

Kudom Solid State Relay

SELECTION GUIDE CATALOGUE



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OUR VISION AND VALUES

Keen on technology innovation
Unique in market
Do more with less
Open mind
Move forward forever

COMPANY PROFILE



A LEADING SOLUTION PROVIDER

As a professional manufacturer for solid state relays, motor reversing modules, voltage regulator modules, industrial modules and related products. KUDOM continues to focus on innovative technology and production methods. We at KUDOM are committed to providing our customers with high quality products with the shortest possible delivery time.

In addition to our professional manufacturing team and advanced production facilities, we have an R&D center and a laboratory more than 1000m², which ensures that KUDOM can continuously produce standard and customized semiconductor modules for customers to meet all types of industrial applications.

Since its establishment, KUDOM has always tried to meet requests from our customers for new and innovative products. We were the first to introduce the integrated semiconductor control module, "Intelligent Control" + "Bus Control" in China.

After many years of accumulated knowledge and technological advances, we have registered more than 24 patents. We can provide more than 50 series of standard solid state relays and control modules for our customers. We can also respond quickly to customer needs, by customizing suitable products and solutions for various industrial control applications.

HONOR QUALIFICATION



KUDOM factory passes GB/T19001-2016 idt ISO9001:2015 International Quality Management System Certification, GB/T 24001-2016 idt ISO 14001:2015 Environmental Management System Certification and GB/T 28001-2011 idt OHSAS 18001:2007 Occupation Health and Safety Management System Certification.



KUDOM PRODUCTS ACQUIRE:



DEVELOPMENT HISTORY



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Product Description

- ◆ TTL Compatible Drive
- ◆ TRIAC Output
- ◆ Control Voltage: 5VDC, 12VDC, 24VDC
- ◆ Load Current: 2A
- ◆ Dielectric Strength: 2500Vrms
- ◆ PCB Mounted
- ◆ RoHS Compliant



Ordering Information

KSA	240	D	2	R	24	T	(XXX)
KSA Series	Load Voltage 240: 240VAC	DC Control	Load Current 2: 2Amp	Switching Mode Blank: Zero Crossing R: Random-on	Control Voltage 5: 5VDC 12: 12VDC 24: 24VDC	Pin Layout Blank: Standard T: T Type Footprint	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	5	4-6VDC
	12	9.6-14.4VDC
	24	19.2-28.8VDC
Must Turn-On Voltage	5	4VDC
	12	9.6VDC
	24	19.2VDC
Must Turn-Off Voltage	1VDC	
Maximum Input Current	25mA	

Output Specifications (Ta=25°C)	
Load Voltage	24-280VAC
Maximum	600Vpk
Maximum Off-State Leakage Current@Rated Load	1.5mA
Minimum Off-State dv/dt@Maximum Rated Voltage	200V/μs

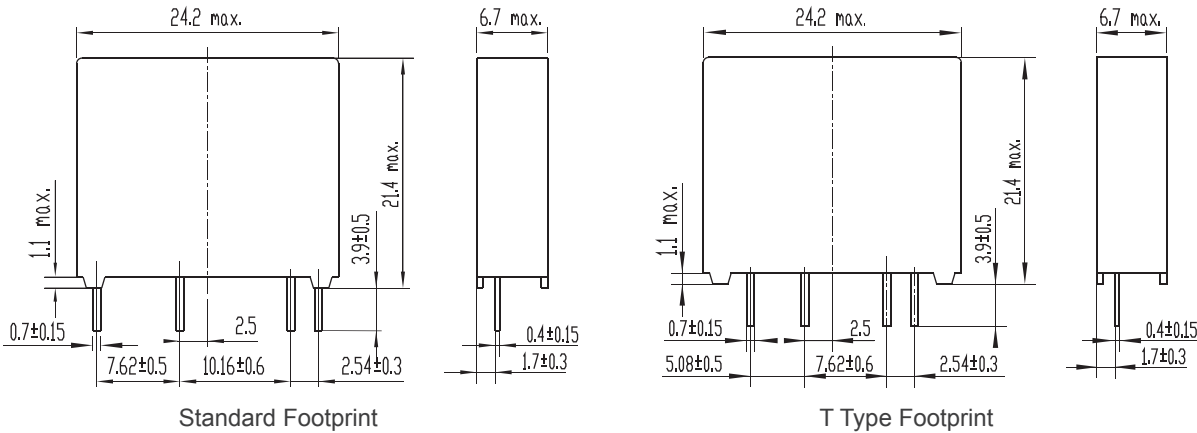
Output Specifications (Ta=25°C)	
Load Current	0.1-2A
Maximum 1 Cycle Surge Current	35A _{pk}
Maximum I ² t for Fusing (10ms)	6.1A ² s
Maximum On-State Voltage Drop@Rated Current	1.5Vrms
Maximum Turn-On Time	Zero Crossing : 1/2cycle+1ms, Random-on : 1ms
Maximum Turn-Off Time	1/2cycle+1ms
Operational Frequency Range	47-63Hz
Minimum Power Factor (@Maximum load)	0.5

General Specifications (Ta=25°C)	
Dielectric Strength (50/60Hz)	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ
Ambient Temperature Range	-30°C ~ +80 °C
Storage Temperature Range	-30°C ~ +100 °C
Weight (Typical)	6g

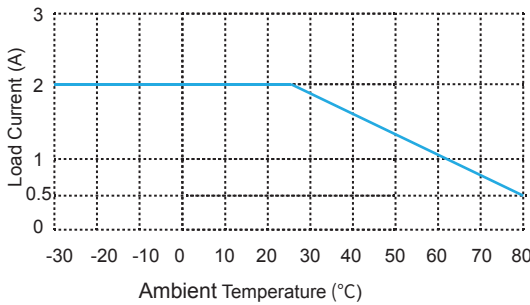
Applications

Suitable for control electromagnetic valve, electric machine, filament lamp, and etc.

Outline Dimensions



Thermal Derating Curve



General Notes

1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Certification



KSB Series Single Phase AC Output

Product Description

- Zero crossing or Random-on switching
- TRIAC Output
- Control Voltage: 4-15VDC or 15-32VDC
- Load Current: 2A or 3A
- Dielectric Strength: 4000Vrms
- Internal RC Absorption Circuit (Optional)
- RoHS Compliant



Ordering Information

KSB	240	D	3	R	-L	N	-T	(XXX)
KSB Series	Load Voltage 240: 240VAC 380: 380VAC	DC Control	Load Current 2: 2Amp 3: 3Amp	Switching Mode Blank: Zero Crossing R: Random-on	Control Voltage L: 4-15VDC Input H: 15-32VDC Input	Blank: with RC N: without RC	Blank: Standard T: T Type Footprint	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	L	4-15VDC
	H	15-32VDC
Must Turn-On Voltage	L	4VDC
	H	15VDC
Must Turn-Off Voltage		1VDC
Maximum Input Current	L	40mA @15VDC
	H	25mA @32VDC

Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
Maximum Off-State Leakage Current	without RC	0.1mA
@Rated Load Voltage	with RC	5mA
Minimum Off-State dv/dt@Maximum Rated Voltage		200V/μs
Load Current Range	2A	0.1-2A
	3A	0.1-3A
Maximum 1 Cycle Surge Current (50Hz)	2A	35Apk
	3A	80Apk
Maximum I²t for Fusing (10ms)	2A	6.1A²s
	3A	32A²s

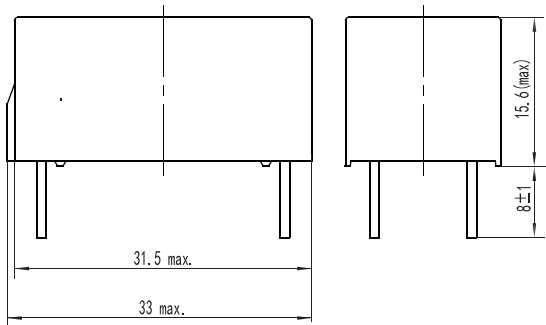
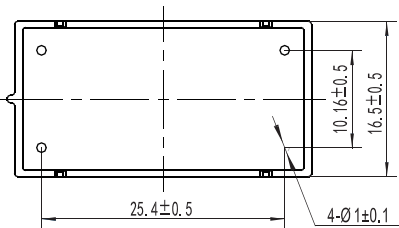
KSB Series Single Phase AC Output

Maximum On-State Voltage Drop@Rated Current	1.5Vrms
Maximum Turn-On Time	Zero Crossing : 1/2cycle+1ms, Random-on: 1ms
Maximum Turn-Off Time	1/2cycle+1ms
Operational Frequency Range	47-63Hz
Minimum Power Factor (@ Maximum load)	0.5
General Specifications (Ta=25°C)	
Dielectric Strength (50/60Hz)	4000Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ
Ambient Temperature Range	-30°C ~ +80 °C
Storage Temperature Range	-30°C ~ +100 °C
Weight (Typical)	15g

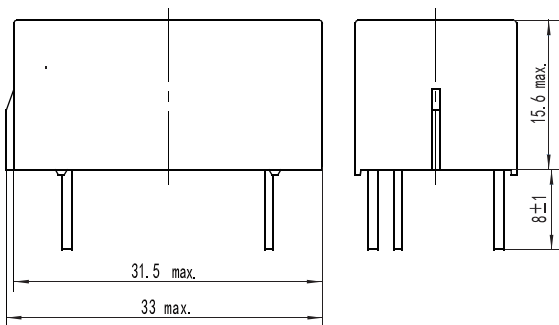
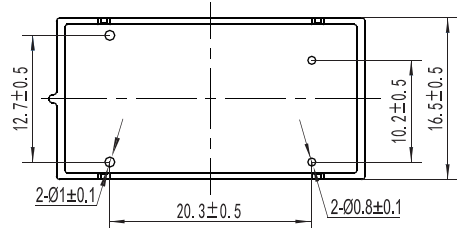
Applications

Suitable for pumps, valve control, motor control, and ect.

Outline Dimensions

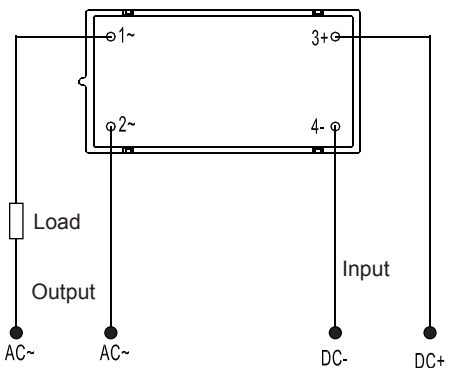


Standard Footprint

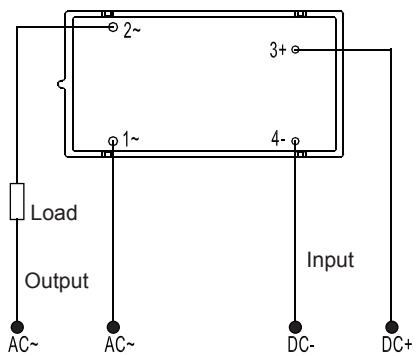


T Type Footprint

Wiring Diagram



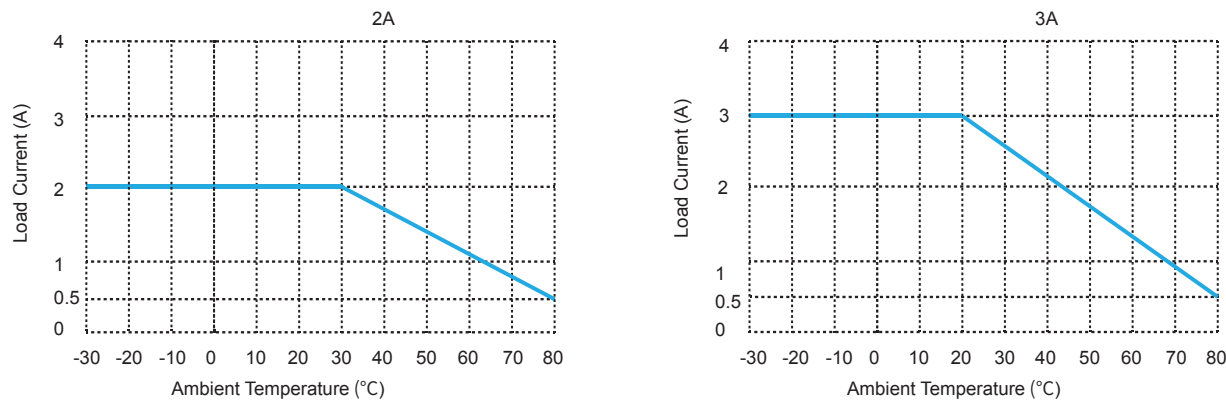
Standard Footprint



T Type Footprint

KSB Series Single Phase AC Output

Thermal Derating Curve



General Notes

1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



Note: The product without RC is not UL certified

KSC Series Single Phase AC Output

Product Description

- ◆ Opto-isolation
- ◆ TRIAC Output
- ◆ Control Current or Voltage: 10mA or 5VDC, 12VDC, 24VDC
- ◆ Load Current: 2A
- ◆ Dielectric Strength: 2500Vrms
- ◆ PCB Mounted
- ◆ RoHS Compliant



Ordering Information

KSC	240	D	2	R	-24	T	(XXX)
KSC Series	Load Voltage 240: 240VAC	DC Control	Load Current 1: 1Amp 2: 2Amp	Switching Mode Blank: Zero Crossing R: Random-on	Control Mode 5: 5VDC 12: 12VDC 24: 24VDC I: 10mA	Pin Layout Blank: Standard T: T Type Footprint	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Current Range	I	10-35mA
Control Voltage Range	5	4-6VDC
	12	9.6-14.4VDC
	24	19.2-28.8VDC
Maximum Input Current	I	10mA
Must Turn-On Voltage	5	4VDC
	12	9.6VDC
	24	19.2VDC
Must Turn-Off Current	I	1mA
Must Turn-Off Voltage	5/12/24	1VDC
Maximum Input Current	5	25mA (@6VDC)
	12	25mA (@14.4VDC)
	24	25mA (@28.8VDC)

Output Specifications (Ta=25°C)		
Load Voltage Range	24-280VAC	
Maximum Transient Overvoltage	600Vpk	
Maximum Off-State Leakage Current@Rated Load Voltage	1.5mA	
Minimum Off-State dv/dt@Maximum Rated	200V/μs	
Load Current Range	1A	0.1-1A
	2A	0.1-2A
Maximum 1 Cycle Surge Current (50Hz)	1A	25Apk
	2A	35Apk
Maximum I²t for Fusing (10ms)	1A	3.1A²s
	2A	6.1A²s

KSC Series Single Phase AC Output

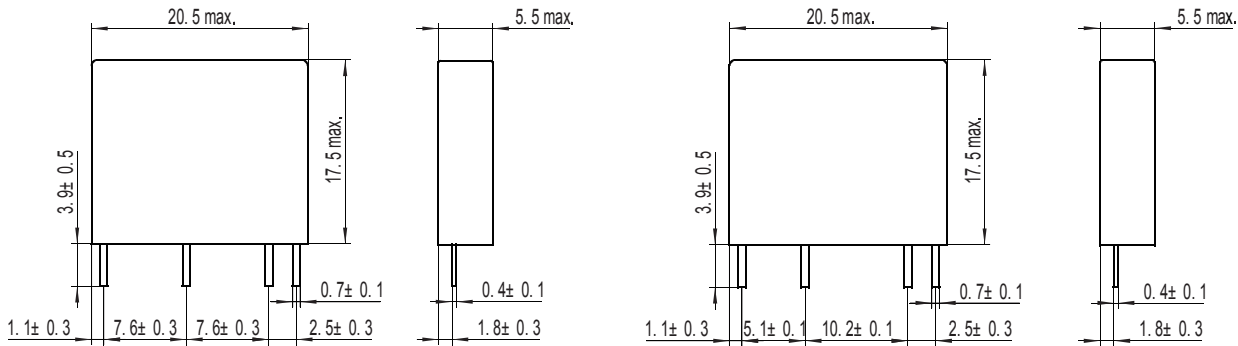
Maximum On-State Voltage Drop@Rated Current	1.5Vrms
Maximum Turn-On Time	Zero Crossing: 1/2cycle+1ms,Random-on: 1ms
Maximum Turn-Off Time	1/2cycle+1ms
Operational Frequency Range	47-63Hz
Minimum Power Factor (@ Maximum load)	0.5

General Specifications (Ta=25°C)	
Dielectric Strength (50/60Hz)	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ
Ambient Temperature Range	-30°C ~ +80°C
Storage Temperature Range	-30°C ~ +100°C
Weight (Typical)	3g

Applications

Suitable for pumps, valve control, motor control, and etc.

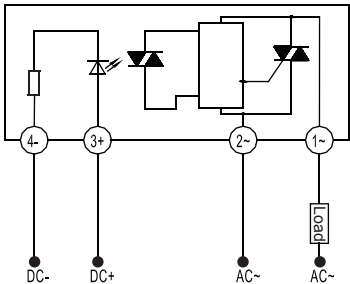
Outline Dimensions



Standard Footprint

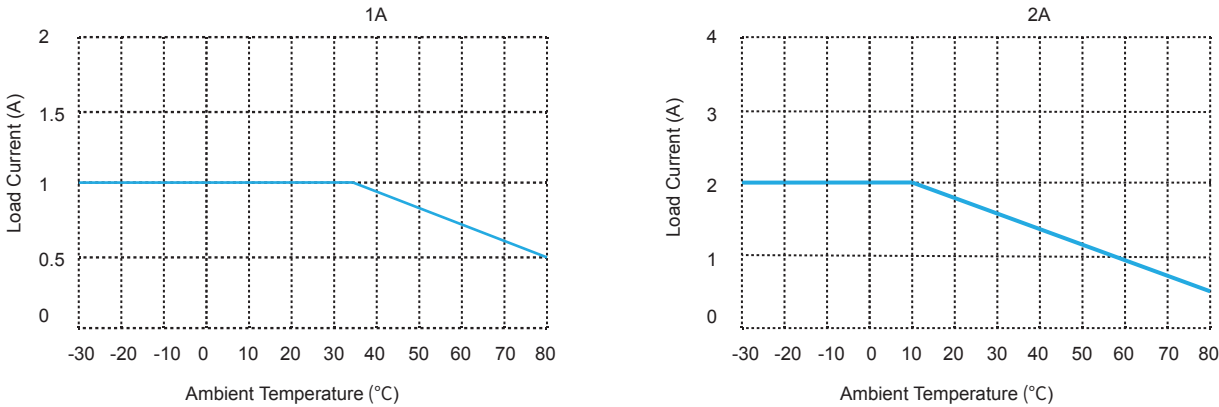
T Type Footprint

Wiring Diagram



KSC Series Single Phase AC Output

Thermal Derating Curve



General Notes

1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KSD Series Single Phase AC Output

Product Description

- ◆ TRIAC Output
- ◆ Control Voltage: 4-15VDC, 15-32VDC, 4-32VDC
- ◆ Load Voltage: 240VAC, 380VAC, 480VAC
- ◆ Load Current: 3A, 5A
- ◆ Dielectric Strength: 4000Vrms
- ◆ RoHS Compliant



Ordering Information

KSD	380	D	5	R	-L	(XXX)
KSD Series (1)	Load Voltage 240: 240VAC 380: 380VAC 480: 480VAC	DC Control	Load Current 3: 3Amp 5: 5Amp	Switching Mode Blank: Zero Crossing R: Random-on	Control Voltage L: 4-15VDC H: 15-32VDC W: 4-32VDC	Customized Code

Note (1): The part number selection is subject to the following list.

