SOP-4,8 Pin	600V	80 mA	0.2 A	600 mW	40 Ω	60 Ω	47 pF
40 Series	1A	DIP-6 Pin	1500V	45 mA	0.2 A	450 mW	110 Ω	200 Ω	83 pF

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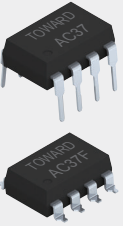
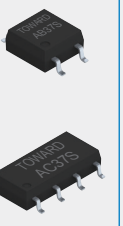
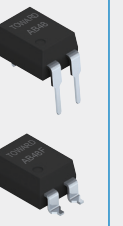
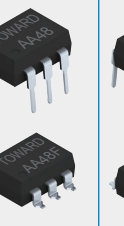
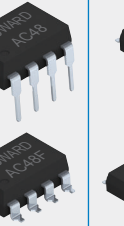


Off State Leakage	LED Operate Current		Turn On Time		Turn Off Time		I/O Isolation Voltage
	Typical	Maximum	Typical	Maximum	Typical	Maximum	
1 μ A	0.5 mA	3.0 mA	0.5 mS	2.5 mS	0.05 mS	0.5 mS	DIP/SMD-3750V SOP-1500V
1 μ A	0.5 mA (SOP) 1.2 mA (DIP)	3.0 mA	1.2 mS (DIP6/SMD6) 1.0 mS	3.0 mS	0.05 mS	0.5 mS	DIP/SMD-3750V SOP-1500V
1 μ A	1.2 mA	3.0 mA	1.2 mS	4.0 mS	0.05 mS	0.5 mS	3750V
10 μ A	0.3 mA	3.0 mA	0.07 mS	0.5 mS	0.06 mS	0.2 mS	1500V
1 μ A	0.6 mA	3.0 mA	0.6 mS	3.0 mS	0.04 mS	0.5 mS	3750V
1 μ A	0.9 mA	3.0 mA	0.25 mS (DIP6/SMD6) 0.05 mS (SOP)	1.0 mS (DIP/SMD) 0.2 mS (SOP)	0.2 mS (DIP/SMD) 0.05 mS (SOP)	1.0 mS (DIP/SMD) 0.5 mS (SOP)	DIP/SMD-3750V SOP-1500V
10 μ A	0.9 mA	3.0 mA	0.05 mS	1.0 mS	0.25 mS (DIP/SMD) 0.35 mS (SOP)	2.0 mS	1500V
1 μ A (NC) 10 μ A (NC)	0.9 mA	3.0 mA	0.25 mS (NO) 0.5 mS (NC)	2.0 mS	0.05 mS	0.5 mS	1500V
1 μ A	1.0 mA	3.0 mA	0.07 mS (DIP/SMD) 0.1 mS (SOP)	1.0 mS	0.03 mS	0.5 mS	DIP/SMD-3750V SOP-1500V
1 μ A	0.5 mA (SOP) 1.2 mA (DIP)	3.0 mA	0.7 mS	3.0 mS	0.05 mS	0.5 mS	DIP/SMD-3750V SOP-1500V
1 μ A	0.8 mA	3.0 mA	0.015 mS (DIP/SMD) 0.02 mS (SOP)	0.2 mS	0.08 mS	0.2 mS	DIP/SMD-3750V SOP-1500V
1 μ A	0.09 mA	3.0 mA	0.2 mS (DIP/SMD) 0.25 mS (SOP)	1.0 mS	0.05 mS	0.5 mS (DIP/SMD) 0.2 mS (SOP)	DIP/SMD-3750V SOP-1500V
1 μ A	0.9 mA	3.0 mA	0.2 mS (DIP/SMD) 0.25 mS (SOP)	1.0 mS (DIP/SMD) 0.5 mS (SOP)	0.05 mS	0.5 mS (DIP/SMD) 0.2 mS (SOP)	DIP/SMD-3750V SOP-1500V
10 μ A	0.6 mA	3.0 mA	0.15 mS	0.5 mS	0.06 mS	0.2 mS	1500V
1 μ A	0.8 mA	3.0 mA	0.25 mS (DIP/SMD) 0.2 mS (SOP)	1.0 mS (DIP/SMD) 0.5 mS (SOP)	0.05 mS	0.5 mS (DIP/SMD) 0.2 mS (SOP)	DIP/SMD-3750V SOP-1500V
1 μ A	0.9 mA	3.0 mA	0.2 mS (DIP/SMD) 0.25 mS (SOP)	1.0 mS (DIP/SMD) 0.5 mS (SOP)	0.05 mS	0.5 mS (DIP/SMD) 0.2 mS (SOP)	DIP/SMD-3750V SOP-1500V
10 μ A	0.9 mA	3.0 mA	0.15 mS (DIP/SMD) 0.1 mS (SOP)	2.0 mS	0.05 mS	0.5 mS	1500V
1 μ A (NO) 10 μ A (NC)	0.6 mA	3.0 mA	0.25 mS (NO) 0.5 mS (NC)	2 mS	0.05 mS	1 mS	1500V
1 μ A	1.0 mA	3.0 mA	0.1 mS (DIP/SMD) 0.2 mS (SOP)	1.0 mS (DIP/SMD) 0.5 mS (SOP)	0.05 mS	0.5 mS (DIP/SMD) 0.2 mS (SOP)	DIP/SMD-3750V SOP-1500V
10 μ A	0.9 mA	5.0 mA	0.3 mS	1.0 mS	0.05 mS	0.5 mS	3750V

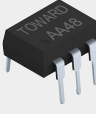
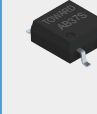
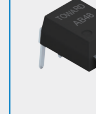
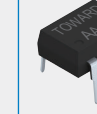


Product Type		General-Purpose					
		1ch	1ch	2ch	1ch/2ch	1ch	1ch
Product Name		AB45(F)	AA45(F)	AC45(F)	AB45S AC45S	AB37(F)	AA37(F)
Appearance							
Load Type		AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
Contact Form		1a	1a	2a	1a/2a	1a	1a
Package		4pin	6pin	8pin	4/8pin	4pin	6pin
Output	Load Voltage	60V	60V	60V	60V	60V	60V
	Load Current	200mA	200mA	200mA	200mA	550mA	550mA
	Peak Load Current	600mA	600mA	600mA	600mA	2.0A	2.0A
	Output Power Dissipation	450mW	450mW	600mW	300mW(1a) 450mW(2a)	450mW	450mW
	On-Resistance	typ	3Ω	3Ω	3Ω	0.75Ω	0.75Ω
		max	14Ω	14Ω	14Ω	1.6Ω	1.6Ω
	Output Capacitance	20pF	20pF	20pF	20pF	45pF	45pF
Off-state Leakage Current		1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	1.0mA	1.0mA	1.0mA	0.9mA	0.9mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
LED Forward Voltage		typ	1.17V	1.17V	1.17V	1.17V	1.17V
Transmi- ssion	Turn-On Time	typ	0.07ms	0.07ms	0.07ms	0.1ms	0.2ms
		max	1.0ms	1.0ms	1.0ms	1.0ms	1.0ms
	Turn-Off Time	typ	0.03ms	0.03ms	0.03ms	0.05ms	0.05ms
		max	0.5ms	0.5ms	0.5ms	0.5ms	0.5ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	1.3pF	1.3pF
Total Power Dissipation		500mW	500mW	650mW	350mW(1a) 500mW(2a)	500mW	500mW
I/O Breakdown Voltage		3750Vrms	3750Vrms	3750Vrms	1500Vrms	3750Vrms	3750Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		36	36	36	36	39	39

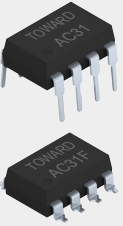
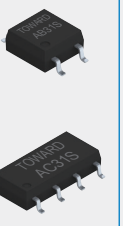
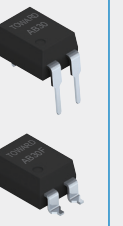
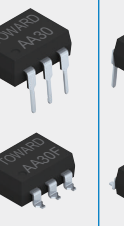
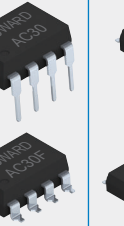


Product Type		General-Purpose					
		2ch	1ch/2ch	1ch	1ch	2ch	1ch/2ch
Product Name		AC37(F)	AB37S AC37S	AB48(F)	AA48(F)	AC48(F)	AB48S AC48S
Appearance							
	Load Type	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
	Contact Form	2a	1a/2a	1a	1a	2a	1a/2a
	Package	8pin	4/8pin	4pin	6pin	8pin	4/8pin
Output	Load Voltage	60V	60V	100V	100V	100V	100V
	Load Current	500mA	500mA(1a) 450mA(2a)	350mA	350mA	310mA	310mA(1a) 280mA(2a)
	Peak Load Current	2.0A	2.0A	1400mA	1400mA	1400mA	1400mA
	Output Power Dissipation	600mW	300mW(1a) 450mW(2a)	450mW	450mW	600mW	300mW(1a) 450mW(2a)
	On-Resistance	typ	0.75Ω	2Ω	2Ω	2Ω	2Ω
		max	1.6Ω	3.5Ω	3.5Ω	3.5Ω	3.5Ω
	Output Capacitance	45pF	45pF	37pF	37pF	37pF	37pF
Input	Off-state Leakage Current	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA
	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	0.9mA	0.9mA	0.9mA	0.9mA	0.9mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
Transmission	Turn-On Time	typ	0.2ms	0.2ms	0.2ms	0.2ms	0.25ms
		max	1.0ms	1.0ms	1.0ms	1.0ms	1.0ms
	Turn-Off Time	typ	0.05ms	0.05ms	0.05ms	0.05ms	0.05ms
		max	0.5ms	0.5ms	0.5ms	0.5ms	0.2ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	1.3pF	1.3pF
Total Power Dissipation		650mW	350mW(1a) 500mW(2a)	500mW	500mW	650mW	350mW(1a) 500mW(2a)
I/O Breakdown Voltage		3750Vrms	1500Vrms	3750Vrms	3750Vrms	3750Vrms	1500Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		39	39	42	42	42	42



Product Type		General-Purpose					
		1ch	1ch	2ch	1ch/2ch	1ch	1ch
Product Name		AB34(F)	AA34(F)	AC34(F)	AB34S AC34S	AB31(F)	AA31(F)
Appearance		 	 	 	 	 	 
Load Type		AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
Contact Form		1a	1a	2a	1a/2a	1a	1a
Package		4pin	6pin	8pin	4/8pin	4pin	6pin
Output	Load Voltage	200V	200V	200V	200V	350V	350V
	Load Current	200mA	200mA	180mA	180mA(1a) 160mA(2a)	130mA	130mA
	Peak Load Current	800mA	800mA	800mA	800mA	600mA	600mA
	Output Power Dissipation	450mW	450mW	600mW	300mW(1a) 450mW(2a)	450mW	450mW
	On-Resistance	typ	4.2Ω	4.2Ω	4.2Ω	20Ω	20Ω
		max	8Ω	8Ω	8Ω	24Ω	24Ω
	Output Capacitance	130pF	130pF	130pF	130pF	55pF	55pF
Off-state Leakage Current		1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	0.9mA	0.9mA	0.9mA	0.8mA	0.8mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
Transmission	Turn-On Time	typ	0.2ms	0.2ms	0.2ms	0.25ms	0.2ms
		max	1.0ms	1.0ms	1.0ms	1.0ms	1.0ms
	Turn-Off Time	typ	0.05ms	0.05ms	0.05ms	0.05ms	0.05ms
		max	0.5ms	0.5ms	0.2ms	0.5ms	0.5ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	1.3pF	1.3pF
Total Power Dissipation		500mW	500mW	650mW	350mW(1a) 500mW(2a)	500mW	500mW
I/O Breakdown Voltage		3750Vrms	3750Vrms	3750Vrms	1500Vrms	3750Vrms	3750Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		45	45	45	45	48	48



Product Type		General-Purpose					
		2ch	1ch/2ch	1ch	1ch	2ch	1ch/2ch
Product Name		AC31(F)	AB31S AC31S	AB30(F)	AA30(F)	AC30(F)	AB30S AC30S
Appearance							
	Load Type	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
	Contact Form	2a	1a/2a	1a	1a	2a	1a/2a
	Package	8pin	4/8pin	4pin	6pin	8pin	4/8pin
	Load Voltage	350V	350V	400V	400V	400V	400V
Output	Load Current	110mA	120mA(1a) 100mA(2a)	120mA	120mA	100mA	100mA(1a) 85mA(2a)
	Peak Load Current	600mA	600mA	600mA	600mA	600mA	600mA
	Output Power Dissipation	600mW	300mW(1a) 450mW(2a)	450mW	450mW	600mW	300mW(1a) 450mW(2a)
	On-Resistance	typ	20Ω	21Ω	21Ω	21Ω	21Ω
		max	24Ω	24Ω	24Ω	24Ω	24Ω
	Output Capacitance	55pF	55pF	52pF	52pF	52pF	52pF
	Off-state Leakage Current	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	0.8mA	0.7mA	0.7mA	0.7mA	0.7mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
	LED Forward Voltage	typ	1.17V	1.17V	1.17V	1.17V	1.17V
Transmission	Turn-On Time	typ	0.2ms	0.2ms	0.2ms	0.2ms	0.2ms
		max	1.0ms	1.0ms	1.0ms	1.0ms	1.0ms
	Turn-Off Time	typ	0.05ms	0.05ms	0.05ms	0.05ms	0.05ms
		max	0.5ms	0.5ms	0.5ms	0.5ms	0.5ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	1.3pF	1.3pF
Total Power Dissipation		650mW	350mW(1a) 500mW(2a)	500mW	500mW	650mW	350mW(1a) 500mW(2a)
I/O Breakdown Voltage		3750Vrms	1500Vrms	3750Vrms	3750Vrms	3750Vrms	1500Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		48	48	51	51	51	51



Product Type		General-Purpose					
		1ch	1ch	2ch	1ch/2ch		
Product Name		AB30(F)-C	AA30(F)-C	AC30(F)-C	AB30S-C AC30S-C		
Appearance					 		
	Load Type	AC/DC	AC/DC	AC/DC	AC/DC		
	Contact Form	1a	1a	1a	1a/2a		
	Package	4pin	6pin	8pin	4/8pin		
Output	Load Voltage	400V	400V	400V	400V		
	Load Current	120mA	120mA	100mA	120mA(1a) 100mA(2a)		
	Peak Load Current	600mA	600mA	600mA	600mA		
	Output Power Dissipation	450mW	450mW	600mW	300mW(1a) 450mW(2a)		
	On-Resistance	typ	21Ω	21Ω	21Ω		
		max	24Ω	24Ω	24Ω		
	Output Capacitance	55pF	55pF	55pF	55pF		
	Off-state Leakage Current	1.0 μA	1.0 μA	1.0 μA	1.0 μA		
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA		
	LED Reverse Voltage	5V	5V	5V	5V		
	Peak LED Current	500mA	500mA	500mA	500mA		
	Input Power Dissipation	75mW	75mW	75mW	75mW		
	Operation LED Current	typ	0.9mA	0.9mA	0.9mA		
		max	3.0mA	3.0mA	3.0mA		
	Recovery LED Voltage	min	0.5V	0.5V	0.5V		
	LED Forward Voltage	typ	1.17V	1.17V	1.17V		
Transmission	Turn-On Time	typ	0.2ms	0.2ms	0.2ms	0.25ms	
		max	1.0ms	1.0ms	1.0ms	0.5ms	
	Turn-Off Time	typ	0.1ms	0.1ms	0.1ms	0.1ms	
		max	0.5ms	0.5ms	0.5ms	0.2ms	
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω		
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF		
Total Power Dissipation		500mW	500mW	650mW	350mW(1a) 500mW(2a)		
I/O Breakdown Voltage		3750Vrms	3750Vrms	3750Vrms	1500Vrms		
Operating Temperature		-40°C ~85°C	-40°C ~85°C	-40°C ~85°C	-40°C ~85°C		
Storage Temperature		-40°C ~100°C	-40°C ~100°C	-40°C ~100°C	-40°C ~100°C		
Page		54	54	54	54		

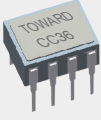
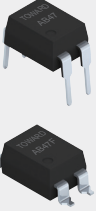
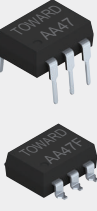
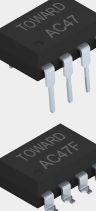
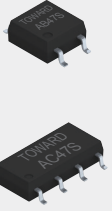
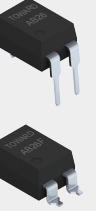


Product Type		General-Purpose					
		1ch	1ch	2ch	1ch/2ch	2ch	2ch
Product Name		AG70(F)	AE70(F)	AH70(F)	AG70S AH70S	AK70(F)	AK70S
Appearance							
	Load Type	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
	Contact Form	1b	1b	2b	1b/2b	1a+1b	1a+1b
	Package	4pin	6pin	8pin	4/8pin	8pin	8pin
	Load Voltage	60V	60V	60V	60V	60V	60V
Output	Load Current	440mA	440mA	380mA	400mA(1b) 350mA(2b)	380mA	350mA
	Peak Load Current	600mA	600mA	600mA	600mA	1.0A	1.0A
	Output Power Dissipation	450mW	450mW	600mW	300mW(1b) 450mW(2b)	600mW	400mW
	On-Resistance	typ	0.75Ω	0.75Ω	0.75Ω	0.75Ω	0.75Ω
		max	1.0Ω	1.0Ω	1.0Ω	1.0Ω	1.0Ω
	Output Capacitance	165pF	165pF	165pF	165pF	45pF(NO) 165pF(NC)	45pF(NO) 165pF(NC)
	Off-state Leakage Current	10 μA	10 μA	10 μA	10 μA	1 μA(NO) 10 μA(NC)	1 μA(NO) 10 μA(NC)
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	0.9mA	0.9mA	0.9mA	0.9mA	0.9mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
Transmi- ssion	Operate Time	typ	0.25ms	0.25ms	0.25ms	0.2ms(NO) 0.25ms(NC)	0.2ms(NO) 0.35ms(NC)
		max	1.0ms	1.0ms	1.0ms	1.0ms	1.0ms
	Release Time	typ	0.05ms	0.05ms	0.05ms	0.05ms	0.05ms
		max	0.5ms	0.5ms	0.5ms	0.5ms	0.5ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	1.3pF	1.3pF
Total Power Dissipation		500mW	500mW	650mW	350mW(1b) 500mW(2b)	650mW	450mW
I/O Breakdown Voltage		1500Vrms	1500Vrms	1500Vrms	1500Vrms	1500Vrms	1500Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		57	57	57	57	60	60

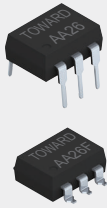
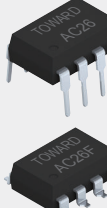
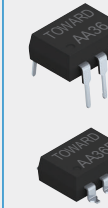
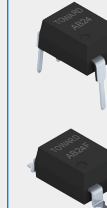
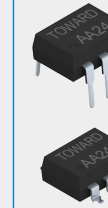


Product Type		General-Purpose					
		1ch	1ch	2ch	1ch/2ch	2ch	2ch
Product Name		AG74(F)	AE74(F)	AH74(F)	AG74S AH74S	AK74(F)	AK74S
Appearance							
	Load Type	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
	Contact Form	1b	1b	2b	1b/2b	1a+1b	1a+1b
	Package	4pin	6pin	8pin	4/8pin	8pin	8pin
	Load Voltage	400V	400V	400V	400V	400V	400V
Output	Load Current	90mA	90mA	80mA	70mA(1b) 60mA(2b)	100mA(NO) 70mA(NC)	80mA(NO) 60mA(NC)
	Peak Load Current	400mA	400mA	400mA	400mA	400mA	400mA
	Output Power Dissipation	450mW	450mW	600mW	300mW(1a) 450mW(2a)	600mW	400mW
	On-Resistance	typ	28Ω	28Ω	28Ω	24Ω(NO) 28Ω(NC)	24Ω(NO) 28Ω(NC)
		max	35Ω	35Ω	35Ω	30Ω(NO) 35Ω(NC)	30Ω(NO) 35Ω(NC)
	Output Capacitance	165pF	165pF	165pF	165pF	100pF(NO) 165pF(NC)	100pF(NO) 165pF(NC)
	Off-state Leakage Current	10 μA	10 μA	10 μA	10 μA	1 μA(NO) 10 μA(NC)	1 μA(NO) 10 μA(NC)
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	0.9mA	0.9mA	0.9mA	0.6mA	0.6mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
Transmission	Operate Time	typ	0.15ms	0.15ms	0.1ms	0.2ms(NO) 0.15ms(NC)	0.2ms(NO) 0.1ms(NC)
		max	1.0ms	1.0ms	1.0ms	1.0ms	1.0ms
	Release Time	typ	0.05ms	0.05ms	0.05ms	0.05ms	0.05ms
		max	0.5ms	0.5ms	0.5ms	0.5ms	0.5ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	1.3pF	1.3pF
Total Power Dissipation		500mW	500mW	650mW	350mW(1b) 500mW(2b)	650mW	450mW
I/O Breakdown Voltage		1500Vrms	1500Vrms	1500Vrms	1500Vrms	1500Vrms	1500Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		64	64	64	64	67	67

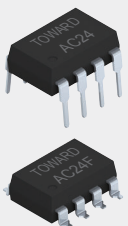
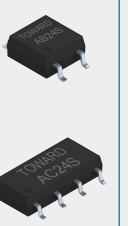
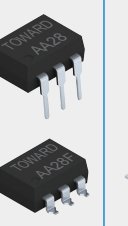
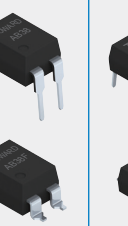
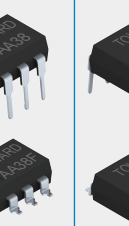
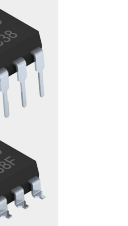


Product Type		Hi-A Grade ≥ 1A					
		1ch	1ch	1ch	2ch	1ch/2ch	1ch
Product Name		CC36	AB47(F)	AA47(F)	AC47(F)	AB47S AC47S	AB26(F)
Appearance							
	Load Type	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
	Contact Form	1a	1a	1a	2a	1a/2a	1a
	Package	6pin	4pin	6pin	8pin	4/8pin	4pin
	Load Voltage	60V	80V	80V	80V	80V	40V
Output	Load Current	1.2A	1.25A	1.5A	1.0A	1.25A(1a) 1.0A(2a)	2.0A
	Peak Load Current	5.0A	3.0A	3.0A	3.0A	3.0A/3.5A	5.0A
	Output Power Dissipation	750mW	350mW	500mW	450mW	350mW(1a) 450mW(2a)	450mW
	On-Resistance	typ	0.1Ω	0.13Ω	0.13Ω	0.13Ω	0.035Ω
		max	0.14Ω	0.16Ω	0.16Ω	0.16Ω	0.06Ω
	Output Capacitance	470pF	220pF	220pF	220pF	220pF	240pF
	Off-state Leakage Current	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA
Input	Continuous LED Forward Current	40mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	100mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	60mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	2.0mA	1.0mA	1.0mA	1.0mA	0.7mA
		max	5.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	1.0V	0.5V	0.5V	0.5V	0.5V
	LED Forward Voltage	typ	2.7V	1.37V	1.37V	1.37V	1.37V
Transmission	Turn-On Time	typ	2.0ms	0.3ms	0.3ms	0.3ms	0.8ms
		max	5.0ms	3.0ms	3.0ms	3.0ms	2.5ms
	Turn-Off Time	typ	0.05ms	0.05ms	0.05ms	0.05ms	0.05ms
		max	0.5ms	0.5ms	0.5ms	0.5ms	0.5ms
Coupled	I/O Insulation Resistance	min	5x10 ⁹ Ω	10 ¹⁰ Ω	10 ¹⁰ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1pF	1.3pF	1.3pF	1.3pF	1.3pF
Total Power Dissipation		800mW	400mW	550mW	500mW	400mW(1a) 500mW(2a)	500mW
I/O Breakdown Voltage		1000Vrms	3750Vrms	3750Vrms	3750Vrms	1500Vrms	3750Vrms
Operating Temperature		-55℃ ~105℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-55℃ ~125℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		71	74	74	74	74	77

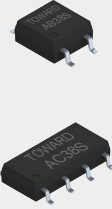
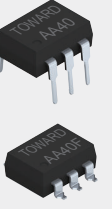
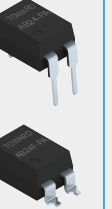
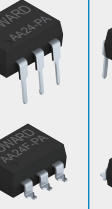
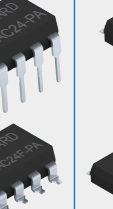


Product Type		Hi-A Grade ≥ 1A					
		1ch	2ch	1ch/2ch	1ch	1ch	1ch
Product Name		AA26(F)	AC26(F)	AB26S AC26S	AA36(F)	AB24(F)	AA24(F)
Appearance							
	Load Type	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
	Contact Form	1a	2a	1a/2a	1a	1a	1a
	Package	6pin	8pin	4/8pin	6pin	4pin	6pin
Output	Load Voltage	40V	40V	40V	60V	40V	40V
	Load Current	2.0A	2.0A	2.0A(1a) 1.6A(2a)	2.5A	2.5A	3.5A
	Peak Load Current	5.0A	5.0A	5.0A	6.0A	6.0A	8.0A
	Output Power Dissipation	450mW	600mW	350mW(1a) 450mW(2a)	500mW	350mW	500mW
	On-Resistance	typ	0.035Ω	0.035Ω	0.07Ω	0.033Ω	0.027Ω
		max	0.06Ω	0.06Ω	0.1Ω	0.043Ω	0.035Ω
	Output Capacitance	240pF	240pF	240pF	470pF	240pF	810pF
	Off-state Leakage Current	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	0.7mA	0.7mA	1.5mA	1.2mA	1.2mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
	LED Forward Voltage	typ	1.37V	1.37V	1.37V	1.37V	1.37V
Transmission	Turn-On Time	typ	0.8ms	0.8ms	1.0ms	0.6ms	1.0ms
		max	2.5ms	2.5ms	2.5ms	3.0ms	3.0ms
	Turn-Off Time	typ	0.05ms	0.05ms	0.05ms	0.04ms	0.05ms
		max	0.5ms	0.5ms	0.5ms	0.5ms	0.5ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	5x10 ⁹ Ω	10 ¹⁰ Ω	5x10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	1pF	1.3pF
Total Power Dissipation		500mW	650mW	400mW(1b) 500mW(2b)	550mW	400mW	550mW
I/O Breakdown Voltage		3750Vrms	3750Vrms	1500Vrms	3750Vrms	3750Vrms	3750Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		77	77	77	80	83	83

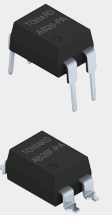
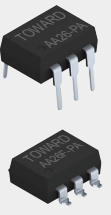
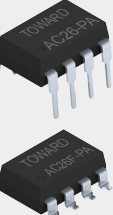
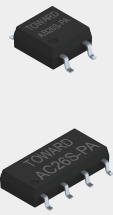
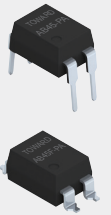
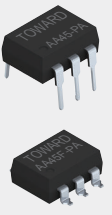


Product Type		Hi-A Grade ≥ 1A			Hi-V Grade ≥ 600V		
		2ch	1ch/2ch	1ch	1ch	1ch	2ch
Product Name		AC24(F)	AB24S AC24S	AA28(F)	AB38(F)	AA38(F)	AC38(F)
Appearance							
	Load Type	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
	Contact Form	2a	1a/2a	1a	1a	1a	2a
	Package	8pin	4/8pin	6pin	4pin	6pin	8pin
	Load Voltage	40V	40V	40V	600V	600V	600V
Output	Load Current	2.0A	2.5A(1a) 2.0A(2a)	4.5A	80mA	80mA	70mA
	Peak Load Current	6.0A	6.0A	9.5A	200mA	200mA	200mA
	Output Power Dissipation	450mW	350mW(1a) 450mW(2a)	500mW	450mW	450mW	600mW
	On-Resistance	typ	0.033Ω	0.02Ω	40Ω	40Ω	40Ω
		max	0.043Ω	0.03Ω	60Ω	60Ω	60Ω
	Output Capacitance	240pF	240pF	690pF	47pF	47pF	47pF
	Off-state Leakage Current	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA	1.0 μA
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	1.2mA	0.5mA	1.2mA	1.0mA	1.0mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
Transmission	Turn-On Time	typ	1.2ms	0.8ms	1.2ms	0.1ms	0.1ms
		max	3.0ms	3.0ms	4.0ms	1.0ms	1.0ms
	Turn-Off Time	typ	0.05ms	0.05ms	0.05ms	0.05ms	0.05ms
		max	0.5ms	0.5ms	0.5ms	0.5ms	0.5ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	5x10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	1pF	1.3pF
Total Power Dissipation		500mW	400mW(1a) 500mW(2a)	550mW	500mW	500mW	650mW
I/O Breakdown Voltage		3750Vrms	1500Vrms	3750Vrms	3750Vrms	3750Vrms	3750Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		83	83	86	89	89	89

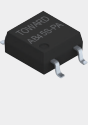
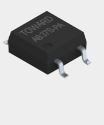


Product Type		Hi-V Grade ≥ 600V		Low Leakage Current (pA)			
		1ch/2ch	1ch	1ch	1ch	2ch	1ch/2ch
Product Name		AB38S AC38S	AA40(F)	AB24(F)-pA	AA24(F)-pA	AC24(F)-pA	AB24S-pA AC24S-pA
Appearance							
Load Type		AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
Contact Form		1a/2a	1a	1a	1a	2a	1a/2a
Package		4/8pin	6pin	4pin	6pin	8pin	4/8pin
Output	Load Voltage	600V	1500V	80V	40V	80V	80V
	Load Current	70mA(1a) 60mA(2a)	45mA	2.5A	3.5A	2.0A	2.5A(1a) 2.0A(2a)
	Peak Load Current	200mA	180mA	6.0A	8.0A	6.0A	6.0A
	Output Power Dissipation	300mW(1a) 450mW(2a)	450mW	350mW	500mW	450mW	350mW(1a) 450mW(2a)
	On-Resistance	typ	40Ω	180Ω	0.033Ω	0.027Ω	0.033Ω
		max	60Ω	300Ω	0.043Ω	0.035Ω	0.043Ω
	Output Capacitance	47pF	83pF	240pF	810pF	240pF	240pF
Off-state Leakage Current		1.0 μA	10 μA	1.0 nA	1.0 nA	1.0 nA	1.0 nA
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	1.0mA	0.9mA	1.2mA	1.2mA	0.5mA
		max	3.0mA	5.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
LED Forward Voltage		typ	1.17V	1.17V	1.37V	1.37V	1.37V
Transmission	Turn-On Time	typ	0.2ms	0.3ms	1.2ms	1.2ms	0.8ms
		max	0.5ms	1.0ms	3.0ms	3.0ms	3.0ms
	Turn-Off Time	typ	0.05ms	0.05ms	0.05ms	0.05ms	0.05ms
		max	0.2ms	0.5ms	0.5ms	0.5ms	0.5ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ¹⁰ Ω	10 ¹⁰ Ω	5x10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	1.3pF	1.3pF
Total Power Dissipation		350mW(1a) 500mW(2a)	500mW	400mW	550mW	500mW	400mW(1a) 500mW(2a)
I/O Breakdown Voltage		1500Vrms	3750Vrms	3750Vrms	3750Vrms	3750Vrms	1500Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		89	92	95	95	95	95

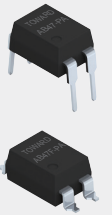
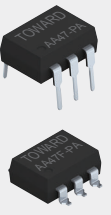
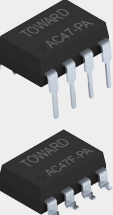
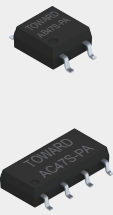
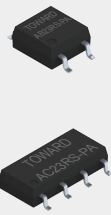
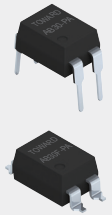


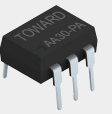
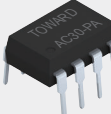
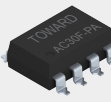
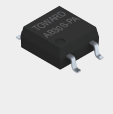
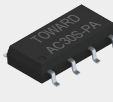
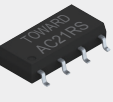
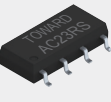
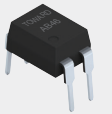
Product Type		Low Leakage Current (pA)					
		1ch	1ch	2ch	1ch/2ch	1ch	1ch
Product Name		AB26(F)-pA	AA26(F)-pA	AC26(F)-pA	AB26S-pA AC26S-pA	AB45(F)-pA	AA45(F)-pA
Appearance							
Load Type		AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
Contact Form		1a	1a	2a	1a/2a	1a	1a
Package		4pin	6pin	8pin	4/8pin	4pin	6pin
Output	Load Voltage	40V	40V	40V	40V	60V	60V
	Load Current	2.0A	2.0A	2.0A	2.0A(1a) 1.6A(2a)	200mA	200mA
	Peak Load Current	5.0A	5.0A	5.0A	5.0A	600mA	600mA
	Output Power Dissipation	450mW	450mW	600mW	350mW(1a) 450mW(2a)	450mW	450mW
	On-Resistance	typ	0.035Ω	0.035Ω	0.035Ω	3Ω	3Ω
		max	0.06Ω	0.06Ω	0.06Ω	14Ω	14Ω
	Output Capacitance	240pF	240pF	240pF	240pF	20pF	20pF
Off-state Leakage Current		1.0 nA	1.0 nA	1.0 nA	1.0 nA	1.0 nA	1.0 nA
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	0.7mA	0.7mA	0.7mA	1.0mA	1.0mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
Transmission	Turn-On Time	typ	0.8ms	0.8ms	0.8ms	1.0ms	0.07ms
		max	2.5ms	2.5ms	2.5ms	2.5ms	1.0ms
	Turn-Off Time	typ	0.05ms	0.05ms	0.05ms	0.05ms	0.03ms
		max	0.5ms	0.5ms	0.5ms	0.5ms	0.5ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	1.3pF	1.3pF
Total Power Dissipation		500mW	500mW	650mW	400mW(1b) 500mW(2b)	500mW	500mW
I/O Breakdown Voltage		3750Vrms	3750Vrms	3750Vrms	1500Vrms	3750Vrms	3750Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		98	98	98	98	101	101



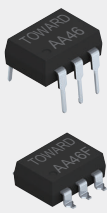
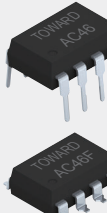
Product Type		Low Leakage Current (pA)					
		2ch	1ch/2ch	1ch	1ch	2ch	1ch/2ch
Product Name		AC45(F)-pA	AB45S-pA AC45S-pA	AB37(F)-pA	AA37(F)-pA	AC37(F)-pA	AB37S-pA AC37S-pA
Appearance							
Load Type		AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
Contact Form		2a	1a/2a	1a	1a	2a	1a/2a
Package		8pin	4/8pin	4pin	6pin	8pin	4/8pin
Output	Load Voltage	60V	60V	60V	60V	60V	60V
	Load Current	200mA	200mA	550mA	550mA	500mA	500mA(1a) 450mA(2a)
	Peak Load Current	600mA	600mA	2.0A	2.0A	2.0A	2.0A
	Output Power Dissipation	600mW	300mW(1a) 450mW(2a)	450mW	450mW	600mW	300mW(1a) 450mW(2a)
	On-Resistance	typ	3Ω	0.75Ω	0.75Ω	0.75Ω	0.75Ω
		max	14Ω	1.6Ω	1.6Ω	1.6Ω	1.6Ω
	Output Capacitance	20pF	20pF	45pF	45pF	45pF	45pF
Off-state Leakage Current		1.0 nA	1.0 nA	1.0 nA	1.0 nA	1.0 nA	1.0 nA
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	1.0mA	0.9mA	0.9mA	0.9mA	0.9mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
Transmission	Turn-On Time	typ	0.07ms	0.1ms	0.2ms	0.2ms	0.2ms
		max	1.0ms	1.0ms	1.0ms	1.0ms	1.0ms
	Turn-Off Time	typ	0.03ms	0.03ms	0.05ms	0.05ms	0.05ms
		max	0.5ms	0.5ms	0.5ms	0.5ms	0.5ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	1.3pF	1.3pF
Total Power Dissipation		650mW	350mW(1a) 500mW(2a)	500mW	500mW	650mW	350mW(1a) 500mW(2a)
I/O Breakdown Voltage		3750Vrms	1500Vrms	3750Vrms	3750Vrms	3750Vrms	1500Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		101	101	104	104	104	104



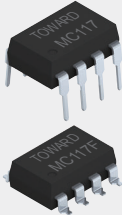
Product Type		Low Leakage Current (pA)					
		1ch	1ch	2ch	1ch/2ch	1ch/2ch	1ch
Product Name		AB47(F)-pA	AA47(F)-pA	AC47(F)-pA	AB47S-pA AC47S-pA	AB23RS-pA AC23RS-pA	AB30(F)-pA
Appearance							
Load Type		AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
Contact Form		1a	1a	2a	1a/2a	1a/2a	1a
Package		4pin	6pin	8pin	4/8pin	4/8pin	4pin
Output	Load Voltage	80V	80V	80V	80V	250V	400V
	Load Current	1.25A	1.5A	1.0A	1.25A(1a) 1.0A(2a)	170mA(1a) 140mA(2a)	120mA
	Peak Load Current	3.0A	3.0A	3.0A	3.0A/3.5A	420mA	600mA
	Output Power Dissipation	350mW	500mW	450mW	350mW(1a) 450mW(2a)	300mW(1a) 450mW(2a)	450mW
	On-Resistance	typ	0.13Ω	0.13Ω	0.13Ω	11Ω	21Ω
		max	0.16Ω	0.16Ω	0.16Ω	15Ω	24Ω
	Output Capacitance	220pF	220pF	220pF	220pF	37pF	52pF
Off-state Leakage Current		1.0 nA	1.0 nA	1.0 nA	1.0 nA	1.0 nA	1.0 nA
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	1.0mA	1.0mA	1.0mA	0.6mA	0.7mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	3.0mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
Transmission	Turn-On Time	typ	0.3ms	0.3ms	0.4ms	0.15ms	0.2ms
		max	3.0ms	3.0ms	3.0ms	0.5ms	1.0ms
	Turn-Off Time	typ	0.05ms	0.05ms	0.05ms	0.05ms	0.05ms
		max	0.5ms	0.5ms	0.5ms	0.2ms	0.5ms
Coupled	I/O Insulation Resistance	min	10 ¹⁰ Ω	10 ¹⁰ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	0.8pF	1.3pF
Total Power Dissipation		400mW	550mW	500mW	400mW(1a) 500mW(2a)	350mW(1a) 500mW(2a)	500mW
I/O Breakdown Voltage		3750Vrms	3750Vrms	3750Vrms	1500Vrms	1500Vrms	3750Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		107	107	107	107	110	113

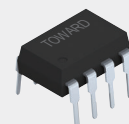
Product Type		Low Leakage Current (pA)			RF Grade		
		1ch	2ch	1ch/2ch	1ch/2ch	1ch/2ch	1ch
Product Name		AA30(F)-pA	AC30(F)-pA	AB30S-pA AC30S-pA	AB21RS AC21RS	AB23RS AC23RS	AB46(F)
Appearance		 	 	 	 	 	 
Load Type		AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC
Contact Form		1a	2a	1a/2a	1a/2a	1a/2a	1a
Package		6pin	8pin	4/8pin	4/8pin	4/8pin	4pin
Output	Load Voltage	400V	400V	400V	40V	250V	80V
	Load Current	120mA	100mA	100mA(1a) 85mA(2a)	250mA	170mA(1a) 140mA(2a)	80mA
	Peak Load Current	600mA	600mA	600mA	750mA	420mA	100mA
	Output Power Dissipation	450mW	600mW	300mW(1a) 450mW(2a)	300mW(1a) 400mW(2a)	300mW(1a) 450mW(2a)	300mW
	On-Resistance	typ	21Ω	21Ω	0.9Ω	11Ω	38Ω
		max	24Ω	24Ω	1.25Ω	15Ω	50Ω
	Output Capacitance	52pF	52pF	52pF	13pF	37pF	3pF
Off-state Leakage Current		1.0 nA	1.0 nA	1.0 nA	10 μA	10 μA	1.0 μA
Input	Continuous LED Forward Current	50mA	50mA	50mA	50mA	50mA	50mA
	LED Reverse Voltage	5V	5V	5V	5V	5V	5V
	Peak LED Current	500mA	500mA	500mA	500mA	500mA	500mA
	Input Power Dissipation	75mW	75mW	75mW	75mW	75mW	75mW
	Operation LED Current	typ	0.7mA	0.7mA	0.3mA	0.6mA	0.7mA
		max	3.0mA	3.0mA	3.0mA	3.0mA	1.5mA
	Recovery LED Voltage	min	0.5V	0.5V	0.5V	0.5V	0.5V
Transmission	Turn-On Time	typ	0.2ms	0.2ms	0.07ms	0.15ms	0.15ms
		max	1.0ms	1.0ms	0.5ms	0.5ms	0.2ms
	Turn-Off Time	typ	0.05ms	0.05ms	0.06ms	0.05ms	0.08ms
		max	0.5ms	0.5ms	0.2ms	0.2ms	0.2ms
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω	10 ⁹ Ω
	I/O Capacitance	typ	1.3pF	1.3pF	1.3pF	0.8pF	1.3pF
Total Power Dissipation		500mW	650mW	350mW(1a) 500mW(2a)	350mW(1a) 450mW(2a)	350mW(1a) 500mW(2a)	350mW(1a) 500mW(2a)
I/O Breakdown Voltage		3750Vrms	3750Vrms	1500Vrms	1500Vrms	1500Vrms	3750Vrms
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃
Page		113	113	113	116	119	122



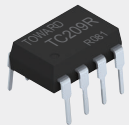
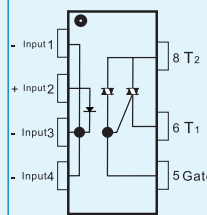
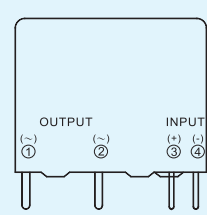
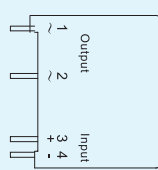
Product Type		RF Grade				
		1ch	2ch	1ch/2ch		
Product Name		AA46(F)	AC46(F)	AB46S AC46S		
Appearance						
	Load Type	AC/DC	AC/DC	AC/DC		
	Contact Form	1a	2a	1a/2a		
	Package	6pin	8pin	4/8pin		
	Load Voltage	80V	80V	80V		
Output	Load Current	80mA	80mA	80mA		
	Peak Load Current	100mA	100mA	100mA		
	Output Power Dissipation	300mW	450mW	300mW(1a) 450mW(2a)		
	On-Resistance	typ	38Ω	38Ω		
		max	50Ω	50Ω		
	Output Capacitance	3pF	3pF	3pF		
	Off-state Leakage Current	1.0 μA	1.0 μA	1.0 μA		
Input	Continuous LED Forward Current	50mA	50mA	50mA		
	LED Reverse Voltage	5V	5V	5V		
	Peak LED Current	500mA	500mA	500mA		
	Input Power Dissipation	75mW	75mW	75mW		
	Operation LED Current	typ	0.8mA	0.8mA		
		max	3.0mA	3.0mA		
	Recovery LED Voltage	min	0.5V	0.5V		
Transmi- ssion	Turn-On Time	typ	0.015ms	0.015ms	0.02ms	
		max	0.2ms	0.2ms	0.2ms	
	Turn-Off Time	typ	0.08ms	0.08ms	0.08ms	
		max	0.3ms	0.3ms	0.3ms	
Coupled	I/O Insulation Resistance	min	10 ⁹ Ω	10 ⁹ Ω		
	I/O Capacitance	typ	1.3pF	1.3pF		
Total Power Dissipation		350mW	500mW	350mW(1a) 500mW(2a)		
I/O Breakdown Voltage		3750Vrms	3750Vrms	1500Vrms		
Operating Temperature		-40℃ ~85℃	-40℃ ~85℃	-40℃ ~85℃		
Storage Temperature		-40℃ ~100℃	-40℃ ~100℃	-40℃ ~100℃		
Page		122	122	122		

Short Form

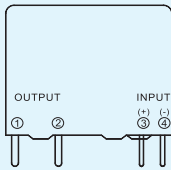
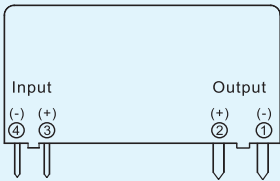
Product Type		Phototriac Coupler/Photo Coupler		Photo-Triac	Mos-FET DRIVER
		2ch		1ch	1ch/2ch
Product Name		MC117(F)		TB3063S	V/W Series
Appearance					LED Forward Voltage 1.2V to 1.7V
		Mos Relay	Photocoupler		LED Reverse Current Max. 10 μ A
Load Type		AC/DC	DC	AC	COUPLED Open Voltage Min. 7V
Contact Form		1a	1a	1a	COUPLED Short Current Min. 10 μ A
Package		8pin DIP/SMD		4pin SOP	Turn ON Time Typ. 0.2ms
Output	Load Voltage	350V	35V	600VDC	Turn OFF Time Typ. 0.05ms
	Load Current	120mA	50mA	100mA	Insulation Resistance $10^{10} \Omega$
	Peak Load Current	350mA	150mA	1A	I/O Breakdown Voltage SOP 2.5kV DIP 3.75kV
	Output Power Dissipation	400mW	50mW	300mW	
	On-Resistance	typ	21 Ω	—	
		max	30 Ω	0.5V	
	Output Capacitance	55pF	—	—	
Input	Off-state Leakage Current	1 μ A	0.5 μ A	—	
	Continuous LED Forward Current	50mA	50mA	50mA	
	LED Reverse Voltage	5V	5V	6V	
	Peak LED Current	1A	0.5A	1A	
	Input Power Dissipation	70mW	30mW	70mW	
	Operation LED Current	typ	0.7mA	—	
		max	3mA	3mA	
Transmission	Recovery LED Voltage	min	0.5V	0.5V	
	Turn-On Time	typ	0.3ms	—	
		max	2.0ms	20 μ s	
	Turn-Off Time	typ	0.04ms	—	
		max	0.5ms	20 μ s	
Coupled	I/O Insulation Resistance	min	—	—	
	I/O Capacitance	typ	—	—	
Total Power Dissipation		600mW		330mW	
I/O Breakdown Voltage		3750Vrms		3750Vrms	
Operating Temperature		-40°C ~+85°C		-40°C ~+85°C	
Storage Temperature		-40°C ~+120°C		-40°C ~+120°C	
Page		125		127	130



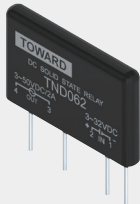
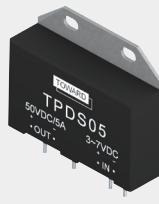
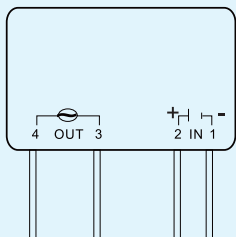
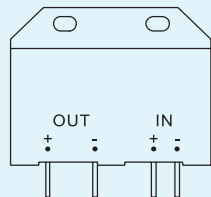


產品分類 Classification	IC Type	Mini SIP Type		Mini SIP Type
產品系列 Product Series	TC	TMD * * A10	TMD * * D40	TG
外觀 Appearance				
尺寸 Size (L x W x H) (mm)	9.78x6.4x3.4	20 x 17 x 5		24.5 x 20.5 x 6.5
輸出負載型式 Output Load Type	AC	AC	DC	AC
觸發方式 Zero-on / Random-on	Zero/Random	Random	Random	Zero/Random
重量 Weight	0.5g	3g	3g	6g
輸入規格 Input Specifications				
輸入電壓 Input Nominal Voltage	—	5/12/24VDC	5/12/24VDC	5/12/24VDC
控制電壓範圍 Control Voltage Range	—	3~30 VDC	3~30 VDC	4~28.8VDC
釋放電壓 Release Voltage	—	≥ 1 VDC	≥ 1 VDC	≥ 1 VDC
輸入電流 Input Current	10~50mA	8~30mA	8~30mA	4~16mA
輸出規格 Output Specifications				
負載電流 Load Current	0.9A/1.2A	1.0A	4.0A	0.1A~2.0A
負載電壓 Load Nominal Voltage	240VAC	240VAC	60VDC	240/380VAC
負載電壓範圍 Load Voltage Range	24~280VAC	24~265VAC	0~60VDC	75~418VAC
最大脈衝電壓 Non-Repetitive Max. Voltage	600Vp	600Vp	—	600/800Vp
洩漏電流 Leakage Current	≤ 100 μ A	≤ 2.0mA	≤ 1.0mA	≤ (1.5/2.5)mA
突波電流 Surge Current	9A/12A	50A	7A	25A
導通壓降 / 電阻 Drop Voltage/Resistance	2.3V	1.5VAC	≤ 0.1Ω	1.5VAC
使用頻率 Operate Frequency	47~70Hz	47~70Hz	—	47~70Hz
一般規格 General Specifications				
絕緣耐壓 I/O Dielectric Strength	5000VAC	2500VAC	2500VAC	2500VAC
導通時間 Turn-on Time Max.	100 μ s(Random) 10ms(Zero)	1ms	1ms	11ms
釋放時間 Turn-off Time Max.	10ms	10ms	0.1ms	11ms
絕緣阻抗 I/O Insulation Resistance	≥ 50G ohm	≥ 1000MΩ	≥ 1000MΩ	≥ 1000MΩ
工作溫度 Operate Temperature	-30℃ ~+85℃	-30℃ ~+80℃	-20℃ ~+80℃	-30℃ ~+80℃
保存溫度 Storage Temperature	-40℃ ~+125℃	-40℃ ~+100℃	-25℃ ~+80℃	-30℃ ~+100℃
腳位圖 Figure				
頁面 Page	137	140		142

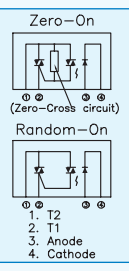


產品分類 Classification	Mini SIP Type		SLIM Type	
產品系列 Product Series	TMC	TMV	TSD ** A **	TSD ** D **
外觀 Appearance				
尺寸 Size (L x W x H) (mm)	20 x 17 x 5		28 x 5 x 15	
輸出負載型式 Output Load Type	AC/DC	AC/DC	AC	DC
觸發方式 Zero-on / Random-on	Random	Random	Random	Random
重量 Weight	3g	3g	4g	4g
輸入規格 Input Specifications				
輸入電壓 Input Nominal Voltage	—	4~32VDC	5/12/24VDC	5/12/24/48 VDC
控制電壓範圍 Control Voltage Range	—	—	3~32 VDC	3~58 VDC
釋放電壓 Release Voltage	≥ 0.8 VDC	≥ 0.8 VDC	≥ 1 VDC	≥ 1.8~8.3 VDC
輸入電流 Input Current	3~50mA	—	5~27mA	3.5~20mA
輸出規格 Output Specifications				
負載電流 Load Current	1mA~3.0A	1mA~2.7A	2A	2.5A/4A
負載電壓 Load Nominal Voltage	60/100/200/400VDC	60/100/200/400VDC	240VAC	48/24VDC
負載電壓範圍 Load Voltage Range	1~400Vp	1~400Vp	12~280VAC	0~60V/0~32V
最大脈衝電壓 Non-Repetitive Max. Voltage	—	—	600V	—
洩漏電流 Leakage Current	≤ 10 μA	≤ 10 μA	≤ 1.5mA	≤ 1.0mA
突波電流 Surge Current	1.5~9A	1.5~9A	80A	6A/7A
導通壓降 / 電阻 Drop Voltage/Resistance	≤ 0.045~1.2Ω	≤ 0.045~1.2Ω	≤ 1.2VAC	≤ 0.2Ω/0.12Ω
使用頻率 Operate Frequency	—	—	47~400Hz	—
一般規格 General Specifications				
絕緣耐壓 I/O Dielectric Strength	2500VAC	2500VAC	3500VAC	2500VAC
導通時間 Turn-on Time Max.	10ms	10ms	100 μs	150 μs
釋放時間 Turn-off Time Max.	3.0ms	3.0ms	10ms	600 μs
絕緣阻抗 I/O Insulation Resistance	≥ 1000MΩ	≥ 1000MΩ	≥ 1000MΩ	≥ 1000MΩ
工作溫度 Operate Temperature	-40℃ ~+85℃	-40℃ ~+85℃	-20℃ ~+80℃	-20℃ ~+80℃
保存溫度 Storage Temperature	-40℃ ~+100℃	-40℃ ~+100℃	-40℃ ~+100℃	-25℃ ~+80℃
腳位圖 Figure				
頁面 Page	144	148	152	

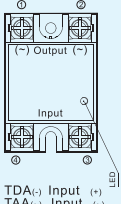
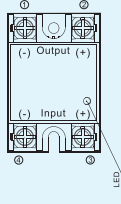
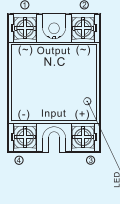
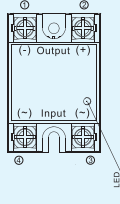


產品分類 Classification	PCB Type			
產品系列 Product Series	TNA	TND	TPA	TPD
外觀 Appearance				
尺寸 Size (L x W x H) (mm)	36 x 23 x 8		43.1 x 35 x 11.5	
輸出負載型式 Output Load Type	AC	DC	AC	DC
觸發方式 Zero-on / Random-on	Zero	Random	Zero	Random
重量 Weight	10~12g	10~12g	25g	25g
輸入規格 Input Specifications				
輸入電壓 Input Nominal Voltage	3~32 VDC	3~32 VDC	5/12/24VDC	5/24VDC
控制電壓範圍 Control Voltage Range	3~32 VDC	3~32 VDC	3~32 VDC	3~32 VDC
釋放電壓 Release Voltage	≥ 1.0 VDC	≥ 1.0 VDC	$\geq 1\sim 5$ VDC	$\geq 1\sim 3$ VDC
輸入電流 Input Current	—	—	5~25mA	3~15mA
輸出規格 Output Specifications				
負載電流 Load Current	2A~6A	2A/4A	5A	5A
負載電壓 Load Nominal Voltage	280/480VAC	60VDC	220/380VAC	50VDC
負載電壓範圍 Load Voltage Range	24~480VAC	3~60VDC	24~400VAC	0~50VDC
最大脈衝電壓 Non-Repetitive Max. Voltage	600/1200V	80VDC	600/800V	55VDC
洩漏電流 Leakage Current	≤ 5.0 mA	≤ 1.0 mA	≤ 5.0 mA	≤ 0.01 mA
突波電流 Surge Current	20~60A	3A/8.5A	50A	17.5A
導通壓降 / 電阻 Drop Voltage/Resistance	≤ 2.0 VAC	≤ 1.2 V	≤ 1.5 VAC	$\leq 0.01\Omega$
使用頻率 Operate Frequency	47~70Hz	—	47~70Hz	—
一般規格 General Specifications				
絕緣耐壓 I/O Dielectric Strength	2500VAC	2500VAC	2000VAC	2000VAC
導通時間 Turn-on Time Max.	10ms	2ms	10ms	0.1ms
釋放時間 Turn-off Time Max.	10ms	2ms	10ms	0.5ms
絕緣阻抗 I/O Insulation Resistance	≥ 1000 M Ω	≥ 1000 M Ω	≥ 1000 M Ω	≥ 1000 M Ω
工作溫度 Operate Temperature	-20℃ ~+80℃	-20℃ ~+80℃	-30℃ ~+80℃	-30℃ ~+80℃
保存溫度 Storage Temperature	-40℃ ~+100℃	-40℃ ~+100℃	-40℃ ~+100℃	-40℃ ~+100℃
腳位圖 Figure				
頁面 Page	156	158	160	162

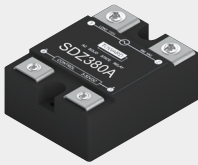
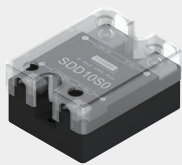
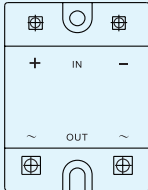
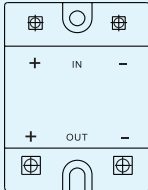


產品分類 Classification	PCB Type			
產品系列 Product Series	TL NEW			
外觀 Appearance				
尺寸 Size (L x W x H) (mm)	18.5 x 24.6 x 5.5			
輸出負載型式 Output Load Type	AC			
觸發方式 Zero-on / Random-on	Zero/Random			
重量 Weight	6.2g			
輸入規格 Input Specifications				
輸入電壓 Input Nominal Voltage	—			
控制電壓範圍 Control Voltage Range	—			
釋放電壓 Release Voltage	6V			
輸入電流 Input Current	10mA			
輸出規格 Output Specifications				
負載電流 Load Current	8A/16A			
負載電壓 Load Nominal Voltage	240VAC			
負載電壓範圍 Load Voltage Range	280VAC			
最大脈衝電壓 Non-Repetitive Max. Voltage	600Vp			
洩漏電流 Leakage Current	$\leq 100 \mu A$			
突波電流 Surge Current	80A/160A			
導通壓降 / 電阻 Drop Voltage/Resistance	2.3V			
使用頻率 Operate Frequency	47~70Hz			
一般規格 General Specifications				
絕緣耐壓 I/O Dielectric Strength	4000VAC			
導通時間 Turn-on Time Max.	1ms(Random) 10ms(Zero)			
釋放時間 Turn-off Time Max.	10ms			
絕緣阻抗 I/O Insulation Resistance	$\geq 10G \text{ ohm}$			
工作溫度 Operate Temperature	-25°C ~+100°C			
保存溫度 Storage Temperature	-35°C ~+125°C			
腳位圖 Figure				
頁面 Page	164			

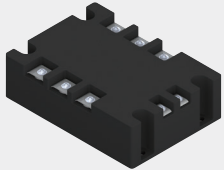
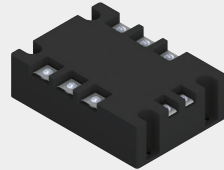
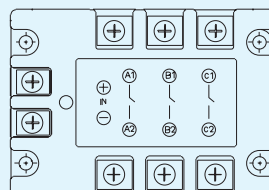


產品分類 Classification	Power Type			
產品系列 Product Series	TDA/TAA	TDD	TDB	TAD
外觀 Appearance				
尺寸 Size (L x W x H) (mm)	60 x 40 x 30.5	60 x 40 x 30.5	60 x 40 x 30.5	60 x 40 x 30.5
輸出負載型式 Output Load Type	AC	DC	AC-NC type	DC
觸發方式 Zero-on / Random-on	Zero/Random	Random	Zero/Random	Random
重量 Weight	120g	120g	120g	120g
輸入規格 Input Specifications				
輸入電壓 Input Nominal Voltage	TDA:4~32VDC TAA:90~280VAC	4~32VDC	4~32VDC	90~280VAC
控制電壓範圍 Control Voltage Range	TDA:4~32VDC TAA:90~280VAC	4~32VDC	4~32VDC	90~280VAC
釋放電壓 Release Voltage	TDA: ≥ 1 VDC TAA: ≥ 20 VAC	≥ 1 VDC	≥ 1 VDC	≥ 20 VAC
輸入電流 Input Current	TDA:6~17mA TAA:7~22mA	16~17mA	1.5~4mA	1.0~7.0mA
輸出規格 Output Specifications				
負載電流 Load Current	10A~40A	15A~40A	10A~40A	10A~40A
負載電壓 Load Nominal Voltage	240/380/480VAC	100/200VDC	240VAC	100/200VDC
負載電壓範圍 Load Voltage Range	24~500VAC	5~200VDC	24~280VAC	5~200VDC
最大脈衝電壓 Non-Repetitive Max. Voltage	600/800/1000Vp	—	600Vp	—
洩漏電流 Leakage Current	≤ 10 mA	$\leq 10 \mu A$	≤ 10 mA	$\leq 10 \mu A$
突波電流 Surge Current	100A~400A	60A~160A	100A~400A	30A~160A
導通壓降 / 電阻 Drop Voltage/Resistance	≤ 1.8 VAC	$\leq 1.2 \Omega$	≤ 1.6 VAC	$\leq 0.2 \Omega$
使用頻率 Operate Frequency	47~70Hz	—	47~70Hz	—
一般規格 General Specifications				
絕緣耐壓 I/O Dielectric Strength	3500VAC	2500VAC	3500VAC	2500VAC
導通時間 Turn-on Time Max.	10ms	3ms	10ms/1ms	15ms
釋放時間 Turn-off Time Max.	10ms	3ms	10ms	30ms
絕緣阻抗 I/O Insulation Resistance	$\geq 1000M\Omega$	$\geq 1000M\Omega$	$\geq 1000M\Omega$	$\geq 1000M\Omega$
工作溫度 Operate Temperature	-30℃ ~+80℃	-30℃ ~+70℃	-30℃ ~+80℃	-30℃ ~+80℃
保存溫度 Storage Temperature	-40℃ ~+100℃	-40℃ ~+100℃	-40℃ ~+100℃	-40℃ ~+100℃
腳位圖 Figure				
頁面 Page	168	170	172	174



產品分類 Classification	Power Type (Large Current)		
產品系列 Product Series	SD(A)Z(10-80A)	SD(A)Z(100A / 125A)	SDD(10-80A)
外觀 Appearance			
尺寸 Size (L x W x H) (mm)	85 x 66 x 34		57 x 44 x 25
輸出負載型式 Output Load Type	AC	AC	DC
觸發方式 Zero-on / Random-on	Zero	Zero	Random
重量 Weight	320g	320g	120g
輸入規格 Input Specifications			
輸入電壓 Input Nominal Voltage	SDZ:3~32VDC SAZ:90~280VAC	SDZ:3~32VDC SAZ:90~280VAC	4~32VDC
控制電壓範圍 Control Voltage Range	SDZ:3~32VDC SAZ:90~280VAC	SDZ:3~32VDC SAZ:90~280VAC	4~32VDC
釋放電壓 Release Voltage	SDZ: ≥ 1 VDC SAZ: ≥ 25 VAC	SDZ: ≥ 1 VDC SAZ: ≥ 25 VAC	1~4VDC
輸入電流 Input Current	SDZ:5~15mA SAZ:3~20mA	SDZ:5~15mA SAZ:3~20mA	5~20mA
輸出規格 Output Specifications			
負載電流 Load Current	10~80A	100A/125A	10A~80A
負載電壓 Load Nominal Voltage	380VAC	380VAC	50/220/400VDC
負載電壓範圍 Load Voltage Range	48~400VAC	50~380VAC	5~400VDC
最大脈衝電壓 Non-Repetitive Max. Voltage	1200Vp	1200Vp	—
洩漏電流 Leakage Current	≤ 10 mA	≤ 10 mA	$\leq 10 \mu A$
突波電流 Surge Current	840A	1200A	40A~160A
導通壓降 / 電阻 Drop Voltage/Resistance	≤ 2 VAC	≤ 2 VAC	≤ 2 VDC/0.12 Ω
使用頻率 Operate Frequency	47~70Hz	47~70Hz	—
一般規格 General Specifications			
絕緣耐壓 I/O Dielectric Strength	2000VAC	2000VAC	1000VAC
導通時間 Turn-on Time Max.	10ms	10ms	0.1ms
釋放時間 Turn-off Time Max.	10ms	10ms	0.5ms
絕緣阻抗 I/O Insulation Resistance	≥ 1000 M Ω	≥ 1000 M Ω	≥ 1000 M Ω
工作溫度 Operate Temperature	-30℃ ~+80℃	-30℃ ~+80℃	-30℃ ~+80℃
保存溫度 Storage Temperature	-40℃ ~+100℃	-40℃ ~+100℃	-40℃ ~+100℃
腳位圖 Figure			
頁面 Page	176	178	180



產品分類 Classification	Three Phases Power Type	
產品系列 Product Series	SDT	SAT
外觀 Appearance		
尺寸 Size (L x W x H) (mm)	104 x 74 x 30	
輸出負載型式 Output Load Type	AC	
觸發方式 Zero-on / Random-on	Zero-on	
重量 Weight	≦ 400g	
輸入規格 Input Specifications		
輸入電壓 Input Nominal Voltage	3~32VDC	90~280VAC
控制電壓範圍 Control Voltage Range	3~32VDC	90~280VAC
釋放電壓 Release Voltage	≧ 1VDC	≧ 25VAC
輸入電流 Input Current	≦ 50mA	≦ 20mA
輸出規格 Output Specifications		
負載電流 Load Current	10A~100A	
負載電壓 Load Nominal Voltage	380VAC	
負載電壓範圍 Load Voltage Range	50~380VAC	
最大脈衝電壓 Non-Repetitive Max. Voltage	10A~40A:1000Vp / 60A~100A:800Vp	
洩漏電流 Leakage Current	≦ 10mA	
突波電流 Surge Current	10A:100A 20A:200A 40A:400A 60A:600A 70A:700A 90A:840A 100A:1000A	
導通壓降 / 電阻 Drop Voltage/Resistance	10A~40A:1.5VAC / 60A~100A:2VAC	
使用頻率 Operate Frequency	47~70Hz	
一般規格 General Specifications		
絕緣耐壓 I/O Dielectric Strength	2000VAC	
導通時間 Turn-on Time Max.	≦ 10ms	
釋放時間 Turn-off Time Max.	≦ 10ms	
絕緣阻抗 I/O Insulation Resistance	≧ 1000MΩ	
工作溫度 Operate Temperature	-30℃ ~+80℃	
保存溫度 Storage Temperature	-40℃ ~+100℃	
腳位圖 Figure		
頁面 Page	182	

45 Series 60V·1a/2a

AEC-Q101 / Hi-Temp (105°C) Available

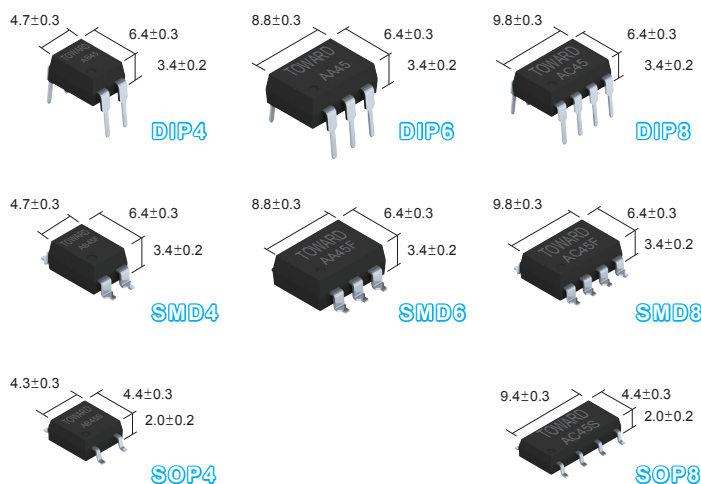


Features

- Contact Form 1a / 2a
- Load Voltage 60V
- Operation LED Current 3.0mA
- Load Current 200mA
- On-Resistance 3Ω
- Output Capacitance 20pF
- Low Off-State Leakage Current 1.0μA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

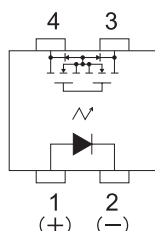


PART NO	PACKAGE	PACKING
AB45	DIP-4	Tube 90pcs
AA45	DIP-6	Tube 50pcs
AC45	DIP-8	Tube 45pcs
AB45F	SMD-4	Tube 90pcs
AA45F	SMD-6	Tube 50pcs
AC45F	SMD-8	Tube 45pcs
AB45S	SOP-4	Tube 100pcs
AC45S	SOP-8	Tube 50pcs
AB45F-R1	SMD-4	Reel 1000pcs
AA45F-R1	SMD-6	
AC45F-R1	SMD-8	
AB45S-R1	SOP-4	
AC45S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

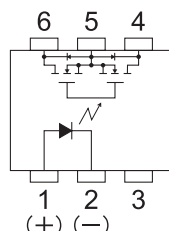
Terminal Identification

AB45(F)(S)



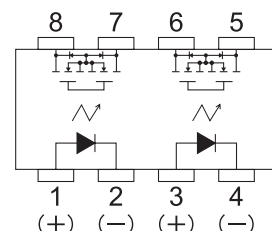
- 1: Anode (LED)
2: Cathode (LED)
3,4: Drain (MOS FET)

AA45(F)



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4,6: Drain (MOS FET)
5: Source (MOS FET)

AC45(F)(S)



- 1,3: Anode (LED)
2,4: Cathode (LED)
5,6,7,8: Drain (MOS FET)



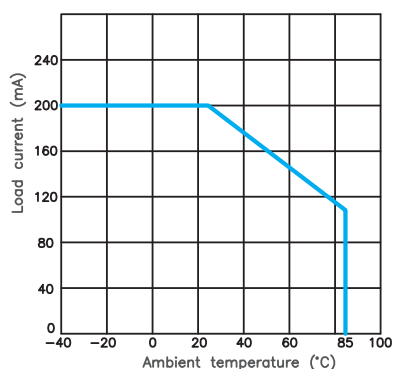
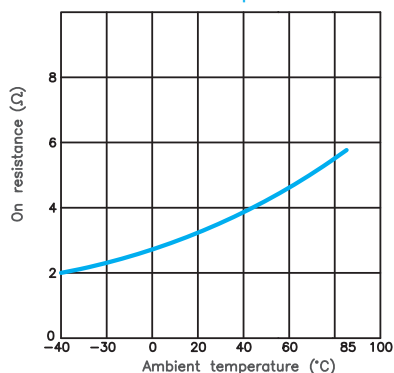
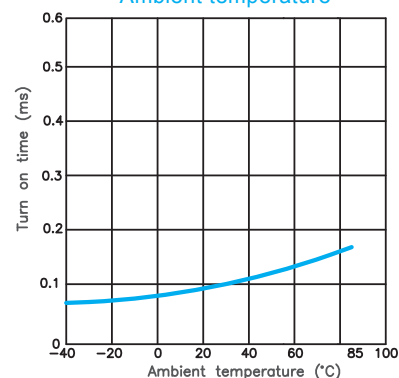
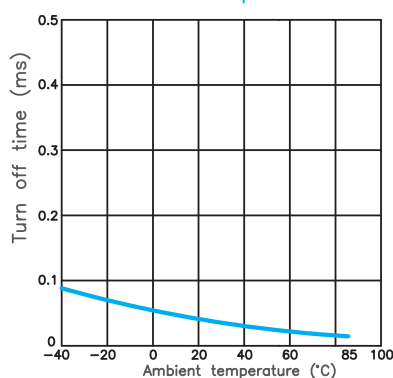
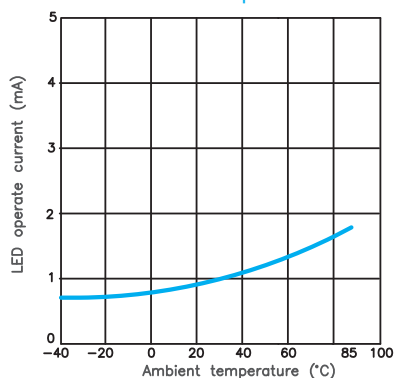
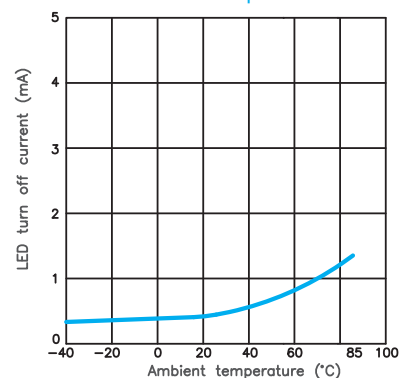
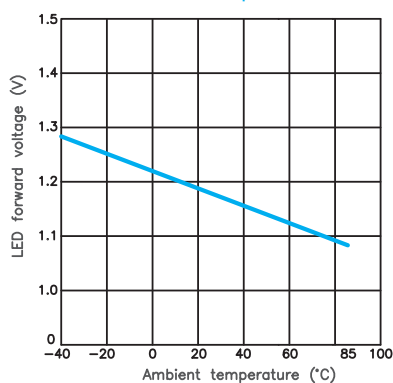
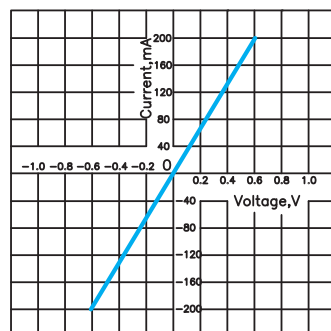
Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB45S	AC45S	AB45(F)	AC45(F)	AA45(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續的 LED 電流	I_F	50mA				
	Peak LED Current LED 的峰值電流 (f=100 Hz, duty=1%)	I_{FP}	500mA				
	LED Reverse Voltage 逆向的 LED 電壓	V_R	5V				
	Input Power Dissipation 容許損失	P_{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V_L	60V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I_L	200	200	200	200	200
	Peak Load Current 峰值負荷電流 (1 ms, 1 shot) (mA)	I_{PEAK}	600	600	600	600	600
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P_T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V_{IO}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V_{IO}	3750	3750	5000	5000	5000
Operating Temperature 使用時周圍溫度		T_{OPR}	-40°C ~ +85°C				
Storage Temperature 周圍保存溫度		T_{STG}	-40°C ~ +100°C				

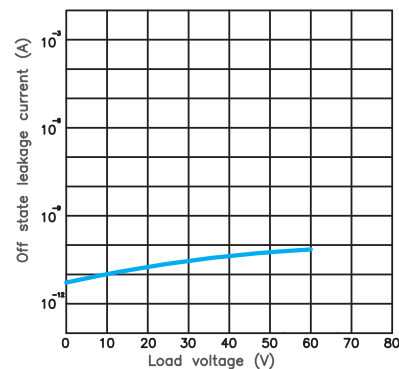
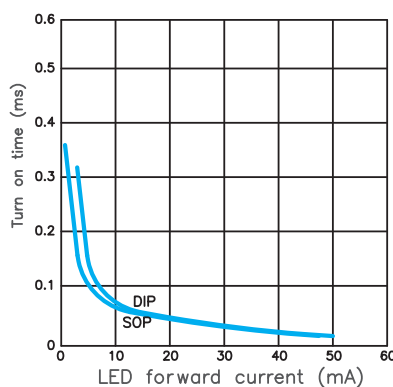
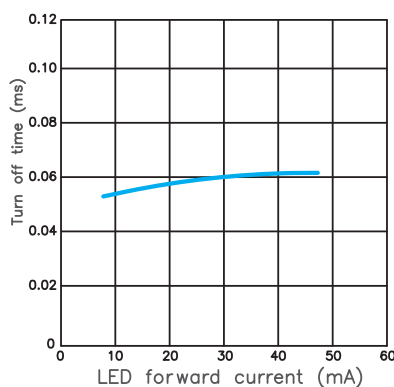
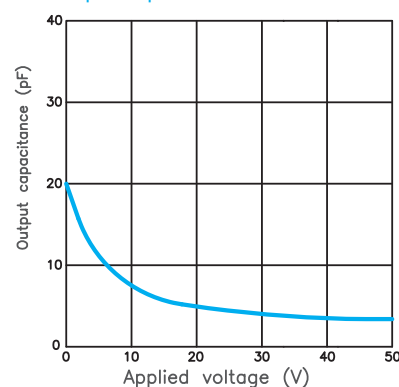
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.17	1.5	V	$I_F=10mA$
	Operation LED Current LED 的動作電流	$I_{F ON}$		0.9	3.0	mA	
	Recovery LED Voltage LED 的復位電壓	$V_{F OFF}$	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		3	14	Ω	$I_F=5mA, I_L=Rating$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態時的電流	I_{LEAK}			1.0	μA	$V_L=60V$
	Output Capacitance 輸出端容量	C_{OUT}		20		pF	
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		0.1	1.0	ms	$I_F=5mA$ $I_L=Rating$ (for SOP type)
	Turn-Off Time 復位時間	T_{OFF}		0.03	0.5	ms	
	Turn-On Time 動作時間	T_{ON}		0.07	1.0	ms	$I_F=10mA$ $I_L=Rating$ (for DIP/SMD type)
	Turn-Off Time 復位時間	T_{OFF}		0.03	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間的絕緣阻抗	R_{IO}	10^9			Ω	
	I/O Capacitance 輸入 / 力端的靜電容量	C_{IO}		1.3		pF	f=1MHz

General-Purpose

Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureTurn on time Vs.
Ambient temperatureTurn off time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Turn off current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portion

Off state leakage current

LED forward current Vs.
turn on time characteristicsLED forward current Vs.
turn off time characteristicsApplied voltage Vs.
output capacitance characteristics

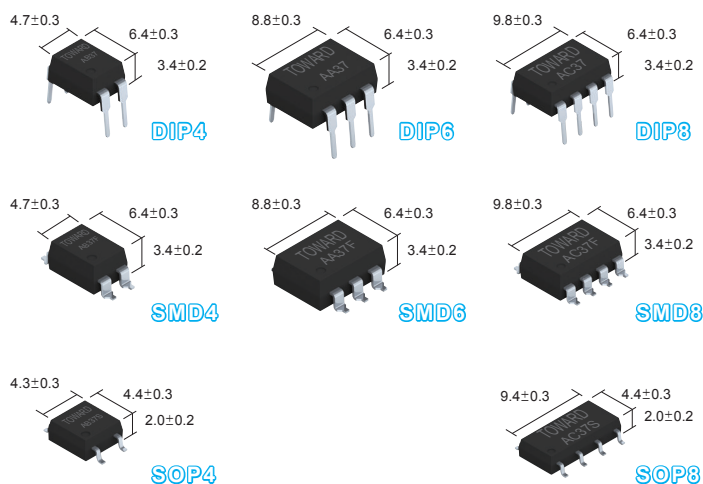
37 Series

60V·1a/2a



Features

- Contact Form 1a / 2a
- Load Voltage 60V
- Operation LED Current 3.0mA
- Load Current 550mA
- On-Resistance 0.75Ω
- Output Capacitance 45pF
- Low Off-State Leakage Current 1.0μA



Application

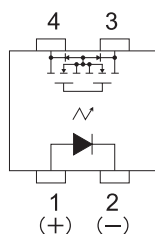
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AB37	DIP-4	Tube 90pcs
AA37	DIP-6	Tube 50pcs
AC37	DIP-8	Tube 45pcs
AB37F	SMD-4	Tube 90pcs
AA37F	SMD-6	Tube 50pcs
AC37F	SMD-8	Tube 45pcs
AB37S	SOP-4	Tube 100pcs
AC37S	SOP-8	Tube 50pcs
AB37F-R1	SMD-4	Reel 1000pcs
AA37F-R1	SMD-6	
AC37F-R1	SMD-8	
AB37S-R1	SOP-4	
AC37S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

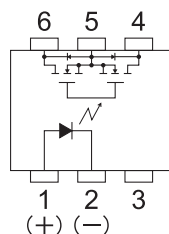
Terminal Identification

AB37(F)(S)



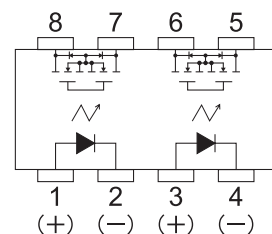
- 1: Anode (LED)
2: Cathode (LED)
3, 4: Drain (MOS FET)

AA37(F)



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4, 6: Drain (MOS FET)
5: Source (MOS FET)

AC37(F)(S)



- 1, 3: Anode (LED)
2, 4: Cathode (LED)
5, 6, 7, 8: Drain (MOS FET)

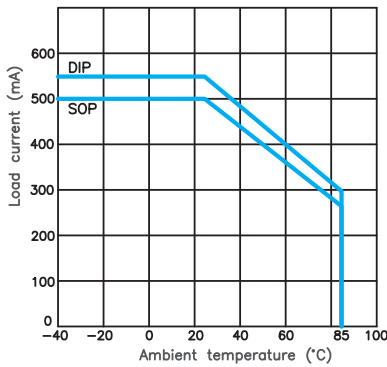
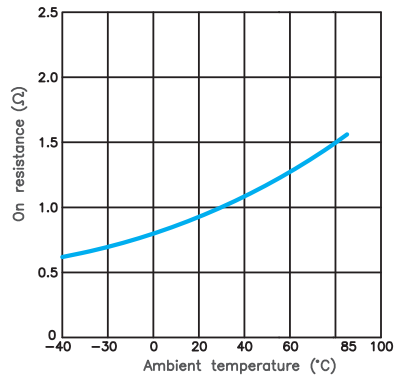
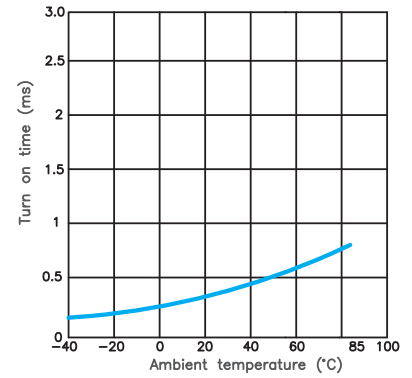
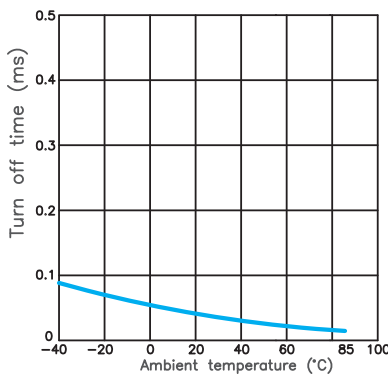
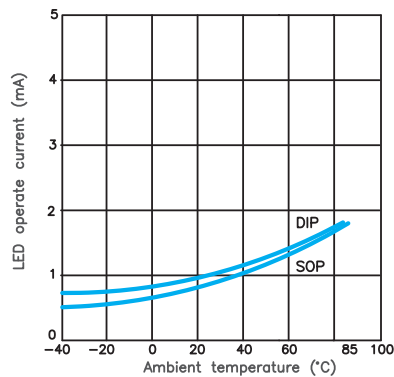
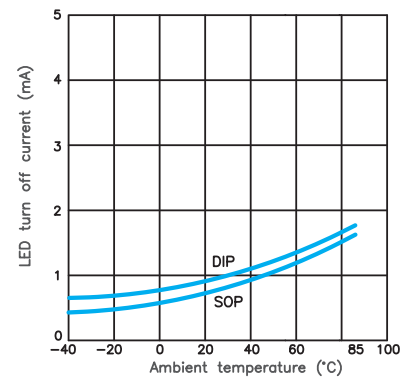
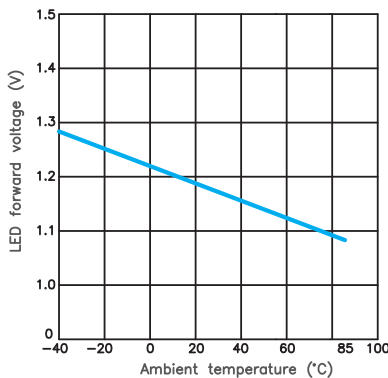
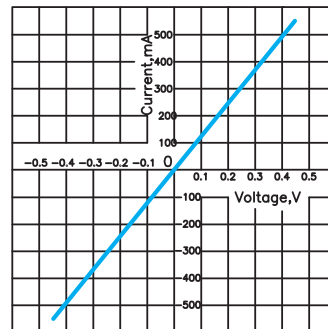

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB37S	AC37S	AB37(F)	AC37(F)	AA37(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V _L	60V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I _L	500	450	550	500	550
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	2000	2000	2000	2000	2000
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P _T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V _{I/O}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V _{I/O}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

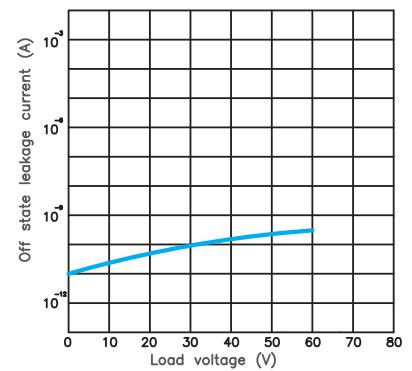
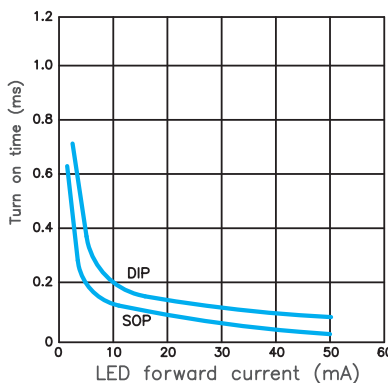
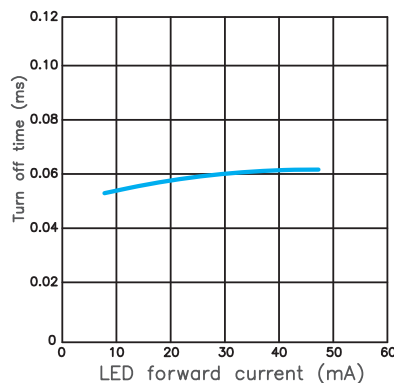
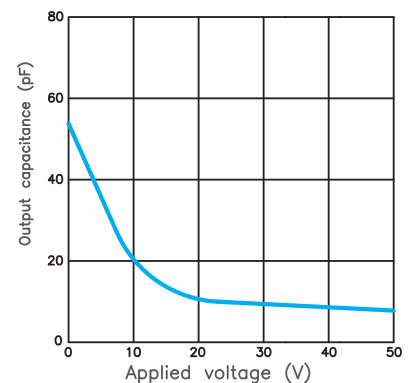
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.9	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		0.75	1.6	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}			1.0	μA	V _L =60V
	Output Capacitance 輸出端容量	C _{OUT}		45		pF	
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		0.2	1.0	ms	I _F =5mA I _L =Rating (for SOP type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.2	ms	
	Turn-On Time 動作時間	T _{ON}		0.2	1.0	ms	I _F =10mA I _L =Rating (for DIP/SMD type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz

General-Purpose

Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureTurn on time Vs.
Ambient temperatureTurn off time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Turn off current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portion

Off state leakage current

LED forward current Vs.
turn on time characteristicsLED forward current Vs.
turn off time characteristicsApplied voltage Vs.
output capacitance characteristics

48 Series

100V·1a/2a

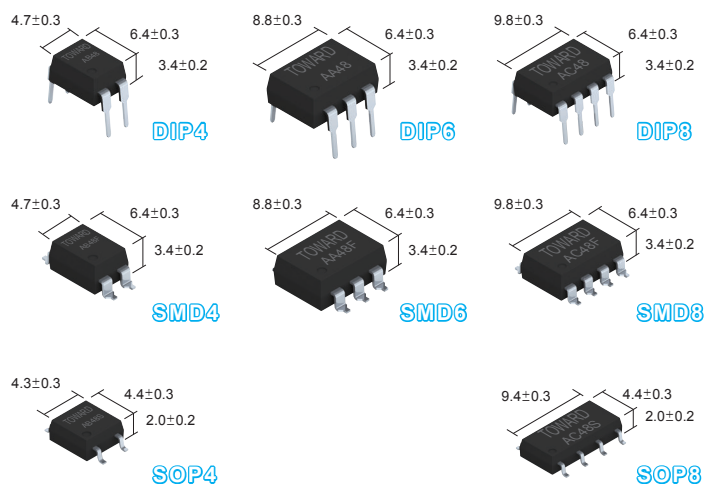


Features

- Contact Form 1a / 2a
- Load Voltage 100V
- Operation LED Current 3.0mA
- Load Current 350mA
- On-Resistance 2.0 Ω
- Output Capacitance 37pF
- Low Off-State Leakage Current 1.0μA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

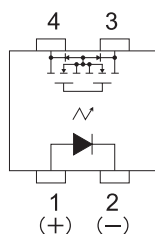


PART NO	PACKAGE	PACKING
AB48	DIP-4	Tube 90pcs
AA48	DIP-6	Tube 50pcs
AC48	DIP-8	Tube 45pcs
AB48F	SMD-4	Tube 90pcs
AA48F	SMD-6	Tube 50pcs
AC48F	SMD-8	Tube 45pcs
AB48S	SOP-4	Tube 100pcs
AC48S	SOP-8	Tube 50pcs
AB48F-R1	SMD-4	Reel 1000pcs
AA48F-R1	SMD-6	
AC48F-R1	SMD-8	
AB48S-R1	SOP-4	
AC48S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

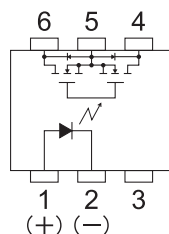
Terminal Identification

AB48(F)(S)



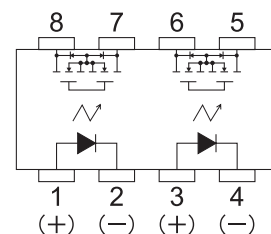
- 1: Anode (LED)
2: Cathode (LED)
3,4: Drain (MOS FET)

AA48(F)



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4,6: Drain (MOS FET)
5: Source (MOS FET)

AC48(F)(S)



- 1,3: Anode (LED)
2,4: Cathode (LED)
5,6,7,8: Drain (MOS FET)

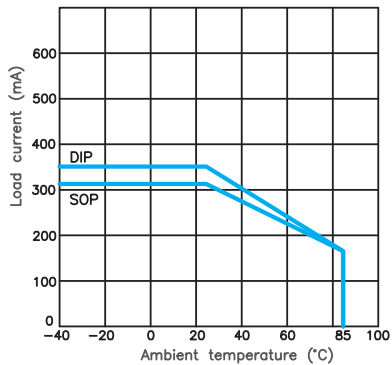
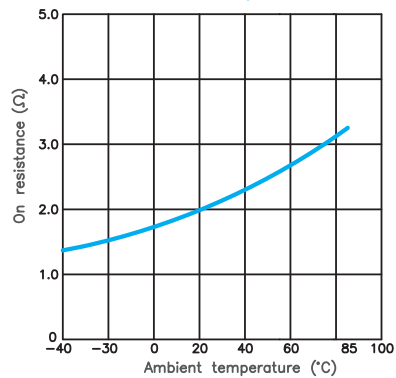
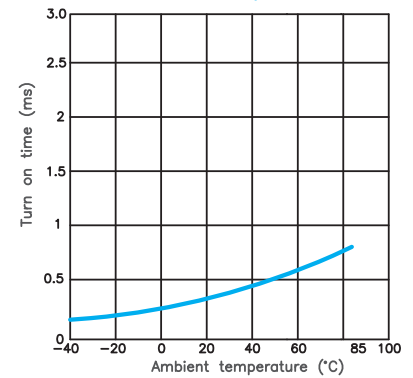
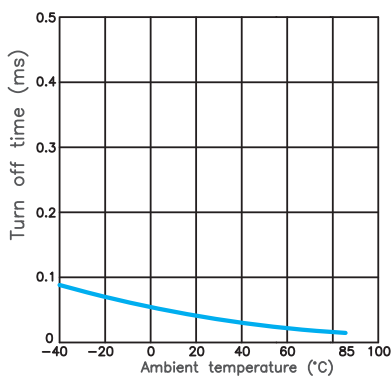
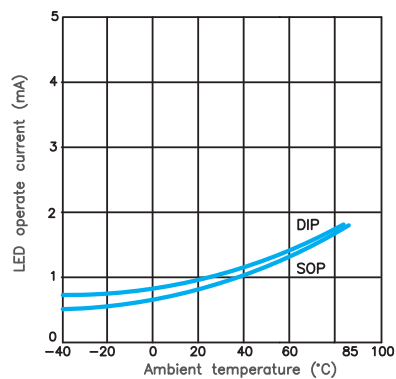
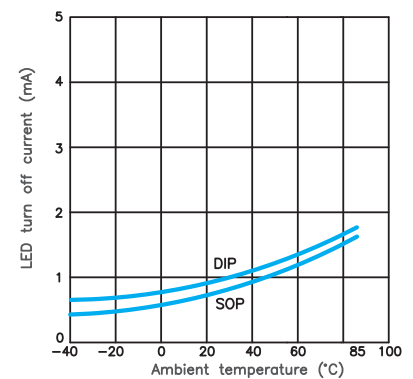
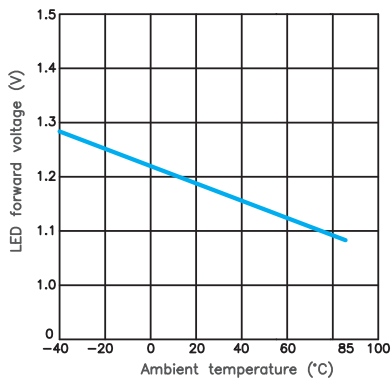
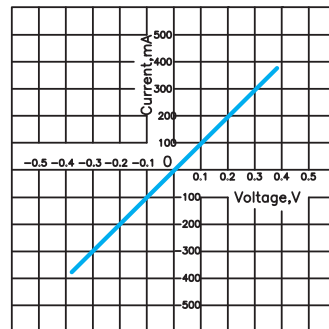

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB48S	AC48S	AB48(F)	AC48(F)	AA48(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V _L	100V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I _L	310	280	350	310	350
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	1400	1400	1400	1400	1400
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P _T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V _{I/O}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V _{I/O}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

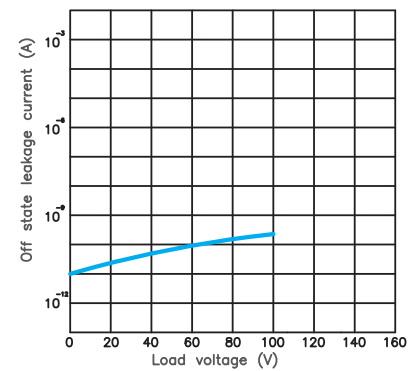
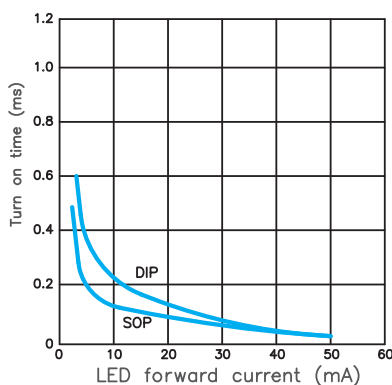
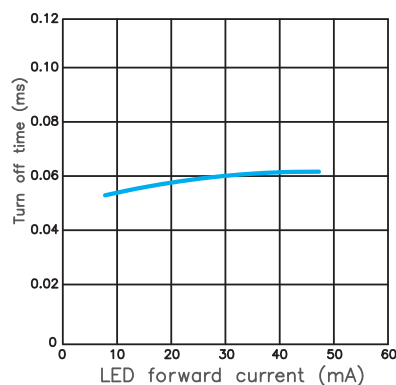
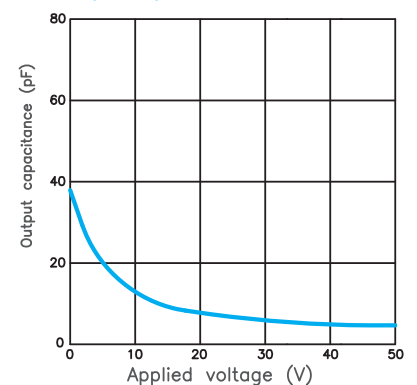
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.9	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		2	3.5	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}			1.0	μA	V _L =100V
	Output Capacitance 輸出端容量	C _{OUT}		37		pF	V _L =0V, f=1MHz
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		0.25	1.0	ms	I _F =5mA I _L =Rating (for SOP type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.2	ms	
	Turn-On Time 動作時間	T _{ON}		0.2	1.0	ms	I _F =10mA I _L =Rating (for DIP/SMD type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz

General-Purpose

Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureTurn on time Vs.
Ambient temperatureTurn off time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Turn off current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portion

Off state leakage current

LED forward current Vs.
turn on time characteristicsLED forward current Vs.
turn off time characteristicsApplied voltage Vs.
output capacitance characteristics

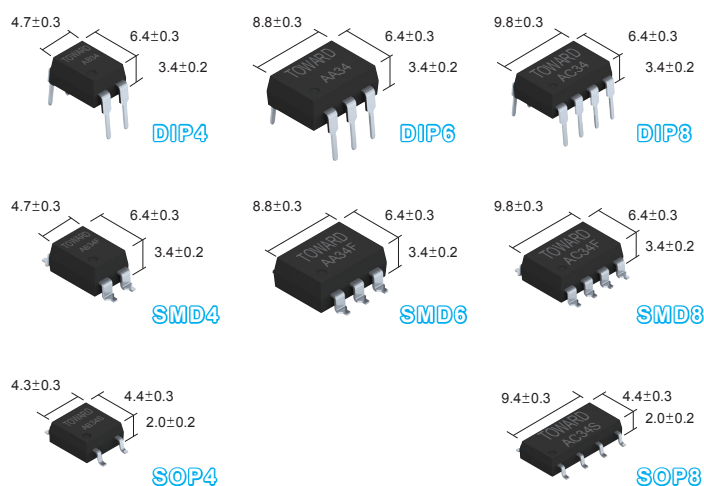
34 Series

200V·1a/2a



Features

- Contact Form 1a / 2a
- Load Voltage 200V
- Operation LED Current 3.0mA
- Load Current 200mA
- On-Resistance 4.2 Ω
- Output Capacitance 130pF
- Low Off-State Leakage Current 1.0μA



Application

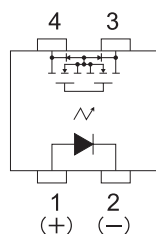
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AB34	DIP-4	Tube 90pcs
AA34	DIP-6	Tube 50pcs
AC34	DIP-8	Tube 45pcs
AB34F	SMD-4	Tube 90pcs
AA34F	SMD-6	Tube 50pcs
AC34F	SMD-8	Tube 45pcs
AB34S	SOP-4	Tube 100pcs
AC34S	SOP-8	Tube 50pcs
AB34F-R1	SMD-4	Reel 1000pcs
AA34F-R1	SMD-6	
AC34F-R1	SMD-8	
AB34S-R1	SOP-4	
AC34S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

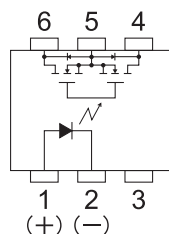
Terminal Identification

AB34(F)(S)



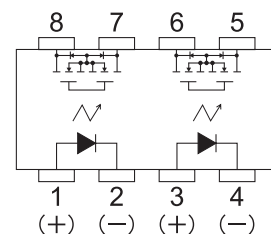
- 1: Anode (LED)
2: Cathode (LED)
3, 4: Drain (MOS FET)

AA34(F)



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4, 6: Drain (MOS FET)
5: Source (MOS FET)

AC34(F)(S)



- 1, 3: Anode (LED)
2, 4: Cathode (LED)
5, 6, 7, 8: Drain (MOS FET)