Control Voltage	3A		5A	
L:4-15VDC	KSD240D3-L	KSD240D3R-L	KSD240D5-L	KSD240D5R-L
	KSD380D3-L		KSD380D5-L	
	KSD480D3-L	KSD480D3R-L	KSD480D5-L	KSD480D5R-L
H:15-32VDC	KSD240D3-H	KSD240D3R-H	KSD240D5-H	KSD240D5R-H
	KSD380D3-H		KSD380D5-H	
	KSD480D3-H	KSD480D3R-H	KSD480D5-H	KSD480D5R-H
W:4-32VDC	KSD240D3-W	KSD240D3R-W	KSD240D5-W	KSD240D5R-W
	KSD380D3-W		KSD380D5-W	
	KSD480D3-W	KSD480D3R-W	KSD480D5-W	KSD480D5R-W

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	L	4-15VDC
	H	15-32VDC
	W	4-32VDC
Must Turn-On Voltage	L	4VDC
	H	15VDC
	W	4VDC
Must Turn-Off Voltage	1VDC	
Maximum Input Current	25mA	

KSD Series Single Phase AC Output

Output Specifications (Ta=25°C)

Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
	480VAC	24-530VAC
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
	480VAC	1200Vpk
Load Current Range	3A	0.1 - 3A
	5A	0.1 - 5A
Maximum Surge Current (@10ms)	3A	120A
	5A	200A
Maximum Turn-On Time	Zero Crossing	1/2cycle+1ms
	Random-on	1ms
Maximum Turn-Off Time	1/2cycle+1ms	
Maximum Off-State Leakage Current@Rated Load Voltage	5mA	
Maximum On-State Voltage Drop@Rated Current	1.5Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	200V/μs	

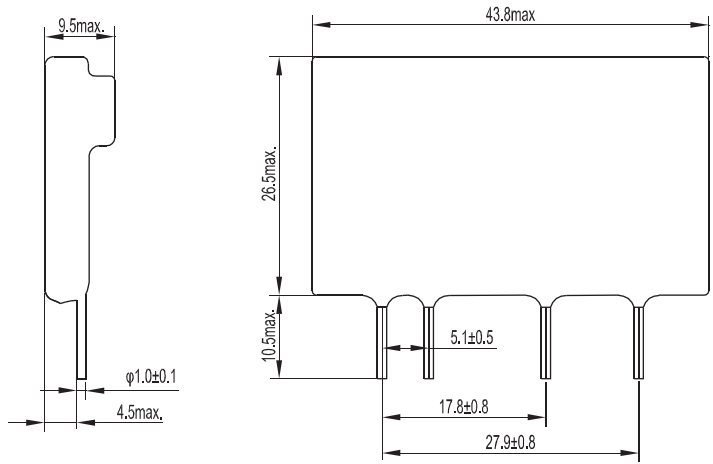
General Specifications (Ta=25°C)

Dielectric Strength (50/60Hz)	4000Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ
Ambient Temperature Range	-30°C ~ +80°C
Storage Temperature Range	-30°C ~ +100°C
Weight (Typical)	11.8g

Applications

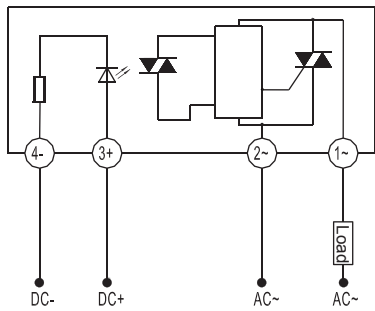
Suitable for lighting control, motor control, vending machine control, medical device control, elevator control, and etc.

Outline Dimensions

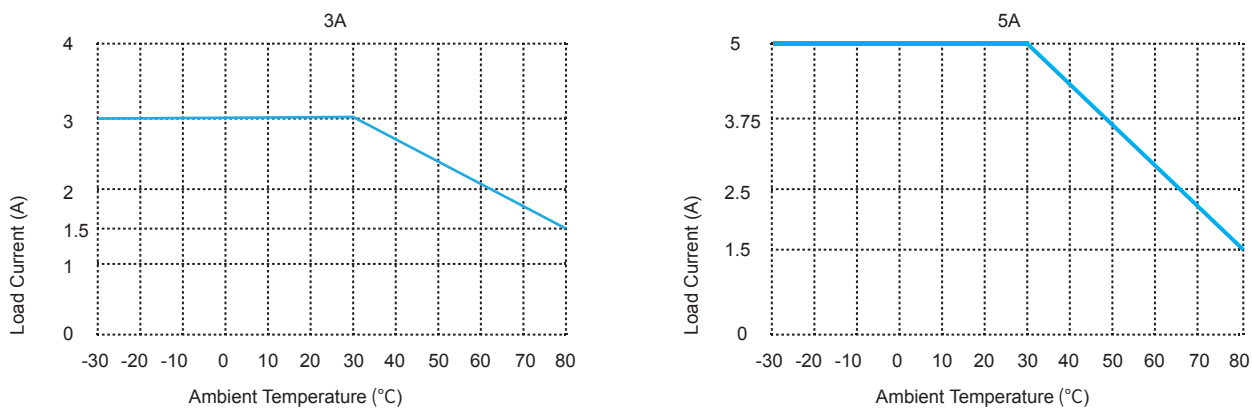


KSD Series Single Phase AC Output

Wiring Diagram



Thermal Derating Curve



General Notes

1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KSD (037) Series Single Phase AC Output

Product Description

- ◆ TRIAC Output (3A) or SCR Output (5A)
- ◆ Control Voltage: 4-15VDC, 15-32VDC, 4-32VDC
- ◆ Load Voltage: 240VAC, 380VAC, 480VAC
- ◆ Load Current: 3A, 5A
- ◆ Dielectric Strength: 4000Vrms
- ◆ RoHS Compliant



Ordering Information

KSD	380	D	5	R	-L	(037)
KSD Series	Load Voltage 240: 240VAC 380: 380VAC 480: 480VAC	DC Control	Load Current 3: 3Amp 5: 5Amp	Switching Mode Blank: Zero Crossing R: Random-on	Control Voltage L: 4-15VDC H: 15-32VDC W: 4-32VDC	(037): Plastic Case

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	L	4-15VDC
	H	15-32VDC
	W	4-32VDC
Must Turn-On Voltage	L	4VDC
	H	15VDC
	W	4VDC
Must Turn-Off Voltage	H	5VDC
	L/W	1VDC
Maximum Input Current	H	25mA (@15VDC)
	L/W	25mA (@32VDC)

Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
	480VAC	24-530VAC
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
	480VAC	1200Vpk
Load Current Range	3A	0.1 - 3A
	5A	0.1 - 5A
Maximum Surge Current (@10 ms)	3A	160A
	5A	250A

Output Specifications (Ta=25°C)		
Maximum Turn-On Time	Random-on	1ms
	Zero Crossing	1/2cycle+1ms
Maximum Turn-Off Time	1/2cycle+1ms	
Maximum Off-State Leakage Current@Rated Load Voltage	5mA	
Maximum On-State Voltage Drop@Rated Current	1.5Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	3A	200V/μs
	5A	500V/μs

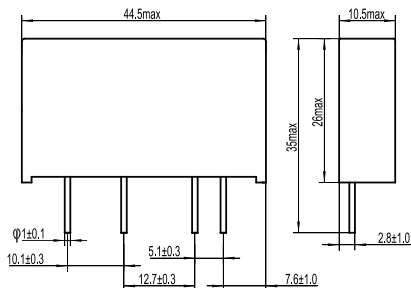
KSD (037) Series Single Phase AC Output

General Specifications (Ta=25°C)	
Dielectric Strength (50/60Hz)	4000Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ
Ambient Temperature Range	-30°C ~ +80°C
Storage Temperature Range	-30°C ~ +100°C
Weight (Typical)	20g

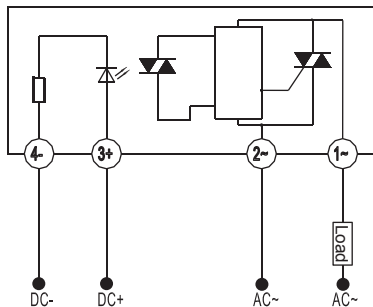
Applications

Suitable for lighting control, motor control, vending machine control, medical device control, valve control etc, and etc.

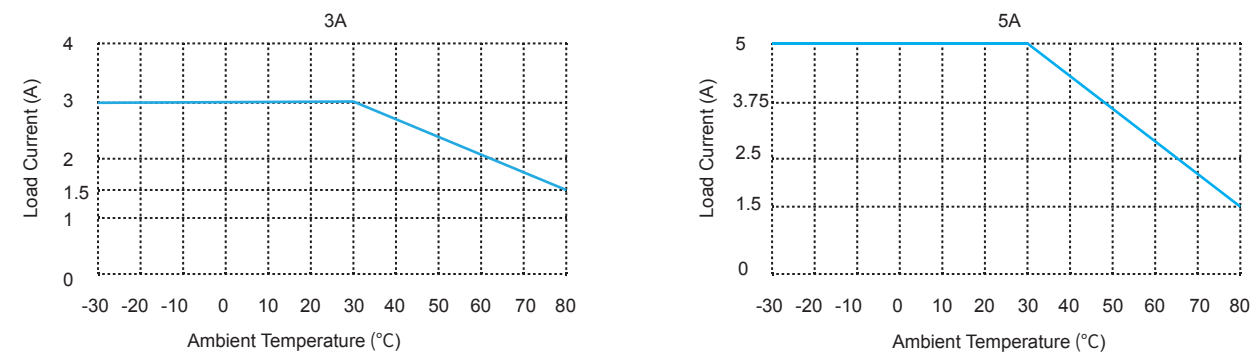
Outline Dimensions



Wiring Diagram



Thermal Derating Curve



General Notes

1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals



KSFA Series Single Phase AC Output

Product Description

- ◆ Control Voltage: 5VDC, 12VDC, 24VDC
- ◆ Load Voltage: 240VAC, 380VAC
- ◆ Load Current: 2A, 3A
- ◆ Dielectric Strength: 4000Vrms
- ◆ RoHS Compliant



Ordering Information

KSFA	380	D	3	R	-24	N	(XXX)
KSFA Series (1)	Load Voltage 240: 240VAC 380: 380VAC	DC Control	Load Current 2: 2Amp 3: 3Amp	Switching Mode Blank: Zero Crossing R: Random-on	Control Voltage 5: 5VDC 12: 12VDC 24: 24VDC	Blank: with RC N: without RC	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	5	4-6VDC
	12	9.6-14.4VDC
	24	19.2-28.8VDC
Must Turn-On Voltage	5	4VDC
	12	9.6VDC
	24	19.2VDC
Must Turn-Off Voltage	1VDC	
Maximum Input Current	5	25mA (@6VDC)
	12	25mA (@14.4VDC)
	24	25mA (@28.8VDC)

KSFA Series Single Phase AC Output

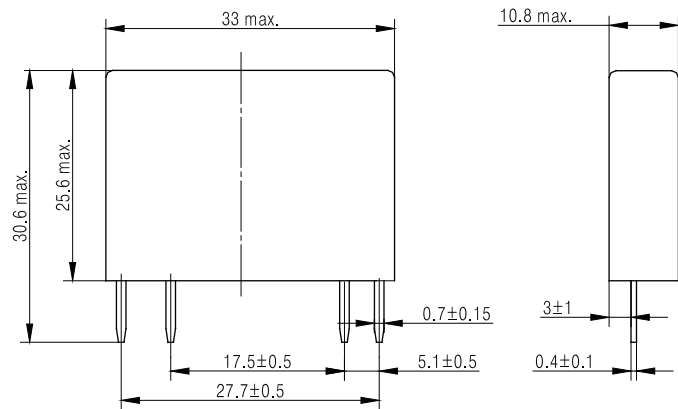
Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
Load Current Range	2A	0.1-2A
	3A	0.1-3A
Maximum 1 Cycle Surge Current (50Hz)	2A	80A
	3A	160A
Maximum Turn-On Time	Random-on	1ms
	Zero Crossing	1/2cycle+1ms
Maximum Turn-Off Time	1/2cycle+1ms	
Maximum Off-State Leakage Current@Rated Load Voltage	without RC	0.1mA
	with RC	5mA
Maximum On-State Voltage Drop@Rated Current	1.5Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	200V/μs	

General Specifications (Ta=25°C)	
Dielectric Strength (Input/Output,50/60Hz)	4000Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ
Ambient Temperature Range	-30°C ~ +80°C
Storage Temperature Range	-30°C ~ +100°C
Weight (Typical)	20g

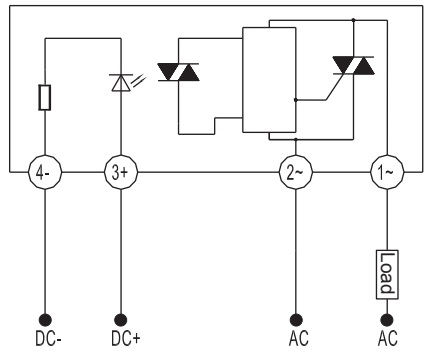
Applications

Suitable for lighting control, motor control, vending machine control, medical device control, valve control, and etc.

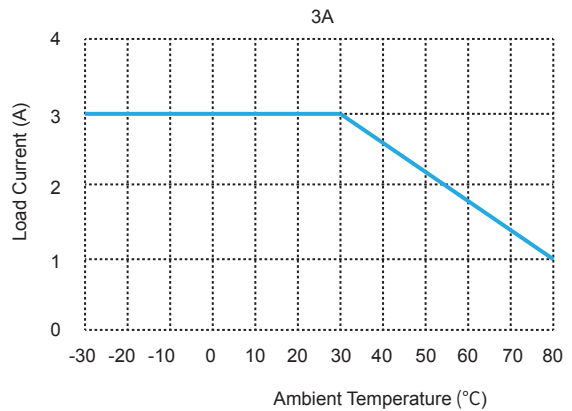
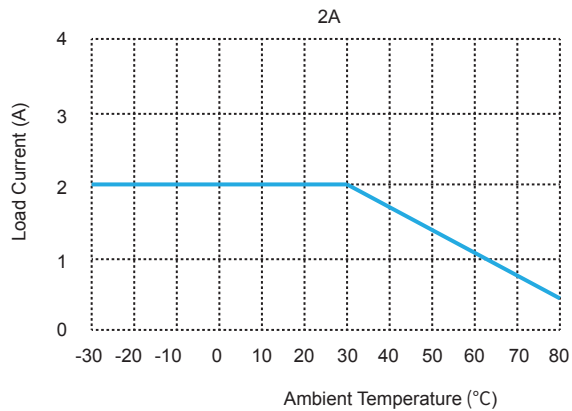
Outline Dimensions



Wiring Diagram



Thermal Derating Curve



General Notes

- Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
- Terminal polarity must be observed. Otherwise it may cause damage to the relay.
- When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KSG Series Single Phase AC Output

Product Description

- ◆ Zero crossing or Random-on Switching
- ◆ TRIAC Output
- ◆ Control Voltage: 5VDC, 12VDC, 24VDC
- ◆ Load Current: 2A, 3A
- ◆ Opto-isolation: 4000Vrms
- ◆ RoHS Compliant



Ordering Information

KSG	240	D	2	R	-5	D	(XXX)
KSG Series	Load Voltage 240: 240VAC 380: 380VAC	DC Control	Load Current 2: 2Amp 3: 3Amp	Switching Mode Blank: Zero Crossing R: Random-on	Control Voltage 5: 5VDC 12: 12VDC 24: 24VDC	Blank: without socket D: with socket	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	5	4-6VDC
	12	9.6-14.4VDC
	24	19.2-28.8VDC
Must Turn-On Voltage	5	4VDC
	12	9.6VDC
	24	19.2VDC
Must Turn-Off Voltage	1VDC	
Maximum Input Current	5	25mA (@6VDC)
	12	25mA (@14.4VDC)
	24	25mA (@28.8VDC)
Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
Load Current Range	2A	0.1-2A
	3A	0.1-3A
Maximum 1 Cycle Surge Current (50Hz)	2A	80A
	3A	120A
Maximum Turn-On Time	Random-on	1ms
	Zero Crossing	1/2cycle+1ms
Maximum Turn-Off Time	1/2cycle+1ms	
Maximum Off-State Leakage Current@Rated Load Voltage	5mA	
Maximum On-State Voltage Drop@Rated Current	1.5Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	200V/μs	

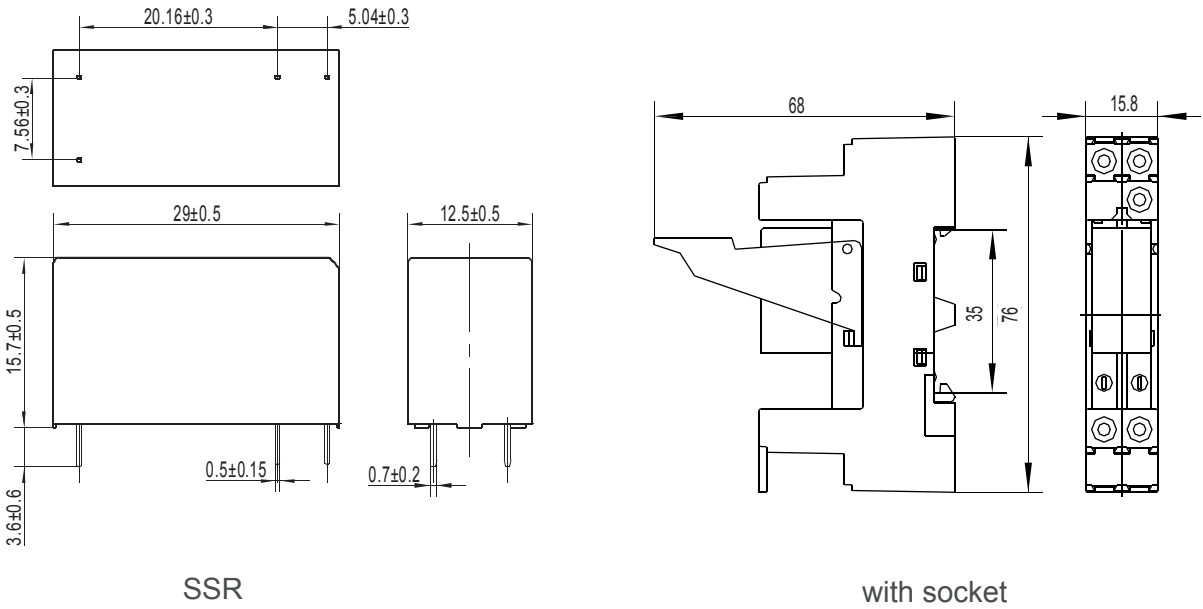
KSG Series Single Phase AC Output

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)		4000Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Ambient Temperature Range		-30°C ~ +80°C
Storage Temperature Range		-30°C ~ +100°C
Weight (Typical)	without socket	15g
	with socket	50g

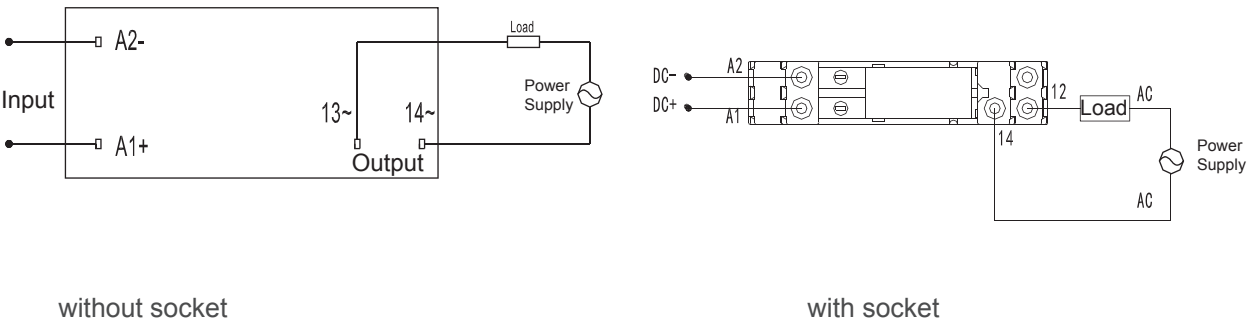
Applications

Suitable for industrial applications such as valve control and motor control, and etc.

Outline Dimensions

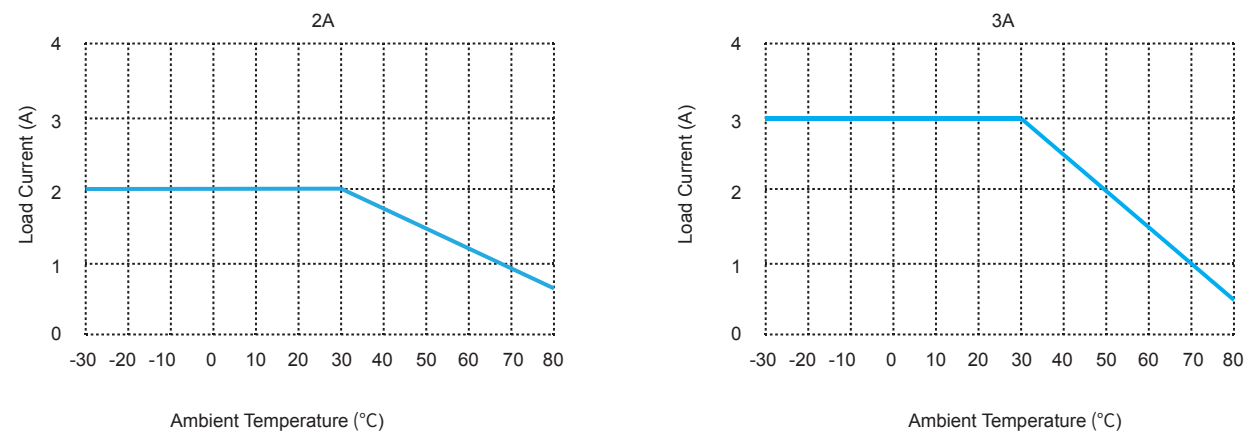


Wiring Diagram



KSG Series Single Phase AC Output

Thermal Derating Curve



General Notes

- 1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
- 2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
- 3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KSG3R Series Single Phase AC Output

Product Description

- ◆ TRIAC Output
- ◆ Control Voltage: 5VDC, 12VDC, 24VDC
- ◆ Load Current: 3A
- ◆ Dielectric Strength: 4000Vrms
- ◆ RoHS Compliant



Ordering Information

KSG3R	380	D	3	R	-5	D	(XXX)
KSG3R Series	Load Voltage 240: 240VAC 380: 380VAC	D: DC Control	Load Current 2: 2Amp 3: 3Amp	Switching Mode Blank: Zero Crossing R: Random-on	5: 5VDC 12: 12VDC 24: 24VDC	Blank: without socket D: with socket	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	-5	4-6VDC
	-12	9.6-14.4VDC
	-24	19.2-28.8VDC
Must Turn-On Voltage	-5	4VDC
	-12	9.6VDC
	-24	19.2VDC
Must Turn-Off Voltage	1VDC	
Maximum Input Current	-5	25mA (@6VDC)
	-12	25mA (@14.4VDC)
	-24	25mA (@28.8VDC)

Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
Load Current Range	2A	0.1 - 2A
	3A	0.1 - 3A

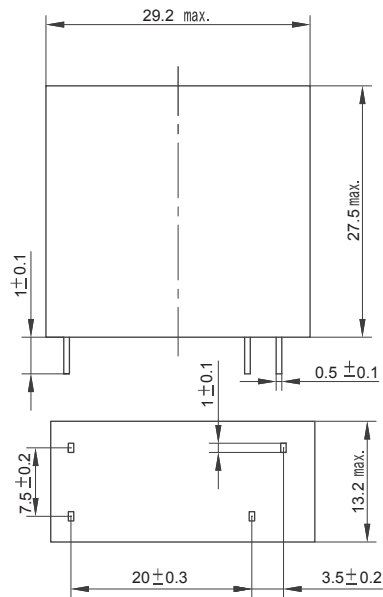
KSG3R Series Single Phase AC Output

Maximum 1 Cycle Surge Current (50Hz)		2A	80A
		3A	120A
Maximum Turn-On Time		Random-on	1ms
		Zero Crossing	1/2cycle+1ms
Maximum Turn-Off Time		1/2cycle+1ms	
Maximum Off-State Leakage Current@Rated Load Voltage		5mA	
Maximum On-State Voltage Drop@Rated Current		1.5Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage		200V/μs	
General Specifications (Ta=25°C)			
Dielectric Strength (50/60Hz)		4000Vrms	
Minimum Insulation Resistance (@500VDC)		1000MΩ	
Ambient Temperature Range		-30°C ~ +80°C	
Storage Temperature Range		-30°C ~ +100°C	
Weight (Typical)	without socket	18g	
	with socket	55g	

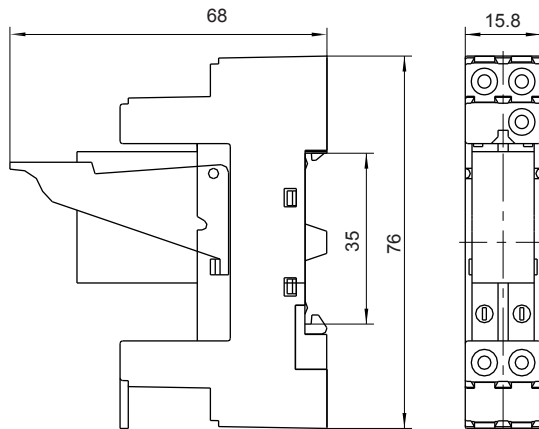
Applications

Suitable for electromagnetic devices, intelligent instrument, and etc.

Outline Outline Dimensions



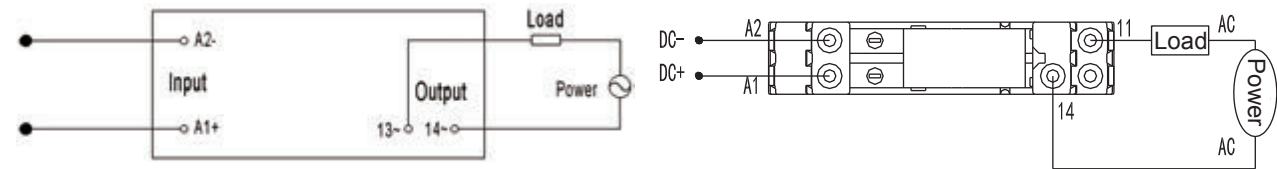
without socket



with socket

KSG3R Series Single Phase AC Output

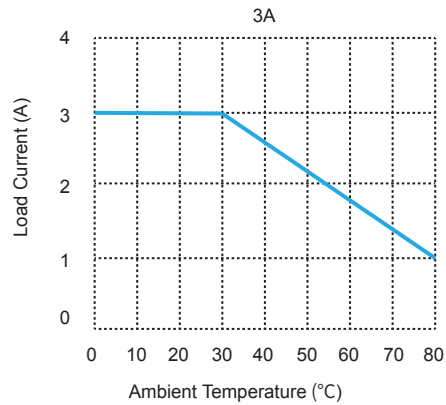
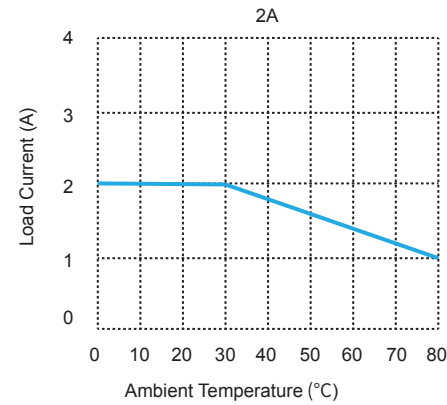
Wiring Diagram



without Socket

with Socket

Thermal Derating Curve



General Notes

1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KG3RD Series Single Phase DC Output

Product Description

- ◆ Bipolar Transistor Output
- ◆ Control Voltage: 5VDC, 12VDC, 24VDC
- ◆ Load Current: 2A
- ◆ Dielectric Strength: 4000Vrms
- ◆ PCB Mounted
- ◆ LED Indication
- ◆ RoHS Compliant



Ordering Information

KG3RD	50	D	2	-5	D	(XXX)
KG3RD Series	Load Voltage 50: 50VDC 100: 100VDC	DC Control	Load Current 2: 2Amp	5: 5VDC 12: 12VDC 24: 24VDC	Blank: without socket D: with socket	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	5	4-6VDC
	12	9.6-14.4VDC
	24	19.2-28.8VDC
Must Turn-On Voltage	5	4VDC
	12	9.6VDC
	24	19.2VDC
Must Turn-Off Voltage	1VDC	
Maximum Input Current	5	25mA (@6VDC)
	12	25mA (@14.4VDC)
	24	25mA (@28.8VDC)

Output Specifications (Ta=25°C)		
Load Voltage Range	50VDC	3-50VDC
	100VDC	3-100VDC
Maximum Transient Overvoltage	50VDC	50Vpk
	100VDC	100Vpk
Load Current Range	0.1 - 2A	
Maximum Surge Current (@10 ms)	6A	
Maximum Turn-On Time	300μs	
Maximum Turn-Off Time	300μs	
Maximum Off-State Leakage Current@Rated Load Voltage	0.1mA	
Maximum On-State Voltage Drop@Rated Current	1.5VDC	

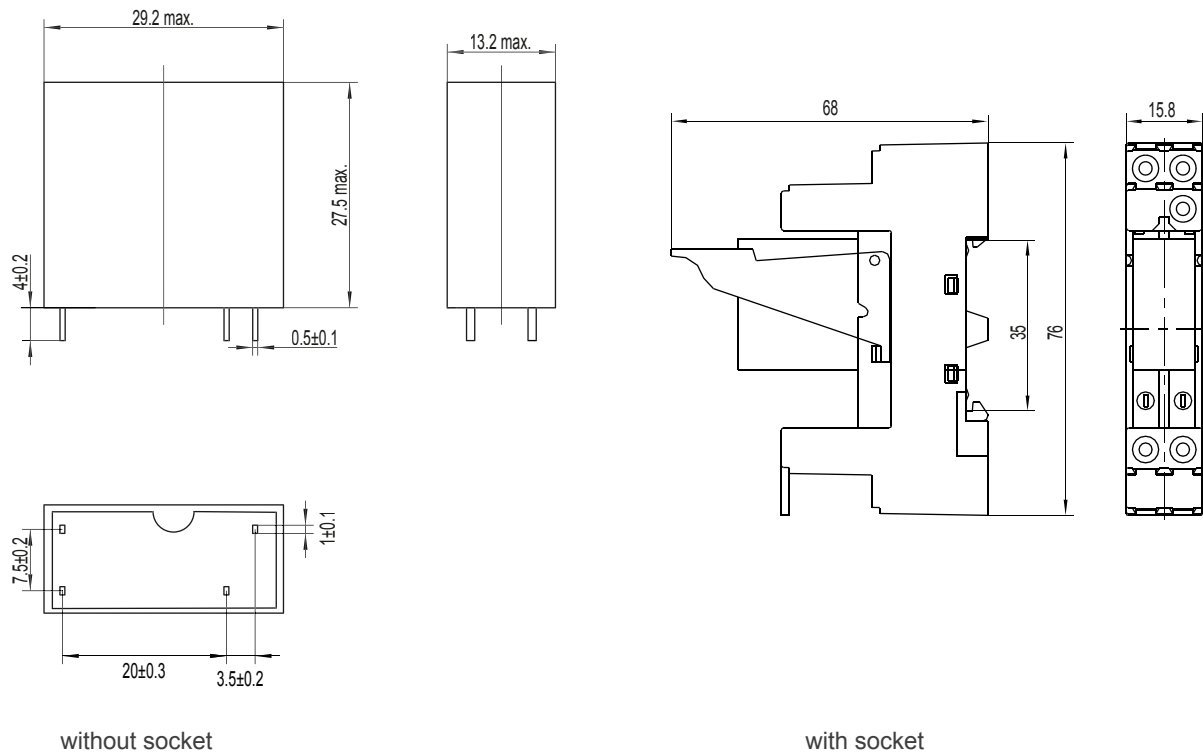
KG3RD Series Single Phase DC Output

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)		4000Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Ambient Temperature Range		-30°C ~ +80°C
Storage Temperature Range		-30°C ~ +100°C
Weight (Typical)	Blank: without socket	18g
	D: with socket	55g

Applications

It can be widely used for DC motors, DC power supplies, electromagnetic devices in industrial automation field, and etc.

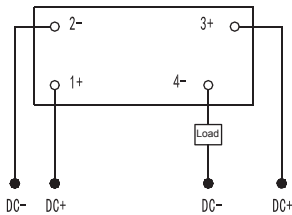
Outline Dimensions



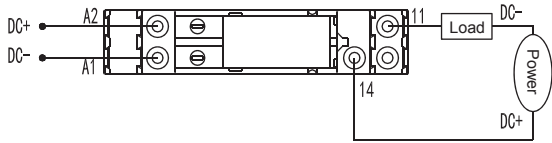
without socket

with socket

Wiring Diagram



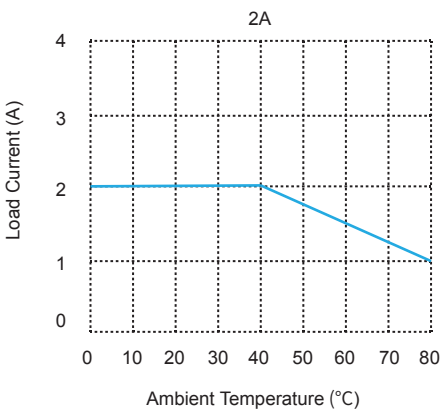
without socket



with socket

KG3RD Series Single Phase DC Output

Thermal Derating Curve



General Notes

1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KSCD Series Single Phase DC Output

Product Description

- ◆ MOSFET Output (4A) or Transistor Output (1A)
- ◆ Control Voltage: 5VDC, 12VDC, 24VDC
- ◆ Load Current: 1A, 4A
- ◆ Dielectric Strength: 2500Vrms
- ◆ PCB Mounted
- ◆ RoHS Compliant



Ordering Information

KSCD	30	D	1	-12	T	(XXX)
KSCD Series	Load Voltage 30: 30VDC 60: 60VDC	DC Control	Load Current 1: 1Amp 4: 4Amp	Control Voltage 5: 5VDC 12: 12VDC 24: 24VDC	Blank: Standard T Pin Layout: T Type Footprint	Customized Code

Note (1): The part number selection is subject to the following list.