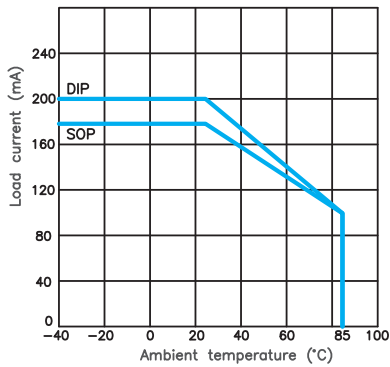
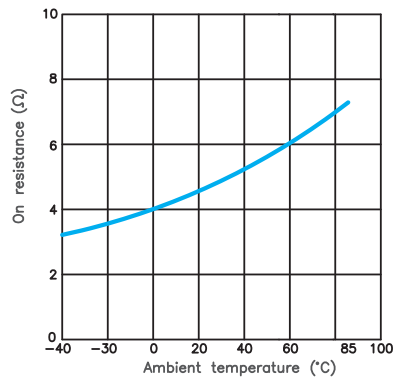
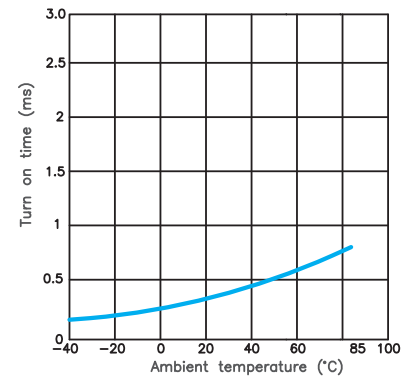
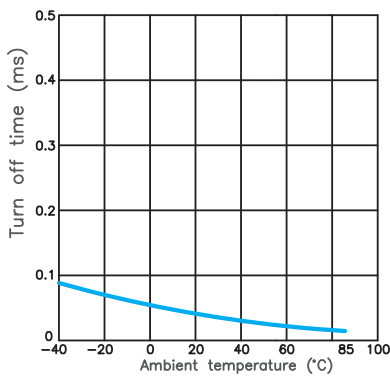
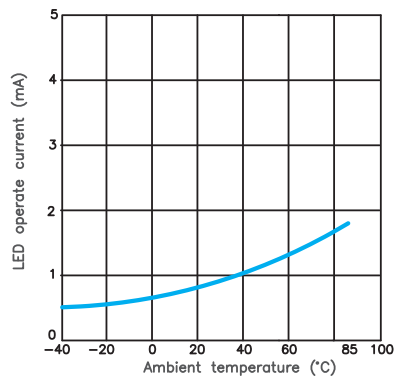
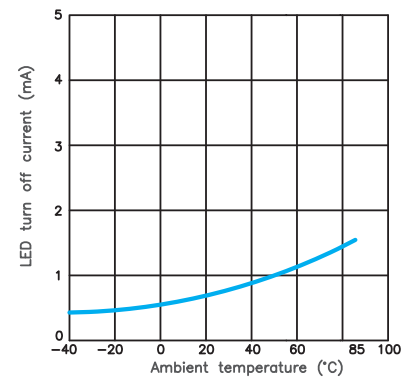
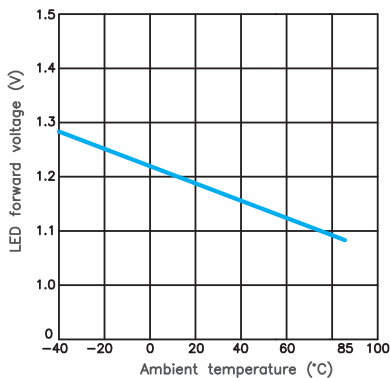
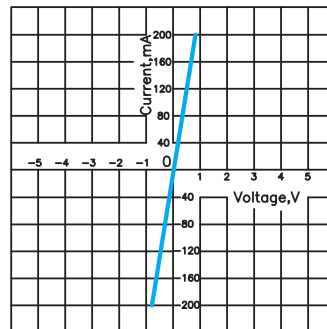
Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB34S	AC34S	AB34(F)	AC34(F)	AA34(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I_F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I_{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V_R	5V				
	Input Power Dissipation 輸入損耗	P_{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V_L	200V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I_L	180	160	200	180	200
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I_{PEAK}	800	800	800	800	800
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P_T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V_{IO}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V_{IO}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T_{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T_{STG}	-40°C ~ +100°C				

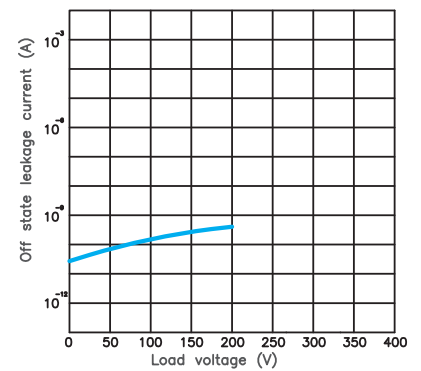
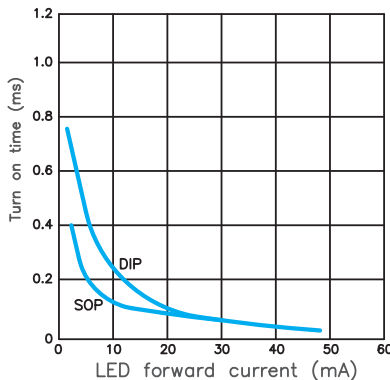
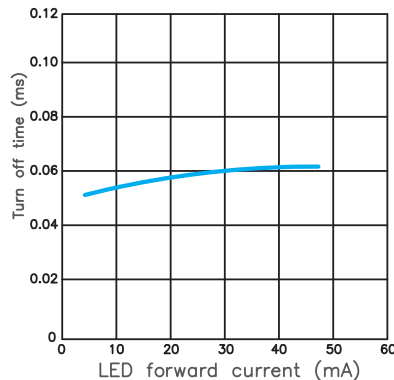
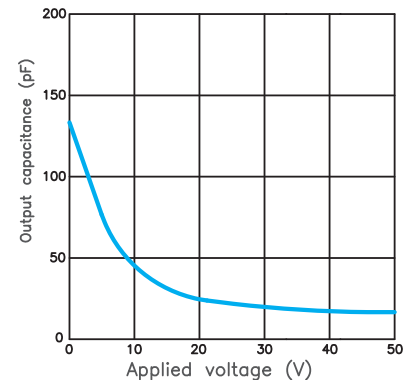
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.17	1.5	V	$I_F=10mA$
	Operation LED Current LED 動作電流	$I_{F ON}$		0.9	3.0	mA	
	Recovery LED Voltage LED 復位電壓	$V_{F OFF}$	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		4.2	8.0	Ω	$I_F=5mA, I_L=Rating$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I_{LEAK}			1.0	μA	$V_L=200V$
	Output Capacitance 輸出端容量	C_{OUT}		130		pF	$V_L=0V, f=1MHz$
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		0.25	1.0	ms	$I_F=5mA$ $I_L=Rating$ (for SOP type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.2	ms	
	Turn-On Time 動作時間	T_{ON}		0.2	1.0	ms	$I_F=10mA$ $I_L=Rating$ (for DIP/SMD type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	$R_{I/O}$	10^9			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	$C_{I/O}$		1.3		pF	$f=1MHz$

General-Purpose

Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureTurn on time Vs.
Ambient temperatureTurn off time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Turn off current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portion

Off state leakage current

LED forward current Vs.
turn on time characteristicsLED forward current Vs.
turn off time characteristicsApplied voltage Vs.
output capacitance characteristics

31 Series

350V·1a/2a

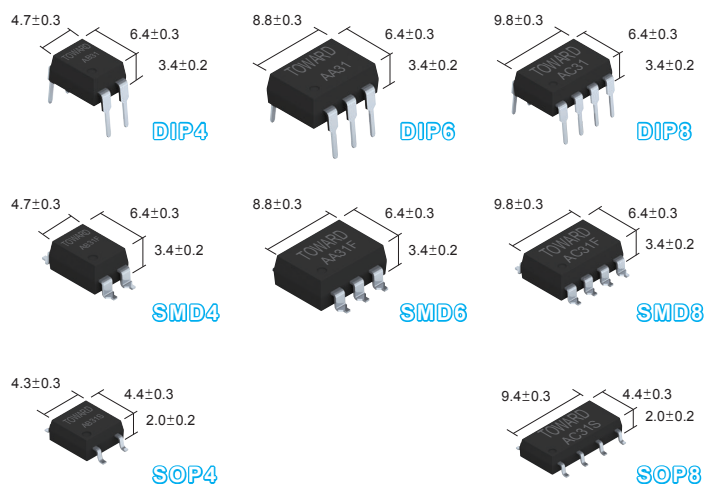


Features

- Contact Form 1a / 2a
- Load Voltage 350V
- Operation LED Current 3.0mA
- Load Current 130mA
- On-Resistance 20 Ω
- Output Capacitance 55pF
- Low Off-State Leakage Current 1.0μA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

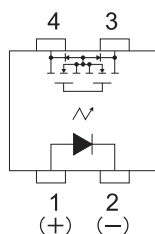


PART NO	PACKAGE	PACKING
AB31	DIP-4	Tube 90pcs
AA31	DIP-6	Tube 50pcs
AC31	DIP-8	Tube 45pcs
AB31F	SMD-4	Tube 90pcs
AA31F	SMD-6	Tube 50pcs
AC31F	SMD-8	Tube 45pcs
AB31S	SOP-4	Tube 100pcs
AC31S	SOP-8	Tube 50pcs
AB31F-R1	SMD-4	Reel 1000pcs
AA31F-R1	SMD-6	
AC31F-R1	SMD-8	
AB31S-R1	SOP-4	
AC31S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

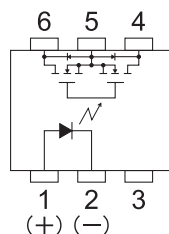
Terminal Identification

AB31(F)(S)



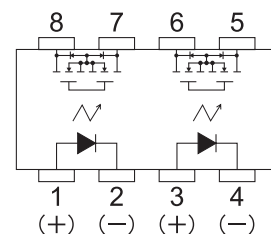
- 1: Anode (LED)
2: Cathode (LED)
3, 4: Drain (MOS FET)

AA31(F)



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4, 6: Drain (MOS FET)
5: Source (MOS FET)

AC31(F)(S)



- 1, 3: Anode (LED)
2, 4: Cathode (LED)
5, 6, 7, 8: Drain (MOS FET)



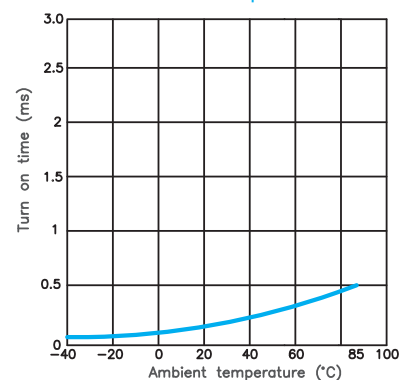
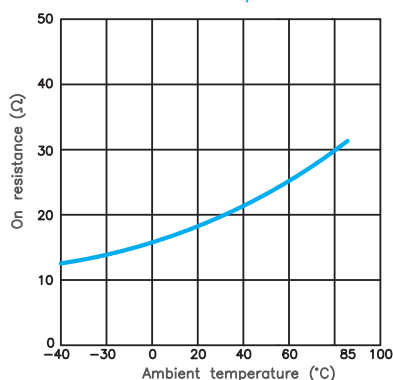
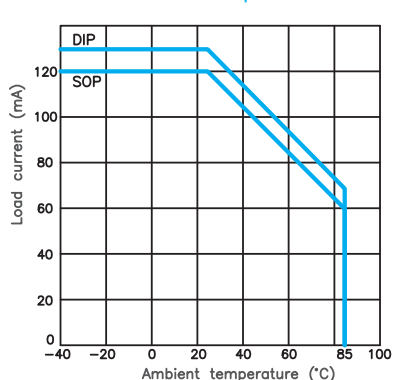
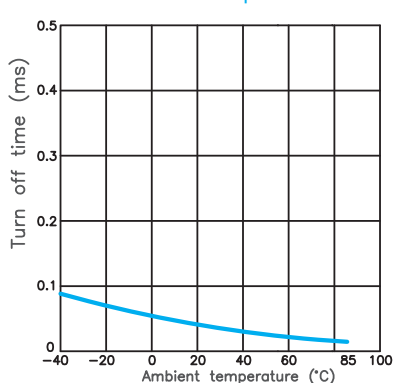
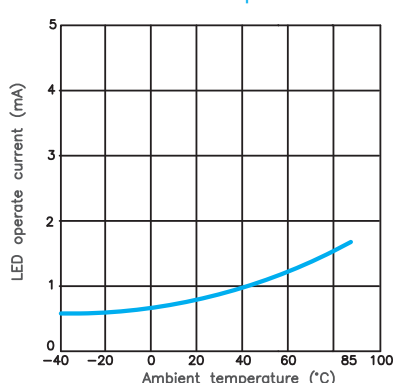
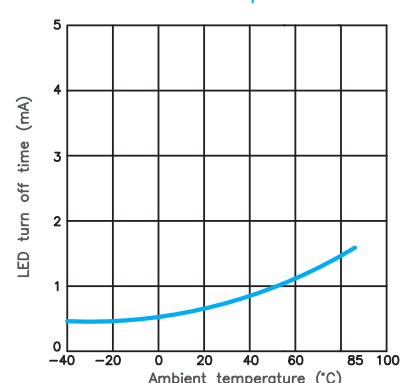
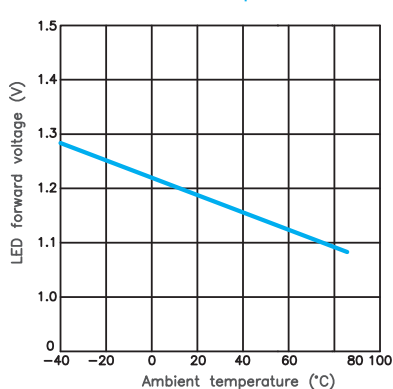
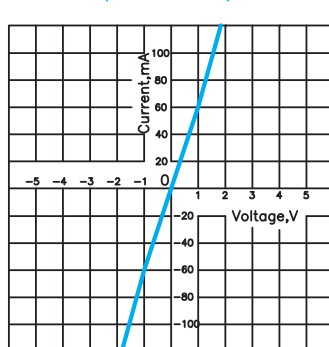
Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB31S	AC31S	AB31(F)	AC31(F)	AA31(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I_F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I_{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V_R	5V				
	Input Power Dissipation 輸入損耗	P_{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V_L	350V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I_L	120	100	130	110	130
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I_{PEAK}	600	600	600	600	600
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P_T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V_{IO}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V_{IO}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T_{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T_{STG}	-40°C ~ +100°C				

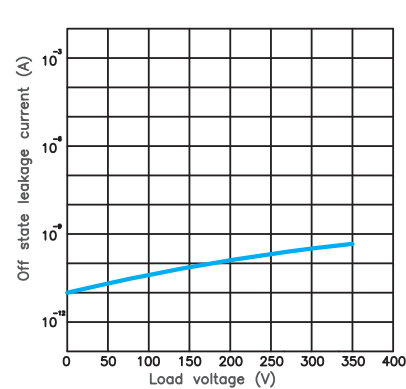
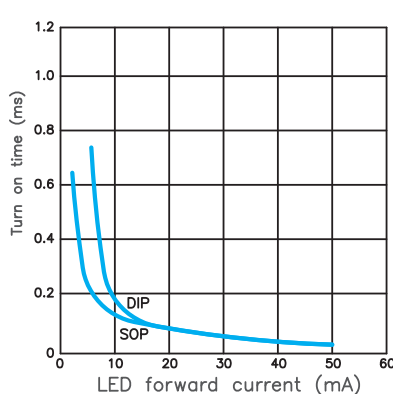
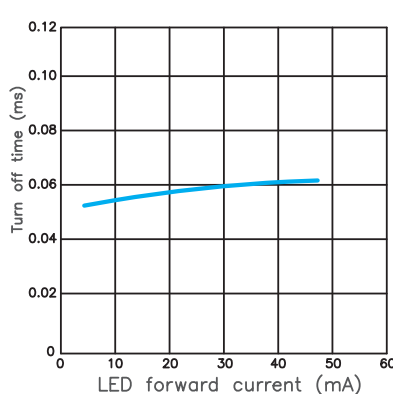
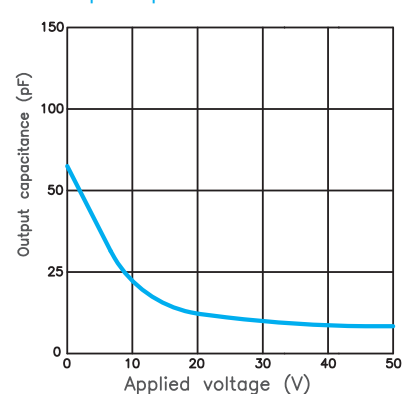
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.17	1.5	V	$I_F=10mA$
	Operation LED Current LED 動作電流	$I_{F ON}$		0.8	3.0	mA	
	Recovery LED Voltage LED 復位電壓	$V_{F OFF}$	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		20	24	Ω	$I_F=5mA, I_L=Rating$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I_{LEAK}			1.0	μA	$V_L=350V$
	Output Capacitance 輸出端容量	C_{OUT}		55		pF	$V_L=0V, f=1MHz$
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		0.25	0.5	ms	$I_F=5mA$ $I_L=Rating$ (for SOP type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.2	ms	
	Turn-On Time 動作時間	T_{ON}		0.2	1.0	ms	$I_F=10mA$ $I_L=Rating$ (for DIP/SMD type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	$R_{I/O}$	10^9			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	$C_{I/O}$		1.3		pF	$f=1MHz$

General-Purpose

Turn on time Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureLoad current Vs.
Ambient temperatureTurn off time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Turn off current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portion

Off state leakage current

LED forward current Vs.
turn on time characteristicsLED forward current Vs.
turn off time characteristicsApplied voltage Vs.
output capacitance characteristics

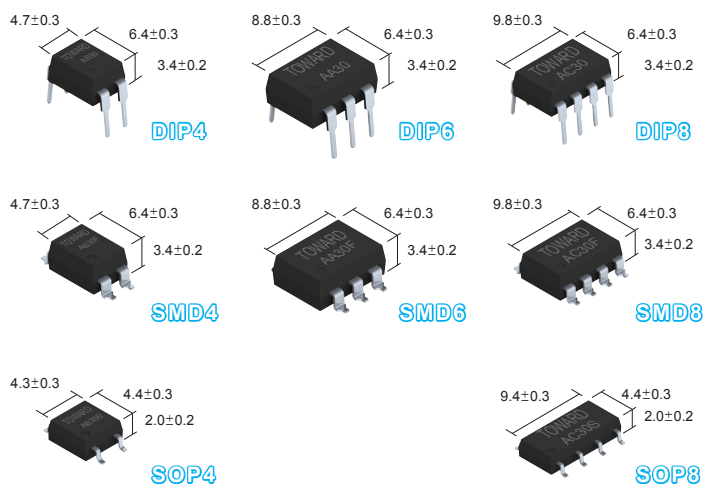
30 Series

400V·1a/2a



Features

- Contact Form 1a / 2a
- Load Voltage 400V
- Operation LED Current 3.0mA
- Load Current 120mA
- On-Resistance 21 Ω
- Output Capacitance 52pF
- Low Off-State Leakage Current 1.0μA



Application

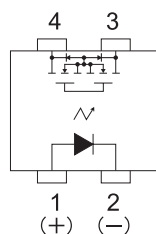
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AB30	DIP-4	Tube 90pcs
AA30	DIP-6	Tube 50pcs
AC30	DIP-8	Tube 45pcs
AB30F	SMD-4	Tube 90pcs
AA30F	SMD-6	Tube 50pcs
AC30F	SMD-8	Tube 45pcs
AB30S	SOP-4	Tube 100pcs
AC30S	SOP-8	Tube 50pcs
AB30F-R1	SMD-4	Reel 1000pcs
AA30F-R1	SMD-6	
AC30F-R1	SMD-8	
AB30S-R1	SOP-4	
AC30S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

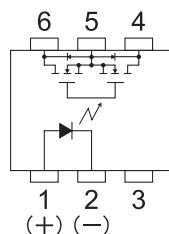
Terminal Identification

AB30(F)(S)



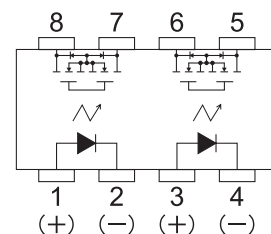
- 1:Anode (LED)
2:Cathode (LED)
3,4:Drain (MOS FET)

AA30(F)



- 1:Anode (LED)
2:Cathode (LED)
3:NC
4,6:Drain (MOS FET)
5:Source (MOS FET)

AC30(F)(S)



- 1,3:Anode (LED)
2,4:Cathode (LED)
5,6,7,8:Drain (MOS FET)

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB30S	AC30S	AB30(F)	AC30(F)	AA30(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V _L	400V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I _L	100	85	120	100	120
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	600	600	600	600	600
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P _T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V _{I/O}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V _{I/O}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

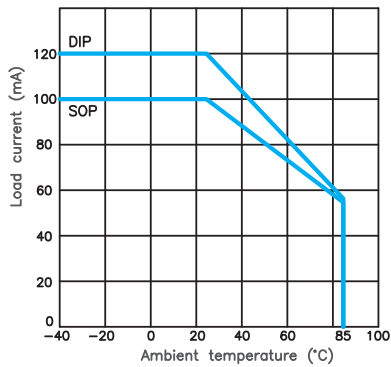
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.7	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		21	24	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}			1.0	μA	V _L =400V
	Output Capacitance 輸出端容量	C _{OUT}		52		pF	V _L =0V, f=1MHz
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		0.2	0.5	ms	I _F =5mA I _L =Rating (for SOP type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.2	ms	
	Turn-On Time 動作時間	T _{ON}		0.2	1.0	ms	I _F =10mA I _L =Rating (for DIP/SMD type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz

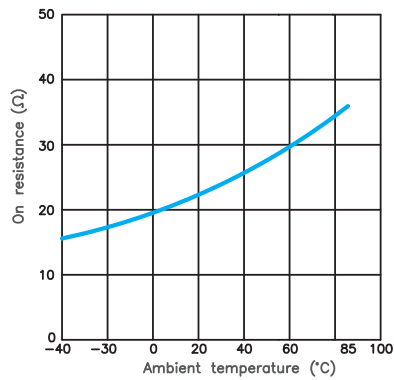
General-Purpose



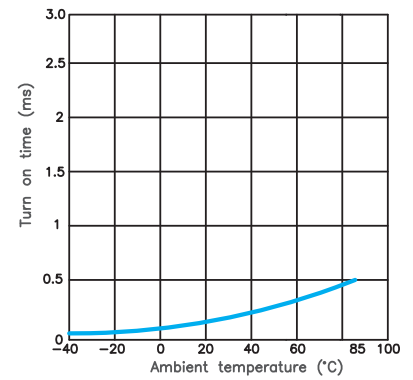
Load current Vs. Ambient temperature



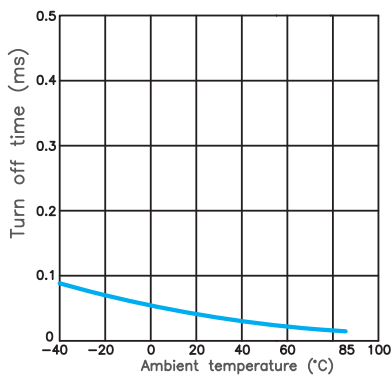
On resistance Vs. Ambient temperature



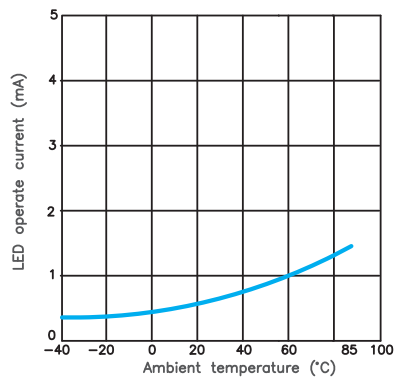
Turn on time Vs. Ambient temperature



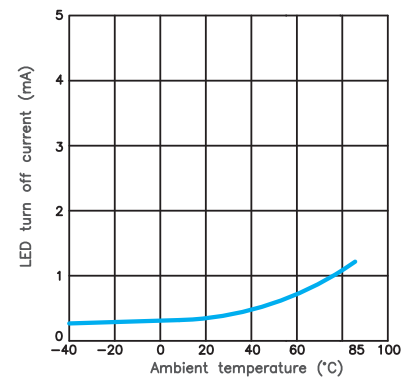
Turn off time Vs. Ambient temperature



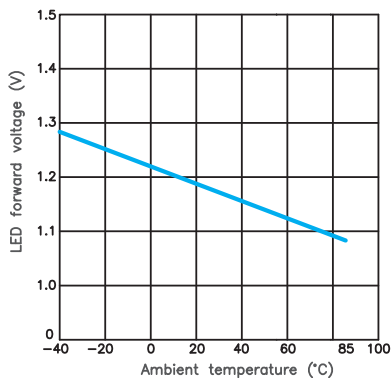
LED operate current Vs. Ambient temperature



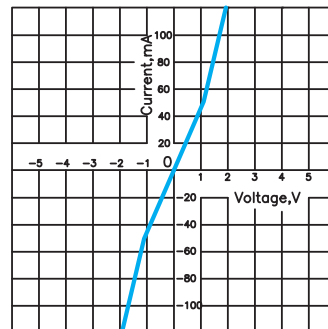
LED Turn off current Vs. Ambient temperature



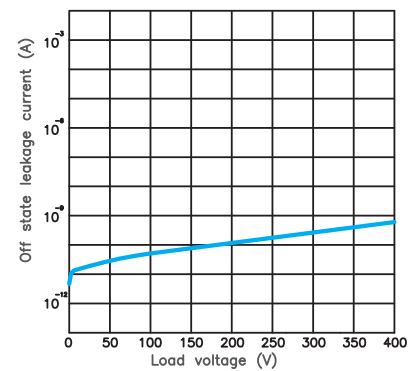
LED forward voltage Vs. Ambient temperature



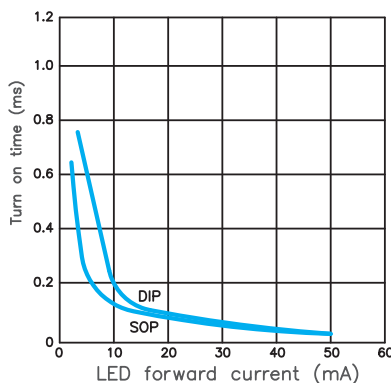
Voltage Vs. current characteristics of output at MOS portion



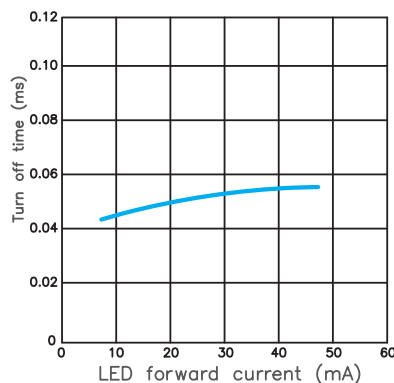
Off state leakage current



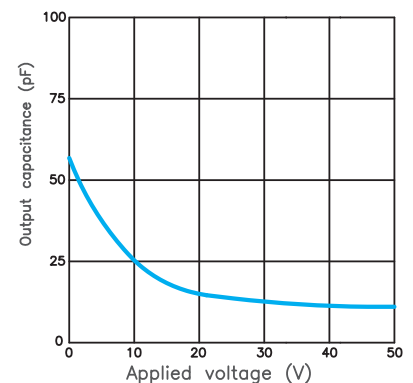
LED forward current Vs. turn on time characteristics



LED forward current Vs. turn off time characteristics



Applied voltage Vs. output capacitance characteristics



30C Series

CURRENT LIMIT 400V·1a/2a

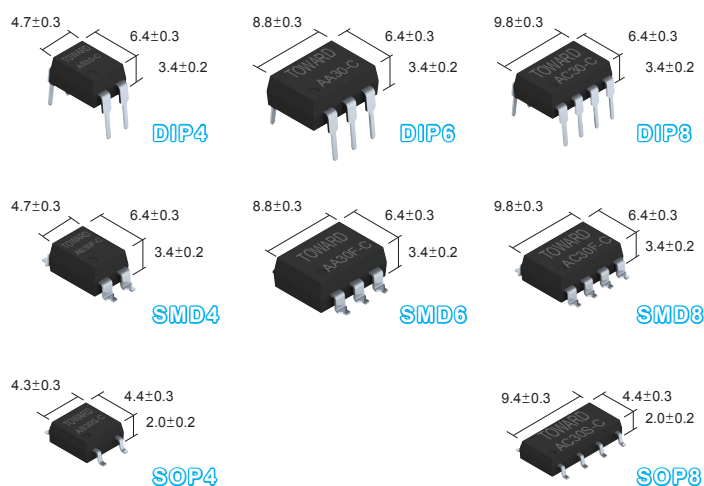


Features

- Contact Form 1a / 2a
- Load Voltage 400V
- Operation LED Current 3.0mA
- Load Current 120mA
- On-Resistance 21 Ω
- Output Capacitance 55pF
- Low Off-State Leakage Current 1.0μA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

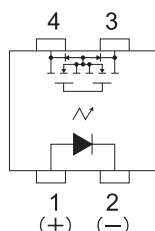


PART NO	PACKAGE	PACKING
AB30-C	DIP-4	Tube 90pcs
AA30-C	DIP-6	Tube 50pcs
AC30-C	DIP-8	Tube 45pcs
AB30F-C	SMD-4	Tube 90pcs
AA30F-C	SMD-6	Tube 50pcs
AC30F-C	SMD-8	Tube 45pcs
AB30S-C	SOP-4	Tube 100pcs
AC30S-C	SOP-8	Tube 50pcs
AB30F-C-R1	SMD-4	Reel 1000pcs
AA30F-C-R1	SMD-6	
AC30F-C-R1	SMD-8	
AB30S-C-R1	SOP-4	
AC30S-C-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

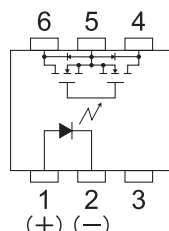
Terminal Identification

AB30(F)(S)-C



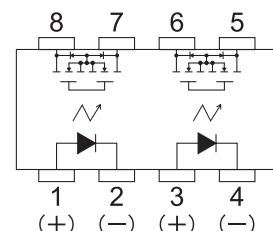
- 1: Anode (LED)
2: Cathode (LED)
3,4: Drain (MOS FET)

AA30(F)-C



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4,6: Drain (MOS FET)
5: Source (MOS FET)

AC30(F)(S)-C



- 1,3: Anode (LED)
2,4: Cathode (LED)
5,6,7,8: Drain (MOS FET)

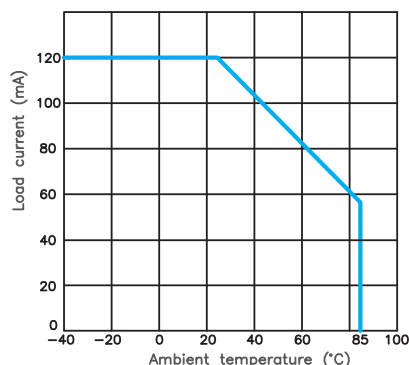
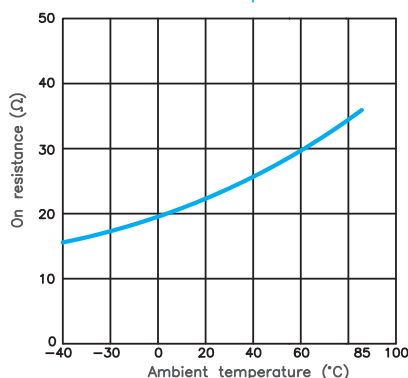
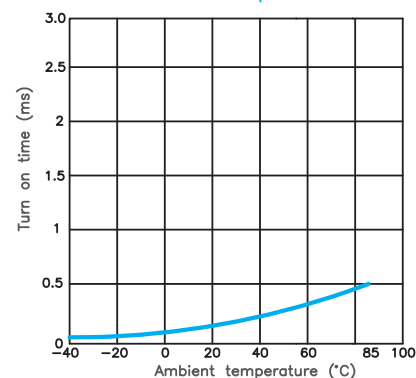
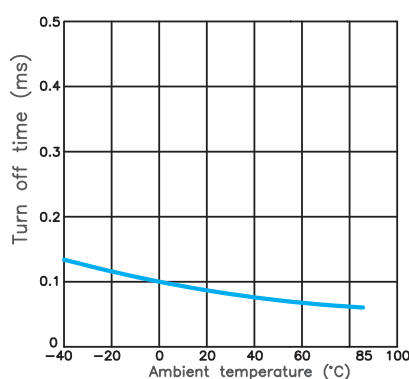
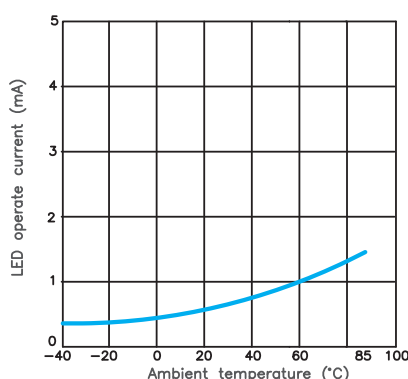
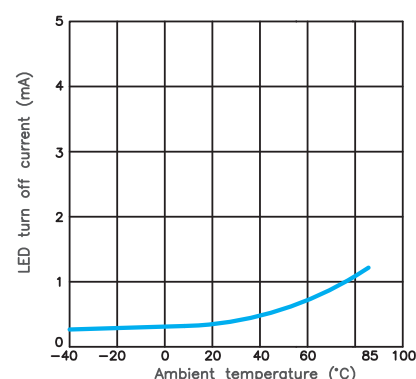
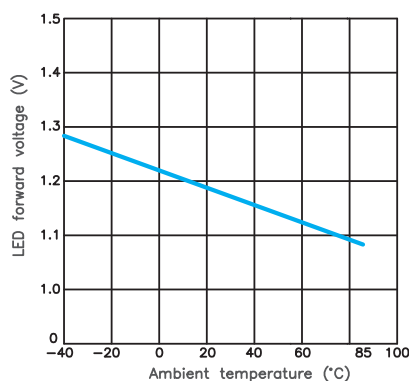
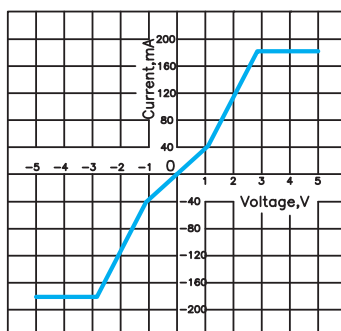

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB30S	AC30S	AB30(F)	AC30(F)	AA30(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V _L	400V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I _L	120	100	120	100	120
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	600	600	600	600	600
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P _T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V _{I/O}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V _{I/O}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

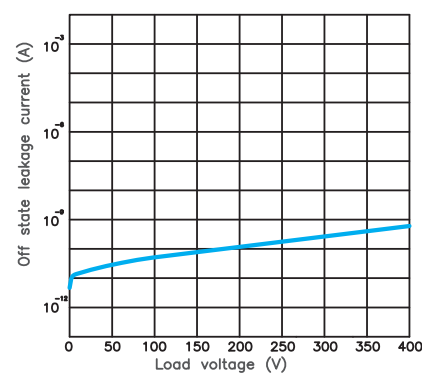
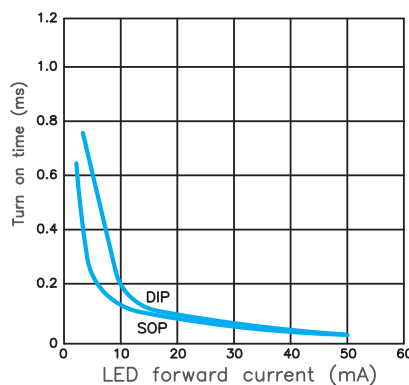
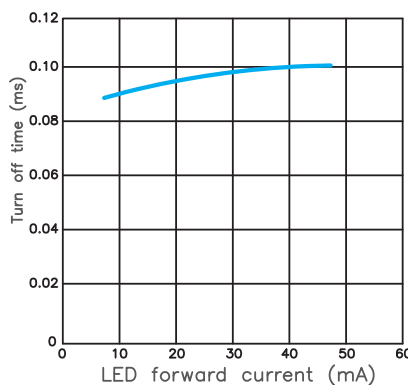
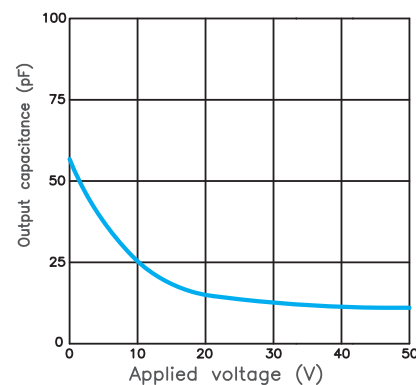
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.8	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		21	24	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Current Limit 限電流保護	I _T	120	180	240	mA	I _F =5mA,
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}			1.0	μA	V _L =400V
	Output Capacitance 輸出端容量	C _{OUT}		55		pF	V _L =0V, f=1MHz
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		0.25	0.5	ms	I _F =5mA I _L =Rating (for SOP type)
	Turn-Off Time 復位時間	T _{OFF}		0.1	0.2	ms	
	Turn-On Time 動作時間	T _{ON}		0.2	1.0	ms	I _F =10mA I _L =Rating (for DIP/SMD type)
	Turn-Off Time 復位時間	T _{OFF}		0.1	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz

General-Purpose

Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureTurn on time Vs.
Ambient temperatureTurn off time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Turn off current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portion

Off state leakage current

LED forward current Vs.
turn on time characteristicsLED forward current Vs.
turn off time characteristicsApplied voltage Vs.
output capacitance characteristics

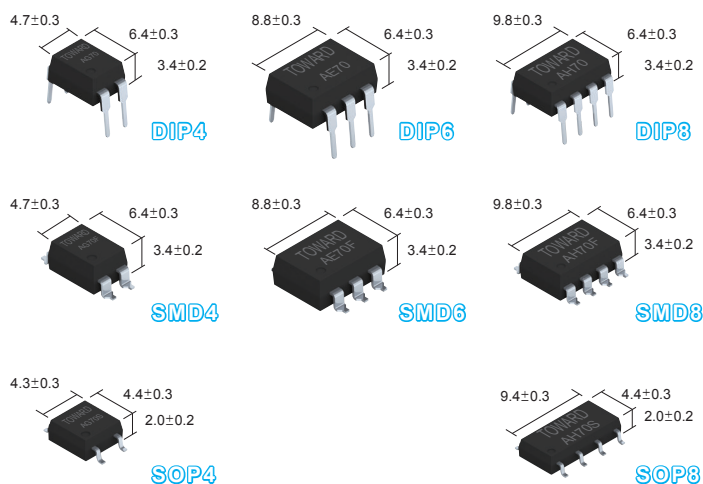
70 Series

60V·1b/2b



Features

- Contact Form 1b / 2b
- Load Voltage 60V
- Operation LED Current 3.0mA
- Load Current 440mA
- On-Resistance 0.75Ω
- Output Capacitance 165pF
- Low Off-State Leakage Current 10.0μA



Application

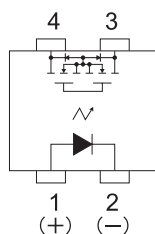
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AG70	DIP-4	Tube 90pcs
AE70	DIP-6	Tube 50pcs
AH70	DIP-8	Tube 45pcs
AG70F	SMD-4	Tube 90pcs
AE70F	SMD-6	Tube 50pcs
AH70F	SMD-8	Tube 45pcs
AG70S	SOP-4	Tube 100pcs
AH70S	SOP-8	Tube 50pcs
AG70F-R1	SMD-4	Reel 1000pcs
AE70F-R1	SMD-6	
AH70F-R1	SMD-8	
AG70S-R1	SOP-4	
AH70S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

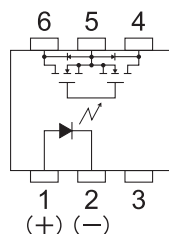
Terminal Identification

AG70(F)(S)



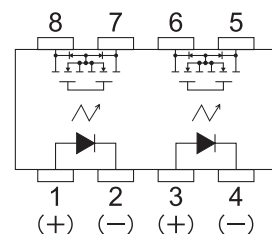
- 1:Anode (LED)
2:Cathode (LED)
3,4:Drain (MOS FET)

AE70(F)



- 1:Anode (LED)
2:Cathode (LED)
3:NC
4,6:Drain (MOS FET)
5:Source (MOS FET)

AH70(F)(S)



- 1,3:Anode (LED)
2,4:Cathode (LED)
5,6,7,8:Drain (MOS FET)

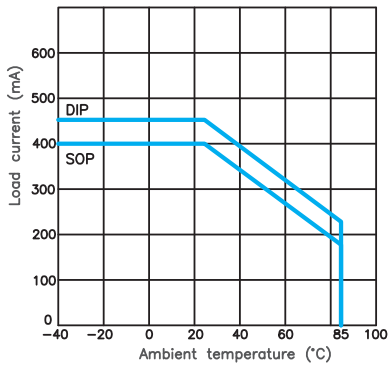
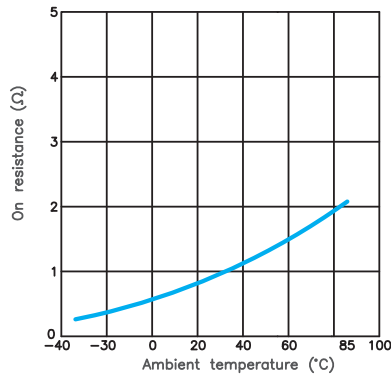
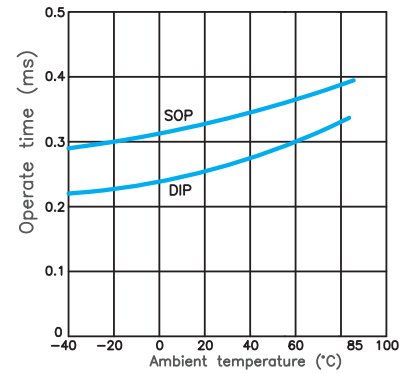
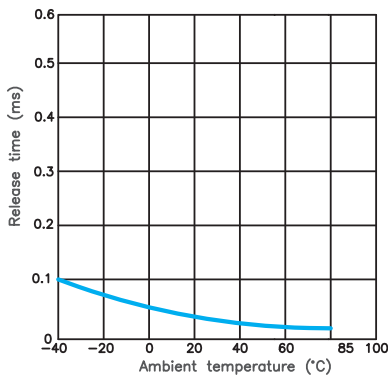
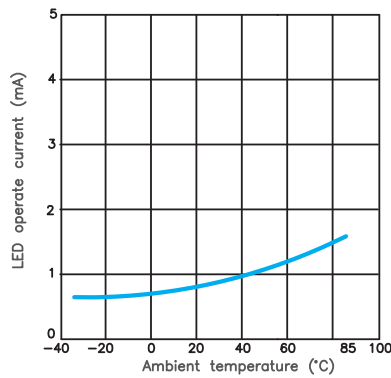
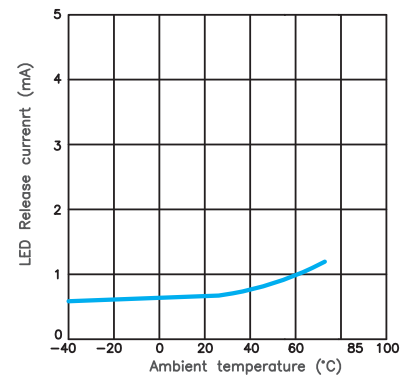
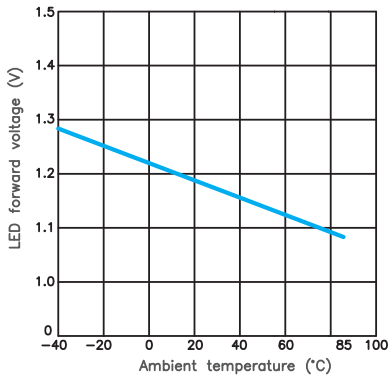
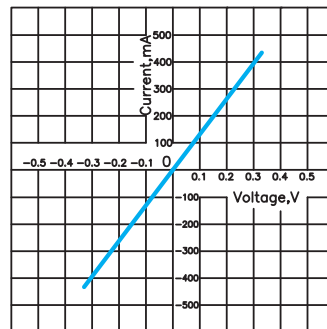
Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AG70S	AH70S	AG70(F)	AH70(F)	AE70(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
output 輸出	Load Voltage 負荷電壓	V _L	60V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I _L	400	350	440	380	440
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	600	600	600	600	600
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P _T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (V _{rms})		V _{I/O}	1500	1500	1500	1500	1500
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

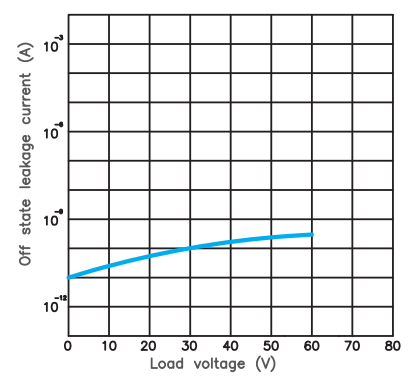
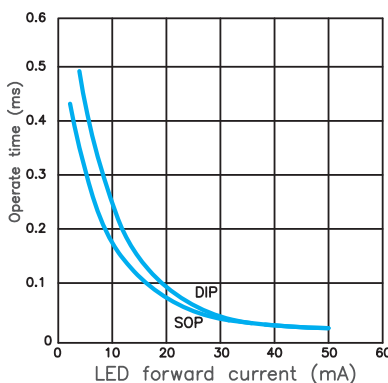
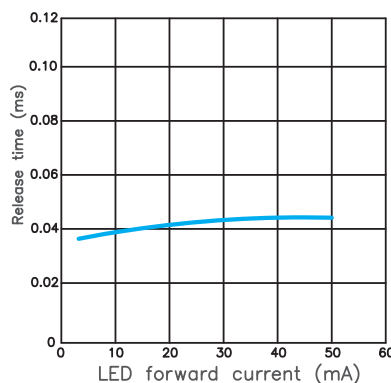
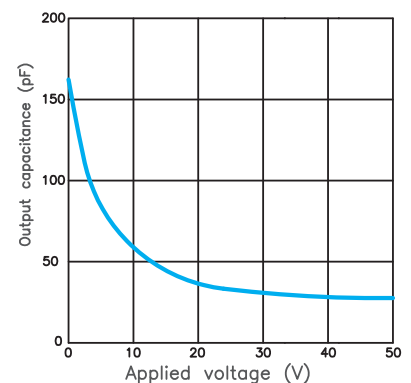
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.9	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		0.75	1.0	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}			10	μA	I _F =5mA, V _L =60V
	Output Capacitance 輸出端容量	C _{OUT}		165		pF	I _F =5mA, V _L =0V, f=1MHz
Transmission 傳達	Operate Time 動作時間	T _{OFF}		0.35	1.0	ms	I _F =5mA I _L =Rating (for SOP type)
	Release Time 復位時間	T _{ON}		0.05	0.5	ms	
	Operate Time 動作時間	T _{OFF}		0.25	1.0	ms	I _F =10mA I _L =Rating (for DIP/SMD type)
	Release Time 復位時間	T _{ON}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz

General-Purpose

Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureOperate time Vs.
Ambient temperatureRelease time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Release current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portion

Off state leakage current

LED forward current Vs.
operate time characteristicsLED forward current Vs.
release time characteristicsApplied voltage Vs.
output capacitance characteristics

70 Series

60V·1a+1b

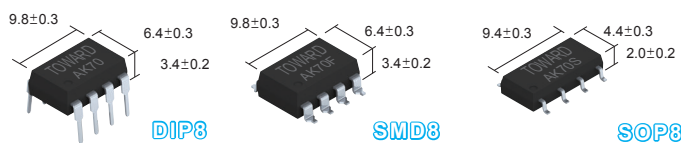


Features

- Contact Form 1a+1b
- Load Voltage 60V
- Operation LED Current 3.0mA
- Load Current 380mA
- On-Resistance 0.75Ω
- Output Capacitance 45/165pF
- Low Off-State Leakage Current 10μA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

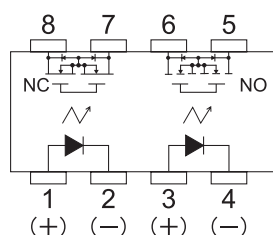


PART NO	PACKAGE	PACKING
AK70	DIP-8	Tube 45pcs
AK70F	SMD-8	Tube 45pcs
AK70S	SOP-8	Tube 50pcs
AK70F-R1	SMD-8	Reel 1000pcs
AK70S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

Terminal Identification

AK70(F)(S)



- 1,3:Anode (LED)
- 2,4:Cathode (LED)
- 5,6,7,8:Drain (MOS FET)

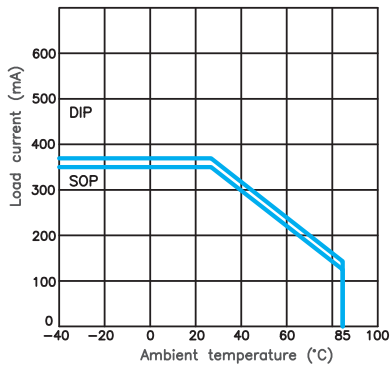
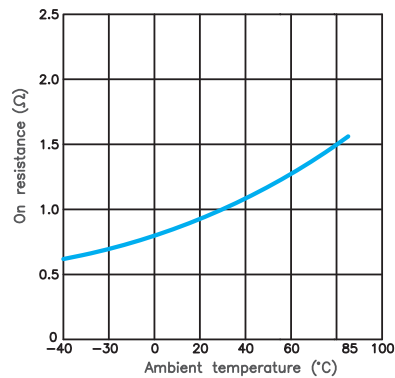
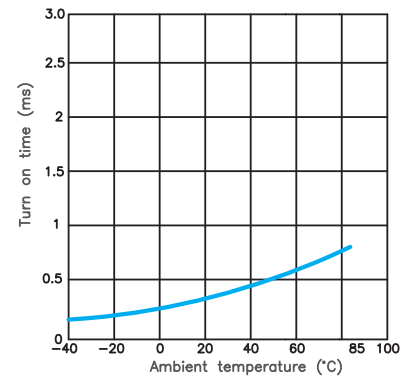
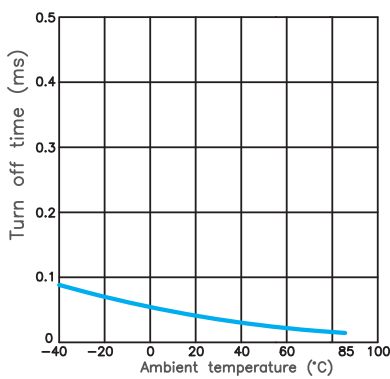
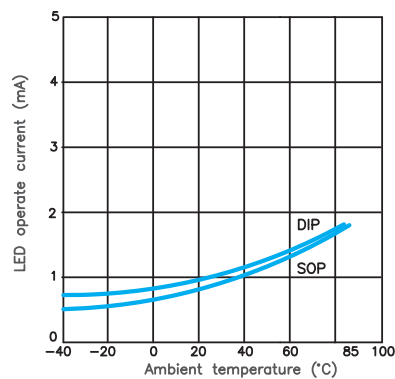
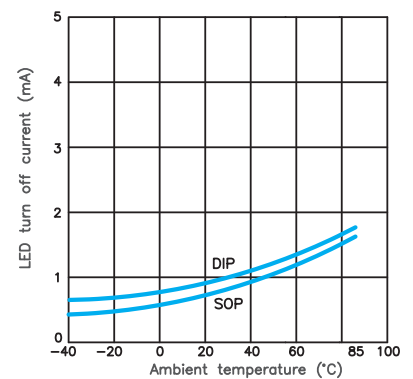
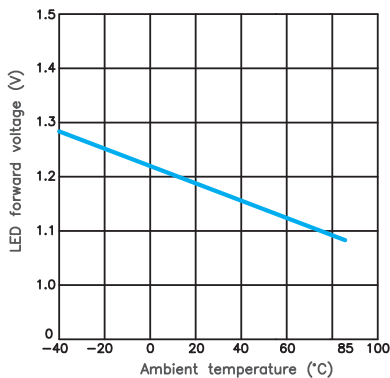
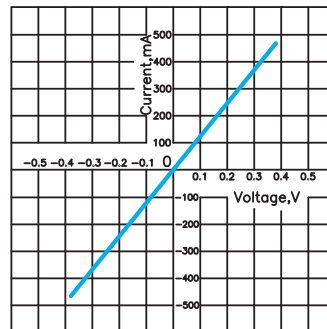