Control Voltage	1A	4A
5VDC	KSCD30D1-5(T)	KSCD60D4-5(T)
12VDC	KSCD30D1-12(T)	KSCD60D4-12(T)
24VDC	KSCD30D1-24(T)	KSCD60D4-24(T)

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	5	4-6VDC
	12	9.6-14.4VDC
	24	19.2-28.8VDC
Must Turn-On Voltage	5	4VDC
	12	9.6VDC
	24	19.2VDC
Must Turn-Off Voltage	1VDC	
Maximum Input Current	5	25mA (@6VDC)
	12	25mA (@14.4VDC)
	24	25mA (@28.8VDC)

Output Specifications (Ta=25°C)		
Load Voltage Range	30VDC	3-30VDC
	60VDC	0-60VDC
Maximum Transient Overvoltage	30VDC	30Vpk
	60VDC	60Vpk
Load Current Range	1A	0.02~1A
	4A	0.02~4A
Maximum Transient Overvoltage	1A	4A
	4A	20A
Maximum On-State Voltage rop@Rated Current	30VDC	1.5V
	60VDC	0.5V

KSCD Series Single Phase DC Output

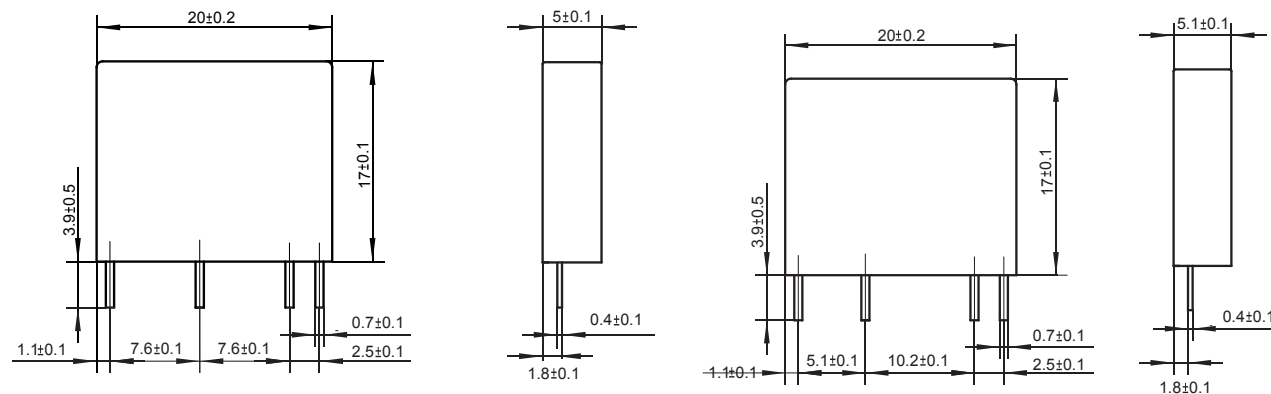
General Specifications

Output Specifications (Ta=25°C)	
Maximum Turn-On Time	1ms
Maximum Turn-Off Time	1ms
Maximum Off-State Leakage Current@Rated Load Voltage	0.1mA
General Specifications (Ta=25°C)	
Dielectric Strength (50/60Hz)	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ
Ambient Temperature Range	-30°C ~ +80°C
Storage Temperature Range	-30°C ~ +100°C
Weight (Typical)	3g

Applications

Suitable for DC motors, DC power supplies, electro-mechanical devices, and etc.

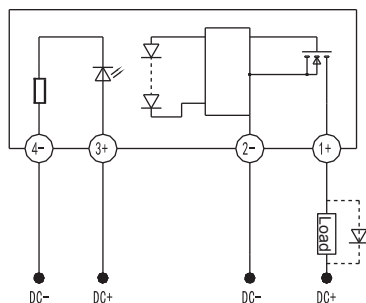
Outline Dimensions



Standard Footprint

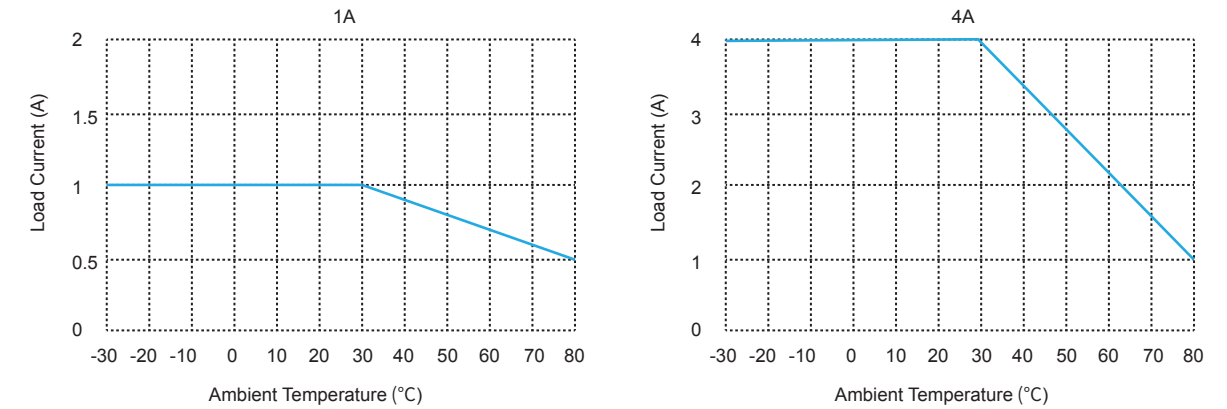
T Type Footprint

Wiring Diagram



KSCD Series Single Phase DC Output

Thermal Derating Curve



General Notes

1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



Product Description

- ◆ MOSFET Output
- ◆ Control Voltage: 5VDC, 12VDC, 24VDC
- ◆ Load Current: 2A, 3A, 4A, 5A
- ◆ Dielectric Strength: 2500Vrms
- ◆ RoHS Compliant



Ordering Information

KSGD	48	D	2	-5	D	(XXX)
KSGD Series	Load Voltage 24: 24VDC 48: 48VDC	DC Control	Load Current 2: 2Amp 3: 3Amp 4: 4Amp 5: 5Amp	Control Voltage 5: 5VDC 12: 12VDC 24: 24VDC 48: 48VDC 60: 60VDC	Blank: without socket D: with socket	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	5	4-6VDC
	12	9.6-14.4VDC
	24	19.2-28.8VDC
	48	38.4-57.6VDC
	60	48-72VDC
Must Turn-On Voltage	5	4VDC
	12	9.6VDC
	24	19.2VDC
	48	38.4VDC
	60	48VDC
Must Turn-Off Voltage	1VDC	
Maximum Input Current	25mA	

Output Specifications (Ta=25°C)		
Load Voltage Range	24VDC	0-28.8VDC
	48VDC	0-57.6VDC
Load Current Range	2A	0.02-2A
	3A	0.02-3A
	4A	0.02-4A
	5A	0.02-5A

General Specifications

Maximum 1 Cycle Surge Current (50Hz)	2A	20A
	3A	30A
	4A	40A
	5A	50A
Maximum Turn-On Time	1ms	
Maximum Turn-Off Time	1ms	
Maximum Off-State Leakage Current@Rated Load Voltage	0.1mA	
Maximum On-State Voltage Drop@Rated Current	0.3VDC	

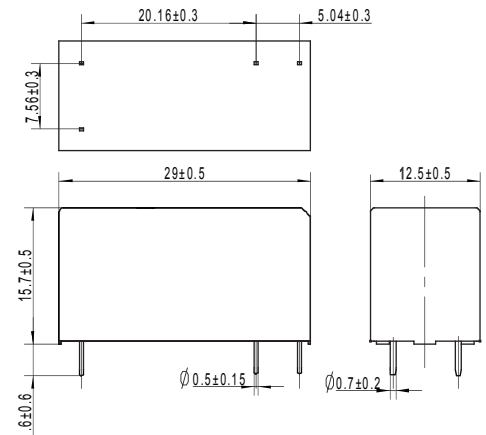
General Specifications (Ta=25°C)

Dielectric Strength (50/60Hz)		2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Ambient Temperature Range		-30°C ~ +80°C
Storage Temperature Range		-30°C ~ +100°C
Weight (Typical)	without socket	15g
	with socket	50g

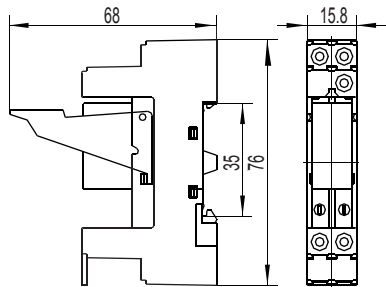
Applications

Suitable for DC motor, electromagnetic valve, electromagnet control, and etc.

Outline Dimensions



without Socket

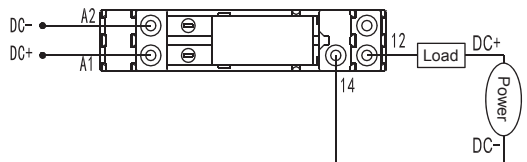


with Socket

Wiring Diagram



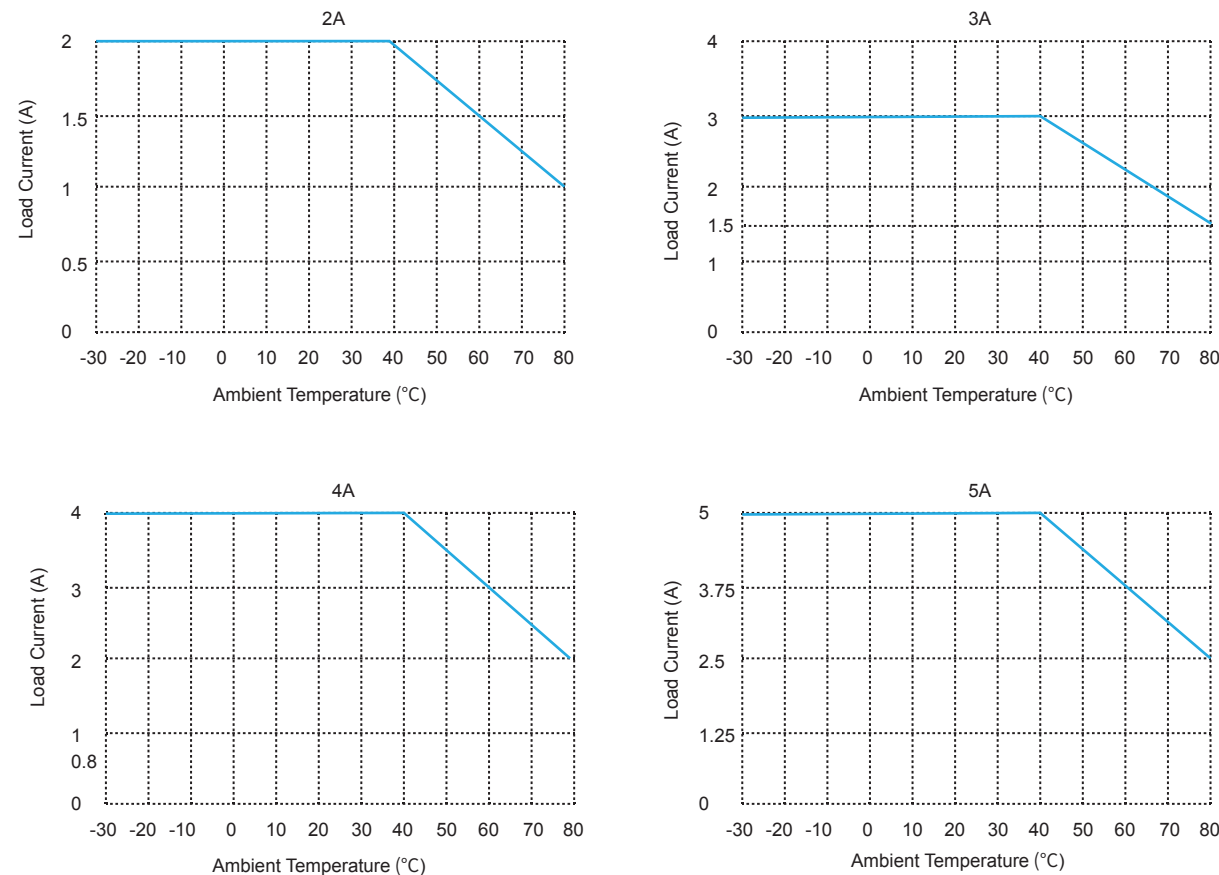
without socket



with socket

KSGD Series Single Phase DC Output

Thermal Derating Curve



General Notes

1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KSF Series Single Phase DC Output

Product Description

- ◆ MOSFET Output
- ◆ Load Voltage: 48VDC, 100VDC
- ◆ Load Current: 5A
- ◆ Dielectric Strength: 2500Vrms
- ◆ RoHS Compliant



Ordering Information

KSF	48	D	5	-12	(XXX)
KSF Series	Load Voltage 48: 48VDC 100: 100VDC	DC Control	Load Current 5: 5Amp	Control Voltage 5: 4-6VDC 12: 9.6-14.4VDC 24: 19.2-28.8VDC W: 4-32VDC	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	5	4-6VDC
	12	9.6-14.4VDC
	24	19.2-28.8VDC
	W	4-32VDC
Must Turn-On Voltage	5/W	4VDC
	12	9.6VDC
	24	19.2VDC
Must Turn-Off Voltage	1VDC	
Maximum Input Current	5	25mA (@6VDC)
	12	25mA (@14.4VDC)
	24	25mA (@28.8VDC)
	W	25mA (@32VDC)
Output Specifications (Ta=25°C)		
Load Voltage Range	48VDC	0-48VDC
	100VDC	0-100VDC
Maximum Transient Overvoltage	48VDC	48Vpk
	100VDC	100Vpk
Load Current Range	0.02~5A	
Maximum Surge Current (@10ms)	50A	
Maximum On-State Resistance	48VDC	37mΩ
	100VDC	100mΩ
Output Specifications (Ta=25°C)		
Maximum Turn-On Time	1ms	
Maximum Turn-Off Time	1ms	
Maximum Off-State Leakage Current@Rated Load Voltage	0.1mA	

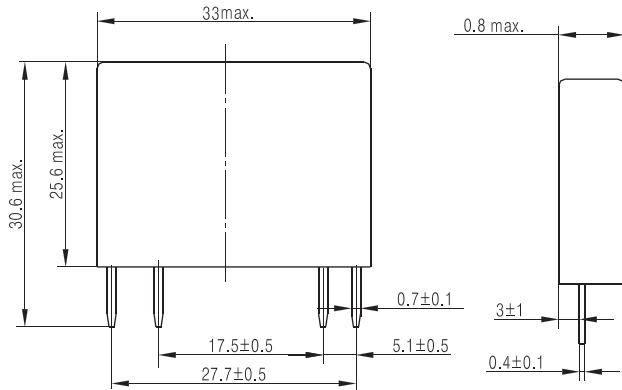
KSF Series Single Phase DC Output

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)		2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Ambient Temperature Range		-30°C ~ +80°C
Storage Temperature Range		-30°C ~ +100°C
Weight (Typical)		20g

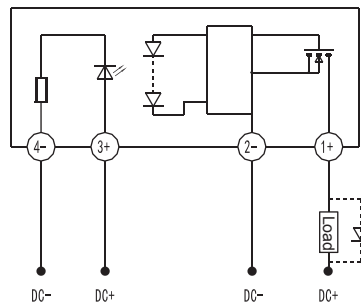
Applications

Suitable for DC motor, electromagnetic valve, electromagnet control, and etc.

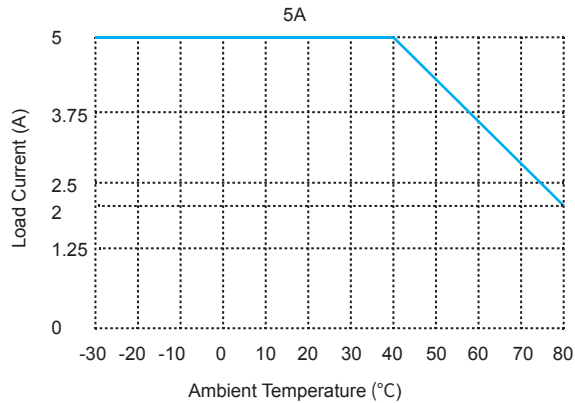
Outline Dimensions



Wiring Diagram



Thermal Derating Curve



General Notes

11. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KSL Series Single Phase DC Output

Product Description

- ◆ MOSFET Output
- ◆ Control Voltage: 3-10VDC, 10-28VDC
- ◆ Load Voltage: 60VDC, 100VDC, 200VDC, 400VDC
- ◆ Load Current: 20A
- ◆ Dielectric Strength: 2500Vrms
- ◆ RoHS Compliant



Ordering Information

KSL	60	D	20	-L	(XXX)
KSI Series (1)	Load Voltage 60: 60VDC 100: 100VDC 200: 200VDC 400: 400VDC	DC Control	Load Current 3: 3Amp 5: 5Amp 10: 10Amp 20: 20Amp	Control Voltage L: 3-10VDC H: 10-28VDC	Customized Code

Note (1): The part number selection is subject to the following list.

Information	3A	5A	10A	20A
L	KSL400D3-L	KSL200D5-L	KSL100D10-L	KSL60D20-L
H	KSL400D3-H	KSL200D5-H	KSL100D10-H	KSL60D20-H

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	L H	3-10VDC 10-28VDC
Must Turn-On Voltage	L H	3VDC 10VDC
Must Turn-Off Voltage		1VDC
Maximum Input Current		25mA

Output Specifications (Ta=25°C)		
Load Voltage Range	60 100 200 400	0-60VDC 0-100VDC 0-200VDC 0-400VDC
Maximum Transient Overvoltage	60 100 200 400	60Vpk 100Vpk 200Vpk 400Vpk

KSL Series Single Phase DC Output

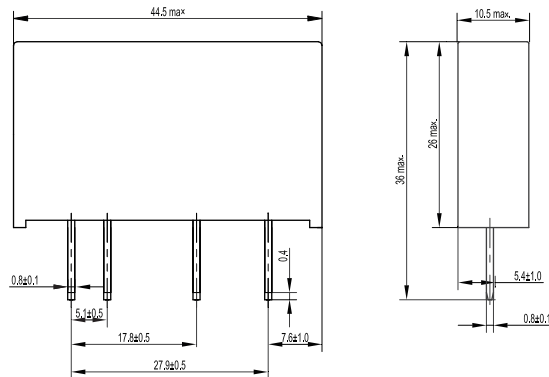
General Specifications		
Maximum 1 Cycle Surge Current (50Hz)	3A	15A
	5A	25A
	10A	50A
	20A	100A
Maximum Turn-On Time	1ms	
Maximum Turn-Off Time	300μs	
Maximum Off-State Leakage Current@Rated Load Voltage	0.1mA	
Maximum On-State Resistance	3A	375mΩ
	5A	150mΩ
	10A	38mΩ
	20A	10mΩ

General Specifications (Ta=25°C)	
Dielectric Strength (50/60Hz)	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ
Ambient Temperature Range	-30°C ~ +80°C
Storage Temperature Range	-30°C ~ +100°C
Weight (Typical)	20g

Applications

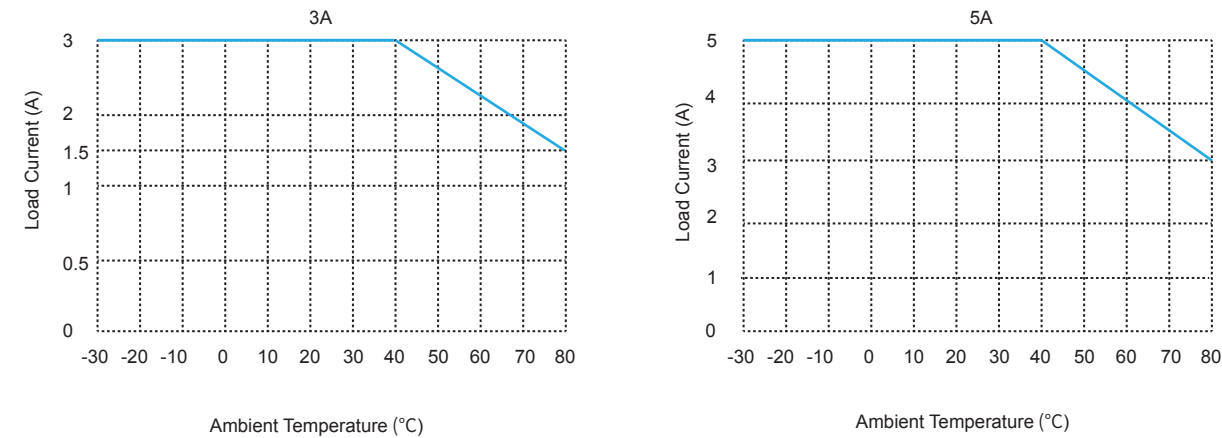
Suitable for DC motors, DC power supplies, electro-mechanical devices, and etc.

Outline Dimensions



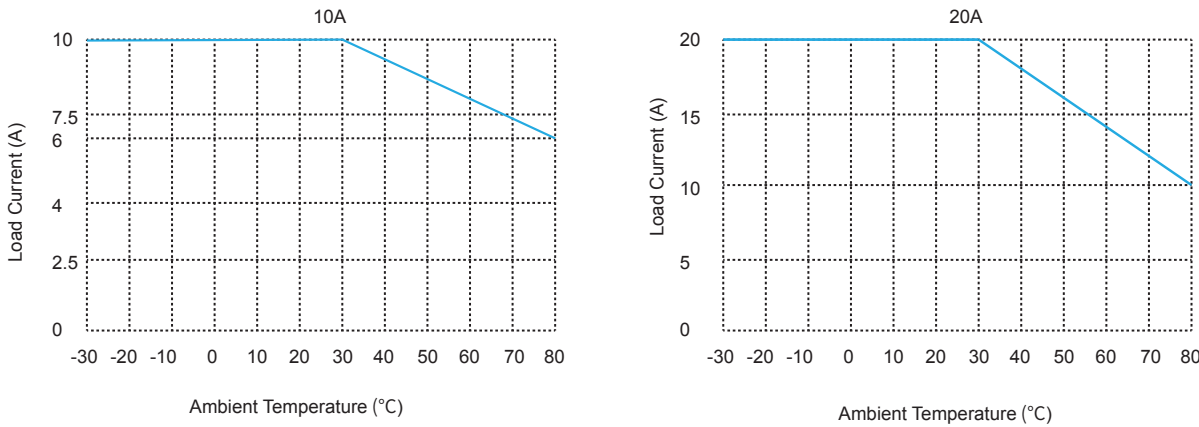
Outline Dimensions

Thermal Derating Curve



KSL Series Single Phase DC Output

Thermal Derating Curve



General Notes

1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. Terminal polarity must be observed. Otherwise it may cause damage to the relay.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



Product Description

- ◆ Zero-crossing or Random-on Switching
- ◆ TRIAC Output
- ◆ DC Input
- ◆ Dielectric Strength: 4000Vrms
- ◆ Load Current: 10A, 16A, 25A
- ◆ Internal RC/MOV Protection Circuit
- ◆ LED Indicator
- ◆ RoHS Compliant



Ordering Information

KSIM	240	D	25	R	-L	M	(XXX)
KSIM Series	Load Voltage 240: 24-280VAC 380: 24-440VAC	Control Mode D: DC Control	Load Current 10: 10Amp 16: 16Amp 25: 25Amp	Switching Mode Blank: Zero Crossing R: Random-on	LED Indicator	M: MOV Protection (Optional)	Customized Code 045: Quick Connection 117: Quick Connection

General Specifications

Input Specifications (Ta=25°C)	
Control Voltage Range	4-32VDC
Must Turn-On Voltage	4VDC
Must Turn-Off Voltage	1VDC
Maximum Input Current	25mA

Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
Maximum 1 Cycle Surge Current (50Hz)	10A	120A
	16A	160A
	25A	250A
Maximum Turn-On Time	Random-on	1ms
	Zero Crossing	10ms
Maximum Turn-Off Time	10ms	

Output Specifications (Ta=25°C)		
Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
Maximum Off-State Leakage Current@Rated Load Voltage	5mA	
Maximum On-State Voltage Drop@Rated Current	1.5Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	200V/μs	

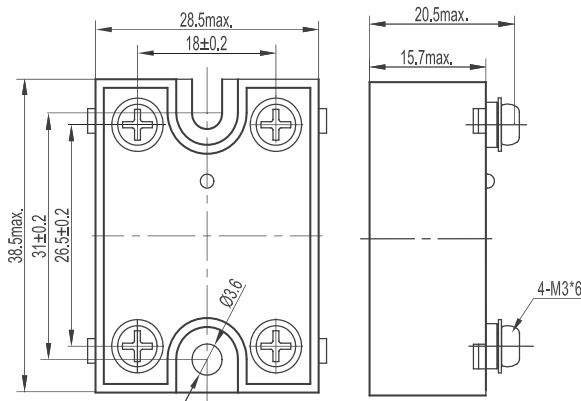
General Specifications

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Power Factor	>0.5	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	35g	

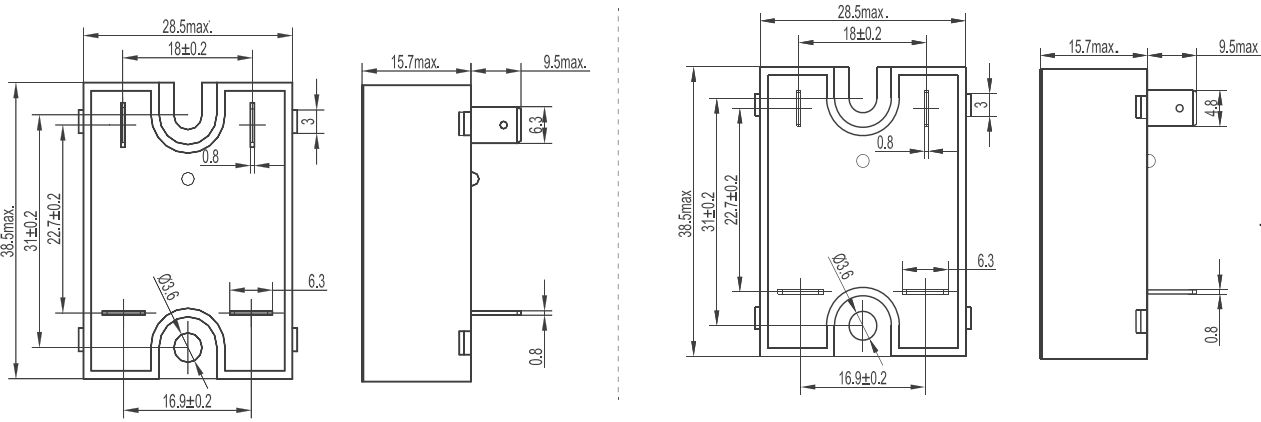
Applications

Temperature Chamber, Food Machinery, Industrial Machinery, and etc.

Outline Dimensions



Typical



Customized Code 045

Customized Code 117

Wiring Diagram



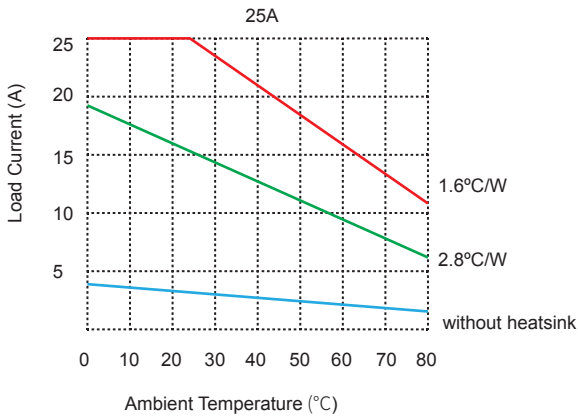
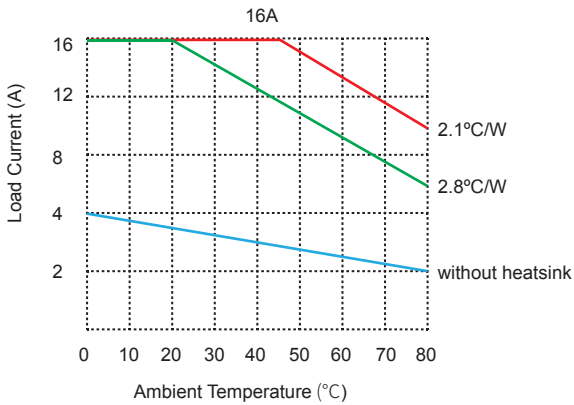
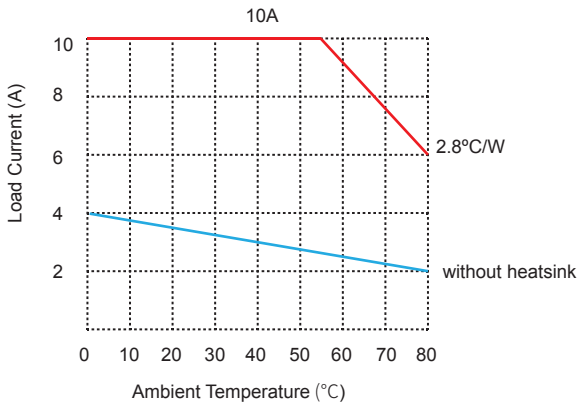
KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC

Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

KSIM Series Single Phase AC Output

Thermal Derating Curve



General Notes

- Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in-lb/N·m.
- When connection wiring to SSR please ensure screws are torqued down properly (input 13-15/1.5-1.7in/lb/N·m, output 18-20/2.0-2.2 in-lb/N·m).
- When ambient temperature is above 25℃ see thermal derating curve.

Agency Approvals (Certification)



KSI Series Single Phase AC Output

Product Description

- Zero-crossing or Random-on Switching
- TRIAC or SCR Output
- AC or DC Input Control
- Load current: 10A-125A
- Dielectric Strength: 4000Vrms
- Internal MOV/TVS Protection Circuit
- LED Indicator
- RoHS Compliant



Ordering Information

KSI	240	D	25	R	-L	M	(XXX)
KSI Series	Load Voltage 240: 48-280VAC 380: 48-440VAC 480: 48-530VAC 600: 48-660VAC	D: DC Control A: AC Control	Load Current 10: 10Amp 15: 15Amp 20: 20Amp 25: 25Amp 40: 40Amp 60: 60Amp 80: 80Amp 100: 100Amp 125A: 125Amp	Switching Mode Blank: Zero Crossing R: Random-on	LED Indicator	M: MOV T: TVS (Optional)	Blank: Standard 016: Quick Connection 068: IP20 083: High Profile 80-125A

- Note:
- TVS option is not available for load voltage @600VAC version.
 - The load current with (016) version is only available from 10A ~ 40A.
 - The load current with (083) version is only available from 80A ~ 125A.
 - The load current with (068) version is available from 10A ~ 80A. For 80A version, 600VAC load voltage is not available.
 - The load current of standard version is available from 10A ~ 60A

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	DC Control	4-32VDC
	AC Control	90-280VAC
Must Turn-On Voltage	DC Control	4VDC
	AC Control	90VAC
Must Turn-Off Voltage	DC Control	1VDC
	AC Control	10VAC
Maximum Input Current	DC Control	25mA
	AC Control	20mA

KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC

Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC

Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

KSI Series Single Phase AC Output

General Specifications

Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	48-280VAC
	380VAC	48-440VAC
	480VAC	48-530VAC
	600VAC	48-660VAC
Maximum Turn-On Time	Random-on	1ms
	Zero Crossing	10ms
	AC control	40ms
	DC Control	10ms
Maximum Turn-Off Time	AC control	40ms
Maximum Surge Current (@10ms)	10A	120A
	15A	160A
	20A	200A
	25A	250A
	40A	500A
	60A	700A
	80A	1000A
	100A	1250A
	125A	1500A
Maximum I²t for Fusing (@10ms)	10A	72A²s
	15A	128A²s
	20A	200A²s
	25A	312A²s
	40A	1250A²s
	60A	2450A²s
	80A	5000A²s
	100A	7812A²s
Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
	480VAC	1200Vpk
	600VAC	1600Vpk
Maximum Off-State Leakage Current@Rated Load Voltage		10mA
Maximum On-State Voltage Drop@Rated Current		1.7Vrms
Minimum Off-State dv/dt@Maximum Rated Voltage	TRIAC Output	200V/μs
	SCR Output	500V/μs

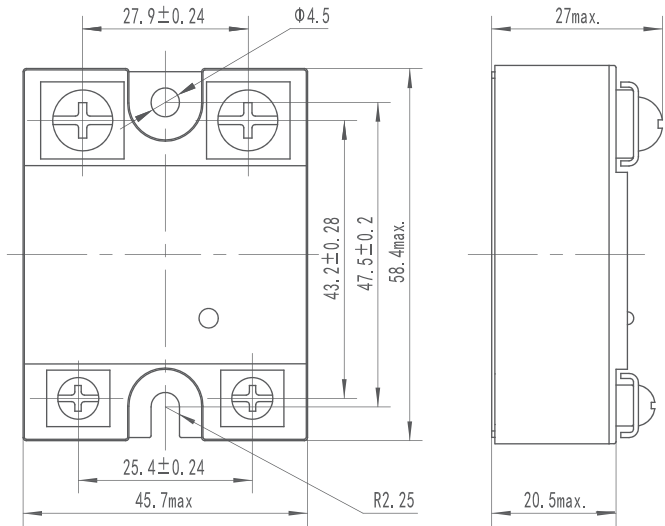
General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	Standard Version	96g
	Suffix with (016)	100g
	Suffix with (083)	180g
	Suffix with (068)	113g

Applications

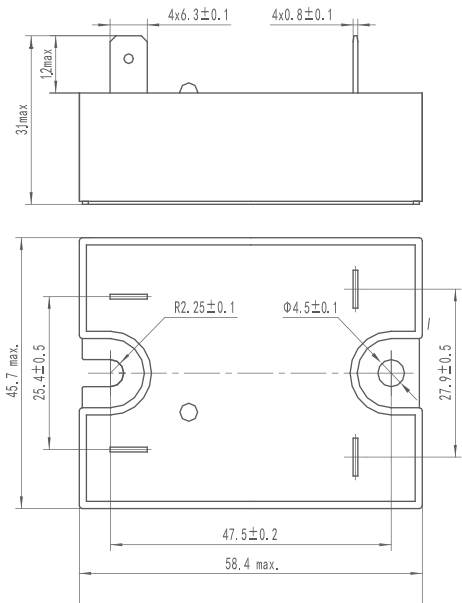
Temperature Chamber, Plastics Machinery, Food Processing Machinery, Incubator, Oiling machines, HVAC, Lighting, Fountain Controller and etc.