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value	
Outline Package			AK70S	AK70(F)
			1a+1b Type	
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA	
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA	
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V	
	Input Power Dissipation 輸入損耗	P _{IN}	75mW	
output 輸出	Load Voltage 負荷電壓	V _L	60V (AC peak or DC)	
	Load Current 負荷電流 (mA)	I _L	350	380
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	1000	1000
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	400	600
Total Power Dissipation 全損耗 (mW)		P _T	450	650
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (V _{rms})		V _{I/O}	1500	1500
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C	
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C	

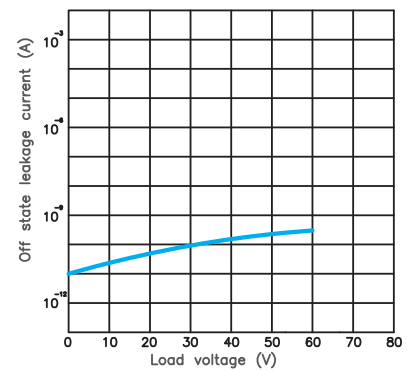
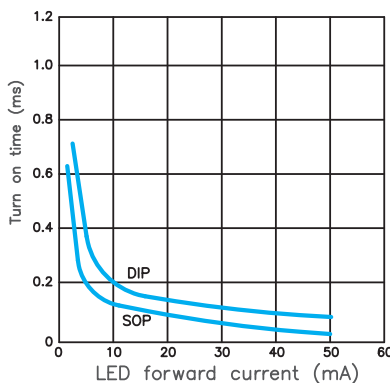
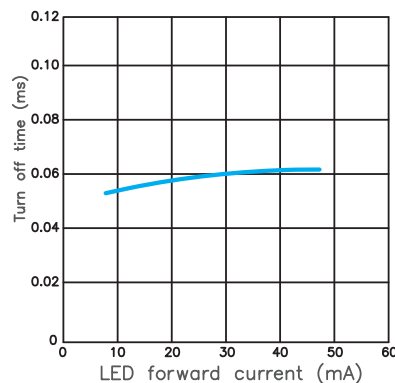
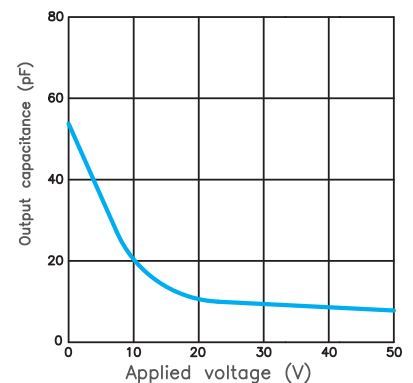
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.9	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		0.75	1.0	Ω	I _F =5mA(NO) I _F =0mA(NC), I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}			1(NO) 10(NC)	μA	I _F =0mA(NO) I _F =5mA(NC), V _L =60V
	Output Capacitance 輸出端容量	C _{OUT}		45(NO) 165(NC)		pF	I _F =0mA(NO) I _F =5mA(NC), f=1MHz
Transmission 傳達	Operate Time 動作時間	T _{ON} (NO) T _{OFF} (NC)		0.2(NO) 0.35(NC)	1.0	ms	I _F =5mA, I _L =Rating (for SOP type)
	Release Time 復位時間	T _{OFF} (NO) T _{ON} (NC)		0.05	0.5	ms	
	Operate Time 動作時間	T _{ON} (NO) T _{OFF} (NC)		0.2(NO) 0.25(NC)	1.0	ms	I _F =10mA, I _L =Rating (for DIP/SMD type)
	Release Time 復位時間	T _{OFF} (NO) T _{ON} (NC)		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz

General-Purpose

Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureTurn on time Vs.
Ambient temperatureTurn off time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Turn off current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portion

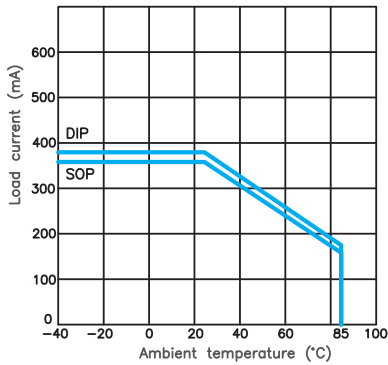
Off state leakage current

LED forward current Vs.
turn on time characteristicsLED forward current Vs.
turn off time characteristicsApplied voltage Vs.
output capacitance characteristics

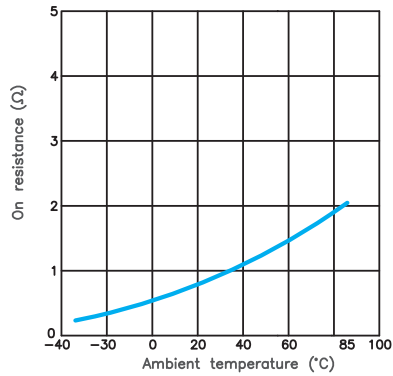


General-Purpose

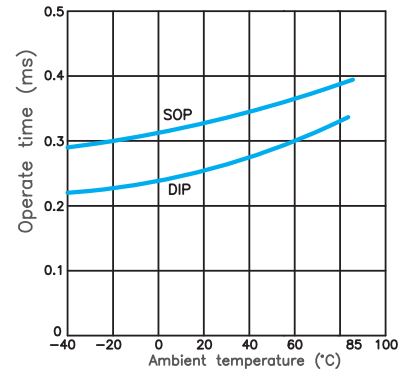
Load current Vs.
Ambient temperature



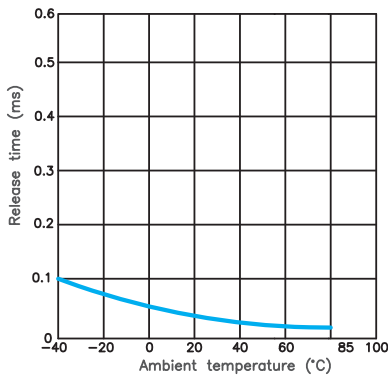
On resistance Vs.
Ambient temperature



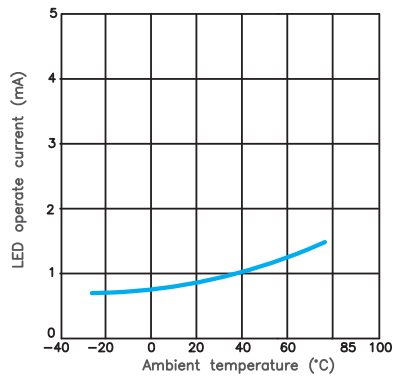
Operate time Vs.
Ambient temperature



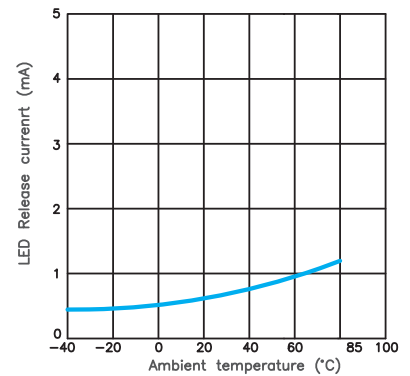
Release time Vs.
Ambient temperature



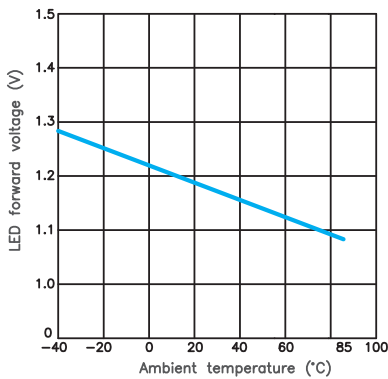
LED operate current Vs.
Ambient temperature



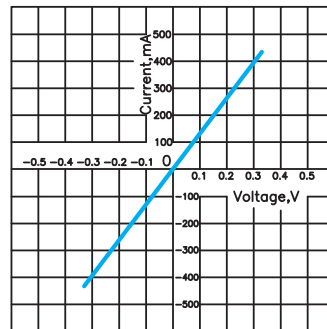
LED Release current Vs.
Ambient temperature



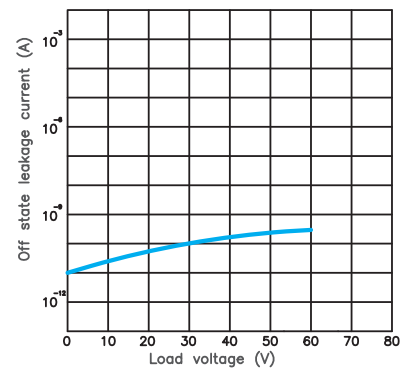
LED forward voltage Vs.
Ambient temperature



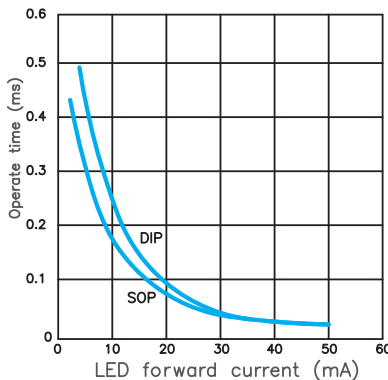
Voltage Vs. current characteristics
of output at MOS portion



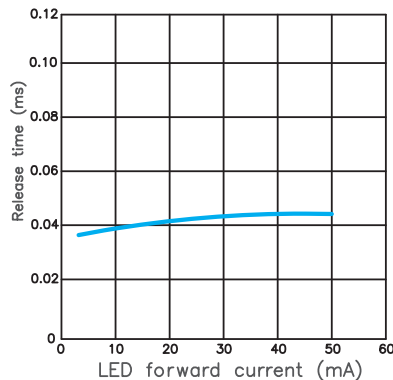
Off state leakage current



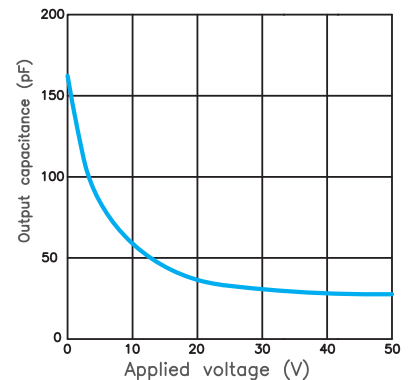
LED forward current Vs.
operate time characteristics



LED forward current Vs.
release time characteristics



Applied voltage Vs.
output capacitance characteristics



74 Series

400V·1b/2b

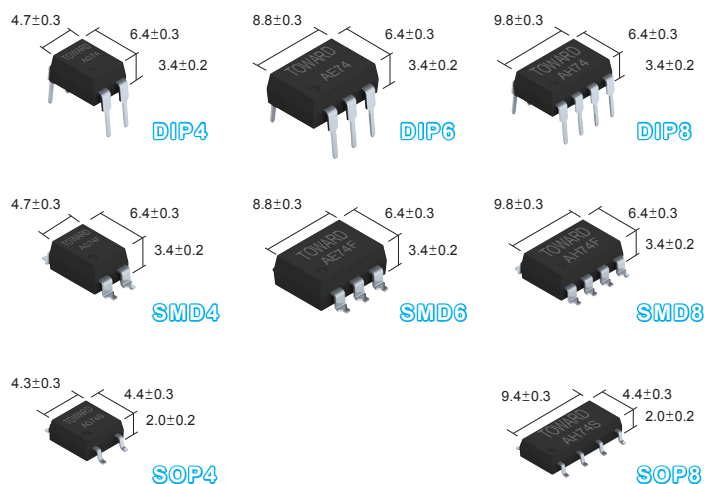


Features

- Contact Form 1b / 2b
- Load Voltage 400V
- Operation LED Current 3.0mA
- Load Current 90mA
- On-Resistance 28 Ω
- Output Capacitance 165pF
- Low Off-State Leakage Current 10.0μA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

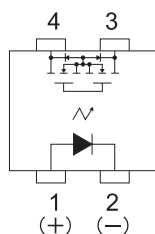


PART NO	PACKAGE	PACKING
AG74	DIP-4	Tube 90pcs
AE74	DIP-6	Tube 50pcs
AH74	DIP-8	Tube 45pcs
AG74F	SMD-4	Tube 90pcs
AE74F	SMD-6	Tube 50pcs
AH74F	SMD-8	Tube 45pcs
AG74S	SOP-4	Tube 100pcs
AH74S	SOP-8	Tube 50pcs
AG74F-R1	SMD-4	Reel 1000pcs
AE74F-R1	SMD-6	
AH74F-R1	SMD-8	
AG74S-R1	SOP-4	
AH74S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

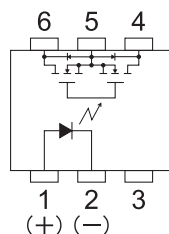
Terminal Identification

AG74(F)(S)



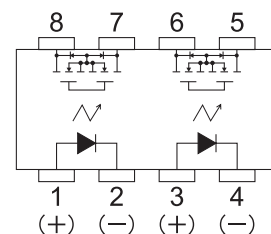
- 1:Anode (LED)
2:Cathode (LED)
3,4:Drain (MOS FET)

AE74(F)



- 1:Anode (LED)
2:Cathode (LED)
3:NC
4,6:Drain (MOS FET)
5:Source (MOS FET)

AH74(F)(S)



- 1,3:Anode (LED)
2,4:Cathode (LED)
5,6,7,8:Drain (MOS FET)

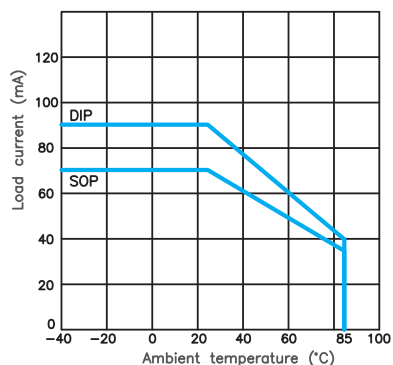
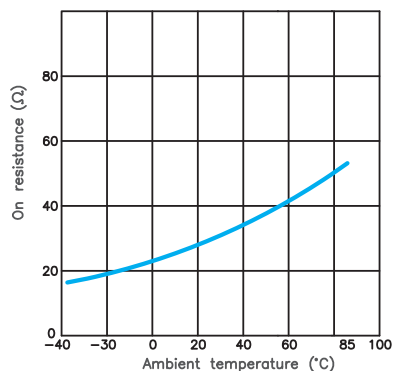
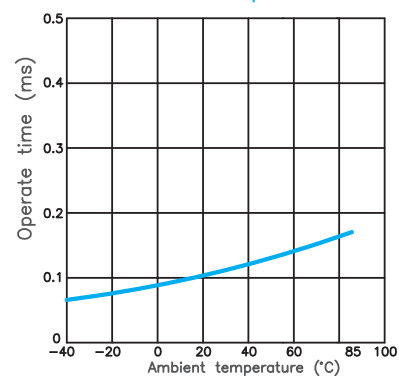
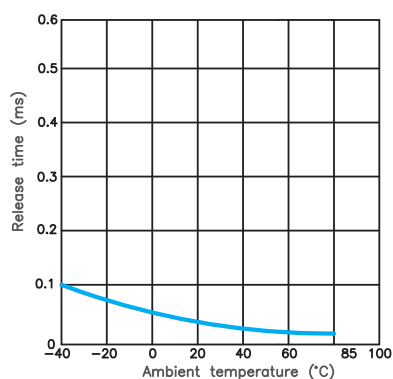
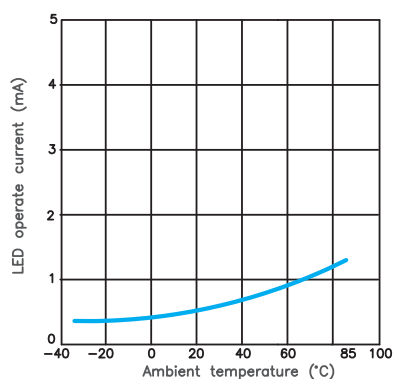
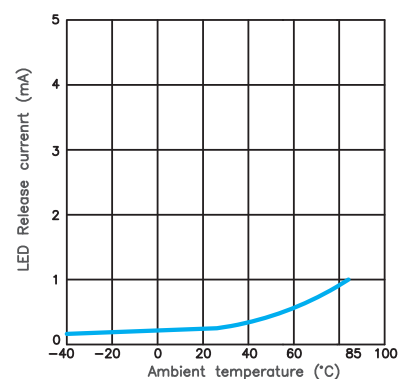
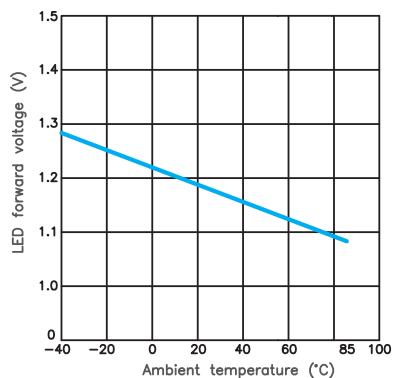
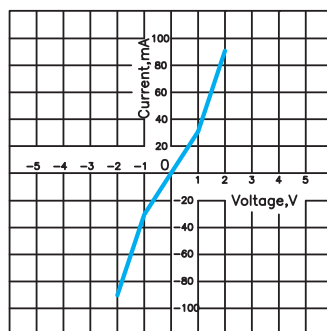

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AG74S	AH74S	AG74(F)	AH74(F)	AE74(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
output 輸出	Load Voltage 負荷電壓	V _L	400V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I _L	70	60	90	80	90
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	400	400	400	400	400
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P _T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (V _{rms})		V _{I/O}	1500	1500	1500	1500	1500
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

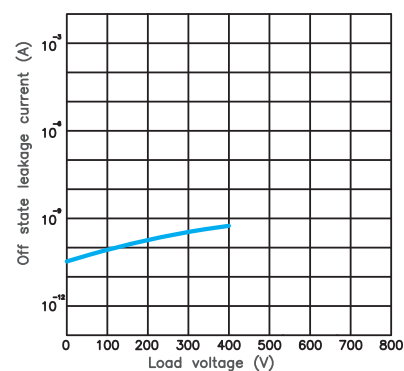
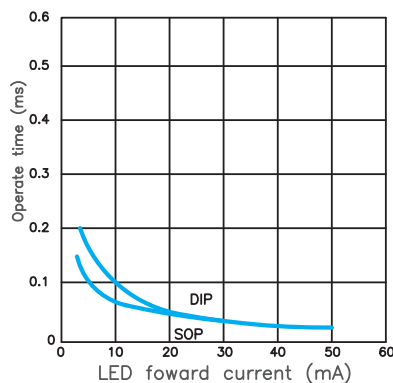
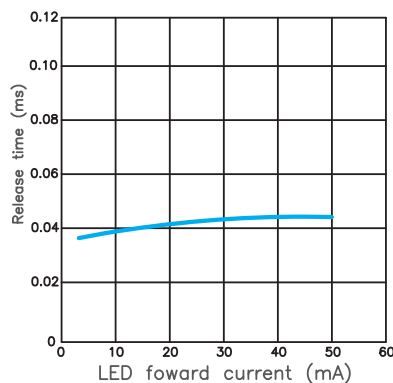
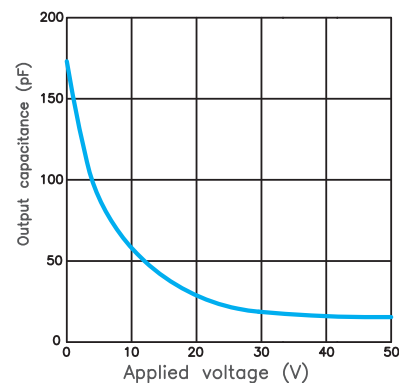
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.9	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		28	30	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}			10	μA	I _F =5mA, V _L =400V
	Output Capacitance 輸出端容量	C _{OUT}		165		pF	I _F =5mA, V _L =0V, f=1MHz
Transmission 傳達	Operate Time 動作時間	T _{OFF}		0.1	1.0	ms	I _F =5mA I _L =Rating (for SOP type)
	Release Time 復位時間	T _{ON}		0.05	0.5	ms	
	Operate Time 動作時間	T _{OFF}		0.15	1.0	ms	I _F =10mA I _L =Rating (for DIP/SMD type)
	Release Time 復位時間	T _{ON}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 出力端靜電容量	C _{I/O}		1.3		pF	f=1MHz

General-Purpose

Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureOperate time Vs.
Ambient temperatureRelease time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Release current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portion

Off state leakage current

LED forward current Vs.
operate time characteristicsLED forward current Vs.
Release time characteristicsApplied voltage Vs.
output capacitance characteristics

74 Series

400V·1a+1b

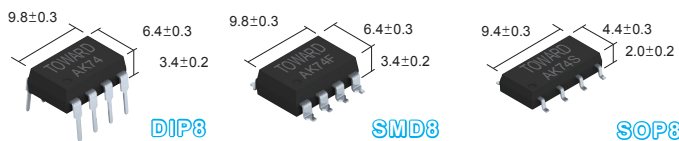


Features

- Contact Form 1a+1b
- Load Voltage 400V
- Operation LED Current 3.0mA
- Load Current 100mA
- On-Resistance 24/28 Ω
- Output Capacitance 100/165pF
- Low Off-State Leakage Current 10μA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

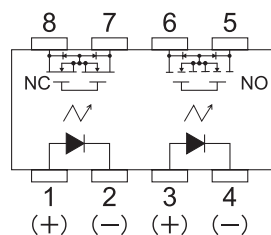


PART NO	PACKAGE	PACKING
AK74	DIP-8	Tube 45pcs
AK74F	SMD-8	Tube 45pcs
AK74S	SOP-8	Tube 50pcs
AK74F-R1	SMD-8	Reel 1000pcs
AK74S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

Terminal Identification

AK74(F)(S)



- 1,3:Anode (LED)
- 2,4:Cathode (LED)
- 5,6,7,8:Drain (MOS FET)

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value	
Outline Package			AK74S	AK74(F)
			1a+1b Type	
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA	
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA	
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V	
	Input Power Dissipation 輸入損耗	P _{IN}	75mW	
output 輸出	Load Voltage 負荷電壓	V _L	400V (AC peak or DC)	
	Load Current 負荷電流 (mA)	I _L	80(NO) 60(NC)	100(NO) 70(NC)
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	400	400
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	400	600
Total Power Dissipation 全損耗 (mW)		P _T	450	650
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V _{I/O}	1500	1500
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C	
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C	

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.6	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		24(NO) 28(NC)	30(NO) 35(NC)	Ω	I _F =5mA(NO), I _F =0mA(NC) I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}			1(NO) 10(NC)	μA	I _F =0mA(NO), I _F =5mA(NC) V _L =400
	Output Capacitance 輸出端容量	C _{OUT}		100(NO) 165(NC)		pF	I _F =0mA(NO), I _F =5mA(NC), f=1MHz
Transmission 傳達	Operate Time 動作時間	T _{ON} (NO) T _{OFF} (NC)		0.2(NO) 0.1(NC)	1.0	ms	I _F =5mA, I _L =Rating (for SOP type)
	Release Time 復位時間	T _{OFF} (NO) T _{ON} (NC)		0.05	0.5	ms	
	Operate Time 動作時間	T _{ON} (NO) T _{OFF} (NC)		0.2(NO) 0.15(NC)	1.0	ms	I _F =10mA, I _L =Rating (for DIP/SMD type)
	Release Time 復位時間	T _{OFF} (NO) T _{ON} (NC)		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出力間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 出力端靜電容量	C _{I/O}		1.3		pF	f=1MHz

General-Purpose



PhotoMOS-FET Relays
General-Purpose

PhotoMOS-FET Relays
Hi-A Grade $\geq 1A$

PhotoMOS-FET Relays
Hi-V Grade $\geq 600V$

PhotoMOS-FET Relays
Low Leakage Current

PhotoMOS-FET Relays

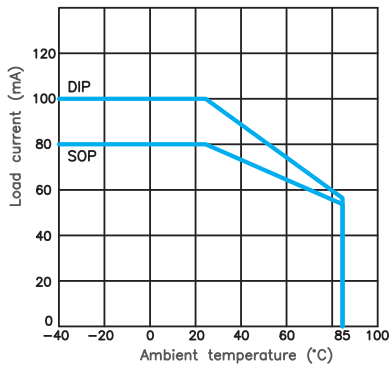
RF

PhotoMOS-FET Relays
Photo Coupler

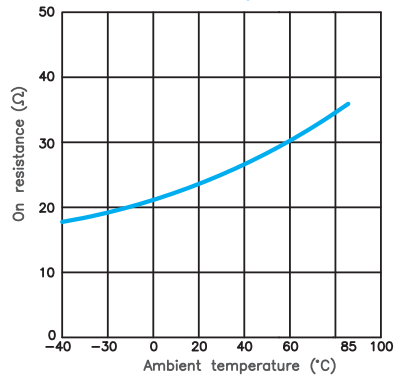
PhotoMOS-FET Relays
Mos Driver

PhotoMOS-FET Relays
Solid State Relays

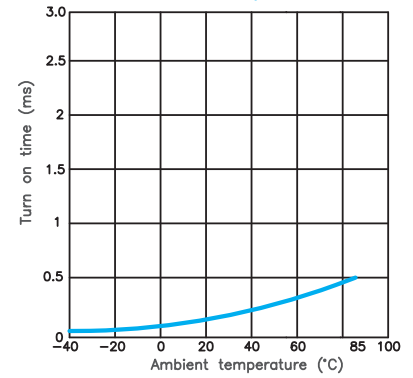
Load current Vs.
Ambient temperature



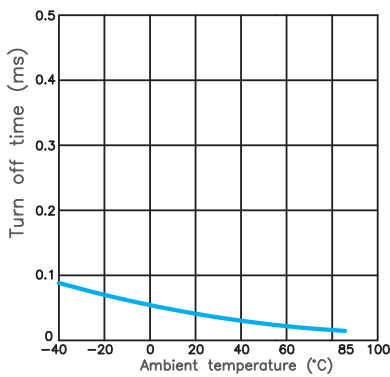
On resistance Vs.
Ambient temperature



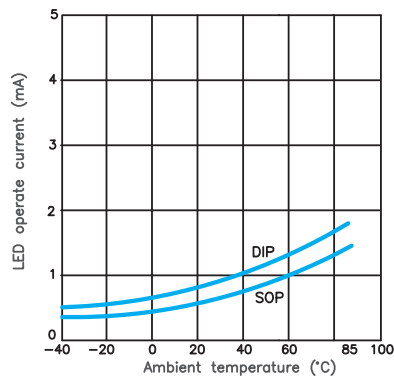
Turn on time Vs.
Ambient temperature



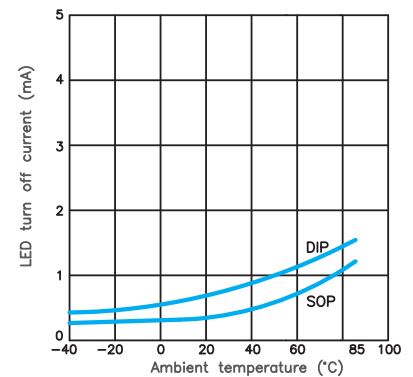
Turn off time Vs.
Ambient temperature



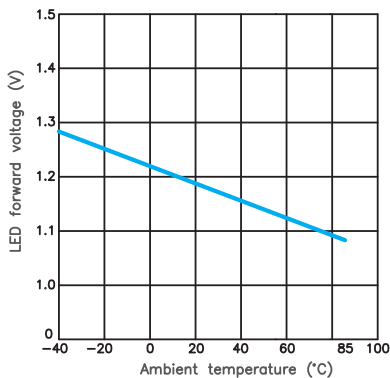
LED operate current Vs.
Ambient temperature



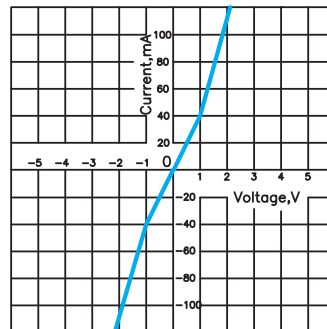
LED Turn off current Vs.
Ambient temperature



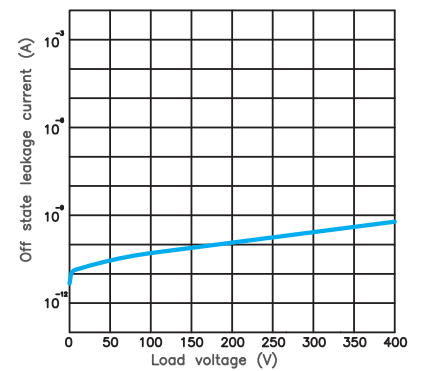
LED forward voltage Vs.
Ambient temperature



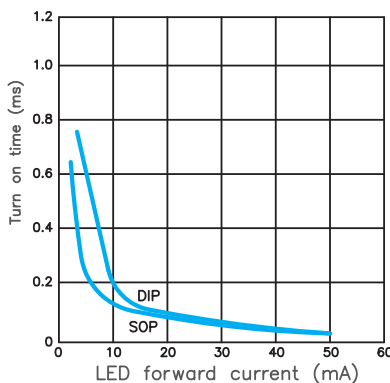
Voltage Vs. current characteristics
of output at MOS portion



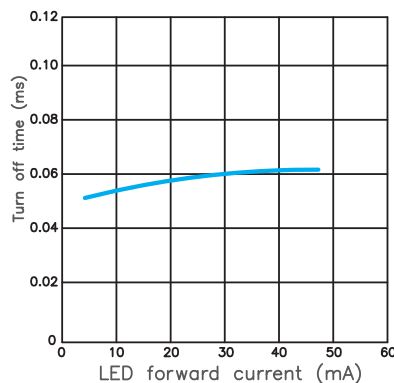
Off state leakage current



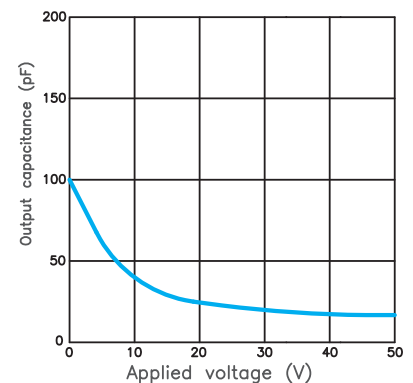
LED forward current Vs.
turn on time characteristics



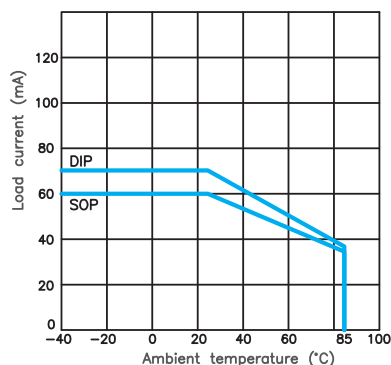
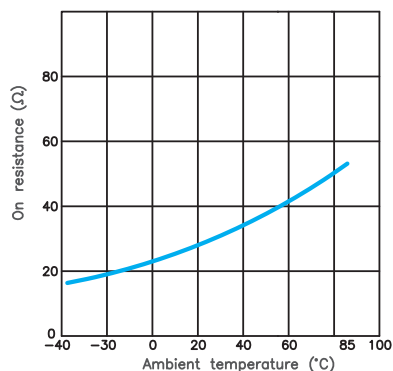
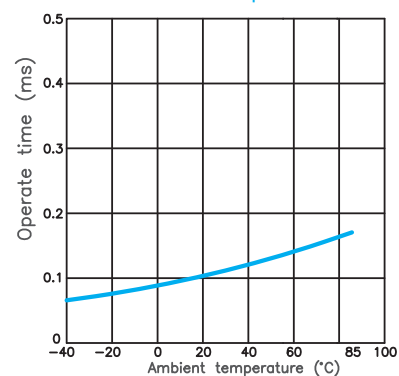
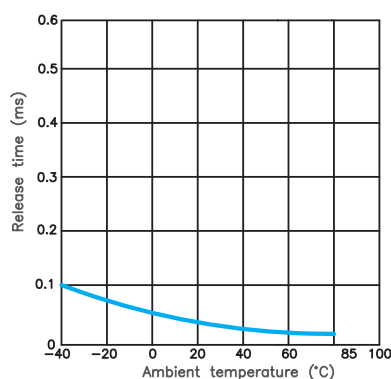
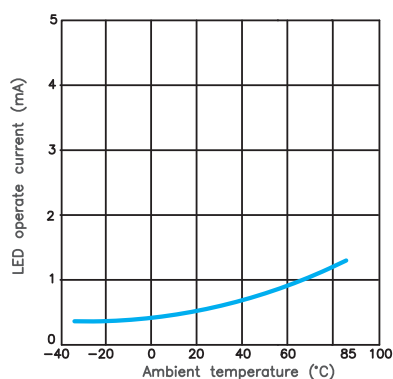
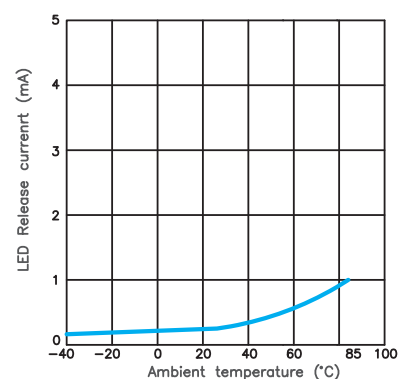
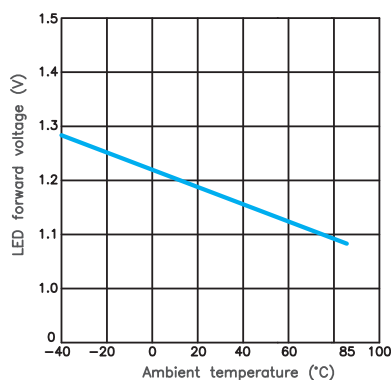
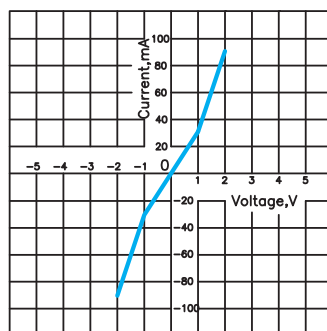
LED forward current Vs.
turn off time characteristics



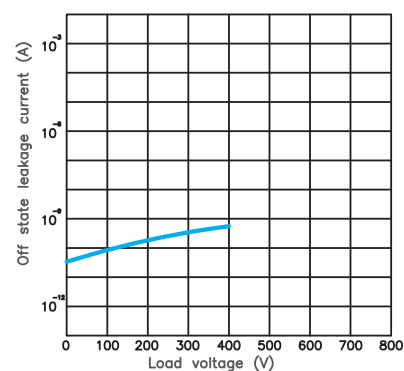
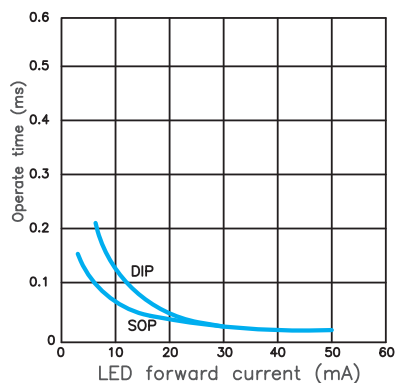
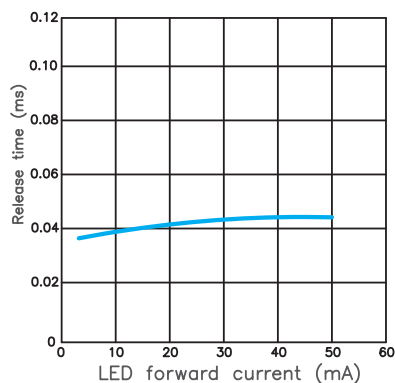
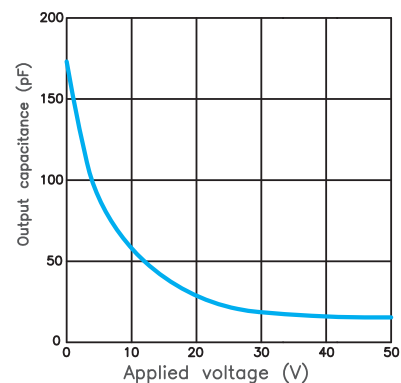
Applied voltage Vs.
output capacitance characteristics



General-Purpose

Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureOperate time Vs.
Ambient temperatureRelease time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Release current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portion

Off state leakage current

LED forward current Vs.
operate time characteristicsLED forward current Vs.
Release time characteristicsApplied voltage Vs.
output capacitance characteristics

CC36 Series 1.2A·1a

Hi-Temp (105°C)

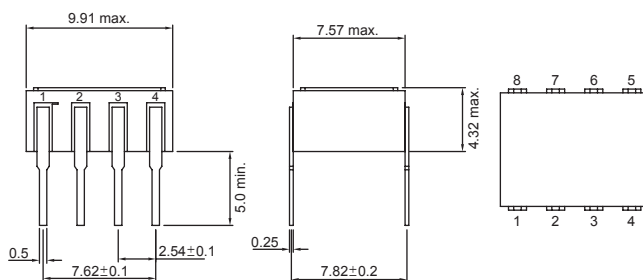


Features

- Ceramic Sealed Package
- AC/DC Signal & Power Switching
- Compact Solid-State Bidirectional Switch
- Hermetically Sealed 8-Pin Dual In-Line Package
- Small Size And Weight
- Performance Guaranteed Over-55°C to 105°C
- High Transient Immunity

Application

- Military and Space
- Standard 28 Vdc and 24 Vdc Load Driver
- Aircraft Controls
- AC/DC Electromechanical and Solid State Relay Replacement
- Harsh Industrial Environments

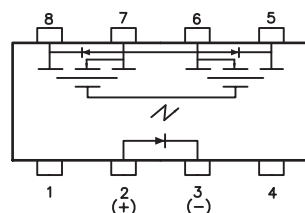


PART NO	PACKAGE	PACKING
CC36	DIP-8	Tube 45pcs

* Package & PCB Layout Design, See Page 134

Terminal Identification

CC36



- 2:Anode (LED)
- 3:Cathode (LED)
- 1,4:NC
- 5,8:Drain (MOS FET)
- 6,7:Source (MOS FET)

Hi-A Grade $\geq 1A$

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value	
Input 輸入	Continuous LED Current 連續 LED 電流	I_F	40mA	
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I_{FP}	100mA	
	LED Reverse Voltage 逆向 LED 電壓	V_R	5V	
	Input Power Dissipation 輸入損耗	P_{IN}	60mW	
output 輸出	Load Voltage 負荷電壓	V_L	60V (AC peak or DC)	
	Load Current 負荷電流 (mA)	I_L	A	1.2A(AC or DC)
			B	1.7A(DC)
			C	2.4A(DC)
	Peak Load Current 峰值負荷電流 (1ms,1 shot)	I_{PEAK}	5	
	Output Power Dissipation 輸出損耗	P_{OUT}	750	
Total Power Dissipation 全損耗		P_T	800	
I/O Breakdown Voltage 入 / 出力間絕緣電壓		V_{IO}	1000	
Operating Temperature 使用時溫度		T_{OPR}	$-55^{\circ}\text{C} \sim +105^{\circ}\text{C}$	
Storage Temperature 保存溫度		T_{STG}	$-55^{\circ}\text{C} \sim +125^{\circ}\text{C}$	

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	2.3	2.7	3.1	V	$I_F=10\text{mA}$
	Operation LED Current LED 動作電流	$I_{F\ ON}$		2.0	5.0	mA	
	Recovery LED Voltage LED 復位電壓	$V_{F\ OFF}$	1.0	2.5		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		0.1	0.14	Ω	$I_F=10\text{mA}, I_L=\text{Rating}$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I_{LEAK}			1.0	μA	$I_F=0\text{mA}, V_L=60\text{V}$
	Output Capacitance 輸出端容量	C_{OUT}		470		pF	$V_L=0\text{V}, f=1\text{MHz}$
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		2.0	5.0	ms	$I_F=10\text{mA}, I_L=\text{Rating}$
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R_{IO}	10^9			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C_{IO}		1		pF	$f=1\text{MHz}$

Hi-A Grade $\geq 1A$ 
 PhotomOS-FET Relays
 General-Purpose

 PhotomOS-FET Relays
 Hi-A Grade $\geq 1A$

 PhotomOS-FET Relays
 Hi-V Grade $\geq 600V$

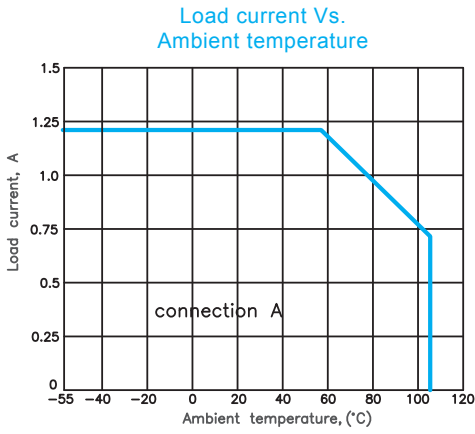
 PhotomOS-FET Relays
 Low Leakage Current

 PhotomOS-FET Relays
 RF

 PhotomOS-FET Relays
 Photo Coupler

 PhotomOS-FET Relays
 Mos Driver

Solid State Relays



47 Series 80V/1.5A·1a/2a

AEC-Q101 / Hi-Temp (105°C) Available

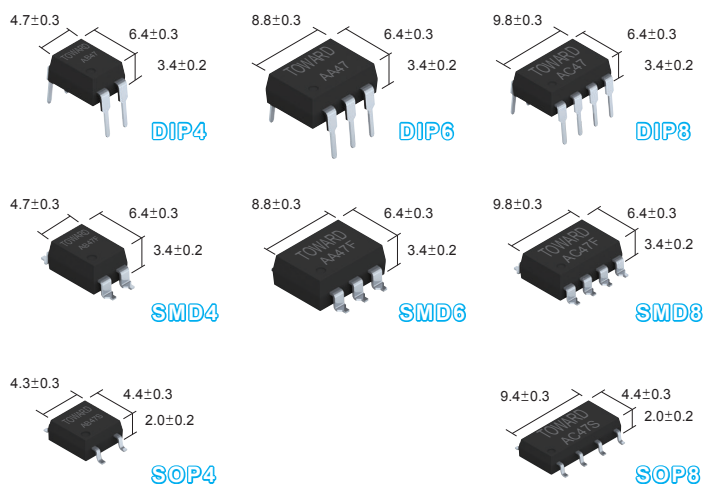


Features

- Contact Form 1a / 2a
- Load Voltage 80V
- Operation LED Current 3.0mA
- Load Current 1.5A
- On-Resistance 0.13Ω
- Output Capacitance 220pF
- Low Off-State Leakage Current 1.0μA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

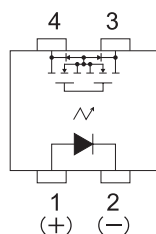


PART NO	PACKAGE	PACKING
AB47	DIP-4	Tube 90pcs
AA47	DIP-6	Tube 50pcs
AC47	DIP-8	Tube 45pcs
AB47F	SMD-4	Tube 90pcs
AA47F	SMD-6	Tube 50pcs
AC47F	SMD-8	Tube 45pcs
AB47S	SOP-4	Tube 100pcs
AC47S	SOP-8	Tube 50pcs
AB47F-R1	SMD-4	Reel 1000pcs
AA47F-R1	SMD-6	
AC47F-R1	SMD-8	
AB47S-R1	SOP-4	
AC47S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

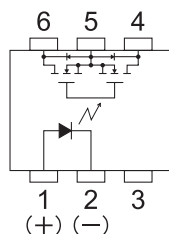
Terminal Identification

AB47(F)(S)



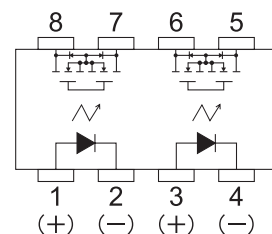
- 1: Anode (LED)
2: Cathode (LED)
3,4: Drain (MOS FET)

AA47(F)



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4,6: Drain (MOS FET)
5: Source (MOS FET)

AC47(F)(S)



- 1,3: Anode (LED)
2,4: Cathode (LED)
5,6,7,8: Drain (MOS FET)

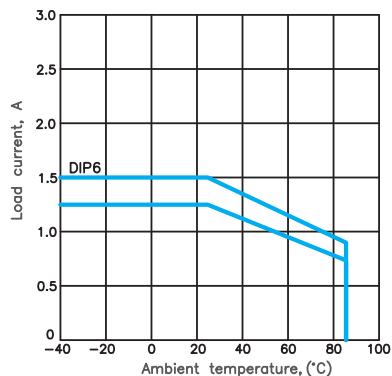
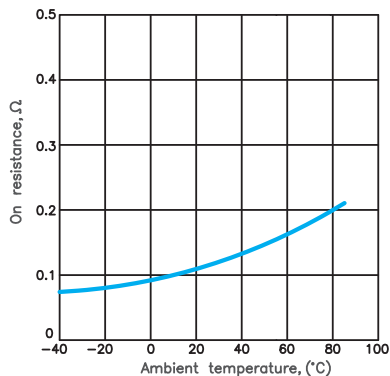
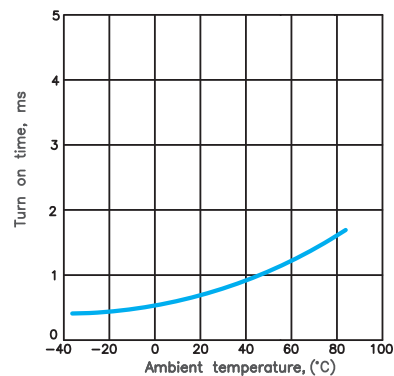
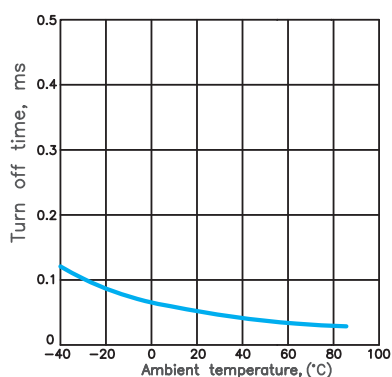
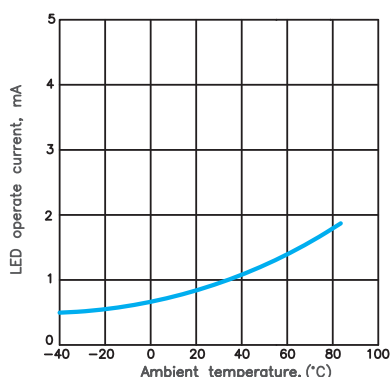
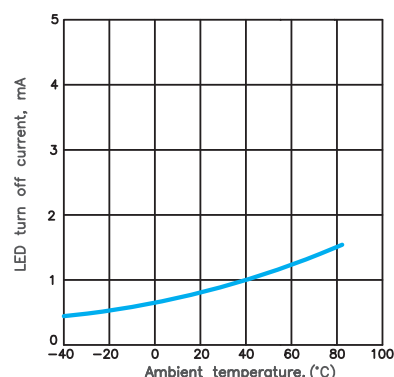
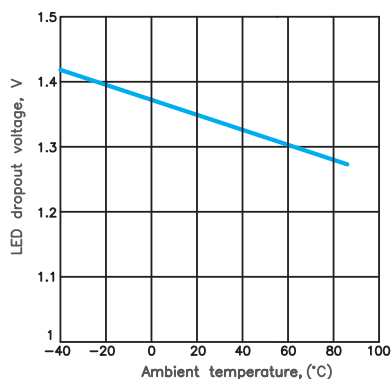
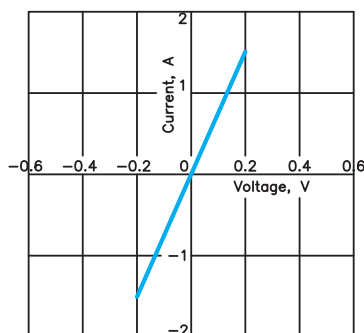
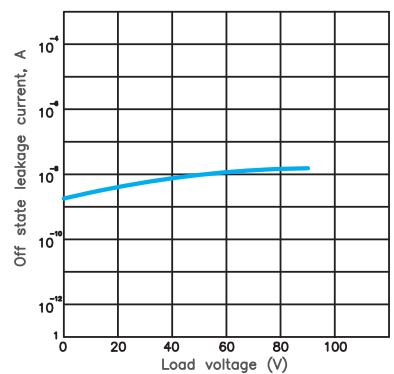
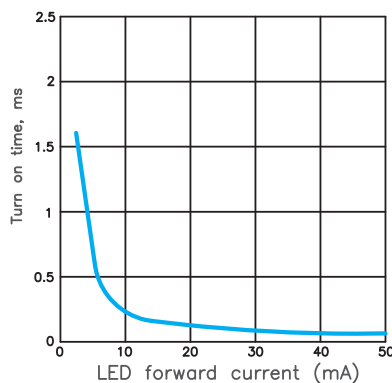
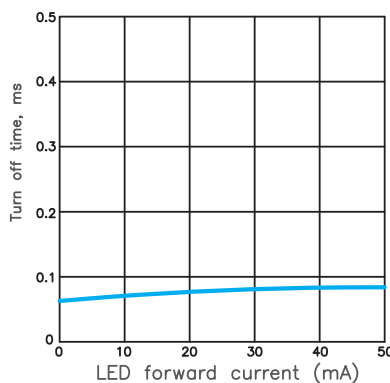
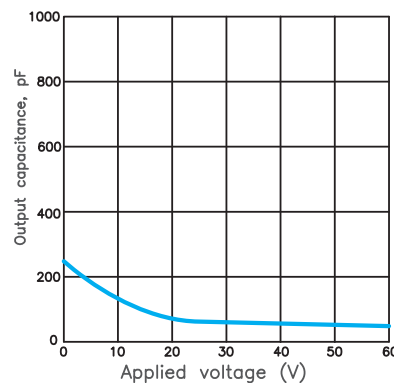


Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB47S	AC47S	AB47(F)	AC47(F)	AA47(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V _L	80V (AC peak or DC)				
	Load Current 負荷電流 (A)	I _L	1.25	1.0	1.25	1.0	1.5
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (A)	I _{PEAK}	3.0	3.0	3.0	3.0	3.0
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	350	450	350	450	500
Total Power Dissipation 全損耗 (mW)		P _T	400	500	400	500	550
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V _{I/O}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V _{I/O}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.37	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		1.0	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		0.13	0.16	Ω	I _F =5mA,I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}			1.0	μA	V _L =80V
	Output Capacitance 輸出端容量	C _{OUT}		220		pF	V _L =0V,f=1MHz
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		0.4	3.0	ms	I _F =5mA I _L =Rating (for SOP type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.5	ms	
	Turn-On Time 動作時間	T _{ON}		0.3	3.0	ms	I _F =10mA I _L =Rating (for DIP/SMD type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz

Hi-A Grade $\geq 1A$ Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureTurn on time Vs.
Ambient temperatureTurn off time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Turn off current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portionOff state leakage current Vs.
Load voltage characteristicsLED forward current Vs.
turn on time characteristicsLED forward current Vs.
turn off time characteristicsApplied voltage Vs.
output capacitance characteristics

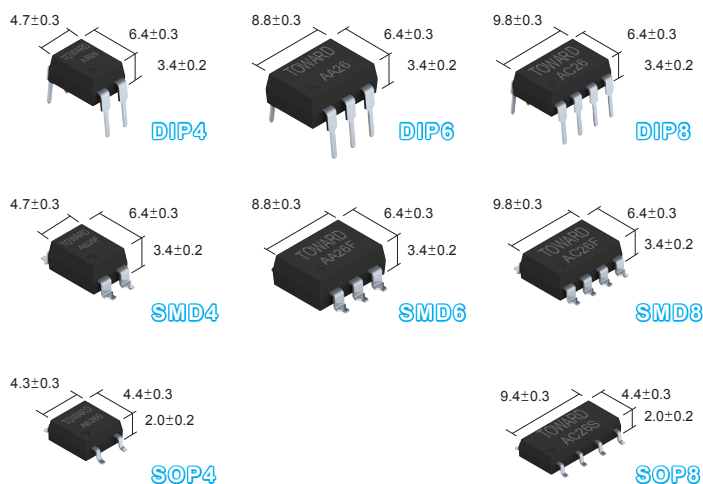
26 Series

40V/2A·1a/2a



Features

- Contact Form 1a / 2a
- Load Voltage 40V
- Operation LED Current 3.0mA
- Load Current 2.0A
- On-Resistance 0.035 Ω
- Output Capacitance 240pF
- Low Off-State Leakage Current 1.0 μ A



Application

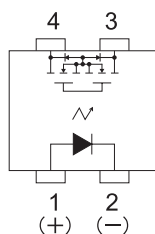
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AB26	DIP-4	Tube 90pcs
AA26	DIP-6	Tube 50pcs
AC26	DIP-8	Tube 45pcs
AB26F	SMD-4	Tube 90pcs
AA26F	SMD-6	Tube 50pcs
AC26F	SMD-8	Tube 45pcs
AB26S	SOP-4	Tube 100pcs
AC26S	SOP-8	Tube 50pcs
AB26F-R1	SMD-4	Reel 1000pcs
AA26F-R1	SMD-6	
AC26F-R1	SMD-8	
AB26S-R1	SOP-4	
AC26S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

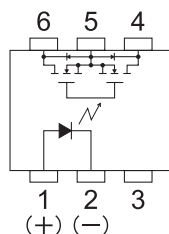
Terminal Identification

AB26(F)(S)



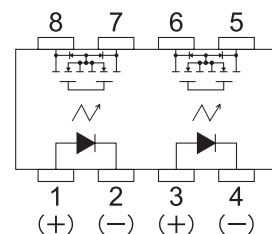
- 1:Anode (LED)
2:Cathode (LED)
3,4:Drain (MOS FET)

AA26(F)



- 1:Anode (LED)
2:Cathode (LED)
3:NC
4,6:Drain (MOS FET)
5:Source (MOS FET)

AC26(F)(S)



- 1,3:Anode (LED)
2,4:Cathode (LED)
5,6,7,8:Drain (MOS FET)



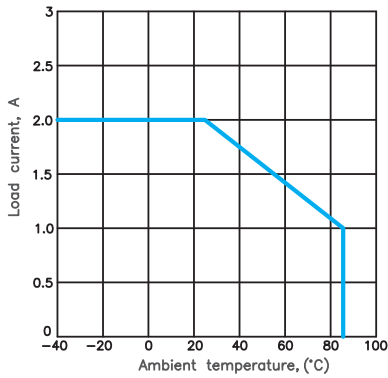
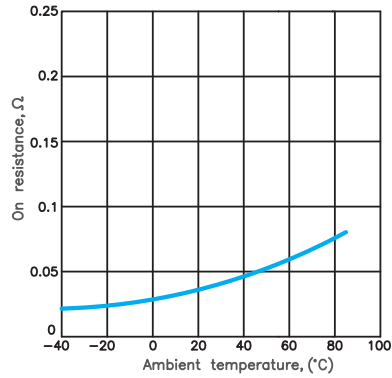
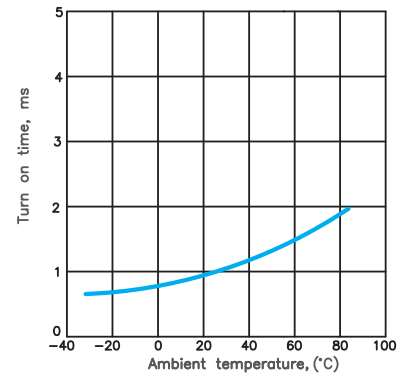
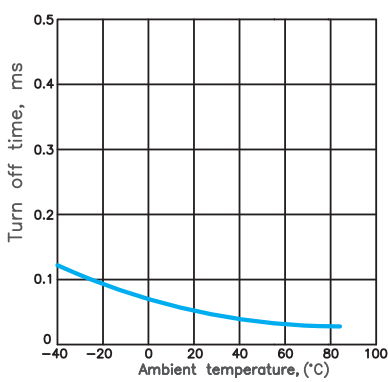
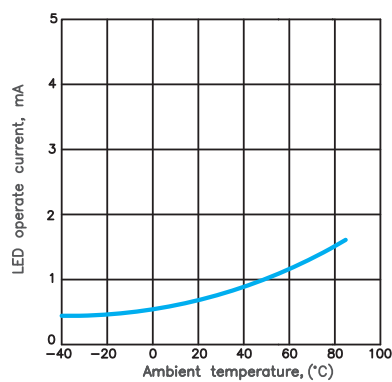
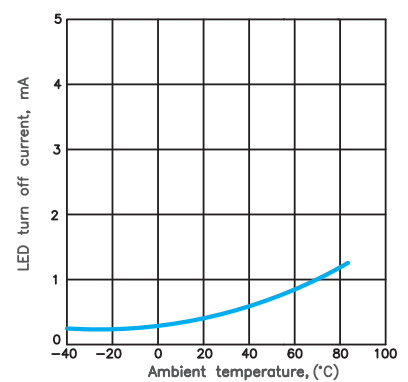
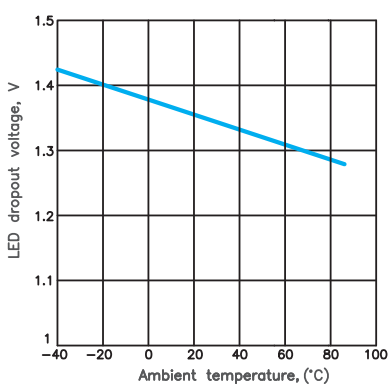
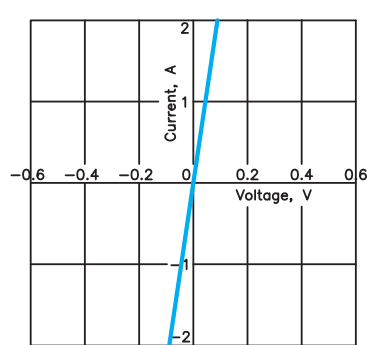
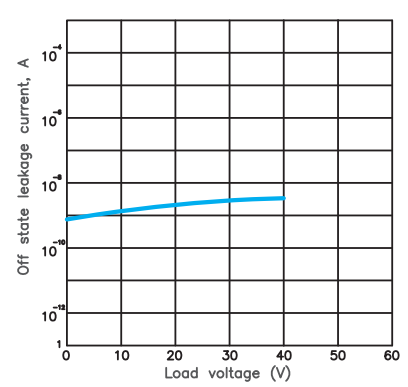
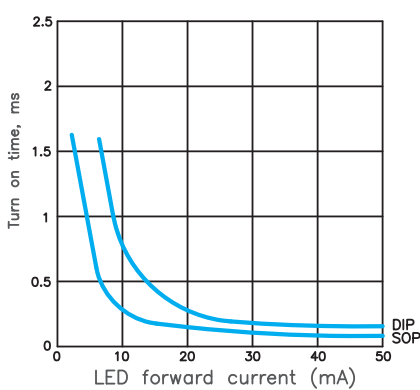
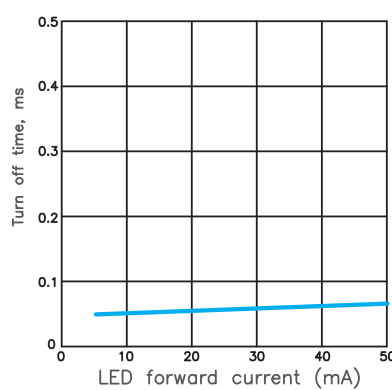
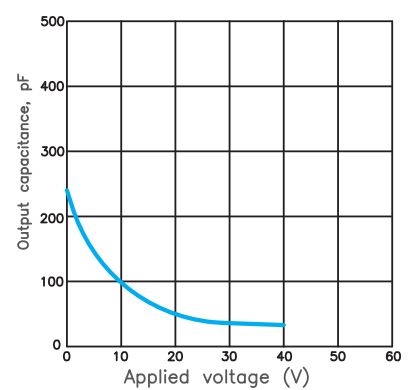


Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB26S	AC26S	AB26(F)	AC26(F)	AA26(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I_F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I_{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V_R	5V				
	Input Power Dissipation 輸入損耗	P_{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V_L	40V (AC peak or DC)				
	Load Current 負荷電流 (A)	I_L	2.0	1.6	2.0	2.0	2.0
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (A)	I_{PEAK}	5.0	5.0	5.0	5.0	5.0
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	350	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P_T	400	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V_{IO}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V_{IO}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T_{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T_{STG}	-40°C ~ +100°C				

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.37	1.5	V	$I_F=10mA$
	Operation LED Current LED 動作電流	$I_{F ON}$		0.7	3.0	mA	
	Recovery LED Voltage LED 復位電壓	$V_{F OFF}$	0.5	1.1		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		0.035	0.06	Ω	$I_F=5mA, I_L=Rating$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I_{LEAK}			1.0	μA	$V_L=40V$
	Output Capacitance 輸出端容量	C_{OUT}		240		pF	$V_L=0V, f=1MHz$
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		1.0	2.5	ms	$I_F=5mA$ $I_L=Rating$ (for SOP type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.2	ms	
	Turn-On Time 動作時間	T_{ON}		0.8	2.5	ms	$I_F=10mA$ $I_L=Rating$ (for DIP/SMD type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	$R_{I/O}$	10^9			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	$C_{I/O}$		1.3		pF	$f=1MHz$

Hi-A Grade $\geq 1A$ Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureTurn on time Vs.
Ambient temperatureTurn off time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Turn off current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portionOff state leakage current Vs.
Load voltage characteristicsLED forward current Vs.
turn on time characteristicsLED forward current Vs.
turn off time characteristicsApplied voltage Vs.
output capacitance characteristics



36 Series

2.5A·1a

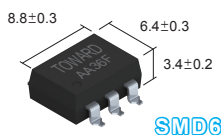
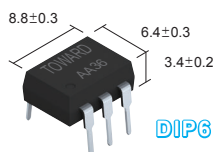


Features

- Contact Form 1a
- Load Voltage 60V
- Operation LED Current 3.0mA
- Load Current 2.5A
- On-Resistance 0.07Ω
- Output Capacitance 470pF
- Low Off-State Leakage Current 1.0μA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

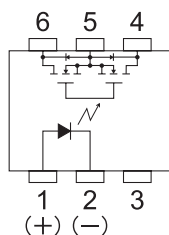


PART NO	PACKAGE	PACKING
AA36	DIP-6	Tube 50pcs
AA36F	SMD-6	Tube 50pcs
AA36F-R1	SMD-6	Reel 1000pcs

* Package & PCB Layout Design, See Page 134

Terminal Identification

AA36(F)



- 1:Anode (LED)
- 2:Cathode (LED)
- 3:NC
- 4,6:Drain (MOS FET)
- 5:Source (MOS FET)

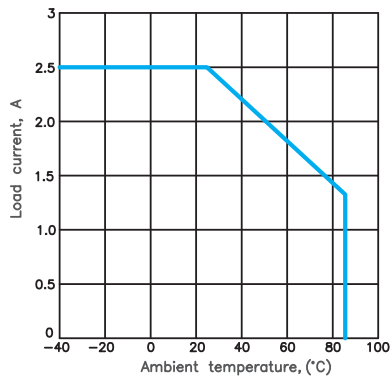
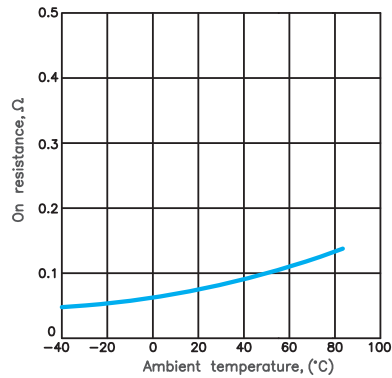
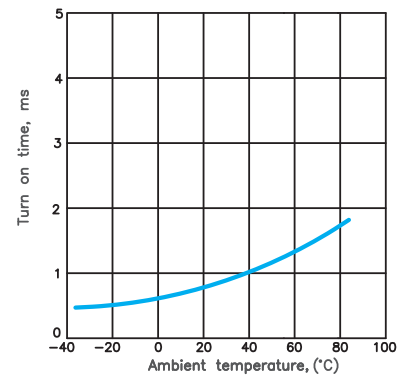
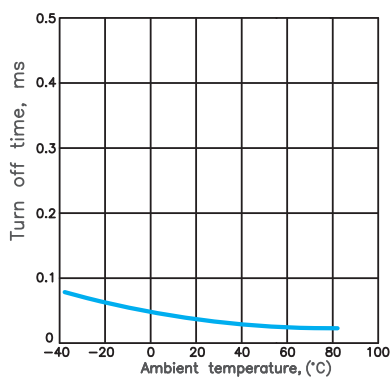
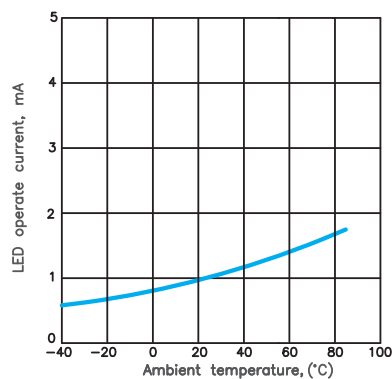
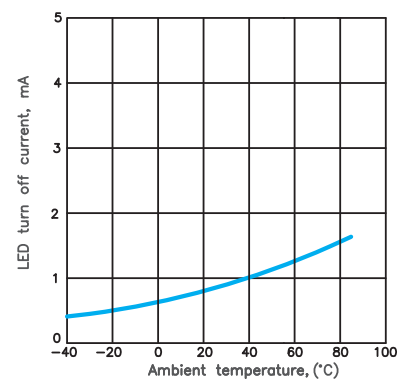
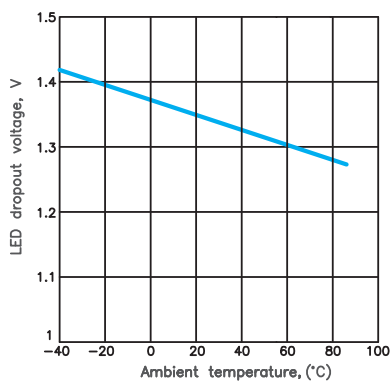
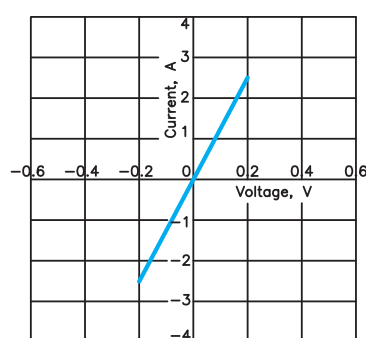
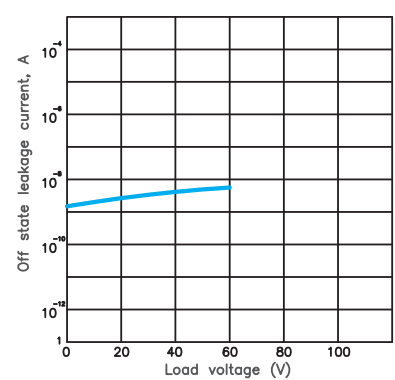
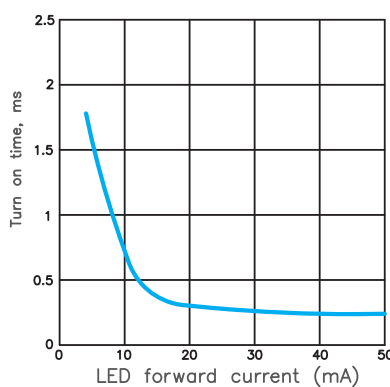
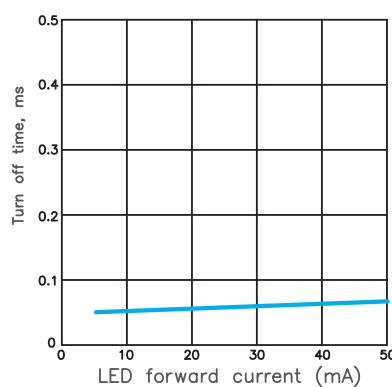
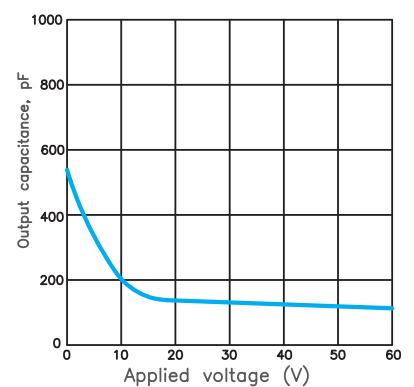
Hi-A Grade $\geq 1A$ PhotoMOS-FET Relays
General-PurposePhotoMOS-FET Relays
Hi-A Grade $\geq 1A$ PhotoMOS-FET Relays
Hi-V Grade $\geq 600V$ PhotoMOS-FET Relays
Low Leakage CurrentPhotoMOS-FET Relays
RFPhotoMOS-FET Relays
Photo CouplerPhotoMOS-FET Relays
Mos DriverPhotoMOS-FET Relays
Solid State RelaysPhotoMOS-FET Relays
Solid State RelaysPhotoMOS-FET Relays
Solid State RelaysPhotoMOS-FET Relays
Solid State Relays

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value	
Input 輸入	Continuous LED Current 連續 LED 電流	I_F	50mA	
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I_{FP}	500mA	
	LED Reverse Voltage 逆向 LED 電壓	V_R	5V	
	Input Power Dissipation 輸入損耗	P_{IN}	75mW	
output 輸出	Load Voltage 負荷電壓	V_L	60V (AC peak or DC)	
	Load Current 負荷電流 (A)	I_L	A	2.5A(AC or DC)
			B	3.5A(DC)
			C	5.0A(DC)
	Peak Load Current 峰值負荷電流 (1ms,1 shot)	I_{PEAK}	6.0	
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	500	
Total Power Dissipation 全損耗 (mW)		P_T	550	
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V_{IO}	3750	
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V_{IO}	5000	
Operating Temperature 使用時溫度		T_{OPR}	-40°C ~ +85°C	
Storage Temperature 保存溫度		T_{STG}	-40°C ~ +100°C	

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.37	1.5	V	$I_F=10mA$
	Operation LED Current LED 動作電流	$I_{F ON}$		1.5	3.0	mA	
	Recovery LED Voltage LED 復位電壓	$V_{F OFF}$	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		0.07	0.1	Ω	$I_F=10mA, I_L=Rating$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I_{LEAK}			1.0	μA	$I_F=0mA, V_L=60V$
	Output Capacitance 輸出端容量	C_{OUT}		470		pF	$V_L=0V, f=1MHz$
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		0.6	3.0	ms	$I_F=10mA, I_L=Rating$
	Turn-Off Time 復位時間	T_{OFF}		0.04	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R_{IO}	5×10^9			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C_{IO}		1		pF	$f=1MHz$

Hi-A Grade $\geq 1A$ Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureTurn on time Vs.
Ambient temperatureTurn off time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Turn off current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portionOff state leakage current Vs.
Load voltage characteristicsLED forward current Vs.
turn on time characteristicsLED forward current Vs.
turn off time characteristicsApplied voltage Vs.
output capacitance characteristics

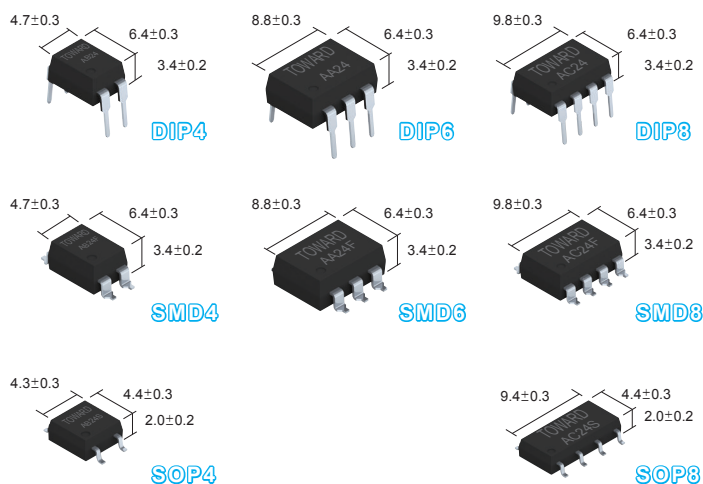
24 Series

40V/3.5A·1a/2a



Features

- Contact Form 1a / 2a
- Load Voltage 40V
- Operation LED Current 3.0mA
- Load Current 3.5A
- On-Resistance 0.027Ω
- Output Capacitance 810pF
- Low Off-State Leakage Current 1.0μA



Application

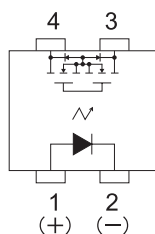
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AB24	DIP-4	Tube 90pcs
AA24	DIP-6	Tube 50pcs
AC24	DIP-8	Tube 45pcs
AB24F	SMD-4	Tube 90pcs
AA24F	SMD-6	Tube 50pcs
AC24F	SMD-8	Tube 45pcs
AB24S	SOP-4	Tube 100pcs
AC24S	SOP-8	Tube 50pcs
AB24F-R1	SMD-4	Reel 1000pcs
AA24F-R1	SMD-6	
AC24F-R1	SMD-8	
AB24S-R1	SOP-4	
AC24S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

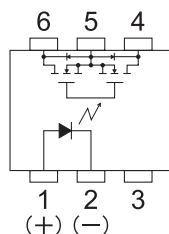
Terminal Identification

AB24(F)(S)



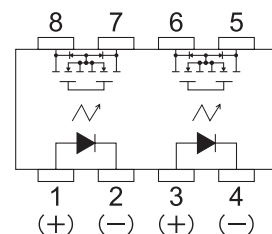
- 1: Anode (LED)
2: Cathode (LED)
3, 4: Drain (MOS FET)

AA24(F)



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4, 6: Drain (MOS FET)
5: Source (MOS FET)

AC24(F)(S)



- 1, 3: Anode (LED)
2, 4: Cathode (LED)
5, 6, 7, 8: Drain (MOS FET)

Hi-A Grade $\geq 1A$

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB24S	AC24S	AB24(F)	AC24(F)	AA24(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I_F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I_{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V_R	5V				
	Input Power Dissipation 輸入損耗	P_{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V_L	40V (AC peak or DC)				
	Load Current 負荷電流 (A)	I_L	2.5	2.0	2.5	2.0	3.5
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (A)	I_{PEAK}	6.0	6.0	6.0	6.0	8.0
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	350	450	350	450	500
Total Power Dissipation 全損耗 (mW)		P_T	400	500	400	500	550
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V_{IO}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V_{IO}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T_{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T_{STG}	-40°C ~ +100°C				

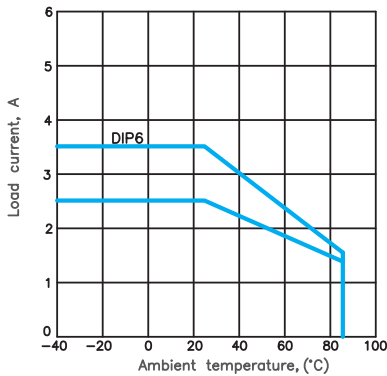
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.37	1.5	V	$I_F=10mA$
	Operation LED Current LED 動作電流	$I_{F ON}$		0.5(SOP) 1.2(DIP)	3.0	mA	
	Recovery LED Voltage LED 復位電壓	$V_{F OFF}$	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		0.033 0.027(DIP6)	0.043 0.035(DIP6)	Ω	$I_F=5mA, I_L=Rating$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I_{LEAK}			1.0	μA	$V_L=40V$
	Output Capacitance 輸出端容量	C_{OUT}		240 810(DIP6)		pF	$V_L=0V, f=1MHz$
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		0.8(SOP) 1.2(DIP4,8)	3.0	ms	$I_F=5mA$ $I_L=Rating$ (for SOP/DIP4,8 type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.5	ms	
	Turn-On Time 動作時間	T_{ON}		1.2(DIP6)	3.0	ms	$I_F=10mA$ $I_L=Rating$ (for DIP6 type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	$R_{I/O}$	10^9			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	$C_{I/O}$		1.3		pF	$f=1MHz$

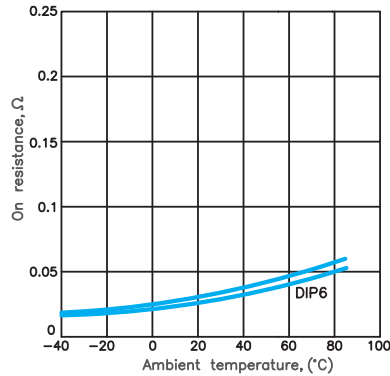


Hi-A Grade $\geq 1A$

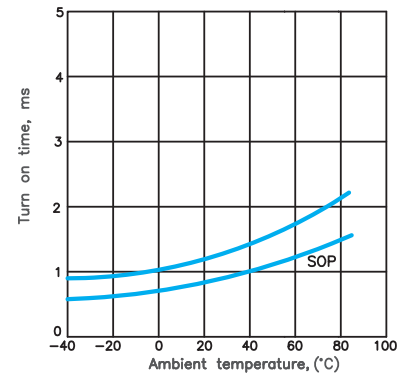
Load current Vs.
Ambient temperature



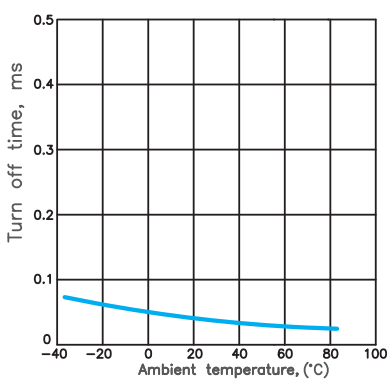
On resistance Vs.
Ambient temperature



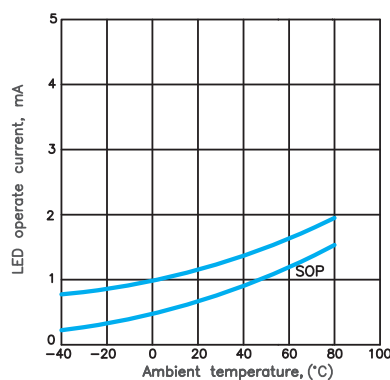
Turn on time Vs.
Ambient temperature



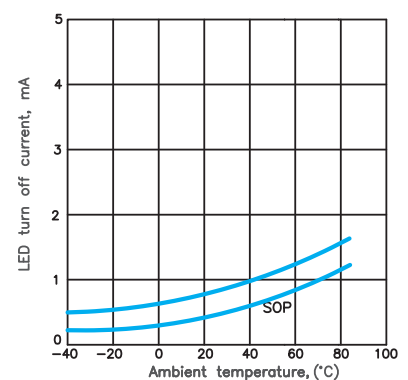
Turn off time Vs.
Ambient temperature



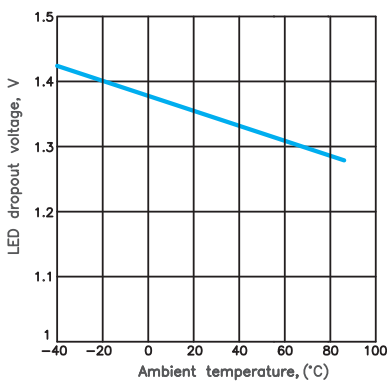
LED operate current Vs.
Ambient temperature



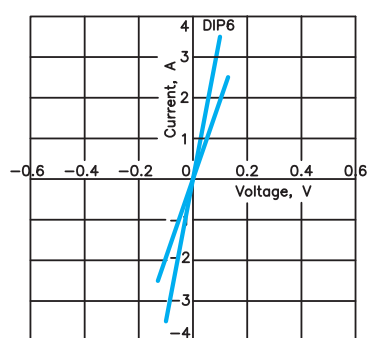
LED Turn off current Vs.
Ambient temperature



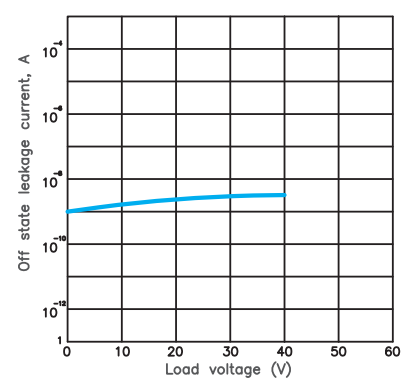
LED forward voltage Vs.
Ambient temperature



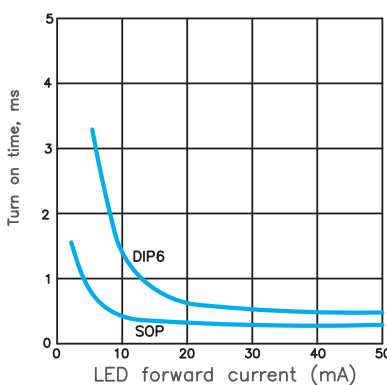
Voltage Vs. current characteristics
of output at MOS portion



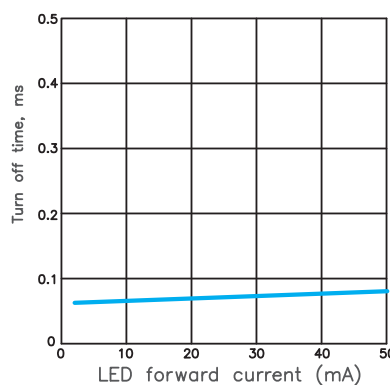
Off state leakage current Vs.
Load voltage characteristics



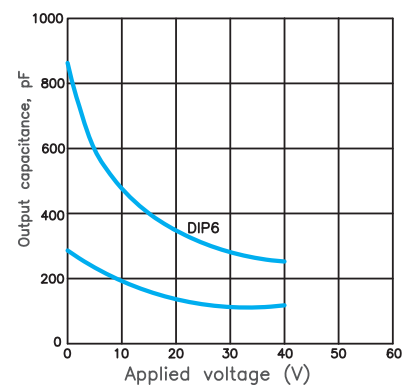
LED forward current Vs.
turn on time characteristics



LED forward current Vs.
turn off time characteristics



Applied voltage Vs.
output capacitance characteristics





28 Series

4.5A·1a

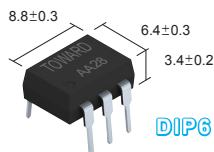


Features

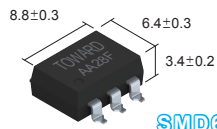
- Contact Form 1a
- Load Voltage 40V
- Operation LED Current 3.0mA
- Load Current 4.5A
- On-Resistance 0.02 Ω
- Output Capacitance 690pF
- Low Off-State Leakage Current 1.0 μ A

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle



DIP6



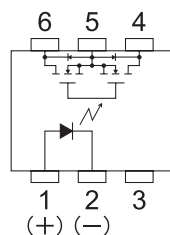
SMD6

PART NO	PACKAGE	PACKING
AA28	DIP-6	Tube 50pcs
AA28F	SMD-6	Tube 50pcs
AA28F-R1	SMD-6	Reel 1000pcs

* Package & PCB Layout Design, See Page 134

Terminal Identification

AA28(F)



- 1:Anode (LED)
- 2:Cathode (LED)
- 3:NC
- 4,6:Drain (MOS FET)
- 5:Source (MOS FET)

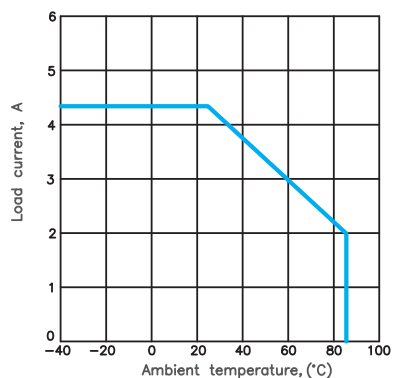
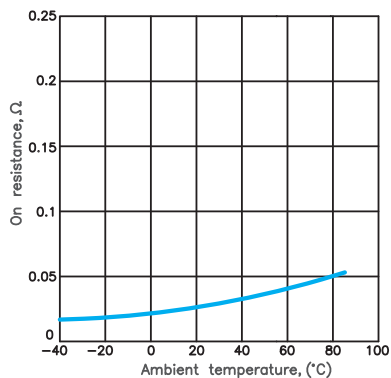
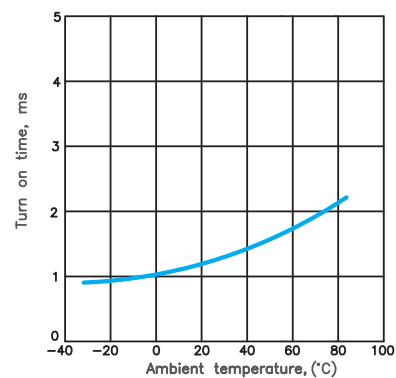
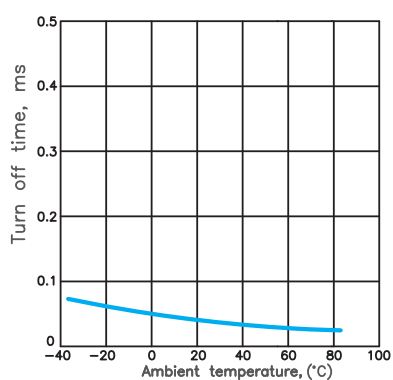
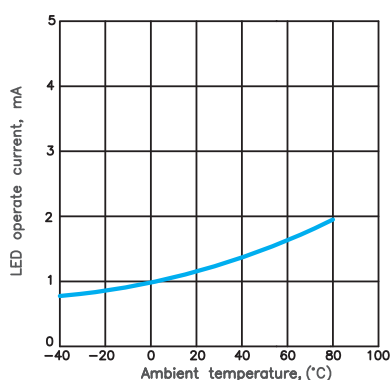
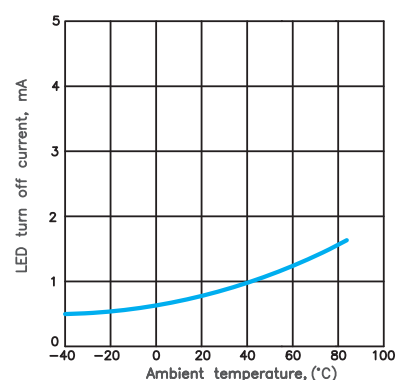
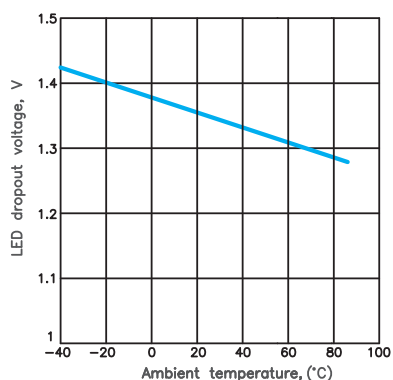
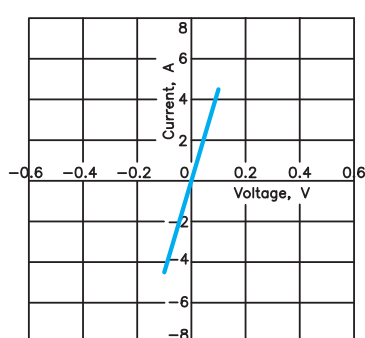
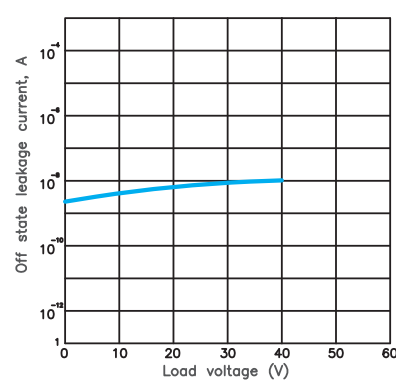
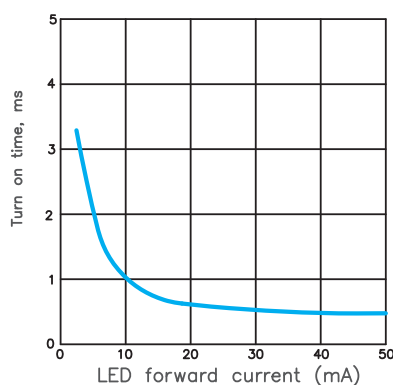
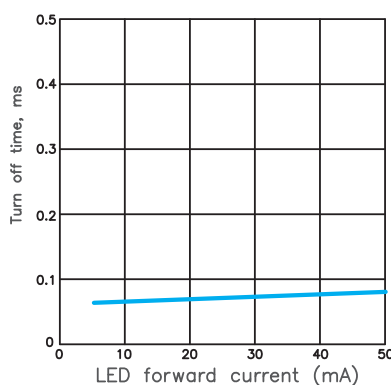
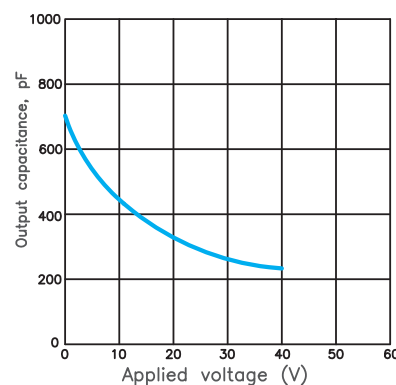
Hi-A Grade $\geq 1A$ PhotoMOS-FET Relays
General-PurposePhotoMOS-FET Relays
Hi-A Grade $\geq 1A$ PhotoMOS-FET Relays
Hi-V Grade $\geq 600V$ PhotoMOS-FET Relays
Low Leakage CurrentPhotoMOS-FET Relays
RFPhotoMOS-FET Relays
Photo CouplerPhotoMOS-FET Relays
Mos DriverPhotoMOS-FET Relays
Solid State RelaysPhotoMOS-FET Relays
Solid State RelaysPhotoMOS-FET Relays
Solid State RelaysPhotoMOS-FET Relays
Solid State RelaysPhotoMOS-FET Relays
Solid State Relays

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value	
Input 輸入	Continuous LED Current 連續 LED 電流	I_F	50mA	
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I_{FP}	500mA	
	LED Reverse Voltage 逆向 LED 電壓	V_R	5V	
	Input Power Dissipation 輸入損耗	P_{IN}	75mW	
output 輸出	Load Voltage 負荷電壓	V_L	40V (AC peak or DC)	
	Load Current 負荷電流 (A)	I_L	A (AC or DC)	4.5
			B (DC)	5.0
			C (DC)	7.0
	Peak Load Current 峰值負荷電流 (1ms,1 shot)	I_{PEAK}	9.5	
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	500	
Total Power Dissipation 全損耗 (mW)		P_T	550	
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V_{IO}	3750	
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V_{IO}	5000	
Operating Temperature 使用時溫度		T_{OPR}	-40°C ~ +85°C	
Storage Temperature 保存溫度		T_{STG}	-40°C ~ +100°C	

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.37	1.5	V	$I_F=10mA$
	Operation LED Current LED 動作電流	$I_{F ON}$		1.2	3.0	mA	
	Recovery LED Voltage LED 復位電壓	$V_{F OFF}$	0.5	1.2		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		0.02	0.03	Ω	$I_F=10mA, I_L=Rating$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I_{LEAK}			1.0	μA	$I_F=0mA, V_L=40V$
	Output Capacitance 輸出端容量	C_{OUT}		690		pF	$V_L=0V, f=1MHz$
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		1.2	4.0	ms	$I_F=10mA, I_L=Rating$
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R_{IO}	5×10^9			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C_{IO}		1		pF	$f=1MHz$

Hi-A Grade $\geq 1A$ Load current Vs.
Ambient temperatureOn resistance Vs.
Ambient temperatureTurn on time Vs.
Ambient temperatureTurn off time Vs.
Ambient temperatureLED operate current Vs.
Ambient temperatureLED Turn off current Vs.
Ambient temperatureLED forward voltage Vs.
Ambient temperatureVoltage Vs. current characteristics
of output at MOS portionOff state leakage current Vs.
Load voltage characteristicsLED forward current Vs.
turn on time characteristicsLED forward current Vs.
turn off time characteristicsApplied voltage Vs.
output capacitance characteristics

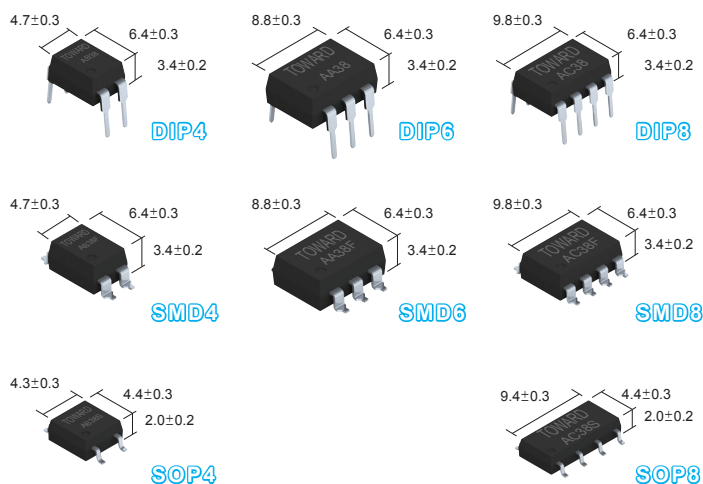
38 Series 600V·1a/2a

AEC-Q101 / Hi-Temp (105°C) Available



Features

- Contact Form 1a / 2a
- Load Voltage 600V
- Operation LED Current 3.0mA
- Load Current 80mA
- On-Resistance 40Ω
- Output Capacitance 47pF
- Low Off-State Leakage Current 1.0μA



Application

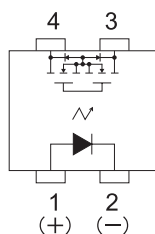
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AB38	DIP-4	Tube 90pcs
AA38	DIP-6	Tube 50pcs
AC38	DIP-8	Tube 45pcs
AB38F	SMD-4	Tube 90pcs
AA38F	SMD-6	Tube 50pcs
AC38F	SMD-8	Tube 45pcs
AB38S	SOP-4	Tube 100pcs
AC38S	SOP-8	Tube 50pcs
AB38F-R1	SMD-4	Reel 1000pcs
AA38F-R1	SMD-6	
AC38F-R1	SMD-8	
AB38S-R1	SOP-4	
AC38S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

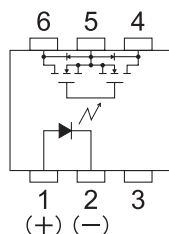
Terminal Identification

AB38(F)(S)



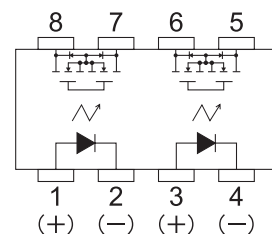
- 1: Anode (LED)
2: Cathode (LED)
3, 4: Drain (MOS FET)

AA38(F)



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4, 6: Drain (MOS FET)
5: Source (MOS FET)

AC38(F)(S)



- 1, 3: Anode (LED)
2, 4: Cathode (LED)
5, 6, 7, 8: Drain (MOS FET)

Hi-V Grade $\geq 600V$

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB38S	AC38S	AB38(F)	AC38(F)	AA38(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I_F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I_{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V_R	5V				
	Input Power Dissipation 輸入損耗	P_{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V_L	600V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I_L	70	60	80	70	80
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I_{PEAK}	200	200	200	200	200
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P_T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V_{IO}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V_{IO}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T_{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T_{STG}	-40°C ~ +100°C				

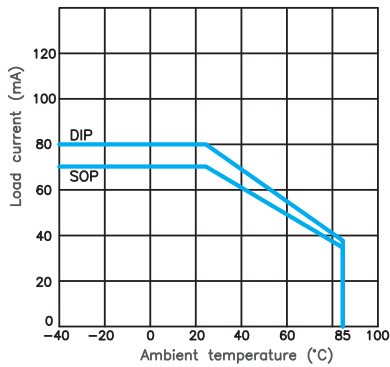
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.17	1.5	V	$I_F=10mA$
	Operation LED Current LED 動作電流	$I_{F ON}$		1.0	3.0	mA	
	Recovery LED Voltage LED 復位電壓	$V_{F OFF}$	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		40	60	Ω	$I_F=5mA, I_L=Rating$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I_{LEAK}			1.0	μA	$V_L=200V$
	Output Capacitance 輸出端容量	C_{OUT}		47		pF	$V_L=0V, f=1MHz$
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		0.2	0.5	ms	$I_F=5mA$ $I_L=Rating$ (for SOP type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.2	ms	
	Turn-On Time 動作時間	T_{ON}		0.1	1.0	ms	$I_F=10mA$ $I_L=Rating$ (for DIP/SMD type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	$R_{I/O}$	10^9			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	$C_{I/O}$		1.3		pF	$f=1MHz$