KSI Series Single Phase AC Output

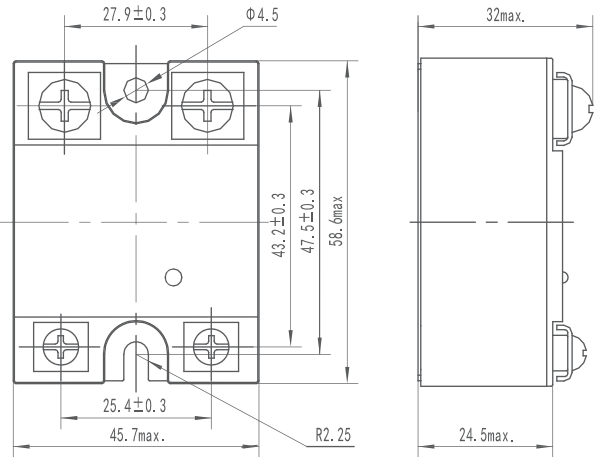
Outline Dimensions/Wiring Diagram



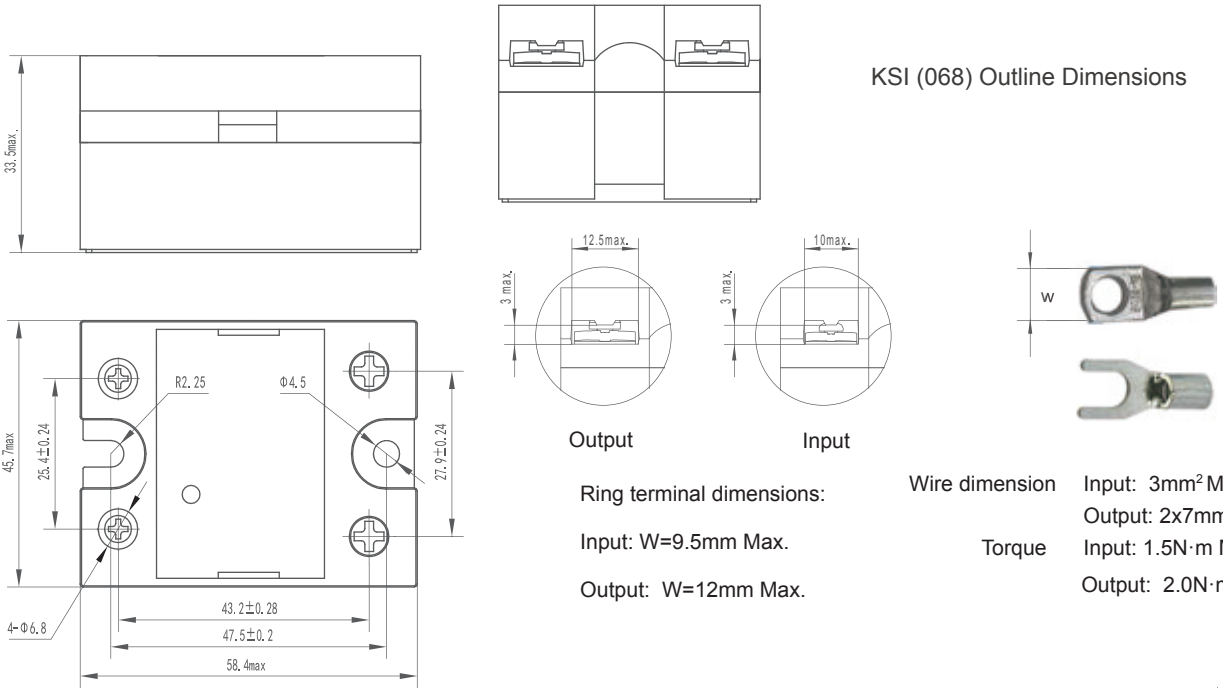
Standard Version



KSI (016) Outline Dimensions



KSI (083) Outline Dimensions



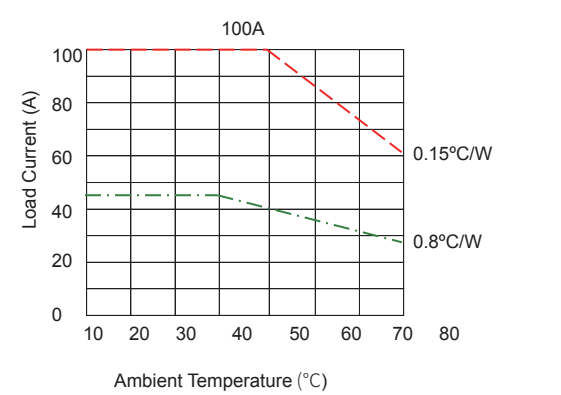
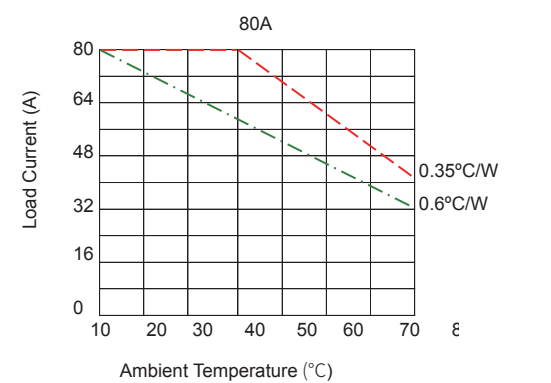
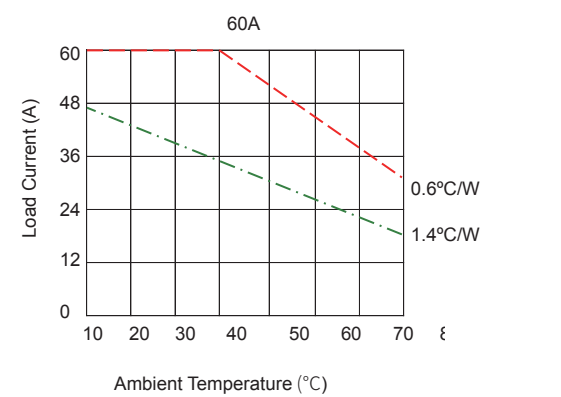
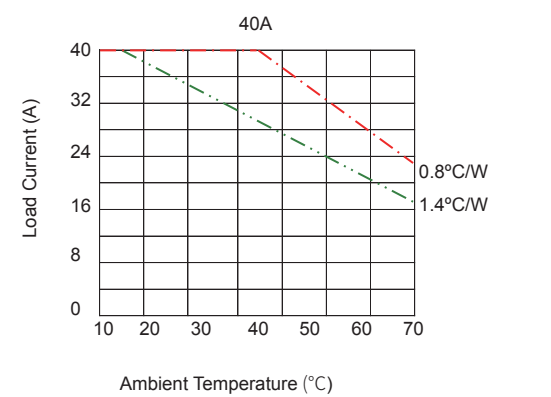
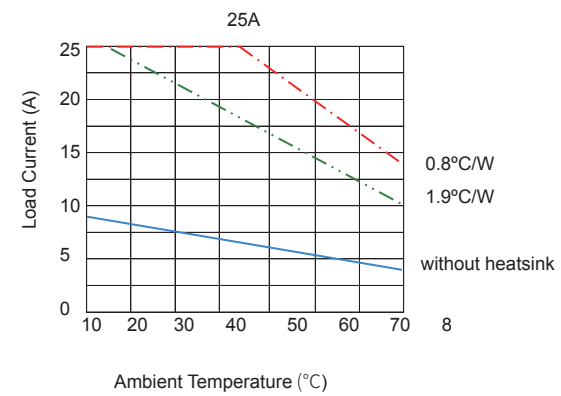
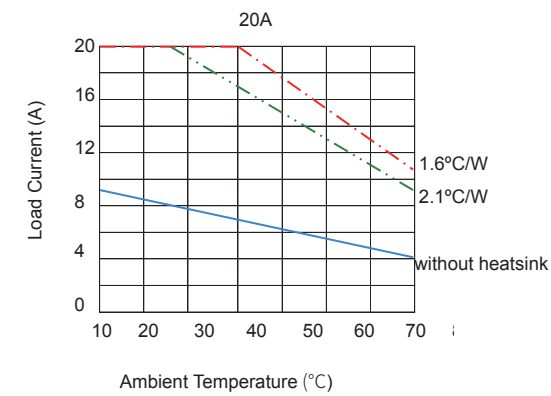
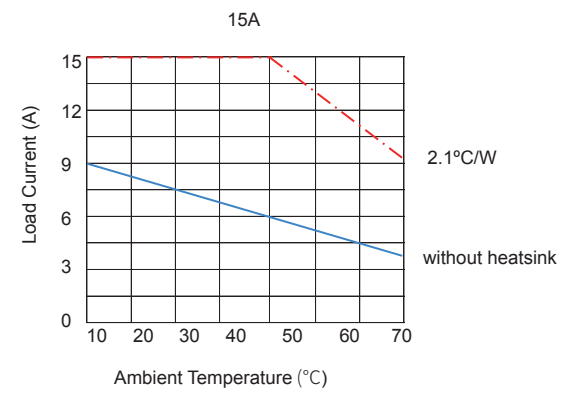
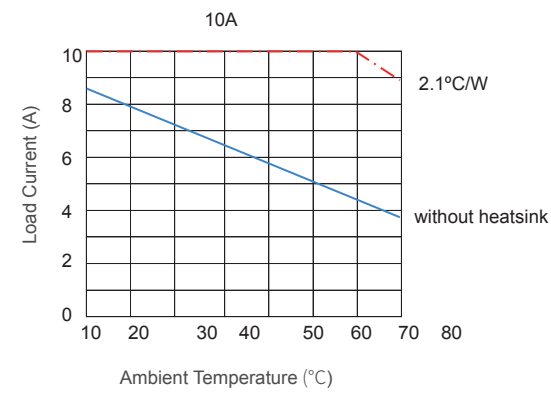
KSI (068) Outline Dimensions

KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

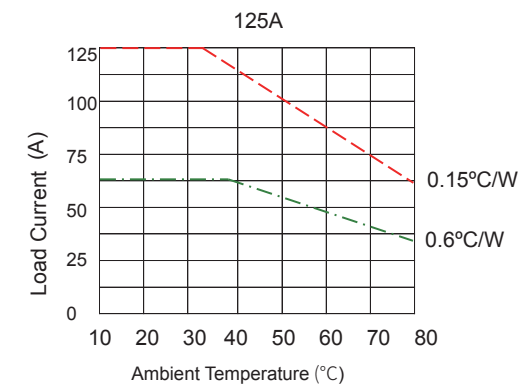
KSI Series Single Phase AC Output

Thermal Derating Curve



KSI Series Single Phase AC Output

Thermal Derating Curve



General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in-lb/N·m.
2. When connection wiring to SSR please ensure screws are torqued down properly (input 13-15/1.5-1.7in/lb/N·m, output 18-20/2.0-2.2 in-lb/N·m).
3. When Ambient temperature is above 25°C see thermal derating curve.

Agency Approvals (Certification)



Note:

(1) TUV is not available for TVS option or load current more than 100A

KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

KSIA Series Single Phase AC Output

Product Description

- Zero-crossing Switching
- SCR Inverse Parallel Output
- SCR Short Circuit, Open Circuit and Error Self-Inspection Functions
- Load Current: 25A-100A
- Dielectric Strength: 4000Vrms
- Internal RC/MOV Protection Circuit
- LED Indicator
- RoHS Compliant



Ordering Information

KSIA	480	D	25	P	-L
KSIA Series	Load Voltage 240: 240VAC 480: 480VAC 600: 600VAC	Control Mode D: DC Control	Load Current 25: 25Amp 40: 40Amp 60: 60Amp 80: 80Amp 100: 100Amp	Trigger Mode Blank: Negative Trigger P: Positive Trigger	LED Indicator

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	18VDC ~ 32VDC	
Control Voltage Range (@VCC=24VDC)	Negative Trigger	0~12VDC
	Positive Trigger	18~32VDC
Must Turn-On Voltage (@VCC=24VDC)	Negative Trigger	12VDC (max.)
	Positive Trigger	18VDC (min.)
Must Turn-Off Voltage (@VCC=24VDC)	Negative Trigger	18VDC (min.)
	Positive Trigger	12VDC (max.)
Maximum Power Current (@VCC=24VDC)	40mA	
Maximum Input Current	4mA	
Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	150-280VAC
	480VAC	150-530VAC
	600VAC	300-660VAC
Maximum Surge Current (@10ms)	25A	250A
	40A	400A
	60A	600A
	80A	800A
	100A	1000A
Maximum Turn-On Time	10ms	
Maximum Turn-Off Time	10ms	
Maximum I²t for Fusing (@10ms)	25A	312A²s
	40A	800A²s
	60A	1800A²s
	80A	3200A²s
	100A	5000A²s

KSIA Series Single Phase AC Output

General Specifications

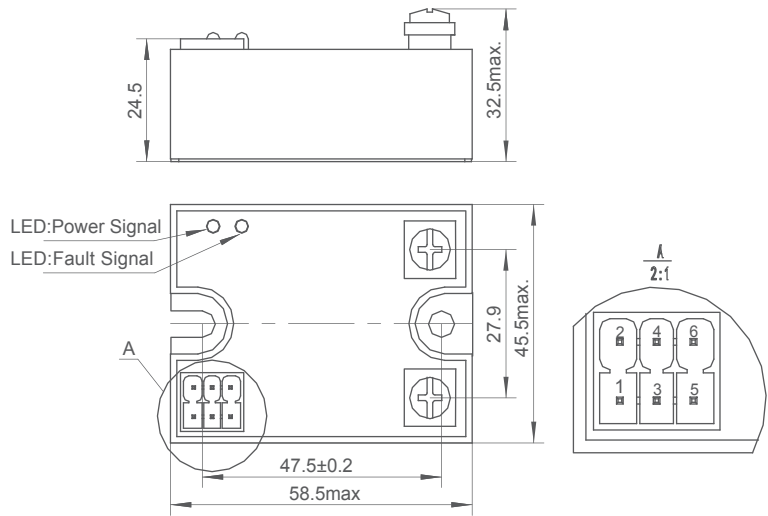
Output Specifications (Ta=25°C)		
Transient Overvoltage	240VAC	600Vpk
	480VAC	1200Vpk
	600VAC	1600Vpk
Maximum Off-State Leakage Current@Rated Load Voltage	5mA	
Maximum On-State Voltage Drop@Rated Current	1.6Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	500V/μs	

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	25A, 40A, 60A	100g
	80A, 100A	140g

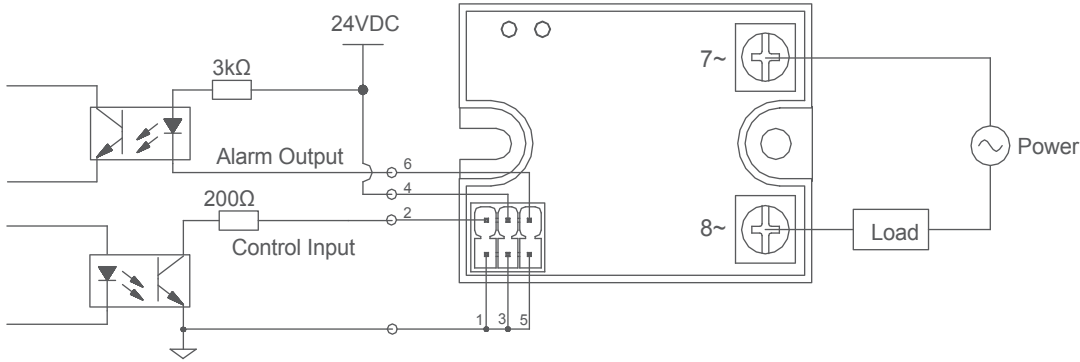
Applications

Temperature Chamber, Plastics Machinery, Food Processing Machinery, Incubator, Oiling machines, HVAC, Lighting, Fountain Controller and etc.

Outline Dimensions



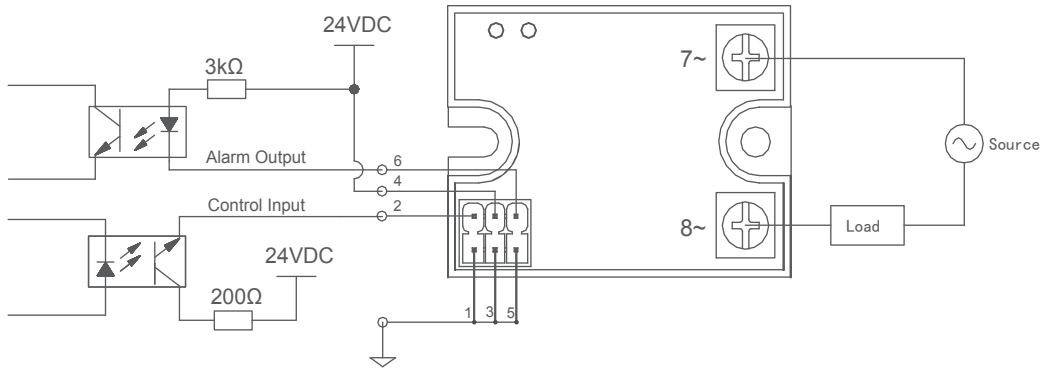
Wiring Diagram



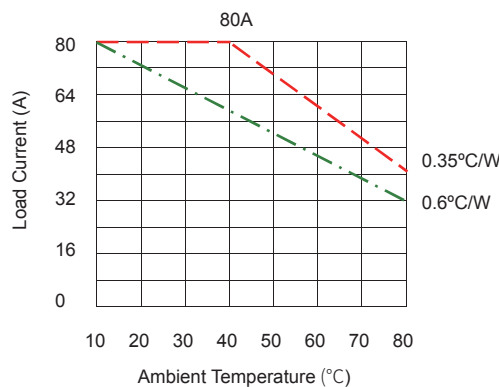
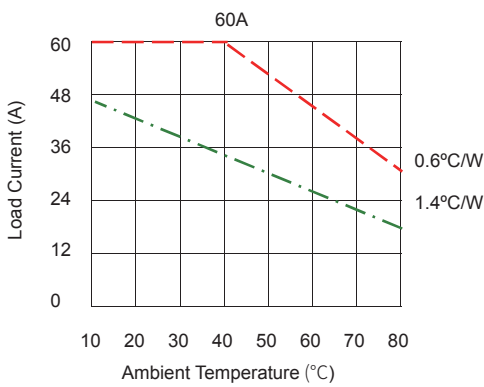
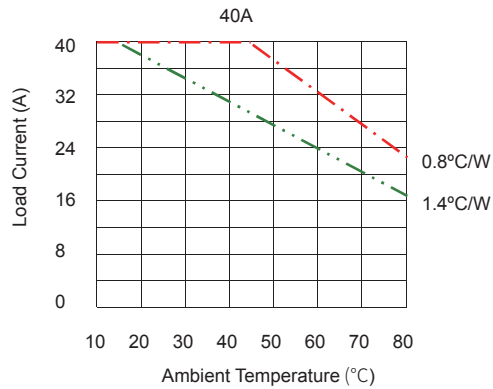
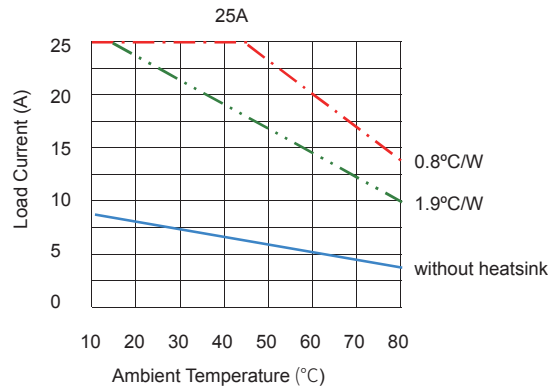
Negative Trigger Product Wiring Diagram

KSIA Series Single Phase AC Output

Wiring Diagram



Thermal Derating Curve



General Notes

- Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in-lb/N·m.
- When connection wiring to SSR please ensure screws are torqued down properly (input 13-15/1.5-1.7in/lb/N·m, output 18-20/2.0-2.2 in-lb/N·m).
- When ambient temperature is above 25°C see thermal derating curve.

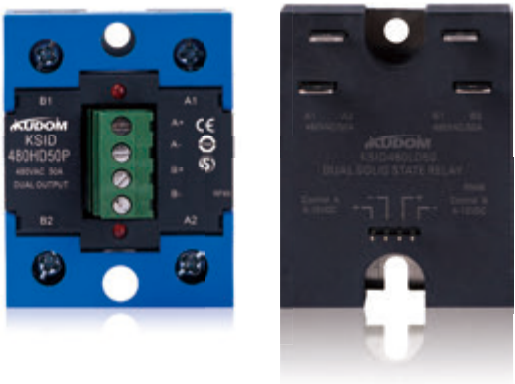
Agency Approvals (Certification)



KSID Series 2 Channel AC Output

Product Description

- Zero Crossing or Random-on Switching
- SCR Output
- DC Input Control
- Load Current: 25A, 40A, 50A
- IP20 Safety Cover Protection (optional)
- RoHS Compliant



Ordering Information

KSID	240	LD	25	R	P	(XXX)
KSID Series (1)	Load Voltage 240: 240VAC 480: 480VAC	Control Voltage LD: 4-15VDC HD: 15-32VDC	Load Current 25: 25Amp 40: 40Amp 50: 50Amp	Switching Mode Blank: Zero Crossing R: Random-on	Blank: Quick Connection Terminal P: Screw Terminal (IP20)	Customized Code

Note (1): The part number selection is subject to the following list.

Information	25A	40A	50A
LD:4-15VDC	KSID240LD25	KSID240LD40	
	KSID240LD25R	KSID240LD40R	
	KSID480LD25	KSID480LD40	
	KSID480LD25R	KSID480LD40R	
	KSID240LD25P		KSID240LD50P
	KSID240LD25RP		KSID240LD50RP
HD:15-32VDC	KSID480LD25P		KSID480LD50P
	KSID480LD25RP		KSID480LD50RP
	KSID240HD25	KSID240HD40	
	KSID240HD25R	KSID240HD40R	
	KSID480HD25	KSID480HD40	
	KSID480HD25R	KSID480HD40R	
	KSID240HD25P		KSID240HD50P
	KSID240HD25RP		KSID240HD50RP
	KSID480HD25P		KSID480HD50P
	KSID480HD25RP		KSID480HD50RP

General Specifications

Input Specifications (Ta=25°C)			
Control Voltage Range	LD	4-15VDC	
	HD	15-32VDC	
Must Turn-On Voltage	LD	4VDC	
	HD	15VDC	
Must Turn-Off Voltage		1VDC	
Maximum Input Current	LD	50mA@15VDC	
	HD	25mA@32VDC	

KSID Series 2 Channel AC Output

General Specifications

Output Specifications (Ta=25°C)

Load Voltage Range	240VAC	24-280VAC
	480VAC	24-530VAC
Maximum Turn-On Time	Zero Crossing	10ms
	Random-on	1ms
Maximum Turn-Off Time	10ms	
Maximum 1 Cycle Surge Current (50Hz)	25A	300A
	40A	400A
	50A	500A
Maximum I ² t for Fusing (@10ms)	25A	450A ² s
	40A	800A ² s
	50A	1250A ² s
Transient Overvoltage	240VAC	600Vpk
	480VAC	1200Vpk
Maximum Off-State Leakage Current@Rated Load Voltage	10mA	
Maximum On-State Voltage Drop@Rated Current	1.5Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	500V/μs	

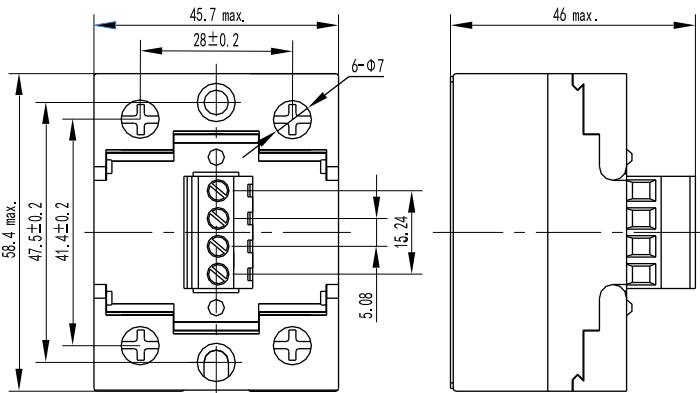
General Specifications (Ta=25°C)

Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	Quick Connection Terminal	100g
	Screw Terminal (IP20)	25A 150g
		50A 185g

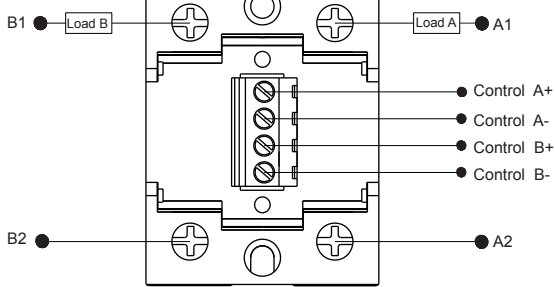
Applications

Temperature Chamber, Plastics Machinery, Food Processing Pachinery, Glass Machinery, Incubator, Oiling machines, HVAC, Lighting Controller, and etc.

Outline Dimensions / Wiring Diagram



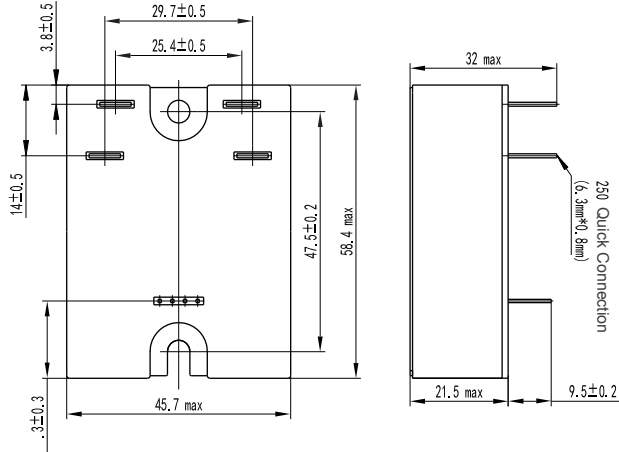
Screw Terminal (IP20)



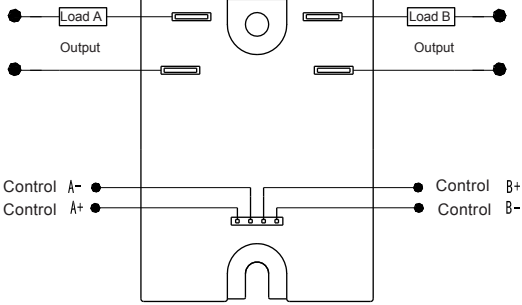
Wiring Diagram

KSID Series 2 Channel AC Output

Outline Dimensions / Wiring Diagram



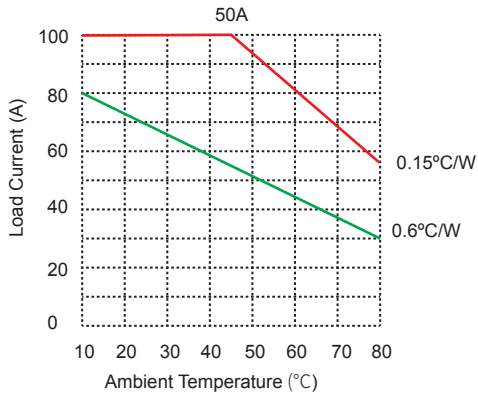
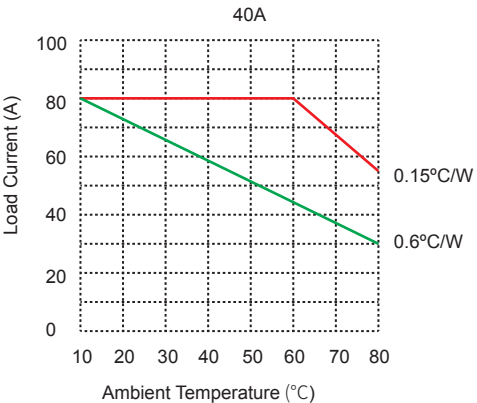
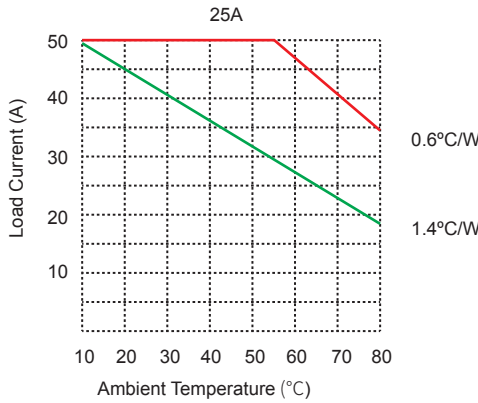
Quick Connection Terminal



Wiring Diagram

Thermal Derating Curve

Note: The following load current curve shows the total current, each channel current cannot exceed 1/2 of the total current.



General Notes

- Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in-lb/N·m.
- When connection wiring to SSR please ensure screws are torqued down properly (input 13-15/1.5-1.7in/lb/N·m, output 18-20/2.0-2.2 in-lb/N·m).
- When Ambient temperature is above 25°C see thermal derating.

Agency Approvals (Certification)



TUV & S-mark are only available for IP20.

KSJ Series Single Phase DC Output

Product Description

- ◆ MOSFET or IGBT Output
- ◆ Low Impedance
- ◆ 4-32VDC Control Input
- ◆ Load Current:7A-100A
- ◆ Dielectric Strength: 2500Vrms
- ◆ Internal Over-voltage Protection
- ◆ LED Indicator
- ◆ RoHS Compliant



Ordering Information

KSJ	50	D	40	-L	(XXX)
KSJ Series (1)	Load Voltage 30: 30VDC 50: 50VDC 60: 60VDC 100: 100VDC 200: 200VDC 400: 400VDC 600: 600VDC 1200: 1200VDC	DC Control	Load Current 7: 7Amp 10: 10Amp 20: 20Amp 25: 25Amp 40: 40Amp 50: 50Amp 80: 80Amp 100: 100Amp	LED Indicator	Customized Code

Note (1): The part number selection is subject to the following list.

	30VDC	50VDC	60VDC	100VDC	200VDC	400VDC	600VDC	1200VDC
7A			KSJ60D7-L					
10A					KSJ200D10-L			
20A				KSJ100D20-L	KSJ200D20-L			
25A						KSJ400D25-L	KSJ600D25-L	KSJ1200D25-L
40A		KSJ50D40-L		KSJ100D40-L	KSJ200D40-L			
50A	KSJ30D50-L		KSJ60D50-L				KSJ600D50-L	KSJ1200D50-L
80A		KSJ50D80-L		KSJ100D80-L				
100A	KSJ30D100-L							

Input Specifications (Ta=25°C)	
Control Voltage Range	4-32VDC
Must Turn-On Voltage	4VDC
Must Turn-Off Voltage	1VDC
Maximum Input Current	25mA @32VDC
Maximum Reverse Voltage	32VDC

KSJ Series Single Phase DC Output

General Specifications

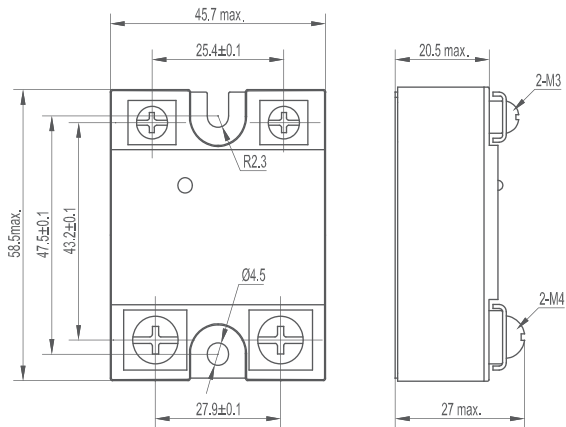
Output Specifications (Ta=25°C)																			
	KSJ30D□-L		KSJ50D□-L		KSJ60D□-L		KSJ100D□-L				KSJ200D□-L			KSJ400D25-L	KSJ600D□-L		KSJ1200D□-L		
	50	100	40	80	7	50	20	40	80	100	10	20	40		25	50	25	50	
Load Voltage Range (VDC)	0-24		0-36		0-48		0-75				0-120			0-300		0-500		0-650	
Maximum Load Current (A)	50	100	40	80	7	50	20	40	80	100	10	20	40	25	25	50	25	50	
Maximum Surge Current (Apk.@10ms)	150	250	120	200	30	150	60	120	200	250	30	60	120	150	150	300	150	300	
Maximum On-State Resistance (mΩ)	4.2	2.1	12	6	14	7	13	13	6.5	6.5	60	30	30						
Maximum On-State Voltage Drop@Rated Current (V)							1.75												
Maximum Off-State Leakage Current@Rated Load Voltage (mA)							0.1							0.5					
Minimum Load Current (mA)							2							2					
Maximum Turn-On Time (ms)							0.1							1					
Maximum Turn-Off Time (ms)							0.1							1					

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	2500Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	100g	

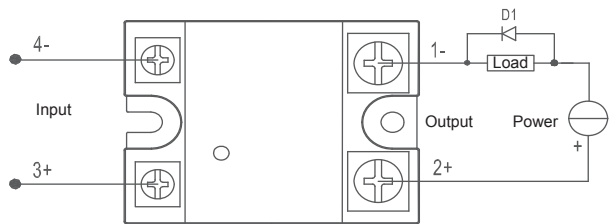
Applications

Control heating, DC power supplies, electromechanical valves, motors, medical equipment, and etc.

Outline Dimensions/Wiring Diagram



Outline Dimensions



When the relay is used for inductive load control, please be sure to use a suppression circuit, just like the drawing above. Both load terminals are inverse paralleled with a fly-wheel diode D1.
D1: Fast Recovery Diode

Wiring Diagram

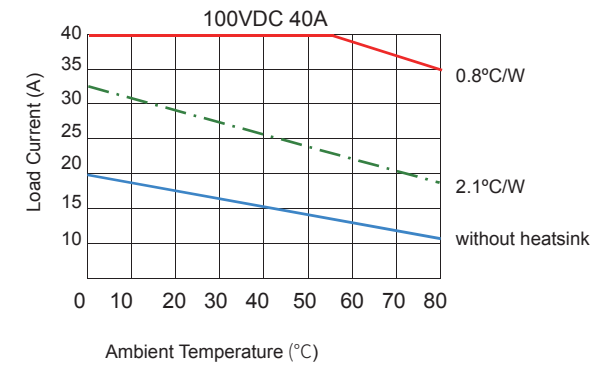
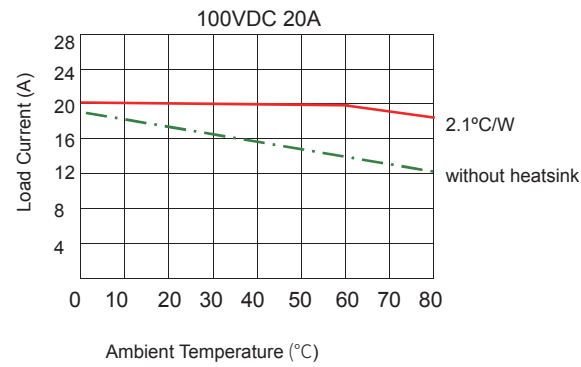
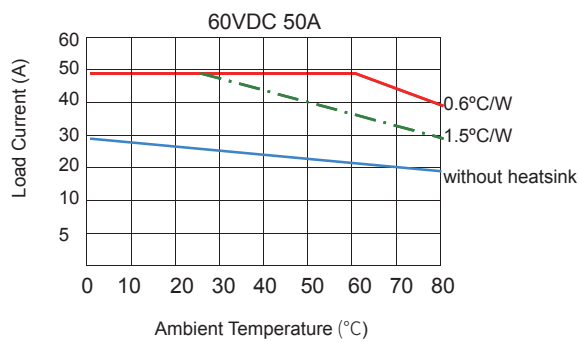
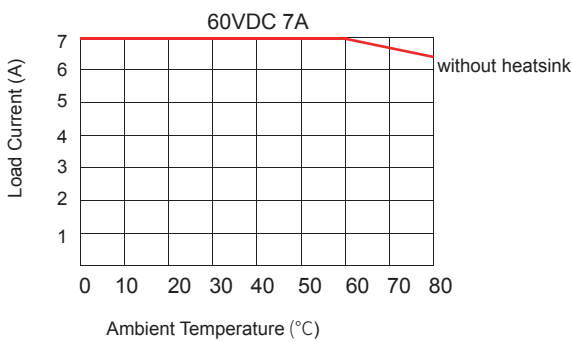
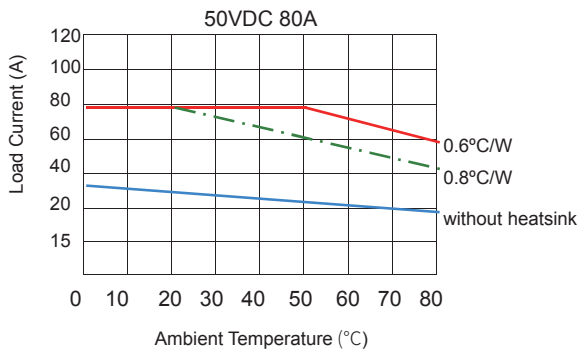
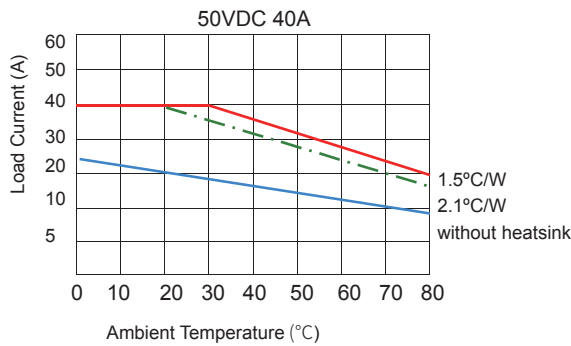
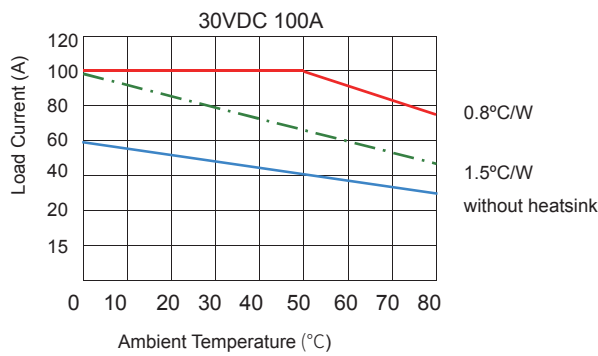
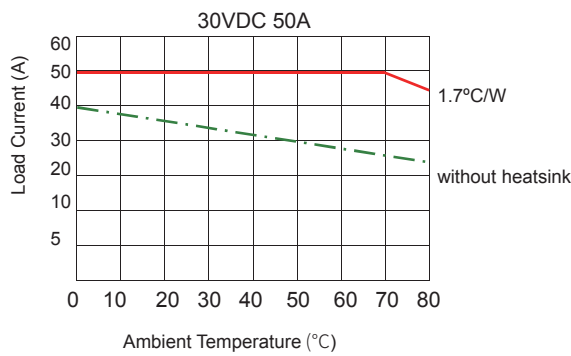
KSIM
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KSID
KSJ
KSQM
KSQE
KSQF
KSQC