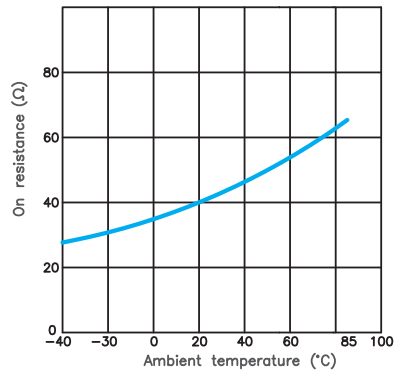


Hi-V Grade $\geq 600V$

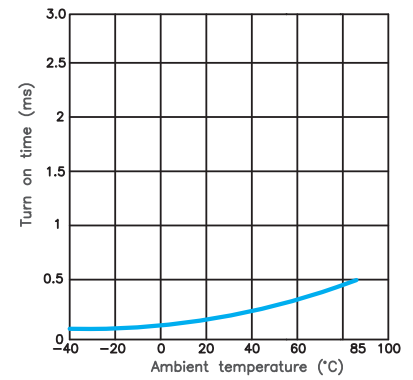
Load current Vs.
Ambient temperature



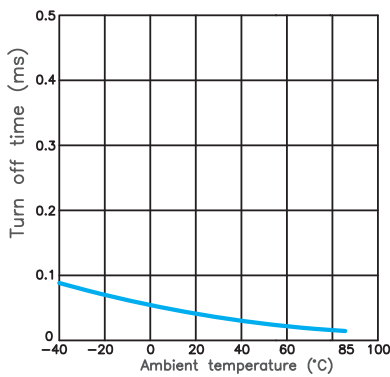
On resistance Vs.
Ambient temperature



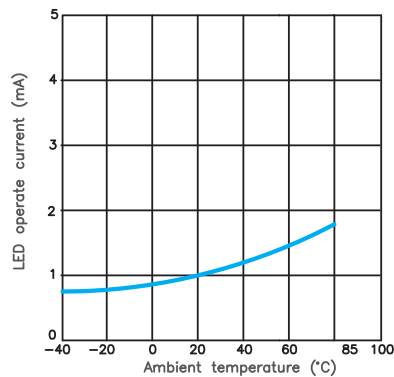
Turn on time Vs.
Ambient temperature



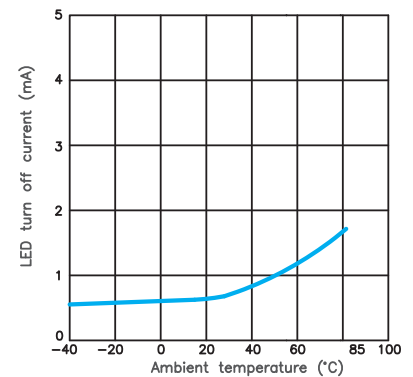
Turn off time Vs.
Ambient temperature



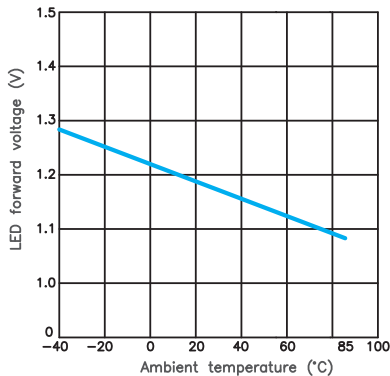
LED operate current Vs.
Ambient temperature



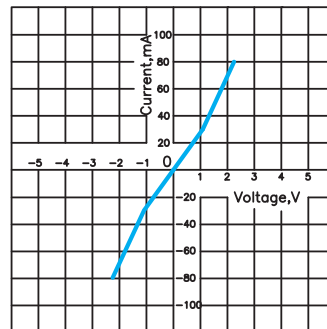
LED Turn off current Vs.
Ambient temperature



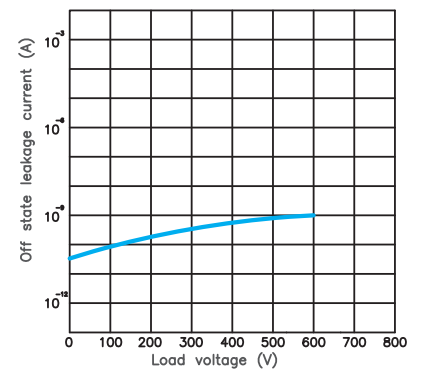
LED forward voltage Vs.
Ambient temperature



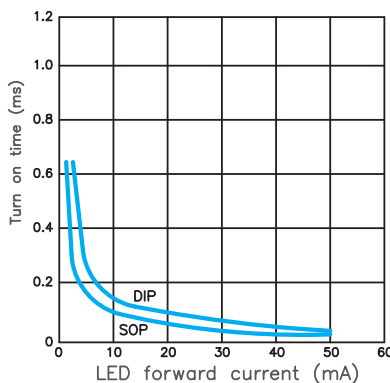
Voltage Vs. current characteristics
of output at MOS portion



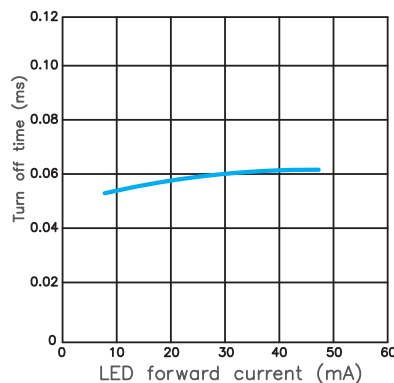
Off state leakage current



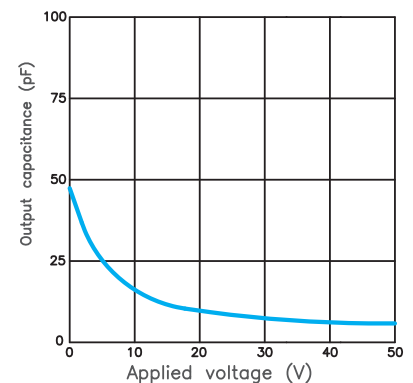
LED forward current Vs.
turn on time characteristics



LED forward current Vs.
turn off time characteristics



Applied voltage Vs.
output capacitance characteristics



Hi-V Grade $\geq 600V$

40 Series 1500V·1a

AEC-Q101 / Hi-Temp (105°C) Available

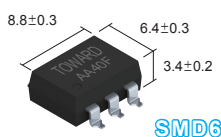
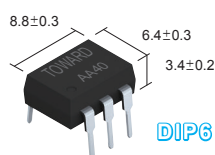


Features

- Contact Form 1a
- Load Voltage 1500V
- Operation LED Current 5.0mA
- Load Current 45mA
- On-Resistance 180Ω
- Output Capacitance 83pF
- Low Off-State Leakage Current 10μA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

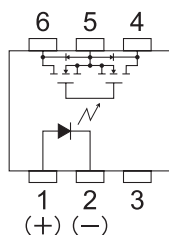


PART NO	PACKAGE	PACKING
AA40	DIP-6	Tube 50pcs
AA40F	SMD-6	Tube 50pcs
AA40F-R1	SMD-6	Reel 1000pcs

* Package & PCB Layout Design, See Page 134

Terminal Identification

AA40(F)



- 1:Anode (LED)
- 2:Cathode (LED)
- 3:NC
- 4,6:Drain (MOS FET)
- 5:Source (MOS FET)

Hi-V Grade $\geq 600V$ PhotomOS-FET Relays
General-PurposePhotomOS-FET Relays
Hi-A Grade $\geq 1A$ PhotomOS-FET Relays
Hi-V Grade $\geq 600V$ PhotomOS-FET Relays
Low Leakage CurrentPhotomOS-FET Relays
RF

PhotomOS-FET Relays

PhotomOS-FET Relays
Photo Coupler

PhotomOS-FET Relays

PhotomOS-FET Relays
Mos Driver

PhotomOS-FET Relays

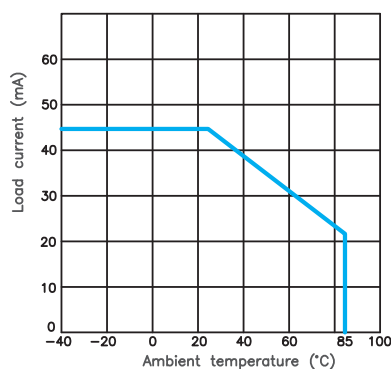
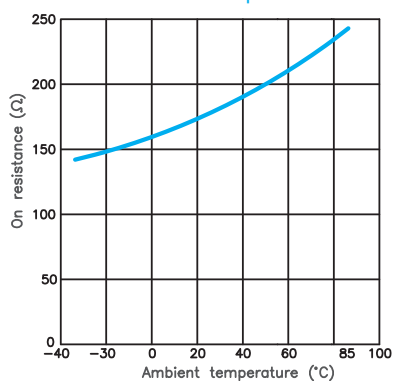
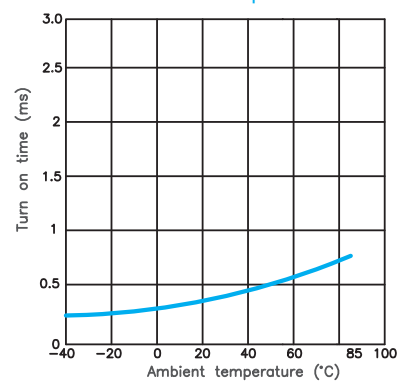
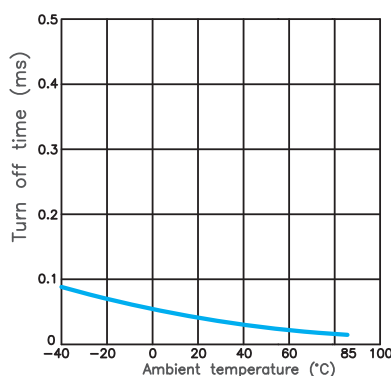
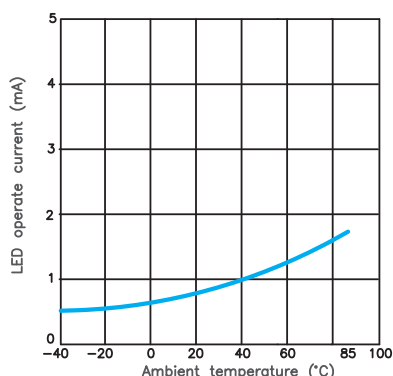
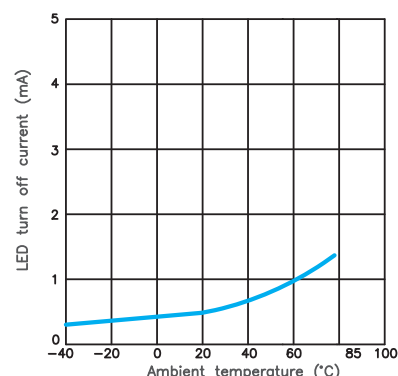
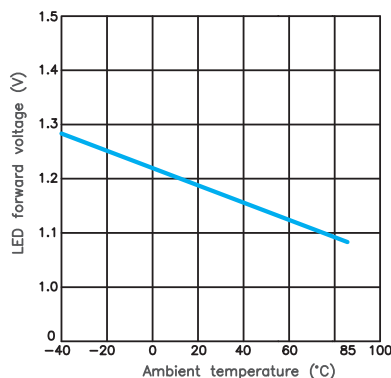
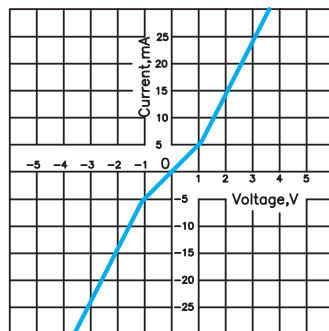
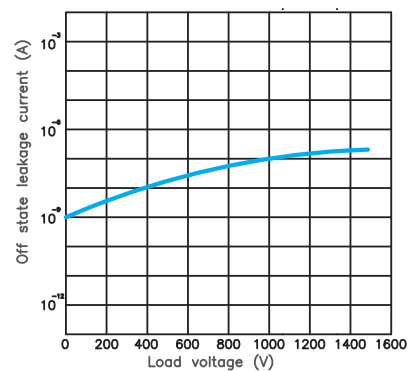
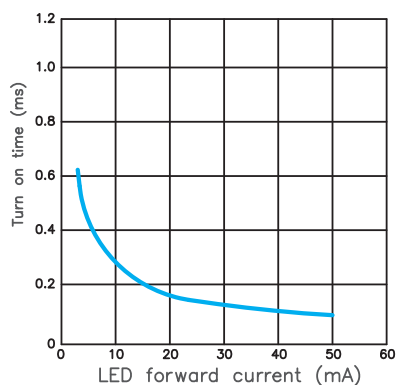
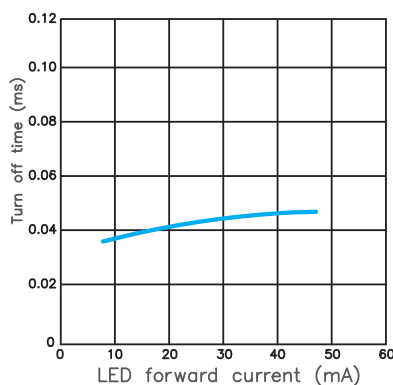
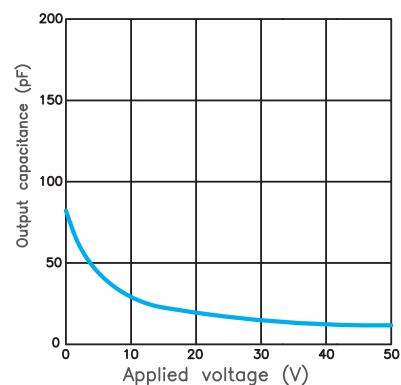
Solid State Relays

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value	
Input 輸入	Continuous LED Current 連續 LED 電流	I_F	50mA	
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I_{FP}	500mA	
	LED Reverse Voltage 逆向 LED 電壓	V_R	5V	
	Input Power Dissipation 輸入損耗	P_{IN}	75mW	
output 輸出	Load Voltage 負荷電壓	V_L	1500V (AC peak or DC)	
	Load Current 負荷電流 (mA)	I_L	A (AC or DC)	45
			B (DC)	50
			C (DC)	70
	Peak Load Current 峰值負荷電流 (1ms,1 shot)	I_{PEAK}	180	
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	450	
Total Power Dissipation 全損耗 (mW)		P_T	500	
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V_{IO}	3750	
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V_{IO}	5000	
Operating Temperature 使用時溫度		T_{OPR}	$-40^{\circ}C \sim +85^{\circ}C$	
Storage Temperature 保存溫度		T_{STG}	$-40^{\circ}C \sim +100^{\circ}C$	

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.17	1.5	V	$I_F=10mA$
	Operation LED Current LED 動作電流	$I_{F ON}$		0.9	5.0	mA	
	Recovery LED Voltage LED 復位電壓	$V_{F OFF}$	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		110	200	Ω	$I_F=10mA, I_L=Rating$ (within 1sec.)
		R_{ON}		180	300	Ω	$I_F=10mA, I_L<5mA$
	Off-State Leakage Current 開路狀態漏電流	I_{LEAK}			10	μA	$I_F=10mA, V_L=40V$
	Output Capacitance 輸出端容量	C_{OUT}		83		pF	$V_L=0V, f=1MHz$
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		0.3	1.0	ms	$I_F=10mA, I_L=Rating$
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R_{IO}	10^{10}			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C_{IO}		1.3		pF	$f=1MHz$

Hi-V Grade $\geq 600V$ **Load current Vs.
Ambient temperature****On resistance Vs.
Ambient temperature****Turn on time Vs.
Ambient temperature****Turn off time Vs.
Ambient temperature****LED operate current Vs.
Ambient temperature****LED Turn off current Vs.
Ambient temperature****LED forward voltage Vs.
Ambient temperature****Voltage Vs. current characteristics
of output at MOS portion****Off state leakage current****LED forward current Vs.
turn on time characteristics****LED forward current Vs.
turn off time characteristics****Applied voltage Vs.
output capacitance characteristics**

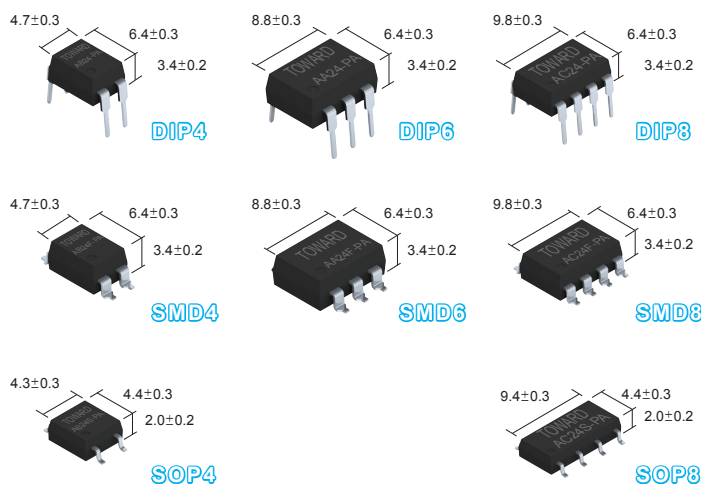
24 - pA Series

40V/3.5A·1a/2a



Features

- Contact Form 1a / 2a
- Load Voltage 40V
- Operation LED Current 3.0mA
- Load Current 3.5A
- On-Resistance 0.027Ω
- Output Capacitance 810pF
- Low Off-State Leakage Current 1nA



Application

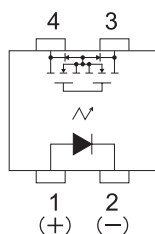
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AB24-pA	DIP-4	Tube 90pcs
AA24-pA	DIP-6	Tube 50pcs
AC24-pA	DIP-8	Tube 45pcs
AB24F-pA	SMD-4	Tube 90pcs
AA24F-pA	SMD-6	Tube 50pcs
AC24F-pA	SMD-8	Tube 45pcs
AB24S-pA	SOP-4	Tube 100pcs
AC24S-pA	SOP-8	Tube 50pcs
AB24F-pA-R1	SMD-4	Reel 1000pcs
AA24F-pA-R1	SMD-6	
AC24F-pA-R1	SMD-8	
AB24S-pA-R1	SOP-4	
AC24S-pA-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

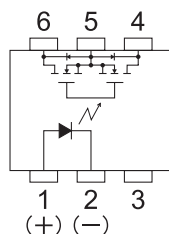
Terminal Identification

AB24(F)(S)-pA



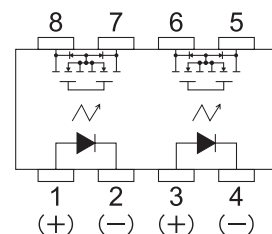
- 1: Anode (LED)
2: Cathode (LED)
3,4: Drain (MOS FET)

AA24(F)-pA



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4,6: Drain (MOS FET)
5: Source (MOS FET)

AC24(F)(S)-pA



- 1,3: Anode (LED)
2,4: Cathode (LED)
5,6,7,8: Drain (MOS FET)

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB24S	AC24S	AB24(F)	AC24(F)	AA24(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V _L	40V (AC peak or DC)				
	Load Current 負荷電流 (A)	I _L	2.5	2.0	2.5	2.0	3.5
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (A)	I _{PEAK}	6.0	6.0	6.0	6.0	8.0
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	350	450	350	450	500
Total Power Dissipation 全損耗 (mW)		P _T	400	500	400	500	550
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (V _{rms})		V _{I/O}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (V _{rms})		V _{I/O}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

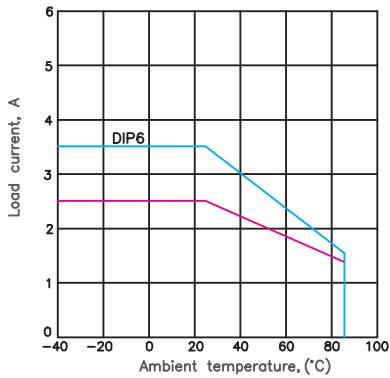
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.37	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.5(SOP) 1.2(DIP)	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		0.033 0.027(DIP6)	0.043 0.035(DIP6)	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}		0.7	1.0	nA	V _L =40V
	Output Capacitance 輸出端容量	C _{OUT}		240 810(DIP6)		pF	V _L =0V, f=1MHz
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		0.8(SOP) 1.2(DIP4,8)	3.0	ms	I _F =5mA I _L =Rating (for SOP/DIP4,8 type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.5	ms	
	Turn-On Time 動作時間	T _{ON}		1.2(DIP6)	3.0	ms	I _F =10mA I _L =Rating (for DIP6 type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz

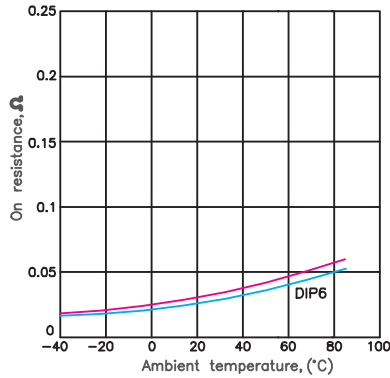


Low Leakage Current (pA)

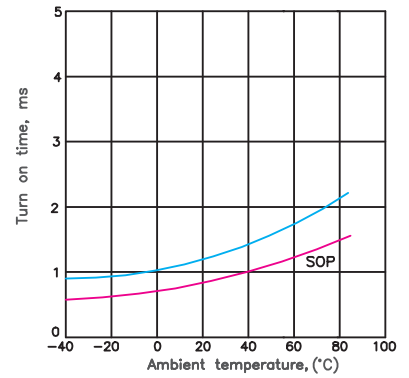
Load current Vs.
Ambient temperature



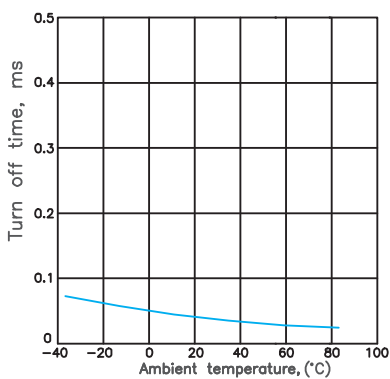
On resistance Vs.
Ambient temperature



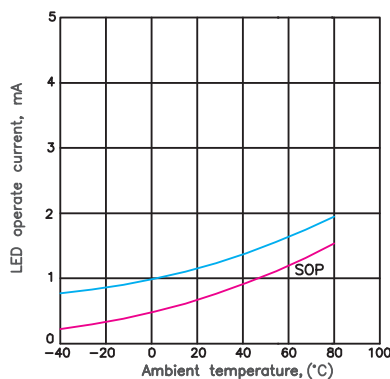
Turn on time Vs.
Ambient temperature



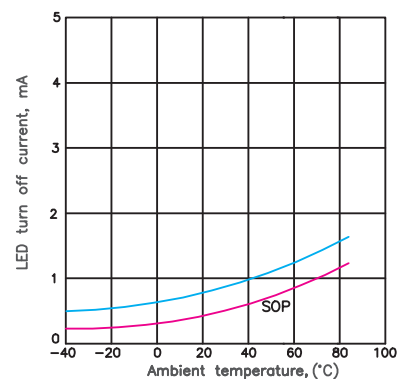
Turn off time Vs.
Ambient temperature



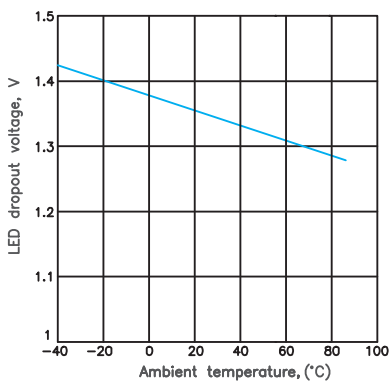
LED operate current Vs.
Ambient temperature



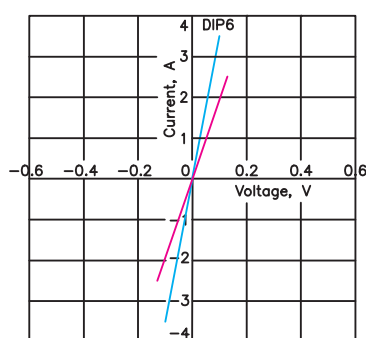
LED Turn off current Vs.
Ambient temperature



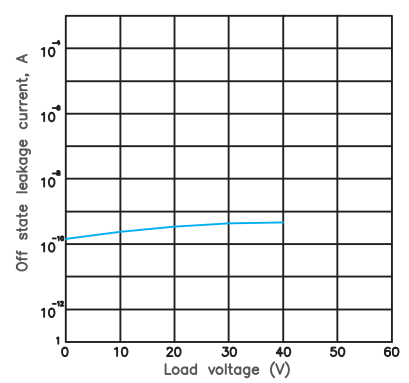
LED forward voltage Vs.
Ambient temperature



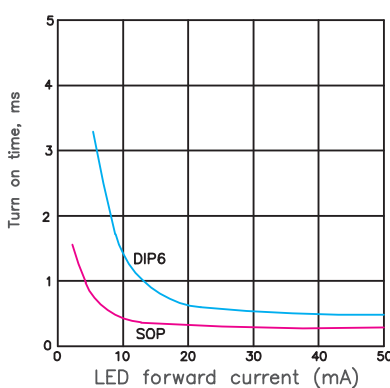
Voltage Vs. current characteristics
of output at MOS portion



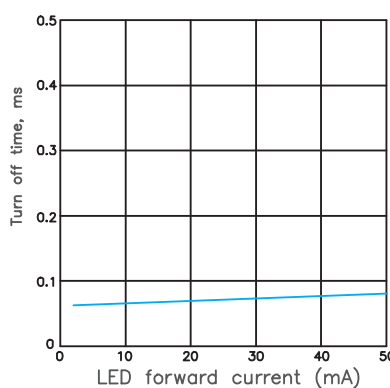
Off state leakage current Vs.
Load voltage characteristics



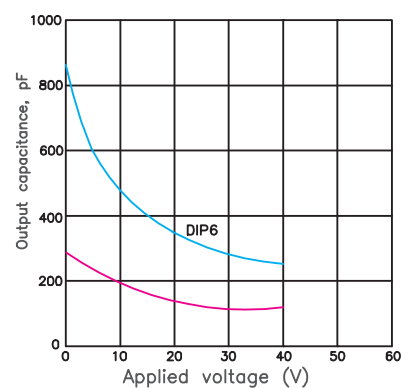
LED forward current Vs.
turn on time characteristics



LED forward current Vs.
turn off time characteristics



Applied voltage Vs.
output capacitance characteristics



Low Leakage Current (pA)

26 - pA Series

40V/2A·1a/2a

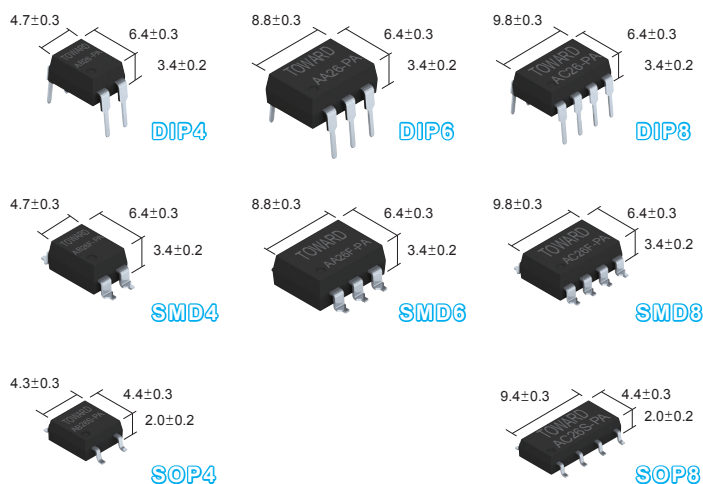


Features

- Contact Form 1a / 2a
- Load Voltage 40V
- Operation LED Current 3.0mA
- Load Current 2.0A
- On-Resistance 0.035Ω
- Output Capacitance 240pF
- Low Off-State Leakage Current 1nA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

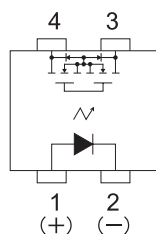


PART NO	PACKAGE	PACKING
AB26-pA	DIP-4	Tube 90pcs
AA26-pA	DIP-6	Tube 50pcs
AC26-pA	DIP-8	Tube 45pcs
AB26F-pA	SMD-4	Tube 90pcs
AA26F-pA	SMD-6	Tube 50pcs
AC26F-pA	SMD-8	Tube 45pcs
AB26S-pA	SOP-4	Tube 100pcs
AC26S-pA	SOP-8	Tube 50pcs
AB26F-pA-R1	SMD-4	Reel 1000pcs
AA26F-pA-R1	SMD-6	
AC26F-pA-R1	SMD-8	
AB26S-pA-R1	SOP-4	
AC26S-pA-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

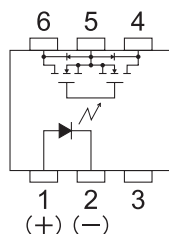
Terminal Identification

AB26(F)(S)-pA



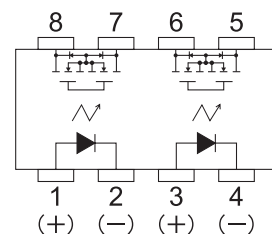
- 1: Anode (LED)
2: Cathode (LED)
3,4: Drain (MOS FET)

AA26(F)-pA



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4,6: Drain (MOS FET)
5: Source (MOS FET)

AC26(F)(S)-pA



- 1,3: Anode (LED)
2,4: Cathode (LED)
5,6,7,8: Drain (MOS FET)


Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

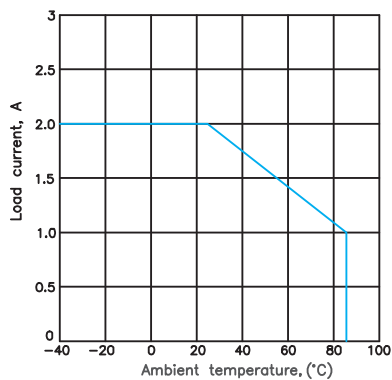
Item		Symbol	Value				
Outline Package			AB26S	AC26S	AB26(F)	AC26(F)	AA26(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V _L	40V (AC peak or DC)				
	Load Current 負荷電流 (A)	I _L	2.0	1.6	2.0	2.0	2.0
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (A)	I _{PEAK}	5.0	5.0	5.0	5.0	5.0
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	350	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P _T	400	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V _{I/O}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V _{I/O}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

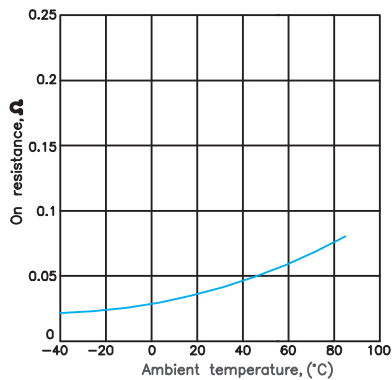
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.37	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.7	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.1		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		0.035	0.06	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}		0.7	1.0	nA	V _L =40V
	Output Capacitance 輸出端容量	C _{OUT}		240		pF	V _L =0V, f=1MHz
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		1.0	2.5	ms	I _F =5mA I _L =Rating (for SOP type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.2	ms	
	Turn-On Time 動作時間	T _{ON}		0.8	2.5	ms	I _F =10mA I _L =Rating (for DIP/SMD type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz



Load current Vs.
Ambient temperature

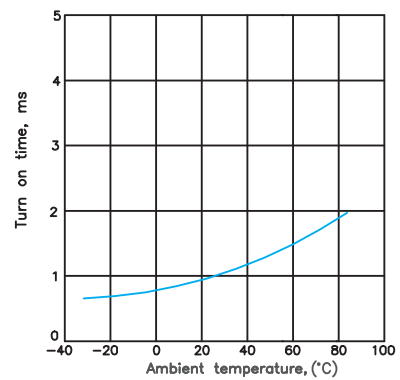


On resistance Vs.
Ambient temperature

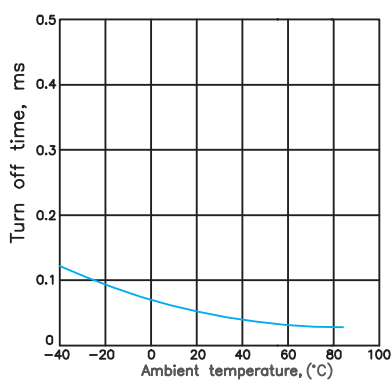


Low Leakage Current (pA)

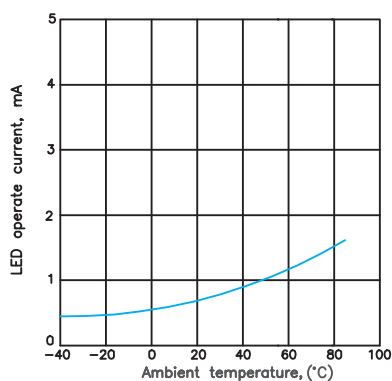
Turn on time Vs.
Ambient temperature



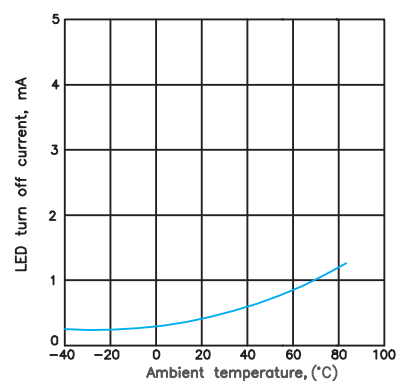
Turn off time Vs.
Ambient temperature



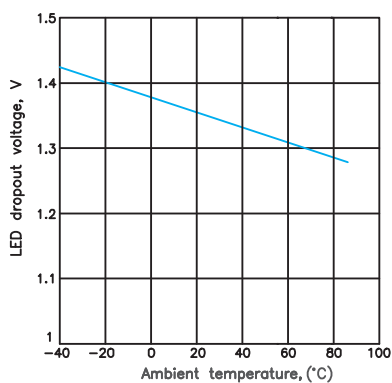
LED operate current Vs.
Ambient temperature



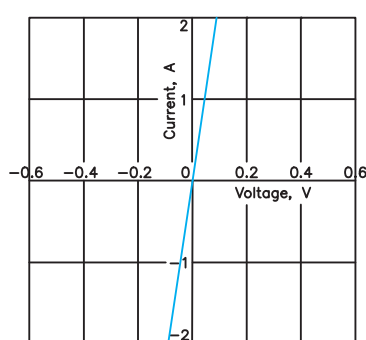
LED Turn off current Vs.
Ambient temperature



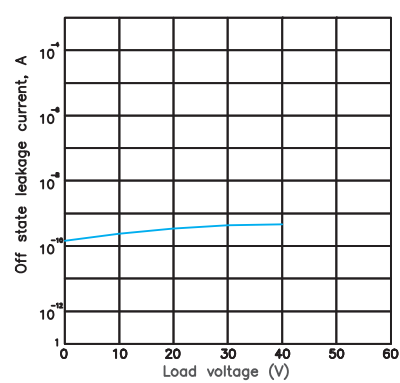
LED forward voltage Vs.
Ambient temperature



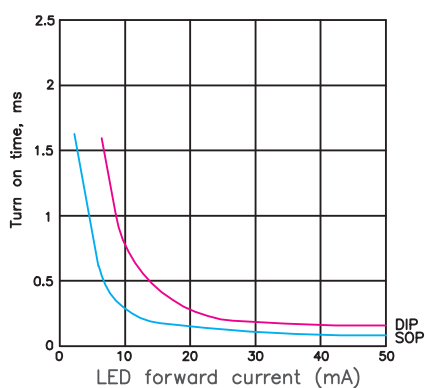
Voltage Vs. current characteristics
of output at MOS portion



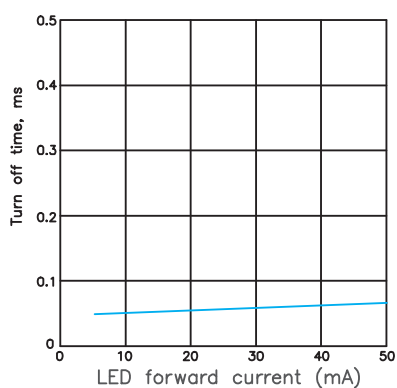
Off state leakage current Vs.
Load voltage characteristics



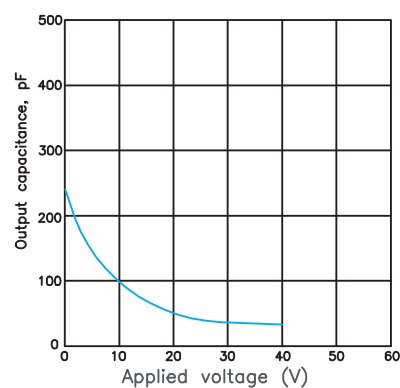
LED forward current Vs.
turn on time characteristics



LED forward current Vs.
turn off time characteristics



Applied voltage Vs.
output capacitance characteristics



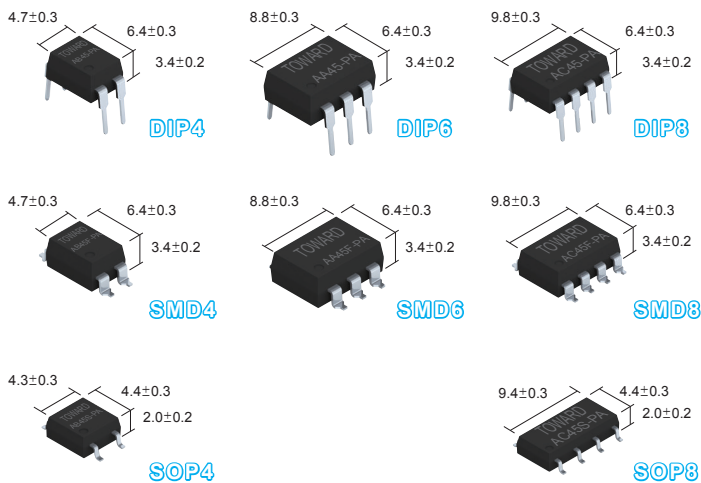
45 - pA Series

60V·1a/2a



Features

- Contact Form 1a / 2a
- Load Voltage 60V
- Operation LED Current 3.0mA
- Load Current 200mA
- On-Resistance 3Ω
- Output Capacitance 20pF
- Low Off-State Leakage Current 1nA



Application

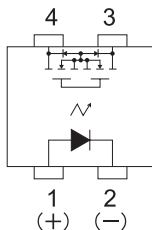
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AB45-pA	DIP-4	Tube 90pcs
AA45-pA	DIP-6	Tube 50pcs
AC45-pA	DIP-8	Tube 45pcs
AB45F-pA	SMD-4	Tube 90pcs
AA45F-pA	SMD-6	Tube 50pcs
AC45F-pA	SMD-8	Tube 45pcs
AB45S-pA	SOP-4	Tube 100pcs
AC45S-pA	SOP-8	Tube 50pcs
AB45F-pA-R1	SMD-4	Reel 1000pcs
AA45F-pA-R1	SMD-6	
AC45F-pA-R1	SMD-8	
AB45S-pA-R1	SOP-4	
AC45S-pA-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

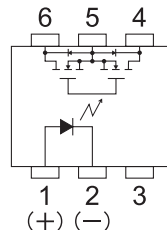
Terminal Identification

AB45(F)(S)-pA



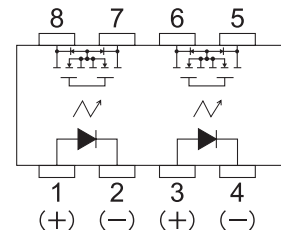
- 1: Anode (LED)
2: Cathode (LED)
3,4: Drain (MOS FET)

AA45(F)-pA



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4,6: Drain (MOS FET)
5: Source (MOS FET)

AC45(F)(S)-pA



- 1,3: Anode (LED)
2,4: Cathode (LED)
5,6,7,8: Drain (MOS FET)



Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB45S	AC45S	AB45(F)	AC45(F)	AA45(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續的 LED 電流	I_F	50mA				
	Peak LED Current LED 的峰值電流 (f=100 Hz, duty=1%)	I_{FP}	500mA				
	LED Reverse Voltage 逆向的 LED 電壓	V_R	5V				
	Input Power Dissipation 容許損失	P_{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V_L	60V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I_L	200	200	200	200	200
	Peak Load Current 峰值負荷電流 (1 ms, 1 shot) (mA)	I_{PEAK}	600	600	600	600	600
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P_T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V_{IO}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V_{IO}	3750	3750	5000	5000	5000
Operating Temperature 使用時周圍溫度		T_{OPR}	-40°C ~ +85°C				
Storage Temperature 周圍保存溫度		T_{STG}	-40°C ~ +100°C				

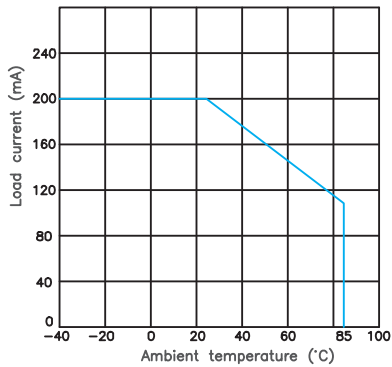
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.17	1.5	V	$I_F=10mA$
	Operation LED Current LED 的動作電流	$I_{F ON}$		0.9	3.0	mA	
	Recovery LED Voltage LED 的復位電壓	$V_{F OFF}$	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		3	14	Ω	$I_F=5mA, I_L=Rating$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態時的電流	I_{LEAK}		0.06	1.0	nA	$V_L=60V$
	Output Capacitance 輸出端容量	C_{OUT}		20		pF	
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		0.1	1.0	ms	$I_F=5mA$ $I_L=Rating$ (for SOP type)
	Turn-Off Time 復位時間	T_{OFF}		0.03	0.5	ms	
	Turn-On Time 動作時間	T_{ON}		0.07	1.0	ms	$I_F=10mA$ $I_L=Rating$ (for DIP/SMD type)
	Turn-Off Time 復位時間	T_{OFF}		0.03	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間的絕緣阻抗	R_{IO}	10^9			Ω	
	I/O Capacitance 輸入 / 力端的靜電容量	C_{IO}		1.3		pF	f=1MHz

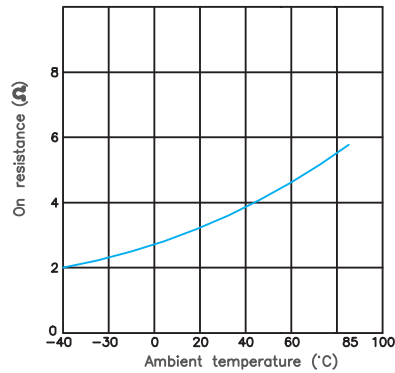


Low Leakage Current (pA)

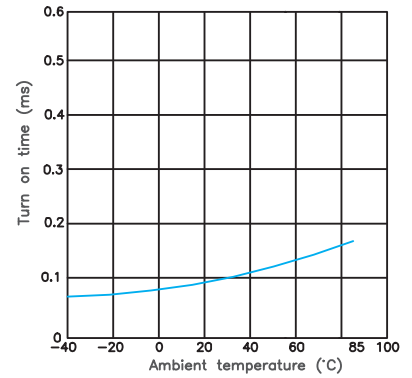
Load current Vs.
Ambient temperature



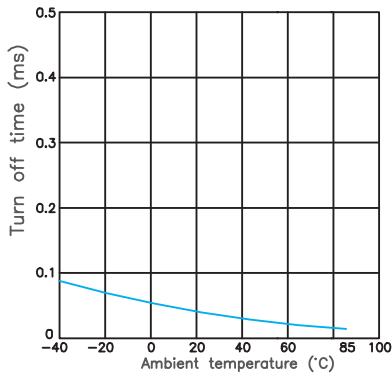
On resistance Vs.
Ambient temperature



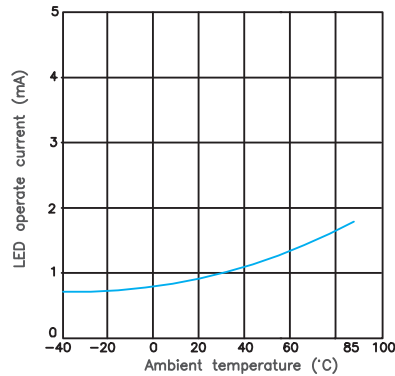
Turn on time Vs.
Ambient temperature



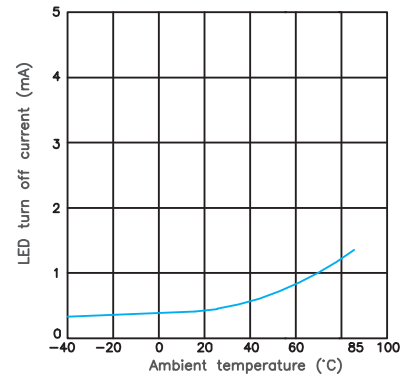
Turn off time Vs.
Ambient temperature



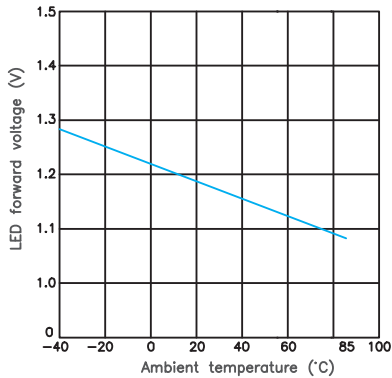
LED operate current Vs.
Ambient temperature



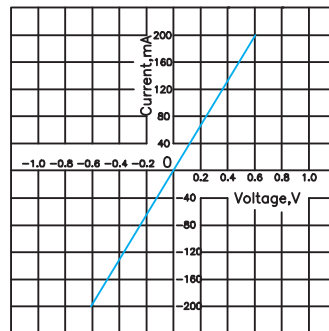
LED Turn off current Vs.
Ambient temperature



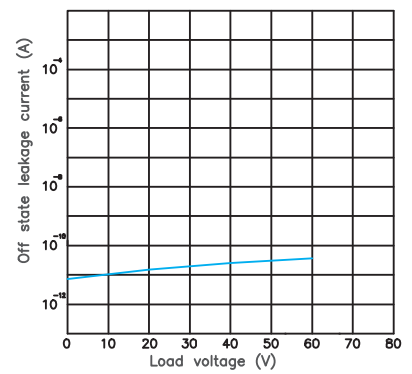
LED forward voltage Vs.
Ambient temperature



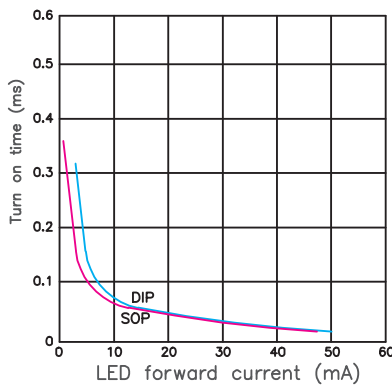
Voltage Vs. current characteristics
of output at MOS portion



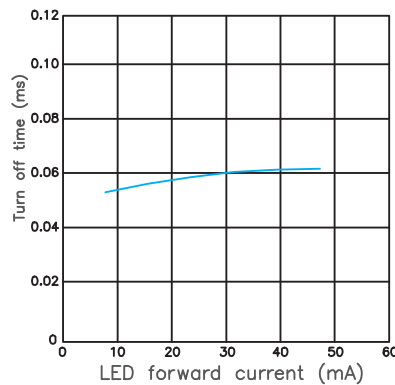
Off state leakage current



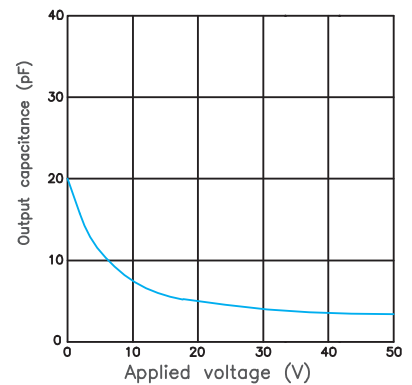
LED forward current Vs.
turn on time characteristics



LED forward current Vs.
turn off time characteristics



Applied voltage Vs.
output capacitance characteristics



Low Leakage Current (pA)

37 - pA Series

60V · 1a/2a

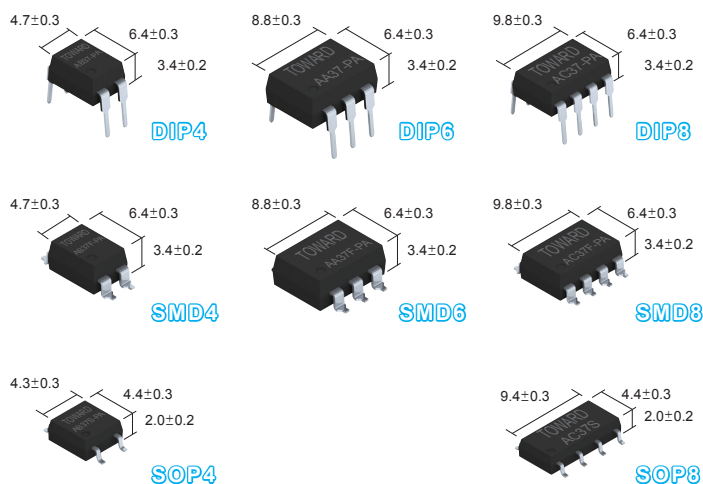


Features

- Contact Form 1a / 2a
- Load Voltage 60V
- Operation LED Current 3.0mA
- Load Current 550mA
- On-Resistance 0.75Ω
- Output Capacitance 45pF
- Low Off-State Leakage Current 1nA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

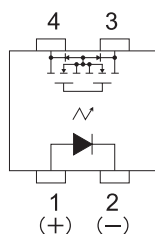


PART NO	PACKAGE	PACKING
AB37-pA	DIP-4	Tube 90pcs
AA37-pA	DIP-6	Tube 50pcs
AC37-pA	DIP-8	Tube 45pcs
AB37F-pA	SMD-4	Tube 90pcs
AA37F-pA	SMD-6	Tube 50pcs
AC37F-pA	SMD-8	Tube 45pcs
AB37S-pA	SOP-4	Tube 100pcs
AC37S-pA	SOP-8	Tube 50pcs
AB37F-pA-R1	SMD-4	Reel 1000pcs
AA37F-pA-R1	SMD-6	
AC37F-pA-R1	SMD-8	
AB37S-pA-R1	SOP-4	
AC37S-pA-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

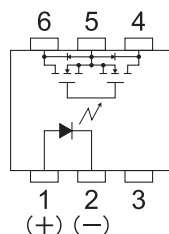
Terminal Identification

AB37(F)(S)-pA



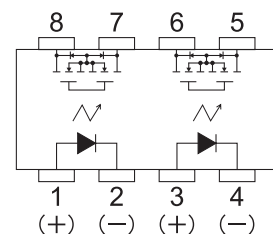
- 1: Anode (LED)
 2: Cathode (LED)
 3, 4: Drain (MOS FET)

AA37(F)-pA



- 1: Anode (LED)
 2: Cathode (LED)
 3: NC
 4, 6: Drain (MOS FET)
 5: Source (MOS FET)

AC37(F)(S)-pA



- 1, 3: Anode (LED)
 2, 4: Cathode (LED)
 5, 6, 7, 8: Drain (MOS FET)


Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

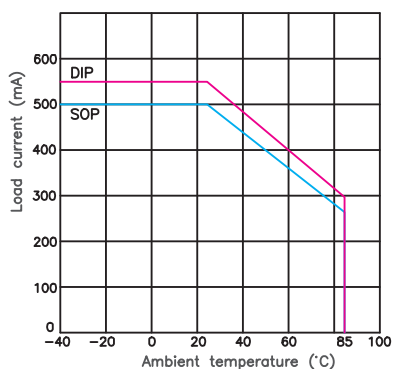
Item		Symbol	Value				
Outline Package			AB37S	AC37S	AB37(F)	AC37(F)	AA37(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V _L	60V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I _L	500	450	550	500	550
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	2000	2000	2000	2000	2000
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P _T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V _{I/O}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V _{I/O}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

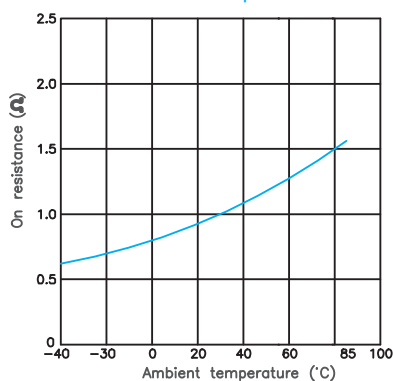
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.9	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		0.75	1.6	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}		0.08	1.0	nA	V _L =60V
	Output Capacitance 輸出端容量	C _{OUT}		45		pF	
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		0.2	1.0	ms	I _F =5mA I _L =Rating (for SOP type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.2	ms	
	Turn-On Time 動作時間	T _{ON}		0.2	1.0	ms	I _F =10mA I _L =Rating (for DIP/SMD type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz



Load current Vs.
Ambient temperature

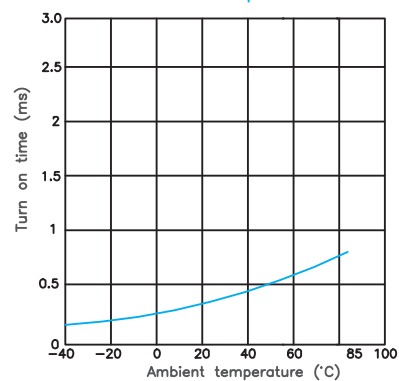


On resistance Vs.
Ambient temperature

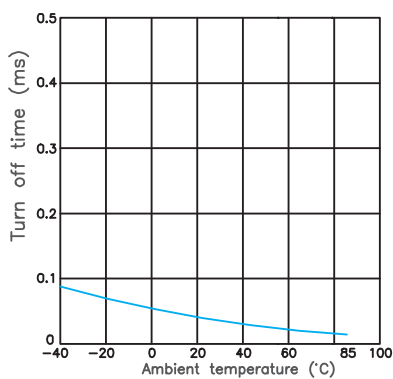


Low Leakage Current (pA)

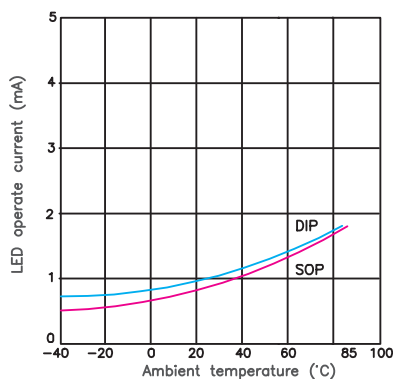
Turn on time Vs.
Ambient temperature



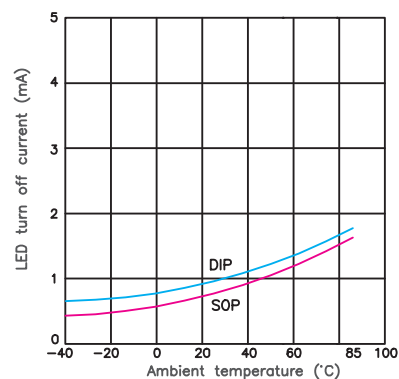
Turn off time Vs.
Ambient temperature



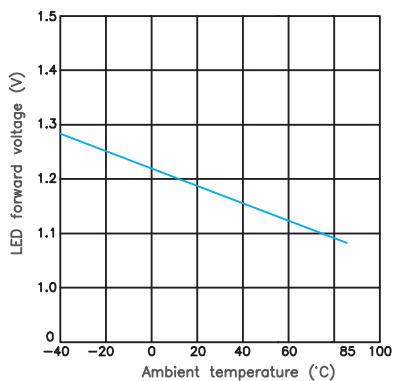
LED operate current Vs.
Ambient temperature



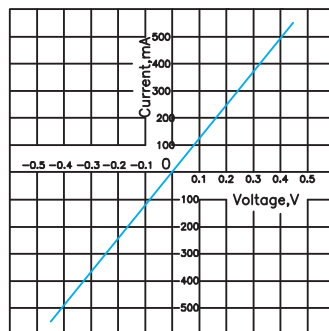
LED Turn off current Vs.
Ambient temperature



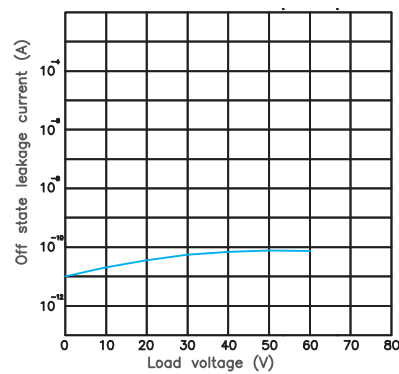
LED forward voltage Vs.
Ambient temperature



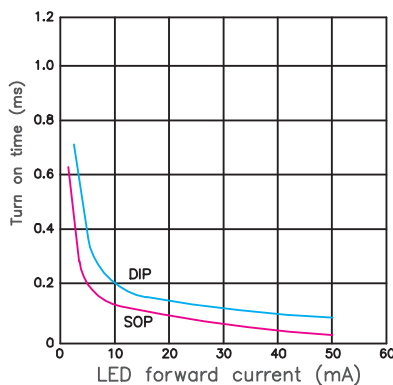
Voltage Vs. current characteristics
of output at MOS portion



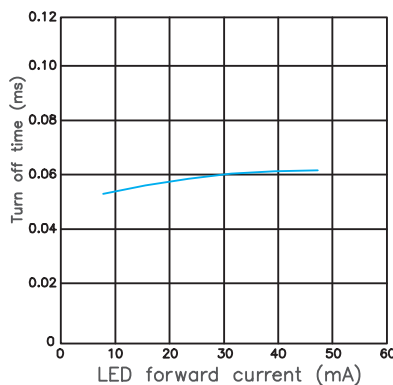
Off state leakage current



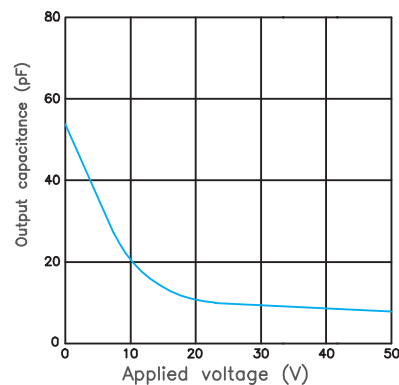
LED forward current Vs.
turn on time characteristics



LED forward current Vs.
turn off time characteristics



Applied voltage Vs.
output capacitance characteristics



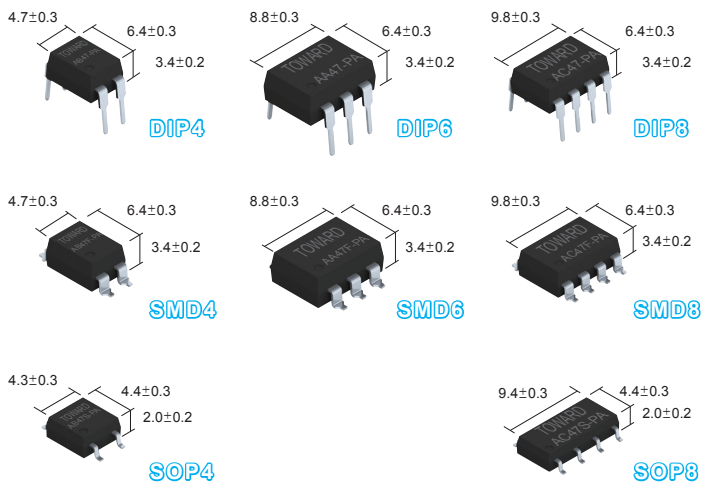
47 - pA Series

80V/1.5A·1a/2a



Features

- Contact Form 1a / 2a
- Load Voltage 80V
- Operation LED Current 3.0mA
- Load Current 1.5A
- On-Resistance 0.13Ω
- Output Capacitance 220pF
- Low Off-State Leakage Current 1nA



Application

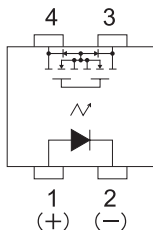
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AB47-pA	DIP-4	Tube 90pcs
AA47-pA	DIP-6	Tube 50pcs
AC47-pA	DIP-8	Tube 45pcs
AB47F-pA	SMD-4	Tube 90pcs
AA47F-pA	SMD-6	Tube 50pcs
AC47F-pA	SMD-8	Tube 45pcs
AB47S-pA	SOP-4	Tube 100pcs
AC47S-pA	SOP-8	Tube 50pcs
AB47F-pA-R1	SMD-4	Reel 1000pcs
AA47F-pA-R1	SMD-6	
AC47F-pA-R1	SMD-8	
AB47S-pA-R1	SOP-4	
AC47S-pA-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

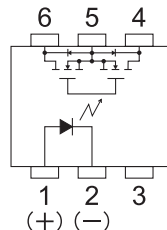
Terminal Identification

AB47(F)(S)-pA



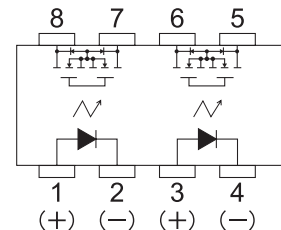
- 1: Anode (LED)
2: Cathode (LED)
3,4: Drain (MOS FET)

AA47(F)-pA



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4,6: Drain (MOS FET)
5: Source (MOS FET)

AC47(F)(S)-pA



- 1,3: Anode (LED)
2,4: Cathode (LED)
5,6,7,8: Drain (MOS FET)

Low Leakage Current (pA)



Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB47S	AC47S	AB47(F)	AC47(F)	AA47(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V _L	80V (AC peak or DC)				
	Load Current 負荷電流 (A)	I _L	1.25	1.0	1.25	1.0	1.5
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (A)	I _{PEAK}	3.0	3.0	3.0	3.0	3.0
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	350	450	350	450	500
Total Power Dissipation 全損耗 (mW)		P _T	400	500	400	500	550
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V _{I/O}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V _{I/O}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

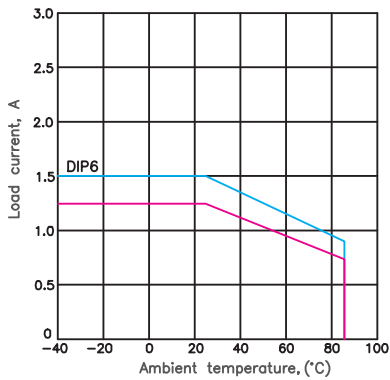
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.37	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		1.0	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		0.13	0.16	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}		0.3	1.0	nA	V _L =80V
	Output Capacitance 輸出端容量	C _{OUT}		220		pF	V _L =0V, f=1MHz
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		0.4	3.0	ms	I _F =5mA I _L =Rating (for SOP type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.5	ms	
	Turn-On Time 動作時間	T _{ON}		0.3	3.0	ms	I _F =10mA I _L =Rating (for DIP/SMD type)
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz

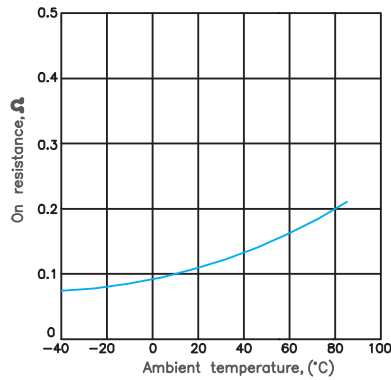


Low Leakage Current (pA)

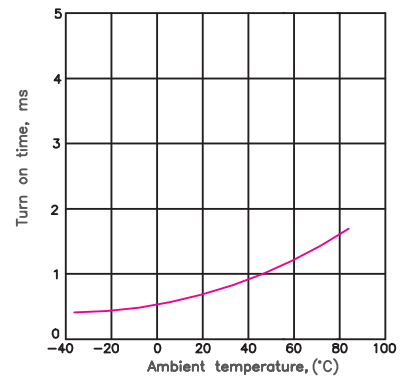
Load current Vs.
Ambient temperature



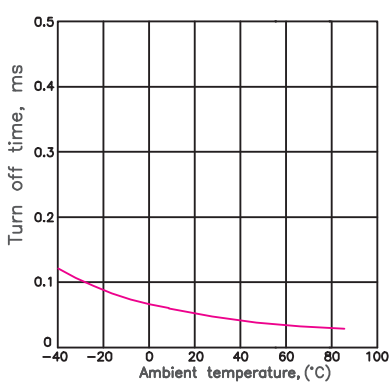
On resistance Vs.
Ambient temperature



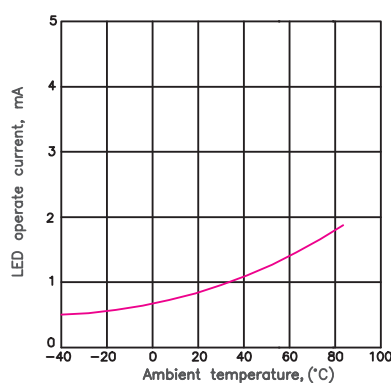
Turn on time Vs.
Ambient temperature



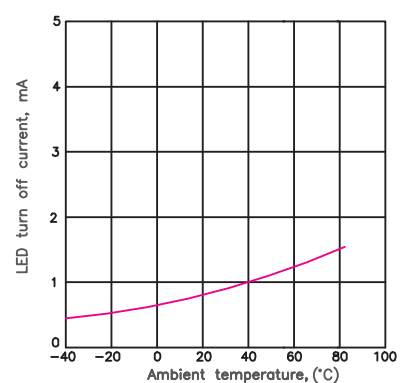
Turn off time Vs.
Ambient temperature



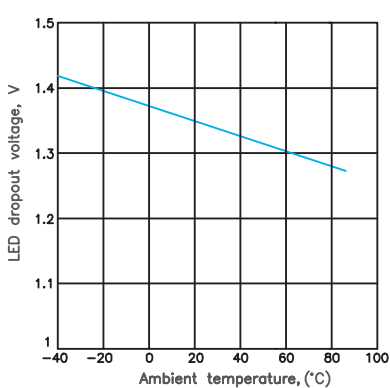
LED operate current Vs.
Ambient temperature



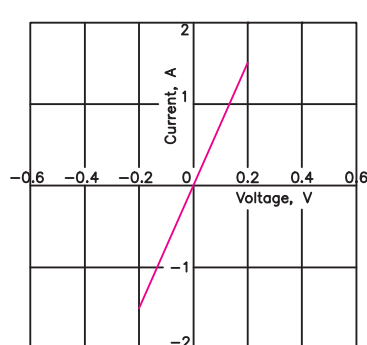
LED Turn off current Vs.
Ambient temperature



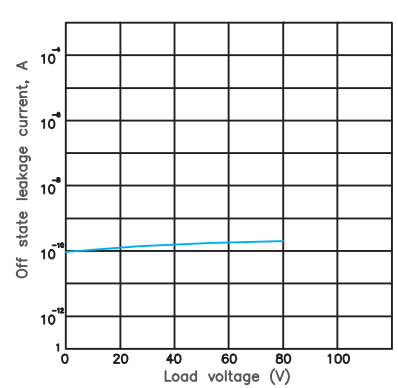
LED forward voltage Vs.
Ambient temperature



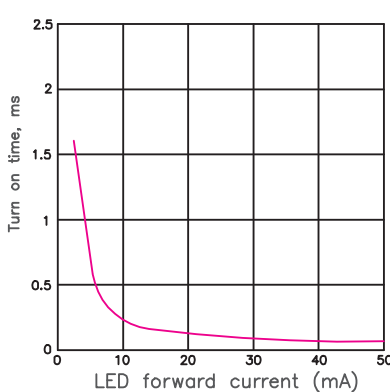
Voltage Vs. current characteristics
of output at MOS portion



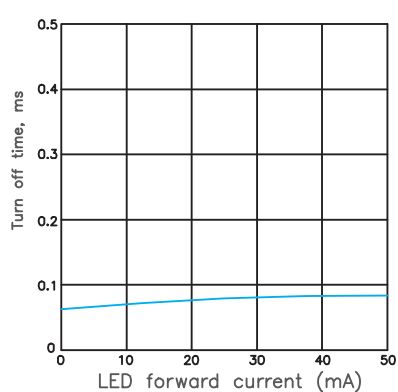
Off state leakage current Vs.
Load voltage characteristics



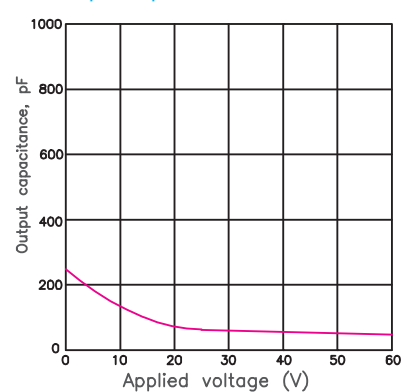
LED forward current Vs.
turn on time characteristics



LED forward current Vs.
turn off time characteristics



Applied voltage Vs.
output capacitance characteristics



Low Leakage Current (pA)

23RS - pA Series

RF·LOW CR·37pF·11Ω

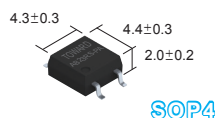


Features

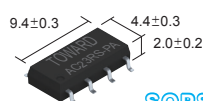
- Contact Form 1a / 2a
- Load Voltage 250V
- Operation LED Current 3.0mA
- Load Current 170mA
- On-Resistance 11 Ω
- Output Capacitance 37pF
- Low Off-State Leakage Current 1nA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle



SOP4



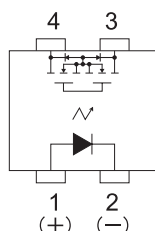
SOP8

PART NO	PACKAGE	PACKING
AB23RS-pA	SOP-4	Tube 100pcs
AC23RS-pA	SOP-8	Tube 50pcs
AB23RS-pA-R1	SOP-4	Reel 1000pcs
AC23RS-pA-R1	SOP-8	Reel 1000pcs

* Package & PCB Layout Design, See Page 134

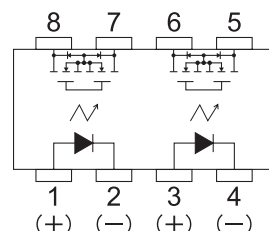
Terminal Identification

AB23RS-pA



- 1:Anode (LED)
2:Cathode (LED)
3,4:Drain (MOS FET)

AC23RS-pA



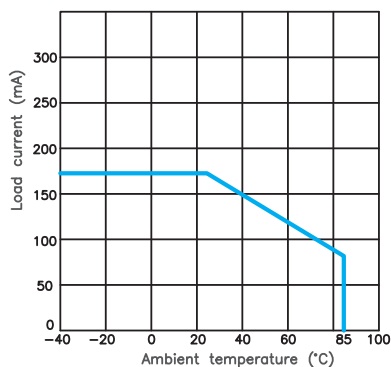
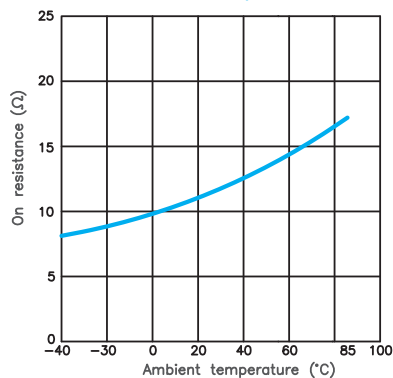
- 1,3:Anode (LED)
2,4:Cathode (LED)
5,6,7,8:Drain (MOS FET)

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

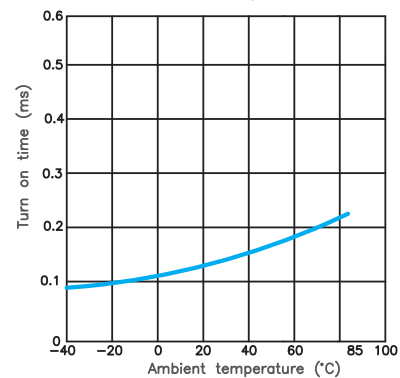
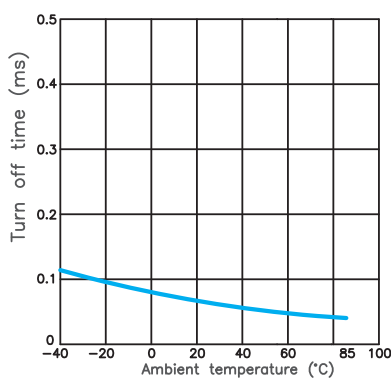
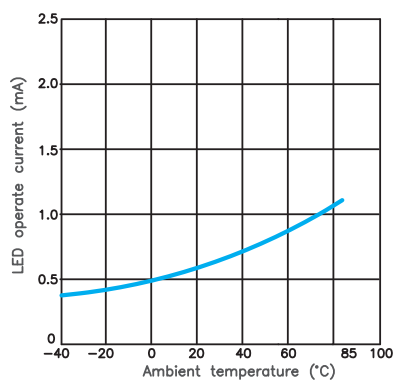
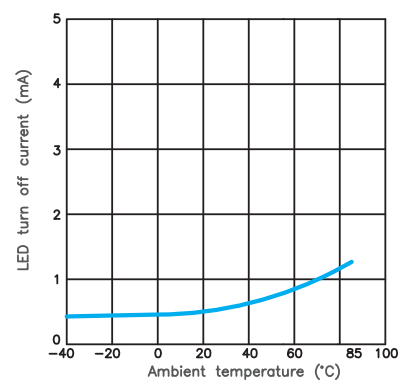
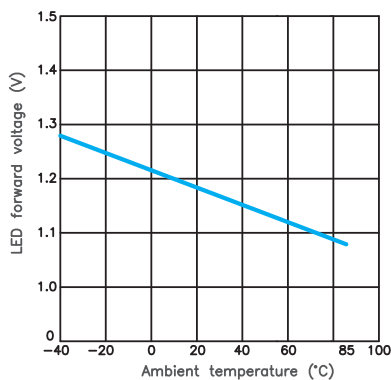
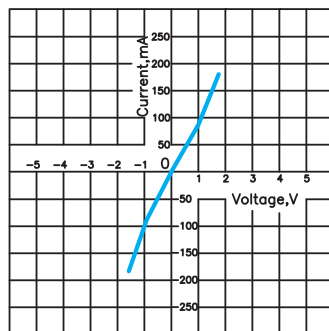
Item		Symbol	Value
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V
	Input Power Dissipation 輸入損耗	P _{IN}	75mW
output 輸出	Load Voltage 負荷電壓	V _L	250V (AC peak or DC)
	Load Current 負荷電流 (mA)	I _L	170(1ch) 140(2ch)
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	420
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	300mW(1ch) 450mW(2ch)
Total Power Dissipation 全損耗 (mW)		P _T	350mW(1ch) 500mW(2ch)
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V _{I/O}	1500
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~+85°C
Storage Temperature 保存溫度		T _{STG}	-40°C ~+100°C

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

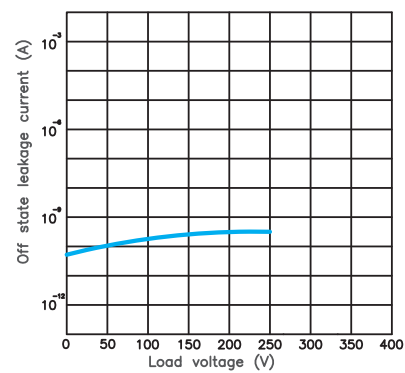
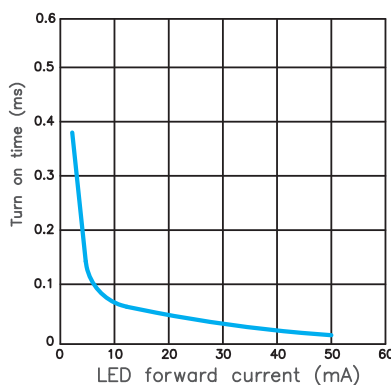
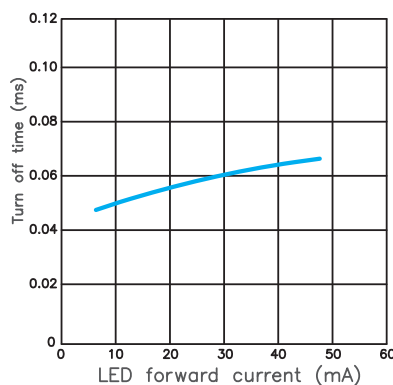
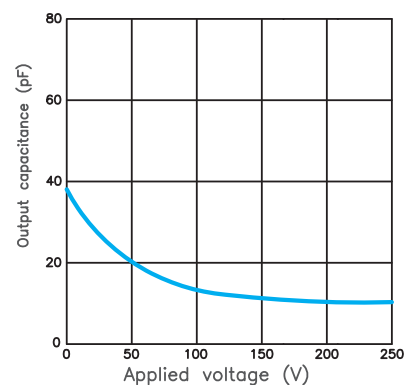
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.6	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		11	15	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}		0.2	1	nA	V _L =250V
	Output Capacitance 輸出端容量	C _{OUT}		37		pF	V _L =0V, f=1MHz
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		0.15	0.3	ms	I _F =5mA, I _L =Rating
	Turn-Off Time 復位時間	T _{OFF}		0.05	0.2	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		0.8		pF	f=1MHz


 Load current Vs.
Ambient temperature

 On resistance Vs.
Ambient temperature


Low Leakage Current (pA)

 Turn on time Vs.
Ambient temperature

 Turn off time Vs.
Ambient temperature

 LED operate current Vs.
Ambient temperature

 LED Turn off current Vs.
Ambient temperature

 LED forward voltage Vs.
Ambient temperature

 Voltage Vs. current characteristics
of output at MOS portion


Off state leakage current


 LED forward current Vs.
turn on time characteristics

 LED forward current Vs.
turn off time characteristics

 Applied voltage Vs.
output capacitance characteristics


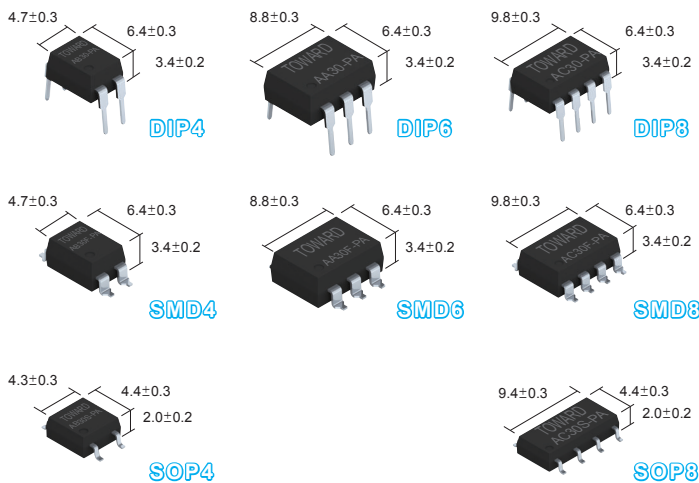
30 - pA Series

400V·1a/2a



Features

- Contact Form 1a / 2a
- Load Voltage 400V
- Operation LED Current 3.0mA
- Load Current 120mA
- On-Resistance 21 Ω
- Output Capacitance 52pF
- Low Off-State Leakage Current 1nA



Application

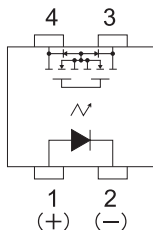
- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

PART NO	PACKAGE	PACKING
AB30-pA	DIP-4	Tube 90pcs
AA30-pA	DIP-6	Tube 50pcs
AC30-pA	DIP-8	Tube 45pcs
AB30F-pA	SMD-4	Tube 90pcs
AA30F-pA	SMD-6	Tube 50pcs
AC30F-pA	SMD-8	Tube 45pcs
AB30S-pA	SOP-4	Tube 100pcs
AC30S-pA	SOP-8	Tube 50pcs
AB30F-pA-R1	SMD-4	Reel 1000pcs
AA30F-pA-R1	SMD-6	
AC30F-pA-R1	SMD-8	
AB30S-pA-R1	SOP-4	
AC30S-pA-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

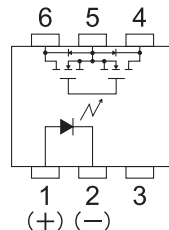
Terminal Identification

AB30(F)(S)-pA



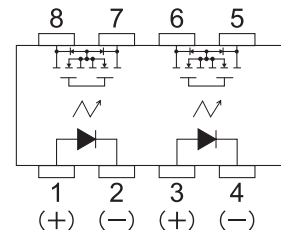
- 1: Anode (LED)
2: Cathode (LED)
3,4: Drain (MOS FET)

AA30(F)-pA



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4,6: Drain (MOS FET)
5: Source (MOS FET)

AC30(F)(S)-pA



- 1,3: Anode (LED)
2,4: Cathode (LED)
5,6,7,8: Drain (MOS FET)

Low Leakage Current (pA)

Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	Value				
Outline Package			AB30S	AC30S	AB30(F)	AC30(F)	AA30(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I_F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I_{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V_R	5V				
	Input Power Dissipation 輸入損耗	P_{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V_L	400V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I_L	100	85	120	100	120
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I_{PEAK}	600	600	600	600	600
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	300	450	450	600	450
Total Power Dissipation 全損耗 (mW)		P_T	350	500	500	650	500
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V_{IO}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V_{IO}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T_{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T_{STG}	-40°C ~ +100°C				

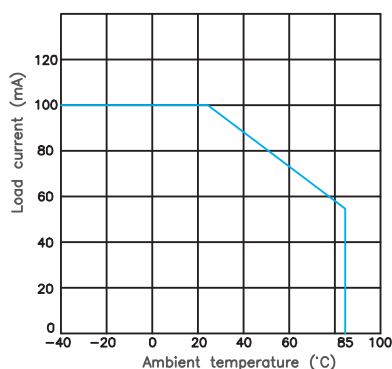
Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.17	1.5	V	$I_F=10mA$
	Operation LED Current LED 動作電流	$I_{F ON}$		0.7	3.0	mA	
	Recovery LED Voltage LED 復位電壓	$V_{F OFF}$	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		21	24	Ω	$I_F=5mA, I_L=Rating$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I_{LEAK}		0.3	1.0	nA	$V_L=400V$
	Output Capacitance 輸出端容量	C_{OUT}		52		pF	$V_L=0V, f=1MHz$
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		0.2	0.5	ms	$I_F=5mA$ $I_L=Rating$ (for SOP type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.2	ms	
	Turn-On Time 動作時間	T_{ON}		0.2	1.0	ms	$I_F=10mA$ $I_L=Rating$ (for DIP/SMD type)
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.5	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	$R_{I/O}$	10^9			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	$C_{I/O}$		1.3		pF	$f=1MHz$

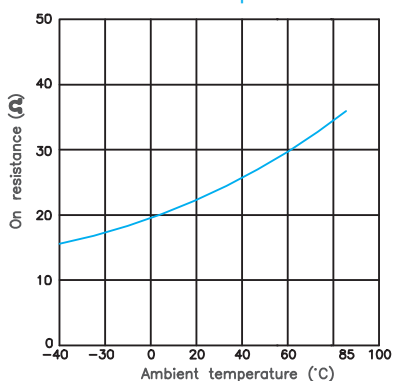


Low Leakage Current (pA)

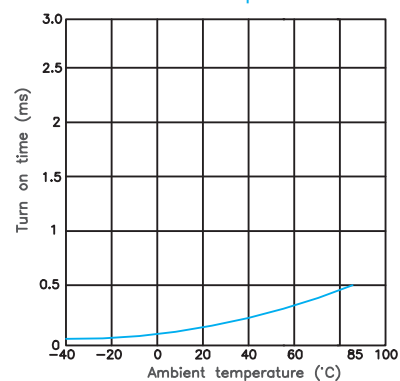
Load current Vs.
Ambient temperature



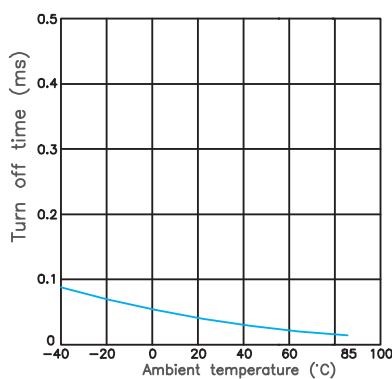
On resistance Vs.
Ambient temperature



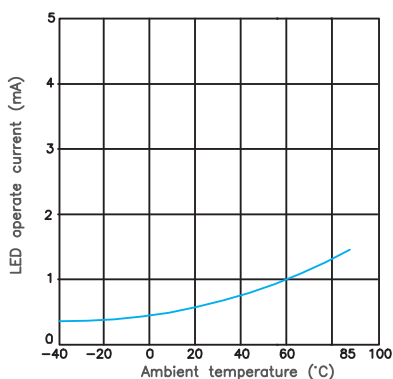
Turn on time Vs.
Ambient temperature



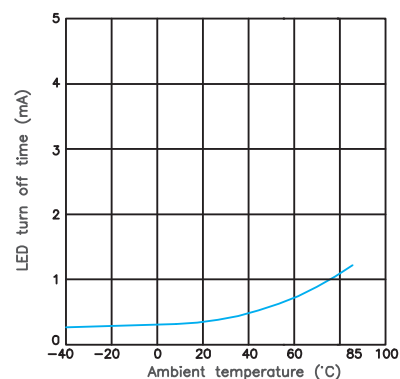
Turn off time Vs.
Ambient temperature



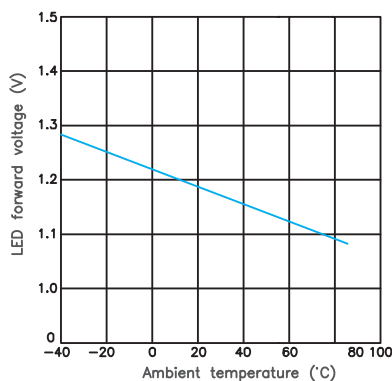
LED operate current Vs.
Ambient temperature



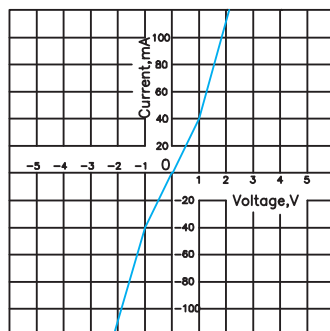
LED Turn off current Vs.
Ambient temperature



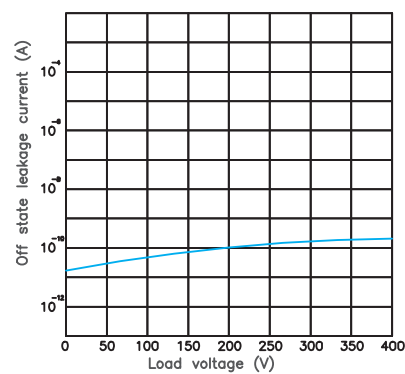
LED forward voltage Vs.
Ambient temperature



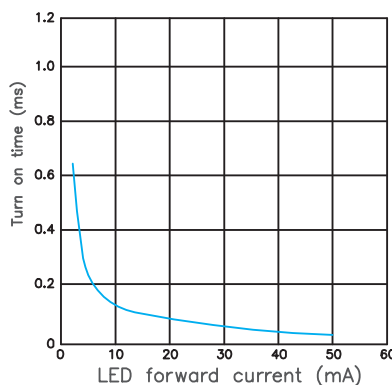
Voltage Vs. current characteristics
of output at MOS portion



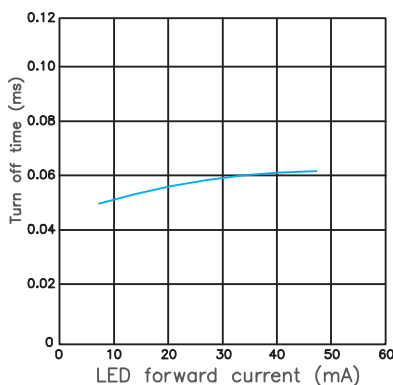
Off state leakage current



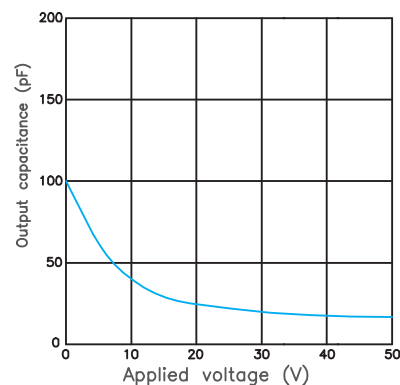
LED forward current Vs.
turn on time characteristics



LED forward current Vs.
turn off time characteristics



Applied voltage Vs.
output capacitance characteristics



21RS Series

RF·LOW CxR=10·13pF·0.9Ω·40V

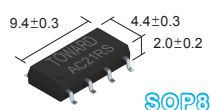
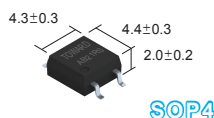


Features

- Contact Form 1a / 2a
- Load Voltage 400V
- Operation LED Current 3.0mA
- Load Current 250mA
- On-Resistance 0.9Ω
- Output Capacitance 13pF
- Low Off-State Leakage Current 10nA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

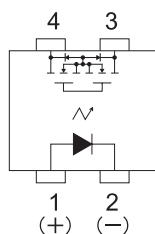


PART NO	PACKAGE	PACKING
AB21RS	SOP-4	Tube 100pcs
AC21RS	SOP-8	Tube 50pcs
AB21RS-R1	SOP-4	Reel 1000pcs
AC21RS-R1	SOP-8	Reel 1000pcs

* Package & PCB Layout Design, See Page 134

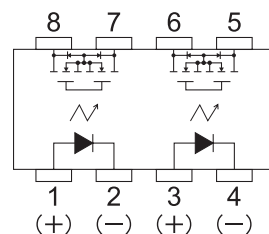
Terminal Identification

AB21RS



- 1:Anode (LED)
2:Cathode (LED)
3,4:Drain (MOS FET)

AC21RS



- 1,3:Anode (LED)
2,4:Cathode (LED)
5,6,7,8:Drain (MOS FET)


Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

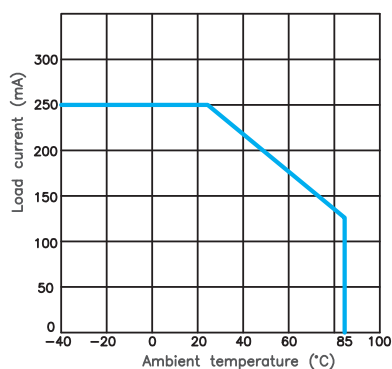
Item		Symbol	Value
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA
	LED Reverse Voltage 逆向的 LED 電壓	V _R	5V
	Input Power Dissipation 輸入損耗	P _{IN}	75mW
output 輸出	Load Voltage 負荷電壓	V _L	40V (AC peak or DC)
	Load Current 負荷電流 (mA)	I _L	250
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	750
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	300mW(1ch) 400mW(2ch)
Total Power Dissipation 全損耗 (mW)		P _T	350mW(1ch) 450mW(2ch)
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (V _{rms})		V _{I/O}	1500
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~+85°C
Storage Temperature 保存溫度		T _{STG}	-40°C ~+100°C

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

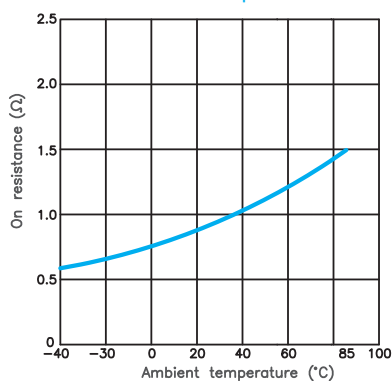
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.5	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.3	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		0.9	1.25	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}		0.03	10	nA	V _L =40V
	Output Capacitance 輸出端容量	C _{OUT}		13		pF	V _L =0V, f=1MHz
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		0.07	0.5	ms	I _F =5mA, I _L =Rating
	Turn-Off Time 復位時間	T _{OFF}		0.06	0.2	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		0.8		pF	f=1MHz



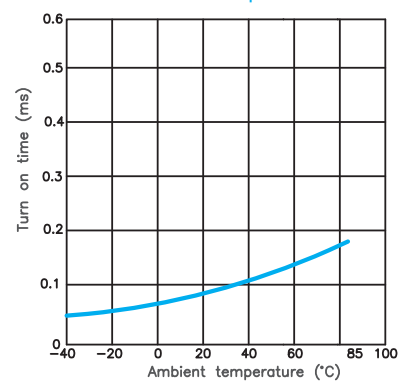
Load current Vs.
Ambient temperature



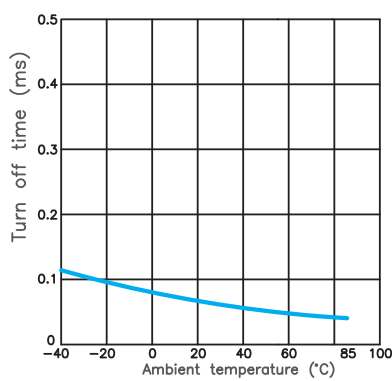
On resistance Vs.
Ambient temperature



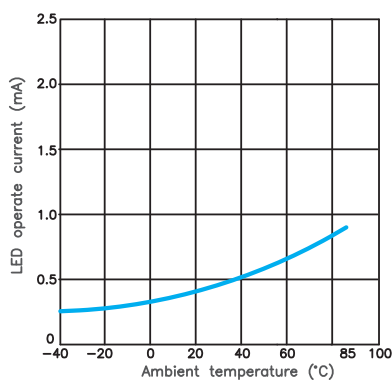
Turn on time Vs.
Ambient temperature



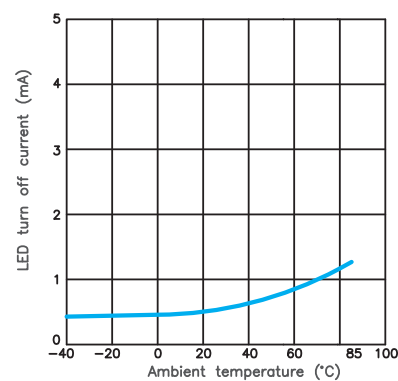
Turn off time Vs.
Ambient temperature



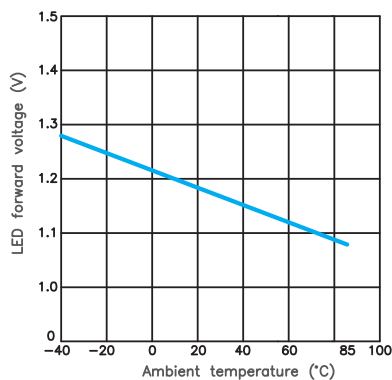
LED operate current Vs.
Ambient temperature



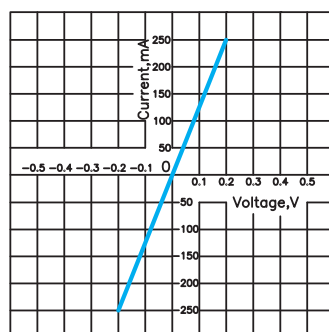
LED Turn off current Vs.
Ambient temperature



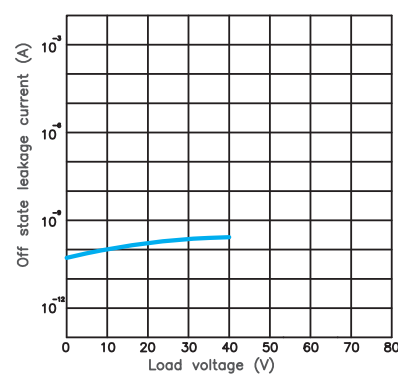
LED forward voltage Vs.
Ambient temperature



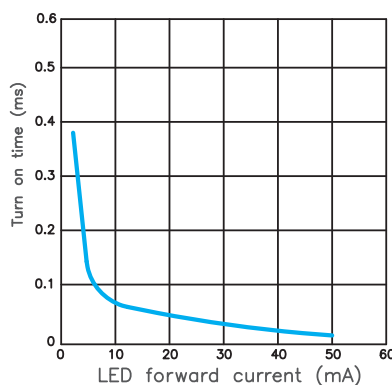
Voltage Vs. current characteristics
of output at MOS portion



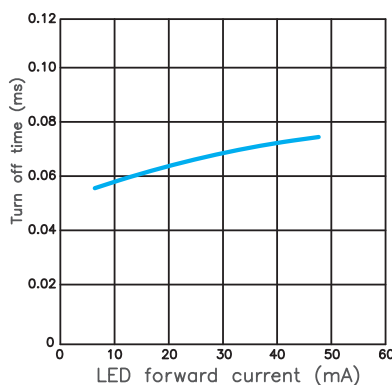
Off state leakage current



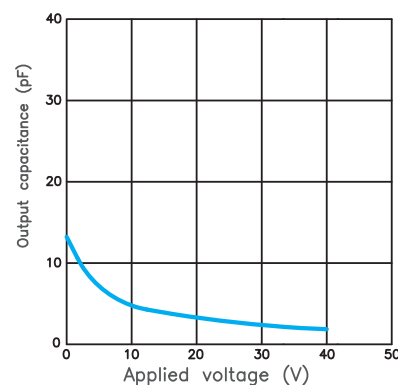
LED forward current Vs.
turn on time characteristics



LED forward current Vs.
turn off time characteristics



Applied voltage Vs.
output capacitance characteristics



23RS Series

RF·LOW CR·37pF·11Ω

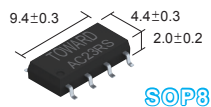
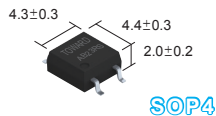


Features

- Contact Form 1a / 2a
- Load Voltage 250V
- Operation LED Current 3.0mA
- Load Current 170mA
- On-Resistance 11Ω
- Output Capacitance 37pF
- Low Off-State Leakage Current 10nA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

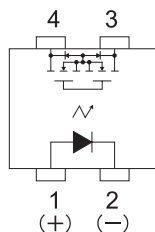


PART NO	PACKAGE	PACKING
AB23RS	SOP-4	Tube 100pcs
AC23RS	SOP-8	Tube 50pcs
AB23RS-R1	SOP-4	Reel 1000pcs
AC23RS-R1	SOP-8	Reel 1000pcs

* Package & PCB Layout Design, See Page 134

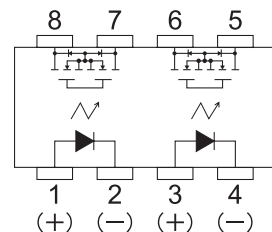
Terminal Identification

AB23RS



- 1:Anode (LED)
2:Cathode (LED)
3,4:Drain (MOS FET)

AC23RS



- 1,3:Anode (LED)
2,4:Cathode (LED)
5,6,7,8:Drain (MOS FET)



Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

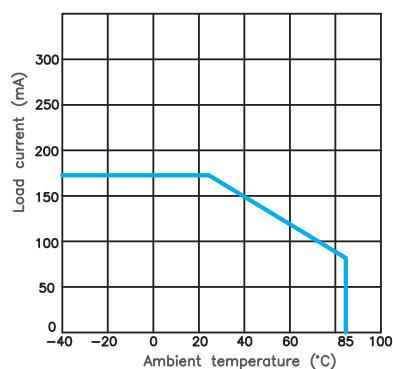
Item		Symbol	Value
Input 輸入	Continuous LED Current 連續 LED 電流	I_F	50mA
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I_{FP}	500mA
	LED Reverse Voltage 逆向 LED 電壓	V_R	5V
	Input Power Dissipation 輸入損耗	P_{IN}	75mW
output 輸出	Load Voltage 負荷電壓	V_L	250V (AC peak or DC)
	Load Current 負荷電流 (mA)	I_L	170(1ch) 140(2ch)
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I_{PEAK}	420
	Output Power Dissipation 輸出損耗 (mW)	P_{OUT}	300mW(1ch) 450mW(2ch)
Total Power Dissipation 全損耗 (mW)		P_T	350mW(1ch) 500mW(2ch)
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		$V_{I/O}$	1500
Operating Temperature 使用時溫度		T_{OPR}	-40°C ~+85°C
Storage Temperature 保存溫度		T_{STG}	-40°C ~+100°C

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

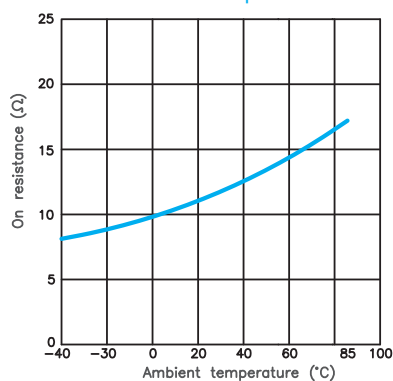
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V_F	1.0	1.17	1.5	V	$I_F=10mA$
	Operation LED Current LED 動作電流	$I_{F ON}$		0.6	3.0	mA	
	Recovery LED Voltage LED 復位電壓	$V_{F OFF}$	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON}		11	15	Ω	$I_F=5mA, I_L=Rating$ Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I_{LEAK}		0.1	10	nA	$V_L=250V$
	Output Capacitance 輸出端容量	C_{OUT}		37		pF	$V_L=0V, f=1MHz$
Transmission 傳達	Turn-On Time 動作時間	T_{ON}		0.15	0.3	ms	$I_F=5mA, I_L=Rating$
	Turn-Off Time 復位時間	T_{OFF}		0.05	0.2	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	$R_{I/O}$	10^9			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	$C_{I/O}$		0.8		pF	$f=1MHz$



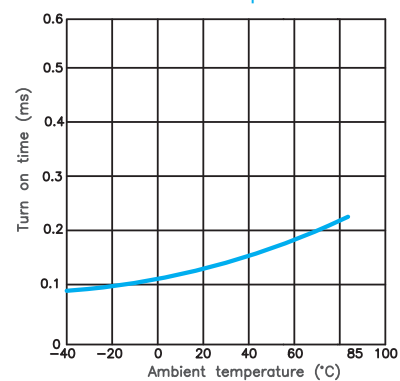
Load current Vs.
Ambient temperature



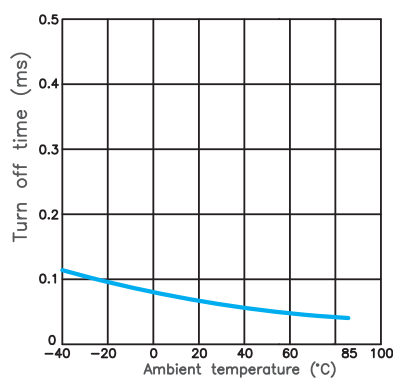
On resistance Vs.
Ambient temperature



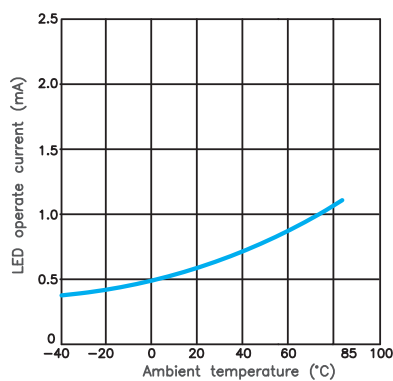
Turn on time Vs.
Ambient temperature



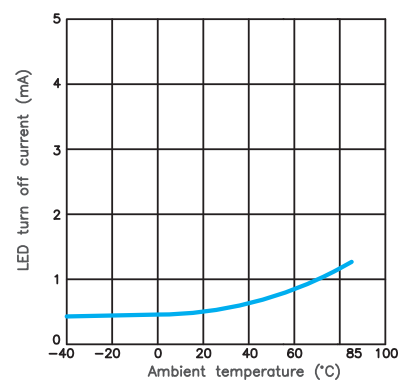
Turn off time Vs.
Ambient temperature



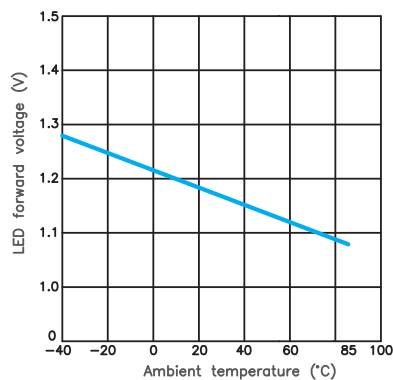
LED operate current Vs.
Ambient temperature



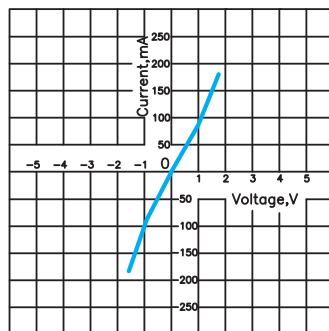
LED Turn off current Vs.
Ambient temperature



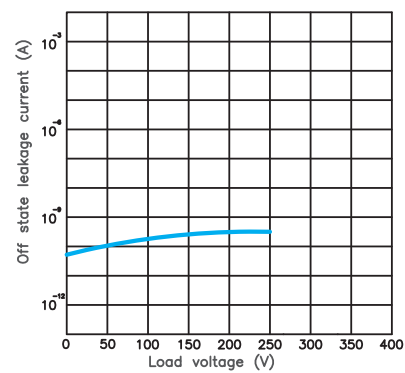
LED forward voltage Vs.
Ambient temperature



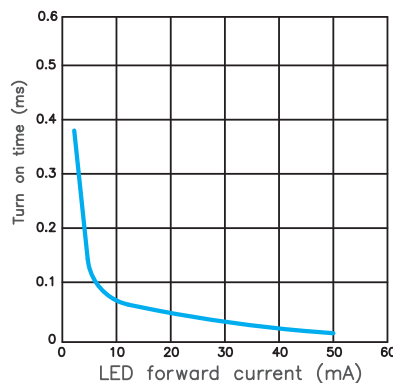
Voltage Vs. current characteristics
of output at MOS portion



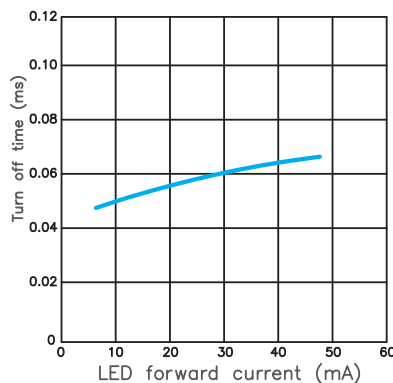
Off state leakage current



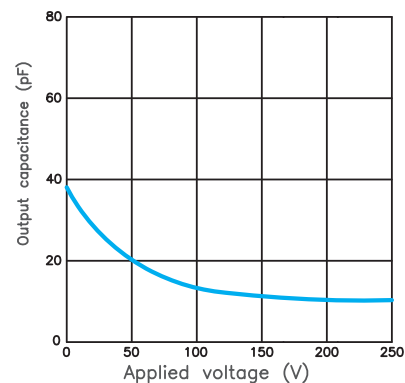
LED forward current Vs.
turn on time characteristics



LED forward current Vs.
turn off time characteristics



Applied voltage Vs.
output capacitance characteristics



46 Series

80V·1a/2a

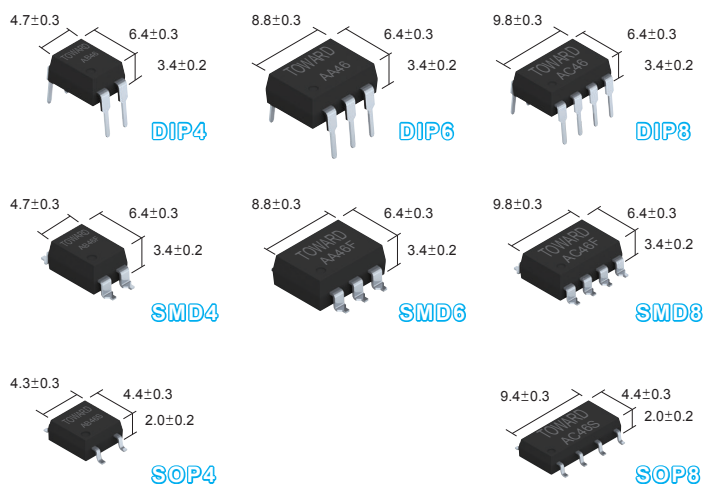


Features

- Contact Form 1a / 2a
- Load Voltage 80V
- Operation LED Current 3.0mA
- Load Current 80mA
- On-Resistance 35Ω
- Output Capacitance 3pF
- Low Off-State Leakage Current 1.0nA

Application

- Modem
- Telephone Equipment
- Security Equipment
- Sensing Equipment
- Automatic Test Equipment
- I/O Modules
- Electric Vehicle

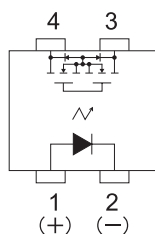


PART NO	PACKAGE	PACKING
AB46	DIP-4	Tube 90pcs
AA46	DIP-6	Tube 50pcs
AC46	DIP-8	Tube 45pcs
AB46F	SMD-4	Tube 90pcs
AA46F	SMD-6	Tube 50pcs
AC46F	SMD-8	Tube 45pcs
AB46S	SOP-4	Tube 100pcs
AC46S	SOP-8	Tube 50pcs
AB46F-R1	SMD-4	Reel 1000pcs
AA46F-R1	SMD-6	
AC46F-R1	SMD-8	
AB46S-R1	SOP-4	
AC46S-R1	SOP-8	

* Package & PCB Layout Design, See Page 134

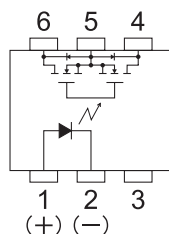
Terminal Identification

AB46(F)(S)



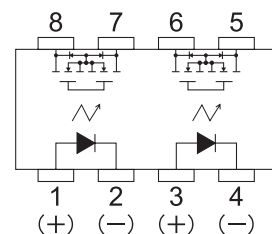
- 1: Anode (LED)
2: Cathode (LED)
3,4: Drain (MOS FET)

AA46(F)



- 1: Anode (LED)
2: Cathode (LED)
3: NC
4,6: Drain (MOS FET)
5: Source (MOS FET)

AC46(F)(S)



- 1,3: Anode (LED)
2,4: Cathode (LED)
5,6,7,8: Drain (MOS FET)


Absolute Maximum Ratings 絕對最大定格 (Ambient Temperature 周圍溫度 : 25°C)

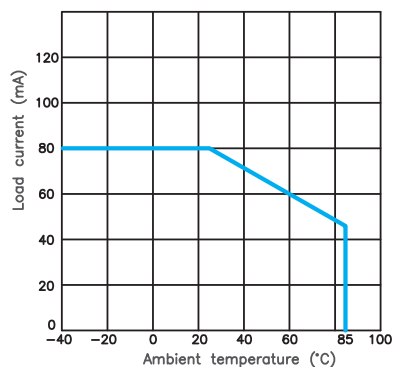
Item		Symbol	Value				
Outline Package			AB46S	AC46S	AB46(F)	AC46(F)	AA46(F)
			1CH	2CH	1CH	2CH	1CH
Input 輸入	Continuous LED Current 連續 LED 電流	I _F	50mA				
	Peak LED Current LED 峰值電流 (f=100 Hz,Duty=1%)	I _{FP}	500mA				
	LED Reverse Voltage 逆向 LED 電壓	V _R	5V				
	Input Power Dissipation 輸入損耗	P _{IN}	75mW				
Output 輸出	Load Voltage 負荷電壓	V _L	80V (AC peak or DC)				
	Load Current 負荷電流 (mA)	I _L	80				
	Peak Load Current 峰值負荷電流 (1ms,1 shot) (mA)	I _{PEAK}	100				
	Output Power Dissipation 輸出損耗 (mW)	P _{OUT}	300	450	300	450	300
Total Power Dissipation 全損耗 (mW)		P _T	350	500	350	500	350
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Vrms)		V _{I/O}	1500	1500	3750	3750	3750
I/O Breakdown Voltage 入 / 出力間絕緣電壓 (Suffix-H) (Vrms)		V _{I/O}	3750	3750	5000	5000	5000
Operating Temperature 使用時溫度		T _{OPR}	-40°C ~ +85°C				
Storage Temperature 保存溫度		T _{STG}	-40°C ~ +100°C				

Electrical Specifications 電性規格 (Ambient Temperature 周圍溫度 : 25°C)

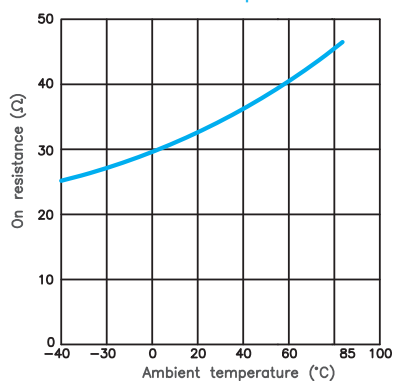
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.0	1.17	1.3	V	I _F =10mA
	Operation LED Current LED 動作電流	I _{F ON}		0.8	3.0	mA	
	Recovery LED Voltage LED 復位電壓	V _{F OFF}	0.5	1.0		V	
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R _{ON}		38	50	Ω	I _F =5mA, I _L =Rating Time to flow is within 1sec.
	Off-State Leakage Current 開路狀態漏電流	I _{LEAK}			1.0	nA	V _L =60V
	Output Capacitance 輸出端容量	C _{OUT}		3		pF	
Transmission 傳達	Turn-On Time 動作時間	T _{ON}		0.02	0.2	ms	I _F =5mA I _L =Rating (for SOP type)
	Turn-Off Time 復位時間	T _{OFF}		0.08	0.3	ms	
	Turn-On Time 動作時間	T _{ON}		0.015	0.2	ms	I _F =10mA I _L =Rating (for DIP/SMD type)
	Turn-Off Time 復位時間	T _{OFF}		0.08	0.3	ms	
Coupled 結合	I/O Insulation Resistance 輸入 / 出間絕緣阻抗	R _{I/O}	10 ⁹			Ω	
	I/O Capacitance 輸入 / 力端靜電容量	C _{I/O}		1.3		pF	f=1MHz



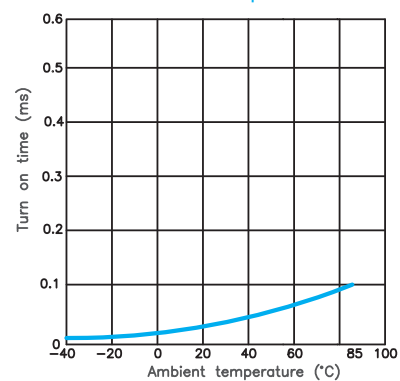
Load current Vs.
Ambient temperature



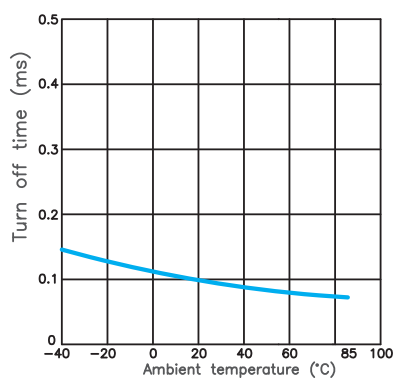
On resistance Vs.
Ambient temperature



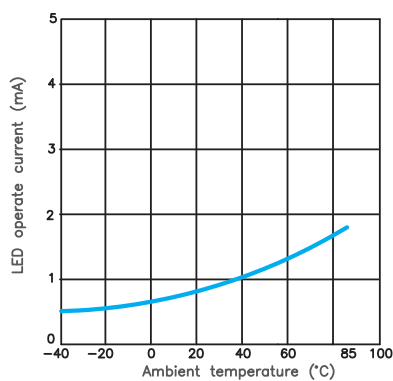
Turn on time Vs.
Ambient temperature



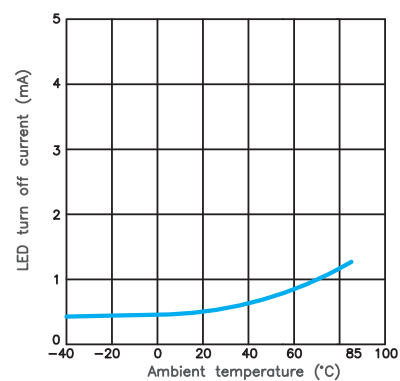
Turn off time Vs.
Ambient temperature



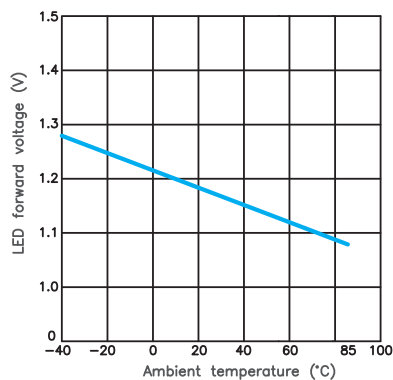
LED operate current Vs.
Ambient temperature



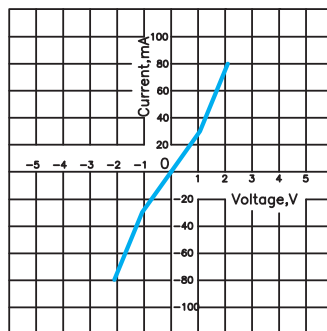
LED Turn off current Vs.
Ambient temperature



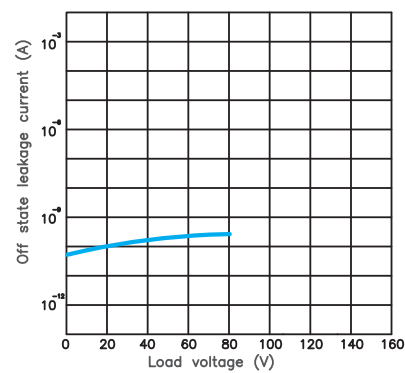
LED forward voltage Vs.
Ambient temperature



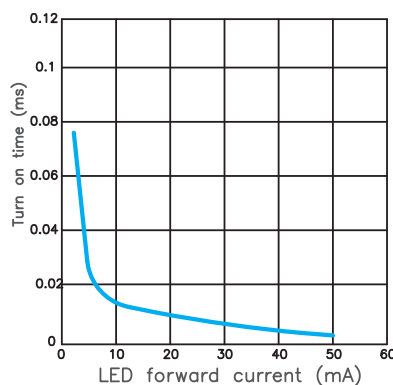
Voltage Vs. current characteristics
of output at MOS portion



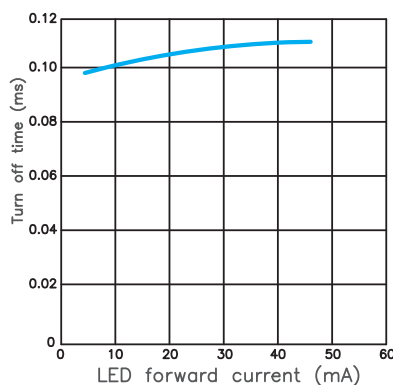
Off state leakage current



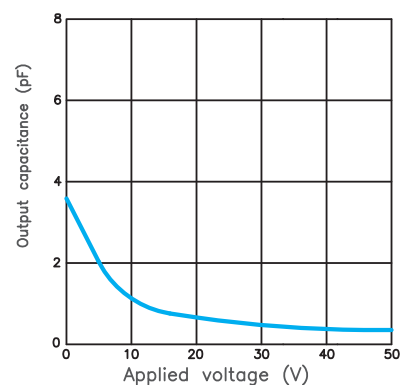
LED forward current Vs.
turn on time characteristics



LED forward current Vs.
turn off time characteristics



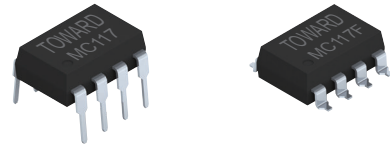
Applied voltage Vs.
output capacitance characteristics



MC117

Features

- 8 Pin DIP package
- Photocoupler for bidirectional current detection
- 3750V_{RMS} Input / Output isolation
- High reliability
- Surface mount and tape & reel available



Applications

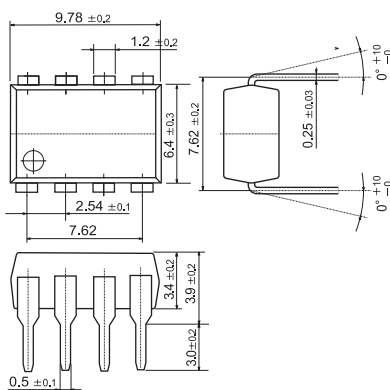
- Telecom switching
- Dial pulsing
- Modem switching
- Loop current sensing
- On / Off hook control
- Ring current detection

Part Identification

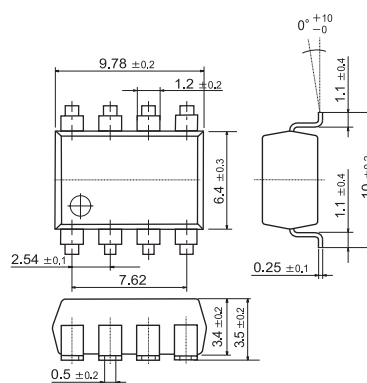
DIP Type	SMD Type		Quantity
Tube	Tube	Tape & Reel	
		Feed Direction: Pin No. 5, 6, 7, 8	Feed Direction: Pin No. 1, 2, 3, 4
MC117	MC117F	MC117F-R1	MC117F-R2
		Tube 45 pcs Tape 1000 pcs	

Dimensions (Unit : mm) & Terminal Identification

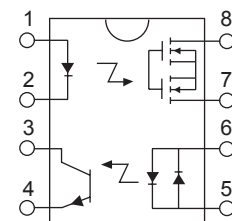
DIP dimensions



SMD dimensions



Terminal Identification



- 1: LED-MOS Relay
- 2: LED-MOS Relay
- 3: Collector-Photocoupler
- 4: Emitter-Photocoupler
- 5: LED-Photocoupler +/-
- 6: LED-Photocoupler +/-
- 7: Load-MOS Relay Output
- 8: Load-MOS Relay Output





Absolute Maximum Ratings (Ambient Temperature : 25°C)

Item		Symbol	Value
Input 輸入	Continuous LED Current	I _F	50mA
	Peak LED Current (f=100 Hz,Duty=1%)	I _{FP}	1A
	LED Reverse Voltage	V _R	5V
	Input Power Dissipation	P _{IN}	150mW
Total Power Dissipation		P _T	600mW
I/O Breakdown Voltage		V _{I/O}	3750 Vrms
Operating Temperature		T _{OPR}	-40°C ~ +85°C
Storage Temperature		T _{STG}	-40°C ~ +120°C
Soldering Temperature 10 Second		T _{sol}	260°C

Electrical Specifications (Ambient Temperature : 25°C)

MOS Relay

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input pin(1,2)	LED Forward Voltage	V _F	0.9	1.2	1.4	V	I _F =10mA
	Reverse Current	I _R			10	μA	V _R =5V
	Operation LED Current	I _{F ON}		0.7	3.0	mA	
	Recovery LED Voltage	V _{F OFF}	0.5	1.1		V	
Output pin(7,8)	Load Voltage (Peak)	V _L	350			V	
	Load Current (Continuous)	I _L			120	mA	
	Load Current (Continuous)	I _{PEAK}			350	mA	
	On-Resistance	R _{ON}		21	30	Ω	
	Off-State Leakage Current	I _{LEAK}			1.0	μA	V _L =350V
	Turn-On Time	T _{ON}		0.3	2.0	ms	I _F =5mA V _L =20V
	Turn-Off Time	T _{OFF}		0.04	0.5	ms	
	Output Capacitance	C _{OUT}		55		pF	f=1MHz

Photocoupler

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input pin(5,6)	LED Forward Voltage	V _F	0.9	1.2	1.5	V	I _F =+/-10mA
Output pin(3,4)	Load Current	I _L			50	mA	
	C-E Breakdown Voltage	V _{CEO}	35			V	I _C =0.1mA
	E-C Breakdown Voltage	V _{ECO}	5				I _E =0.1mA
	Collector Dark Current	I _{CEO}			500	nA	V _{CE} =5V, I _F =2ma
	Collector Saturation Voltage	V _{CE(SAT)}			0.5	V	I _F =+/-16mA, I _C =2mA
	Current Transfer Ratio	C _{TR}	33			%	I _F =+/-6mA, V _{CE} =0.5V

TB3063S

Features

- Compact SOP package
- 600V peak blocking voltage
- Isolation voltage between input and output (Viso : 3750Vrms)
- Simplifies logic control of 115/240 VAC power
- Zero voltage crossing



Applications

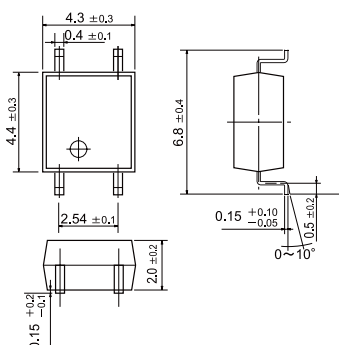
- Solenoid/valve controls
- Lighting controls
- Static power switches
- AC motor drives
- Temperature controls
- AC motor starters
- Solid state relays
- Programmable controllers

Part Identifications

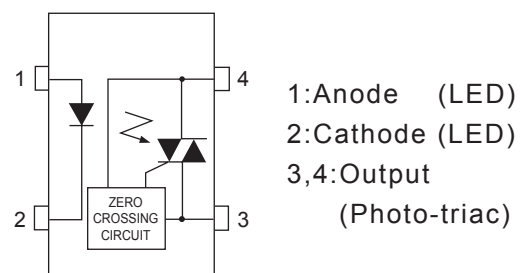
SOP Type SOP			Quantity
Tube	Tape & Reel		Tube 100 pcs Tape 1000 pcs
	Feed Direction:Pin No.3,4	Feed Direction:Pin No.1,2	
TB 3063S	TB3063S - R1	TB3063S - R2	

Dimensions (Unit : mm) & Terminal Identification

TB3063S dimensions



Terminal Identification





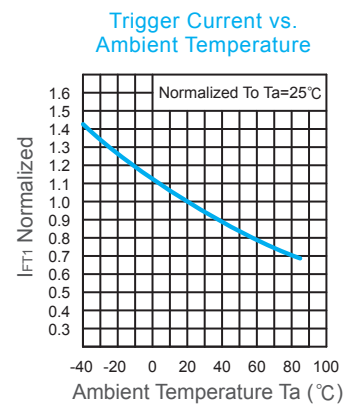
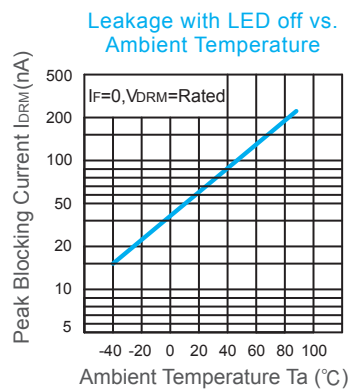
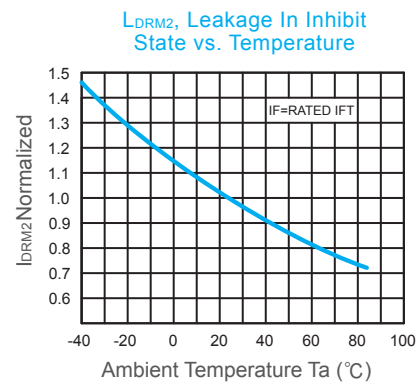
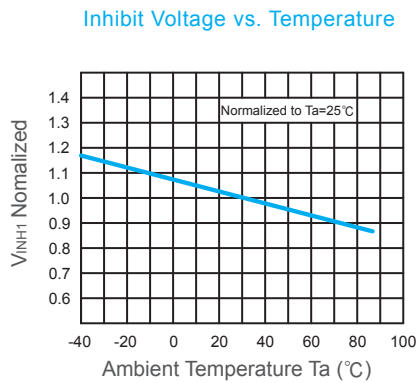
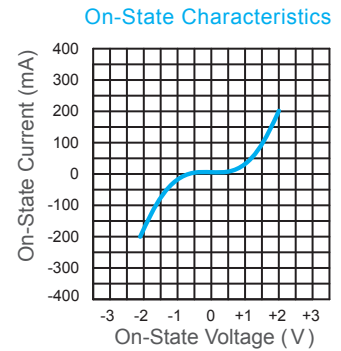
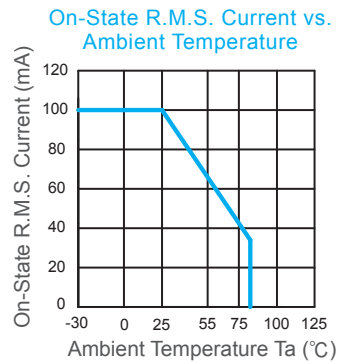
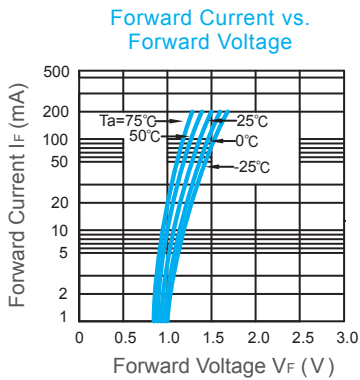
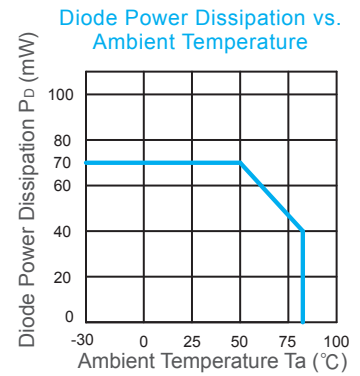
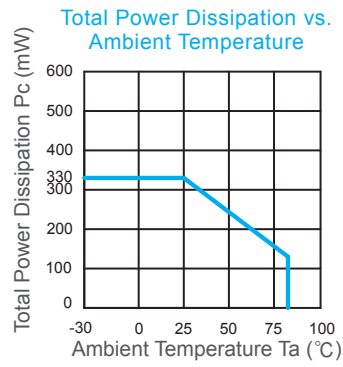
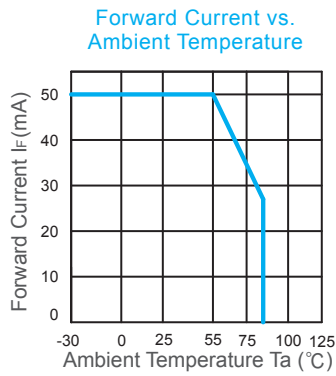
Absolute Maximum Ratings (Ambient Temperature : 25°C)

Item		Symbol	Value
Input 輸入	Continuous LED Current	I_F	50mA
	Peak LED Current (f=100 Hz,Duty=1%)	I_{FP}	1A
	LED Reverse Voltage	V_R	6V
	Input Power Dissipation	P_{IN}	70mW
Output 輸出	Load Voltage	V_L	600V (peak)
	Load Current	I_L	100mA
	Peak Load Current (1ms,1 shot)	I_{PEAK}	1A
	Output Power Dissipation	P_{OUT}	300mW
Total Power Dissipation		P_T	330mW
I/O Breakdown Voltage		V_{IO}	3750 Vrms
Operating Temperature		T_{OPR}	-40°C ~ +85°C
Storage Temperature		T_{STG}	-50°C ~ +120°C
Soldering Temperature 10 Second		T_{sol}	260°C

Electrical Specifications (Ambient Temperature : 25°C)

Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions
Input	LED Forward Voltage	V_F		1.2	1.4	V	$I_F=10mA$
	Recovery Current	I_R			10	μA	$V_R=5V$
Output	Peak Blocking Current	I_{DRM}			500	nA	$I_F=0mA, V_{DRM}=600V$
	ON-State Voltage	V_{TM}		1.7	3	V	$I_T=100mA$
Transfer Characteristics	Holding Current	I_H		0.1		mA	
	Critical Rate Of Rise Of OFF-state Voltage	dv/dt	600			V/ μs	$V_{DRM}=(1/2) \times \text{Rated}$
	Inhibit Voltage (MT1-MT2 Voltage Above Which Device Not Trigger)	V_{INH}		10	20	V	$I_F=5mA$
	Leakage In Inhibited State	I_{DRM2}			500	μA	$I_F=\text{Rated}, I_{FT}=\text{Rated}, V_{DRM}=\text{OFF-State}$
	Isolation Resistance	R_{ISO}	5×10^{10}	10^{11}		Ω	DC500V
	Minimum Trigger Current	I_{FT}		1.5	5	mA	

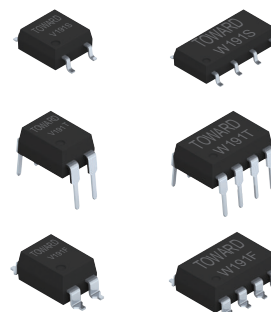
Photo Coupler



V/W

Features

- No EMI/RFI generation
- High reliability
- No moving parts
- Low drive power requirement
(TTL / CMOS Compatible Control)
- Suffix-H for High input-output isolation
(SOP 3750VAC / DIP 5000VAC)



Applications

- Telecommunication
- MOSFET/IGBT driver
- Programmable controllers

Part Identification

V 191 S

a b c

a : Series name :

V = 4 Pin ; W = 8 Pin

b : Function code : 191 ~ 192

c : Packing :

T = DIP ; F = SMD ; S = SOP

Quantity

Tube 45 pcs

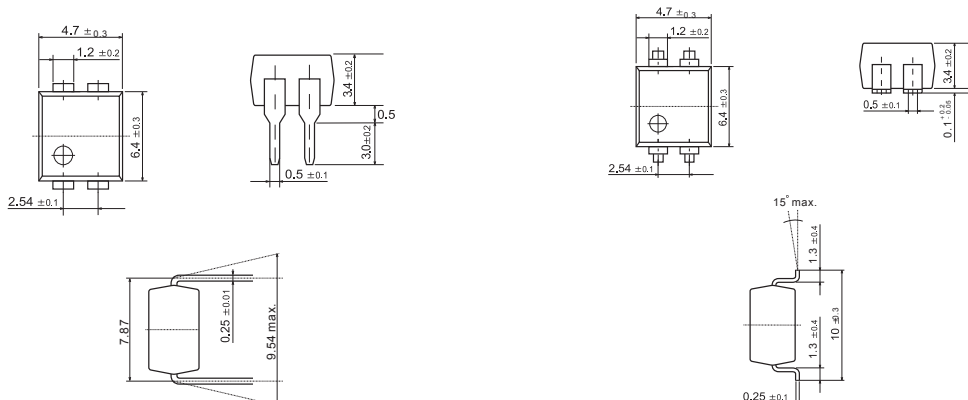
Tape 1000 pcs

Electrical Specifications (Ambient Temperature : 25°C)

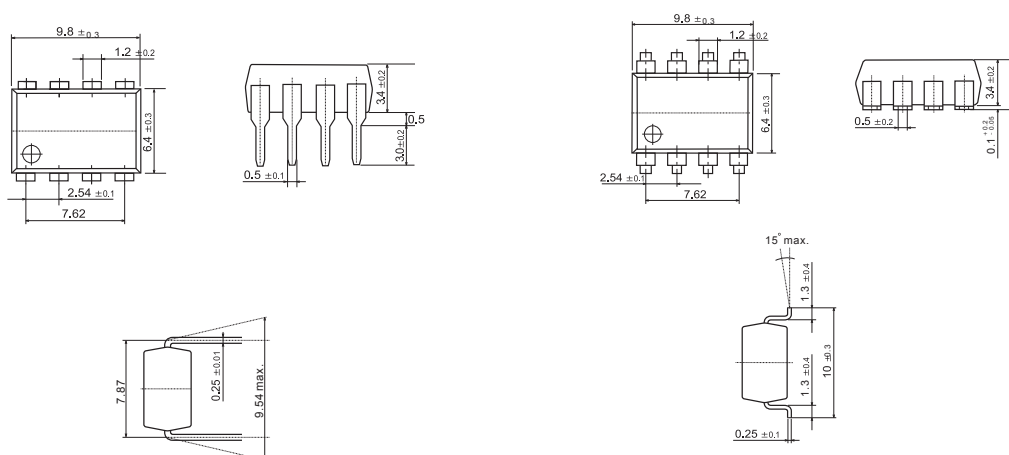
Item		Symbol	MIN.	TYP.	MAX.	Units	Conditions	
Input 輸入	LED Forward Voltage LED 順向電壓	V _F	1.2	1.4	1.7	V	I _F =10mA	
	Recovery Current 反向電流	I _R			10	μ A	V _R =5V	
Output 輸出	Open Voltage 開路電壓	V _{OC}	7	8		V	I _F =10mA	
	Short Current 短路電流	I _{SC}	10	20		μ A	I _F =10mA	
Switching 切換	Turn-On Time 動作時間	T _{ON}		0.2		ms	I _F =20mA R _{SH} =510KΩ C _L =1000pF	
	Turn-Off Time 復位時間	T _{OFF}		0.05		ms		
Isolation 阻抗	Isolation Resistance 絕緣阻抗	R _{I/O}	10 ⁹			Ω		
	Isolation Voltage 絕緣電壓	BV	2500			V _{RMS}	SOP	AC, 1minute
			3750			V _{RMS}	DIP/SMD	R.H. ≤ 60%
	Isolation Voltage 絕緣電壓 (Suffix-H)	BV-H	3750			V _{RMS}	SOP	AC, 1minute
5000					V _{RMS}	DIP/SMD	R.H. ≤ 60%	
Operating Temperature 使用時溫度		T _{opr}	-40℃ ~ +85℃					
Storage Temperature 保存溫度		T _{stg}	-40℃ ~ +100℃					

Dimensions : UNIT : mm (icch)

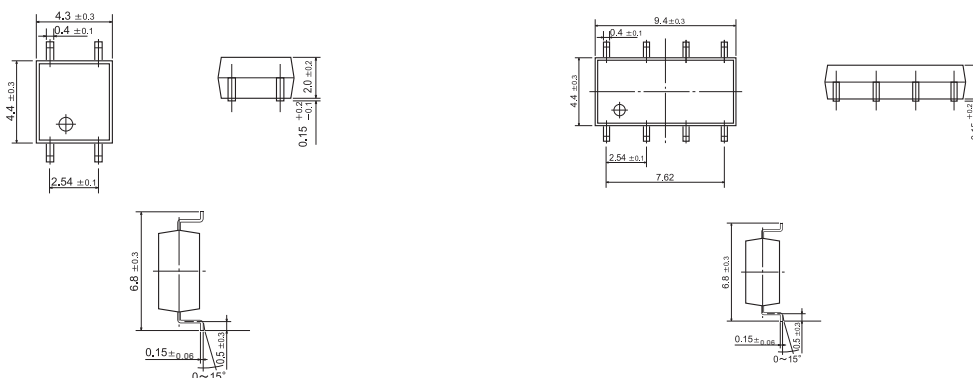
DIP & SMD 4PIN



DIP & SMD 8PIN

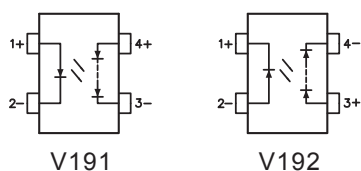


SOP 4PIN & 8PIN

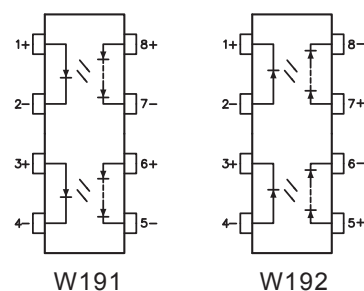


Dircuit diagram

4PIN



8PIN



PhotoMOS-FET Relays
General-Purpose

PhotoMOS-FET Relays
Hi-A Grade ≥ 1A

PhotoMOS-FET Relays
Hi-V Grade ≥ 600V

PhotoMOS-FET Relays
Low Leakage Current

PhotoMOS-FET Relays
RF

PhotoMOS-FET Relays
Photo Coupler

PhotoMOS-FET Relays
Photo Coupler

PhotoMOS-FET Relays
Mos Driver

Solid State Relays



Terms

Electrical characteristics 電器的特性

Terms 項目	Symbol 記號	Description 說明
Input 輸入	LED Forward Voltage LED 順向電壓	V_F Input Voltage of LED by the forward current 導入 LED 電流的順向電壓
	Operation LED Current LED 的動作電流	$I_{F\ ON}$ Current when output shifts from OFF (ON) state to ON (OFF) state by increasing the LED current with a disgnated load connected between output terminals. 增加 LED 的電流和出力端連在一起的指定負荷，出力端由閉合狀態轉為開路狀態時的電流。
	Recovery LED Voltage LED 的復位電壓	$V_{F\ OFF}$ LED forward voltage when output shifts from ON (OFF) state to OFF (ON) state by decreasing the LED current with a designate load connected between output terminals. 通過增加 LED 的電流和出力端連在一起的指定負荷，出力端由開路狀態轉為閉合狀態時的 LED 的順向電壓。
Output 輸出	On-Resistance 導通電阻 Drain to Drain	R_{ON} Resistance between output terminals in ON state on the specified conditions. 在開路狀態時特定條件的出力端電阻。
	Off-State Leakage Current 開路狀態時的電流	I_{LEAK} Leakage current flowing output terminals in OFF state on the specified conditions. 在開路狀態時特定條件下流過出力端的洩漏電流。
	Output Capacitance 輸出端容量	C_{OUT} Electrostatic capacitance between output terminals in OFF state on the specified conditions. 在閉合狀態時特定條件下出力端的靜電容量。
Transm- ission 傳達	Turn-On Time 動作時間	T_{ON} Time needed until output shifts from OFF to ON state after input current flows (stops) in the specified conditions. 在特殊條件下入力電流形成後出力電流由關到開狀態所需的時間。
	Turn-Off Time 復位時間	T_{OFF} Time needed until output shifts from ON to OFF state after input current flows (stops) in the specified conditions. 在特殊條件下入力電流形成後出力電流由關到開狀態所需的時間。
	Operation Time 動作時間	 Time needed until output shifts from OFF(ON) to ON(OFF) state after input current flows (stops) in the specified conditions. 在輸入電流時，輸出端測量出所切掉所需的時間。
	Recovery Time 復位時間	 Time needed until output shifts from ON(OFF) to OFF(ON) state after input current flows (stops) in the specified conditions. 在切掉輸入電流時，輸出端測量出所切掉所需的時間。
Coupled 結合	I/O Insulation Resistance 輸入 / 出力間的絕緣阻抗	$R_{I/O}$ Resistance between input and output terminals when a specified voltage is applied between input and output terminals. 當特定的電壓作用於入、出力端子時，入、出力端子間的阻抗。
	I/O Capacitance 輸入 / 出力間的靜電容量	$C_{I/O}$ Electrostatic capacitance between input and output terminals. 輸入 / 出力間的靜電容量。

Absolute maximum ratings 絕對最大定格

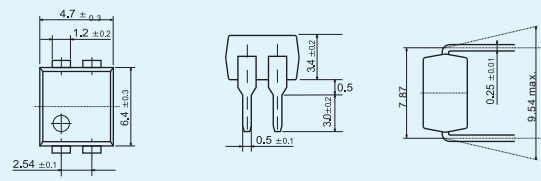
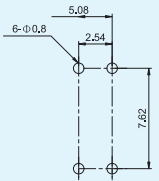
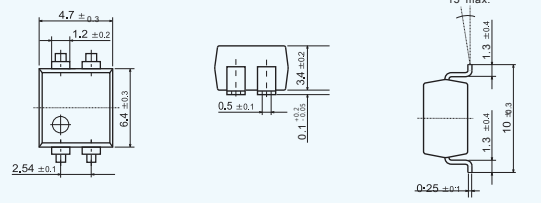
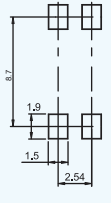
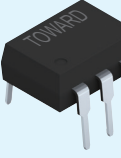
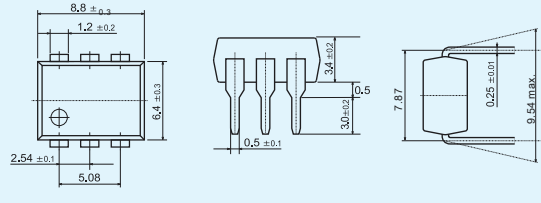
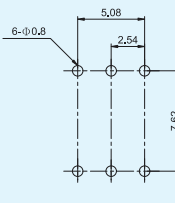
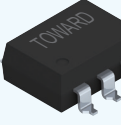
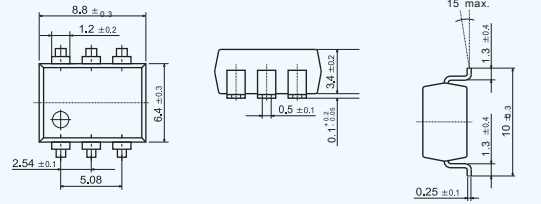
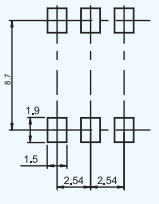
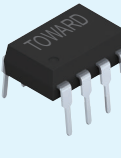
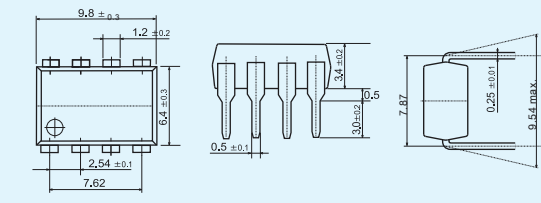
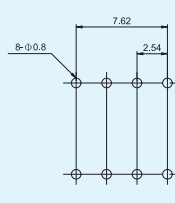
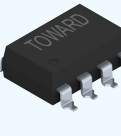
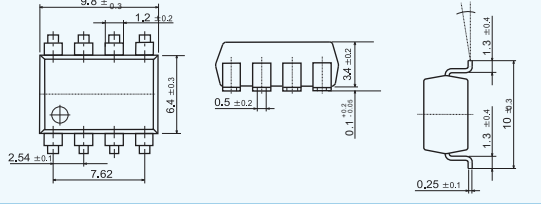
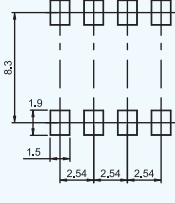
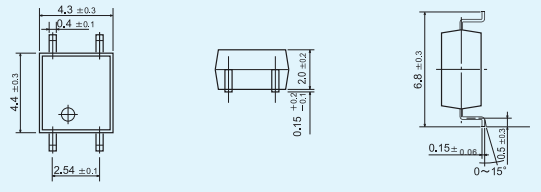
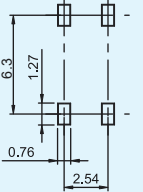
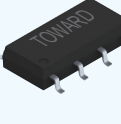
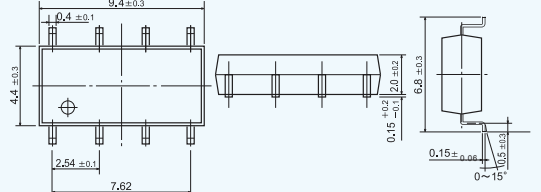
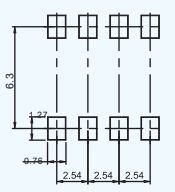


Terms 項目		Symbol 記號	Description 說明
Input 輸入	Continuos LED Current 連續的 LED 電流	I_F	Maximum value of the current that can flow continuously in the forward directions of LED. 最大的連續通過 LED 的順向電流。
	Peak LED Current LED 的峰值電流	I_{FP}	Maximum instantaneous current value that can flow in the forward directions of LED. 流過 LED 的順向電流瞬間最大值。
	LED Reverse Voltage 逆向的 LED 電壓	V_R	Reverse breakdown voltage of LED. LED 的逆向崩潰電壓。
	Input Power Dissipation 容許損失	P_{IN}	Allowable power dissipation between the input terminals. 入力端所允許的消耗功率。
Output 輸出	Load Voltage 負荷電壓	V_L	Maximum value of the supply voltage between output terminals to normally operate MOSFET relay (peak voltage for AC voltage). 使光耦合繼電器正常工作的出力端最大電源電壓。
	Load Current 負荷電流	I_L	Maximum value of the continuous load current that can flow between output terminals on the specified ambient temperature conditions (peak current for AC current). 在特殊的周圍溫度條件下出力端最大連續負荷電流。
	Peak Lod Current 峰值負荷電流	I_{PEAK}	Maximum value of the current that can flow between output terminals instantaneously. 出力端連續的最大電流。
	Output Power Dissipation 輸出損耗	P_{OUT}	Allowable power dissipation between output terminals. 出力端所允許的輸出損耗。
Total Power Dissipation 全損耗		P_T	Allowable power dissipation in entire circuit between input and output terminals. 所允許的出力端整個迴路中的電流損耗。
I/O Breakdown Voltage 入 / 出力間絕緣電壓		V_{IO}	Critical value before dielectric breakdown occurs when a specified voltage is applied between input and output terminals. 入 / 出力間絕緣破壞發生時的電壓極限值。
Operating Temperature 使用時周圍溫度		T_{OPR}	Ambient temperature range that can assure operations under a designated voltage / load current. 確保在特定的電壓 / 負荷電流時動作的周圍溫度範圍。
Storage Temperature 周圍保存溫度		T_{STG}	Ambient temperature range for storage time under no voltage / input signal applied. 在無電壓 / 入力信號作用時保存周圍溫度範圍。

Package & PC Board Pattern Stick Packing 條形包裝

Package Type 包裝類型	Number of devices in a stick 收納數量
4 Pin DIP / SMD	90 pcs
6 Pin DIP / SMD	50 pcs
8 Pin DIP / SMD	45 pcs
4 Pin SOP	100 pcs
8 Pin SOP	50 pcs

Package & PC Board Pattern

Package 包裝	Dimensions 外型尺寸圖	PC Board pattern PC 板加工圖
 DIP4		 (Bottom View)
 SMD4		 (Top View)
 DIP6		 (Bottom View)
 SMD6		 (Top View)
 DIP8		 (Bottom View)
 SMD8		 (Top View)
 SOP4		 (Top View)
 SOP8		 (Top View)

Packing Specifications



Package Type 包裝類型	Tape shape & dimensions 形狀和尺寸	Reel shape & dimensions 圈帶形狀和尺寸	Quantity 數量
4 Pin SOP			1000 pcs
8 Pin SOP			1000 pcs
4 Pin SMD			1000 pcs
6 Pin SMD			1000 pcs
8 Pin SMD			1000 pcs

 PhotomOS-FET Relays
General-Purpose

 PhotomOS-FET Relays
Hi-A Grade ≥ 1A

 PhotomOS-FET Relays
Hi-V Grade ≥ 600V

 PhotomOS-FET Relays
Low Leakage Current

 PhotomOS-FET Relays
RF

 PhotomOS-FET Relays
Photo Coupler

 PhotomOS-FET Relays
Mos Driver

 PhotomOS-FET Relays
Solid State Relays

Load Connecting Method

Type 類型	Load 負荷	Connection 接續方法	Feature 特長
4 pin	AC or DC		Control bi-directional signal 可控制雙向信號
6 pin	A	AC or DC	Control bi-directional signal 可控制雙向信號
	B	DC	On-Resistance is 1/2 of A-connection 導通電阻值是 A 接法的 1/2 2-Make-contacts (Source Common)
		DC	
	C	DC	On-Resistance is 1/2 of B-connection 導通電阻值是 B 接法的 1/2
8 pin	AC or DC		2 input and 2 output 2 入力和 2 出力回路
			1 input and 2 output 1 入力和 2 出力回路