Panel Mount

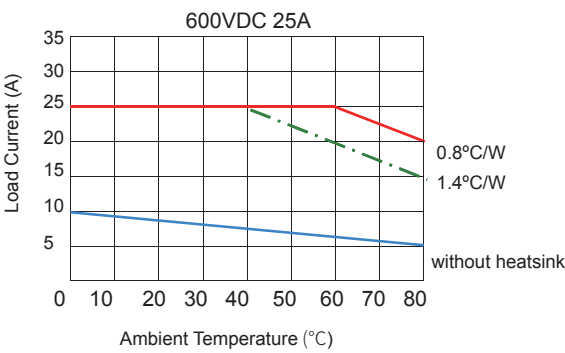
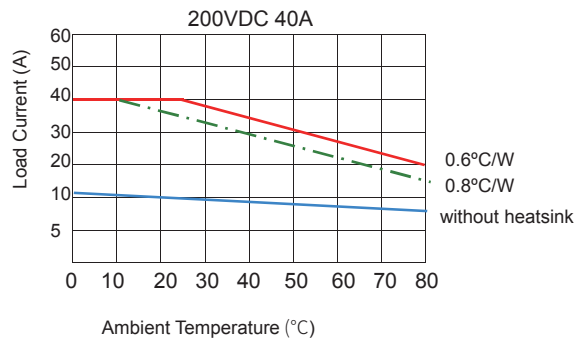
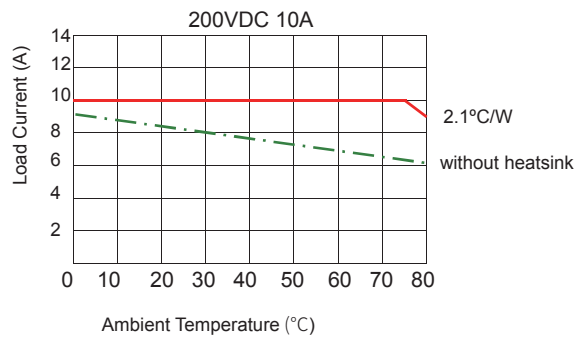
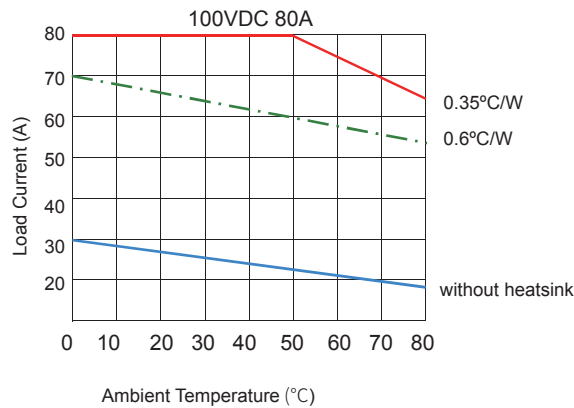
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

KSJ Series Single Phase DC Output

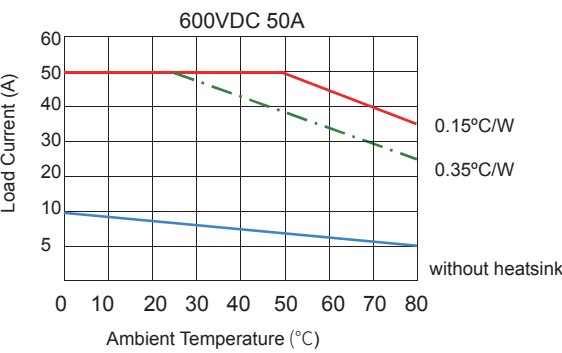
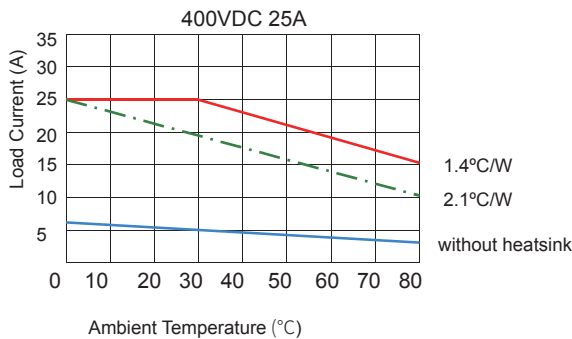
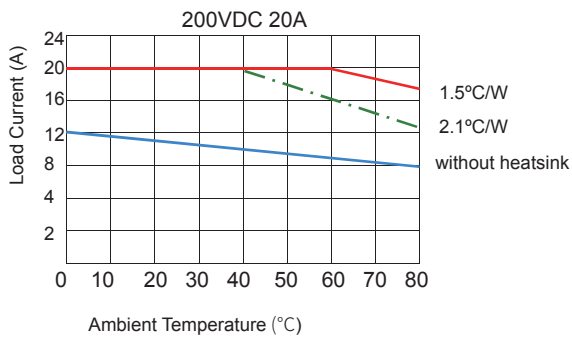
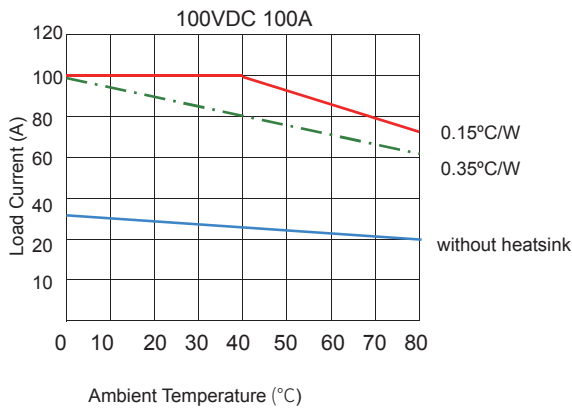
Thermal Derating Curve



Thermal Derating Curve



KSJ Series Single Phase DC Output



KSIM
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KSQE
KSQF
KSQC

Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

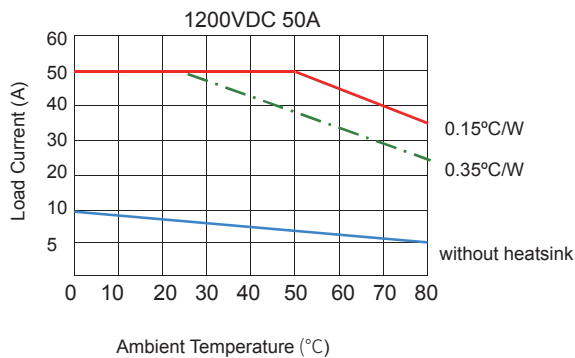
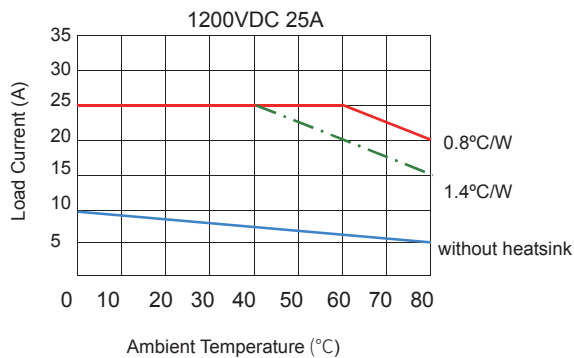
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KSQE
KSQF
KSQC

Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

KSJ Series Single Phase DC Output

Thermal Derating Curve



General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in-lb/N·m.
2. When connection wiring to SSR please ensure screws are torqued down properly (input 13-15/1.5-1.7in/lb/N·m, output 18-20/2.0-2.2 in-lb/N·m).
3. When Ambient temperature is above 25 °C see thermal derating curve.

Agency Approvals (Certification)



KSQM Series Three Phase AC Output

Product Description

- ◆ Zero Crossing or Random-on Switching
- ◆ TRIAC Output
- ◆ DC Input
- ◆ Load Current: 12A, 25A
- ◆ Dielectric Strength: 4000Vrms
- ◆ RoHS Compliant



Ordering Information

KSQM	380	D	12	R	-L	M	(XXX)
KSQM Series	Load Voltage 380: 380VAC	Control Mode D: DC Control	Load Current 12: 12Amp 25: 25Amp	Switching Mode Blank: Zero Crossing R: Random-on	L: LED	M: MOV Protection	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range		10-32VDC
Must Turn-On Voltage		10VDC
Must Turn-Off Voltage		4VDC
Maximum Input Current		25mA@32VDC

Output Specifications (Ta=25°C)		
Load Voltage Range		24-440VAC
Maximum Turn-On Time	Zero Crossing	10ms
	Random-on	1ms
Maximum Turn-Off Time		10ms
Maximum Surge Current (@10ms)	12A	120A
	25A	250A
Transient Overvoltage		800Vpk
Maximum Off-State Leakage Current@Rated Load Voltage		5mA
Maximum On-State Voltage Drop@Rated Current		1.6Vrms
Minimum Off-State dv/dt@Maximum Rated Voltage		200 V/μs

KSIM
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KSQE
KSQF
KSQC

Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

KSQM Series Three Phase AC Output

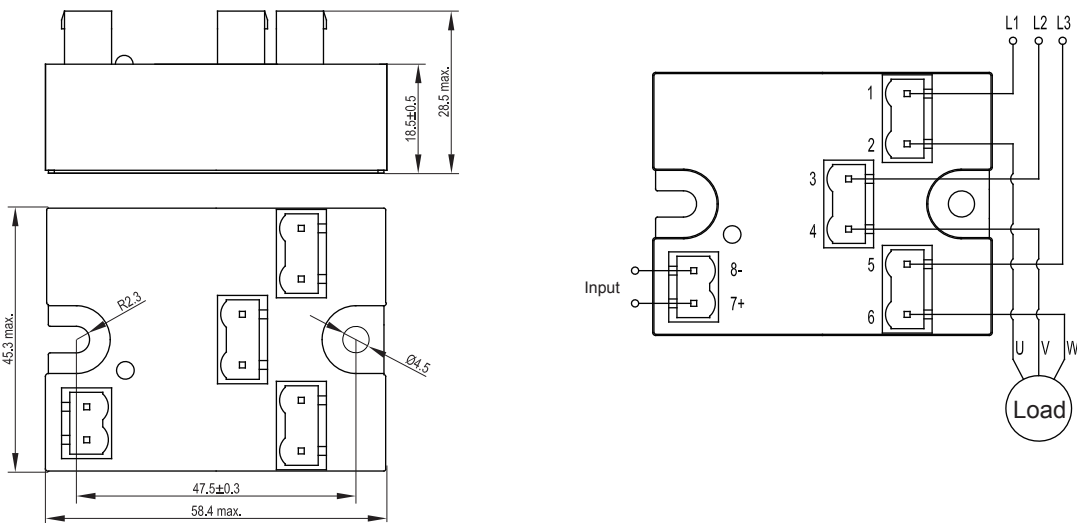
General Specifications

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	100g	

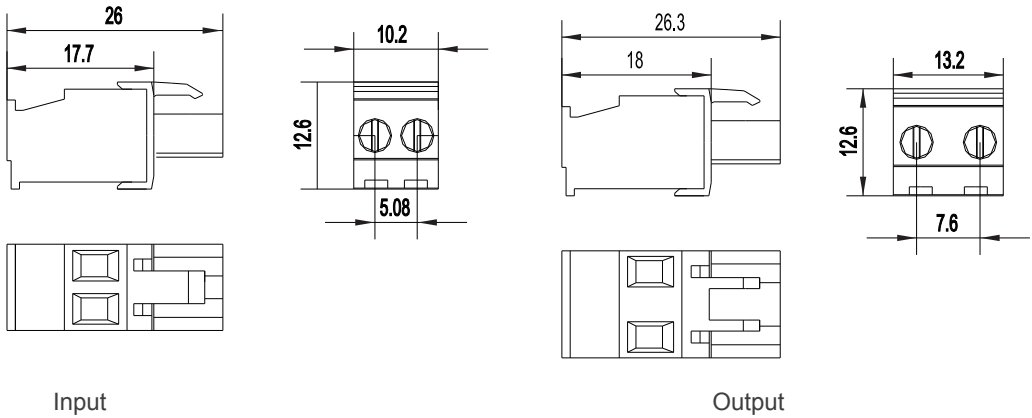
Applications

Suitable for 3 phase motor control, temperature controlling weaving machinery, and etc.

Outline Dimensions / Wiring Diagram

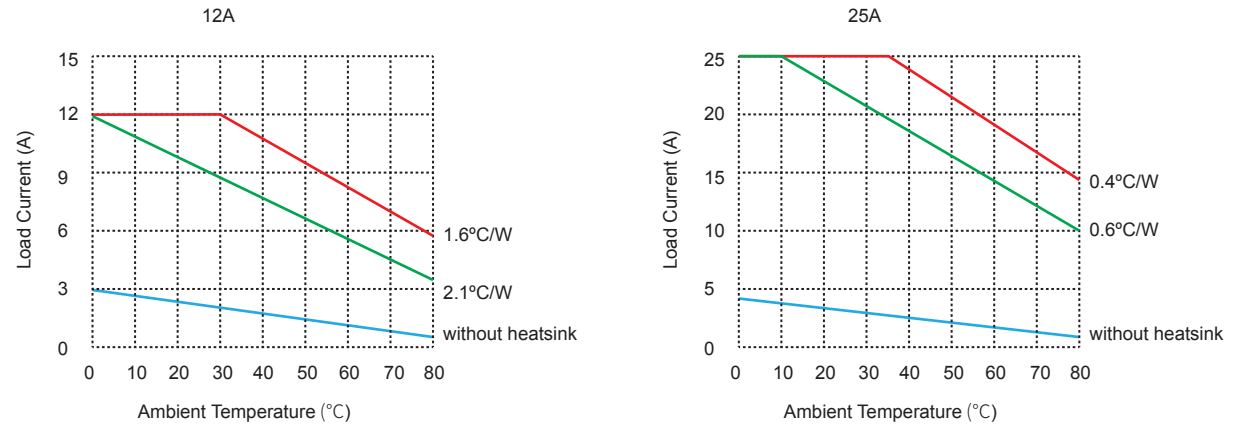


Outline Dimensions



KSQM Series Three Phase AC Output

Thermal Derating Curve



General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in-lb/N·m.
2. When connection wiring to SSR please ensure screws are torqued down properly (input 4.43/0.5in lb/N·m, output 18-20/2.0-2.2 in-lb/N·m).
3. When Ambient temperature is above 25°C see thermal derating curve.

Agency Approvals (Certification)



KSQE Series Three Phase AC Output

Product Description

- ◆ Control Voltage at 4-32VDC or 90-280VAC
- ◆ Load Current: 10A, 15A, 25A
- ◆ Dielectric Strength: 4000Vrms
- ◆ Internal RC/MOV Protection Circuit
- ◆ RoHS Compliant



Ordering Information

KSQE	480	D	10	(XXX)
KSQE Series	Load Voltage 380: 380VAC 480: 480VAC	Control Mode D: DC Control A: AC Control	Load Current 10: 10Amp 15: 15Amp 25: 25Amp	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	AC Control	90-280VAC
	DC Control	4-32VDC
Must Turn-On Voltage	AC Control	90VAC
	DC Control	4VDC
Must Turn-Off Voltage	AC Control	15VAC
	DC Control	1VDC
Maximum Reverse Voltage	DC Control	32VDC
Maximum Input Current	AC Control	30mA@280VAC
	DC Control	35mA@32VDC

Output Specifications (Ta=25°C)		
Load Voltage Range	380VAC	24-440VAC
	480VAC	24-530VAC
Maximum Turn-On Time	AC Control	40ms
	DC Control Zero Crossing	10ms
	DC Control Random-on	1ms
Maximum Turn-Off Time	AC Control	20ms
	DC Control	10ms
Maximum 1 Cycle Surge Current (50Hz)	10A	120A
	15A	160A
	25A	250A
Minimum Load Current	100mA	
Transient Overvoltage	380VAC	800Vpk
	480VAC	1200Vpk
Maximum Off-State Leakage Current@Rated Load Voltage	10mA	
Maximum On-State Voltage Drop@Rated Current	1.6Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	200V/μs	

KSQE Series Three Phase AC Output

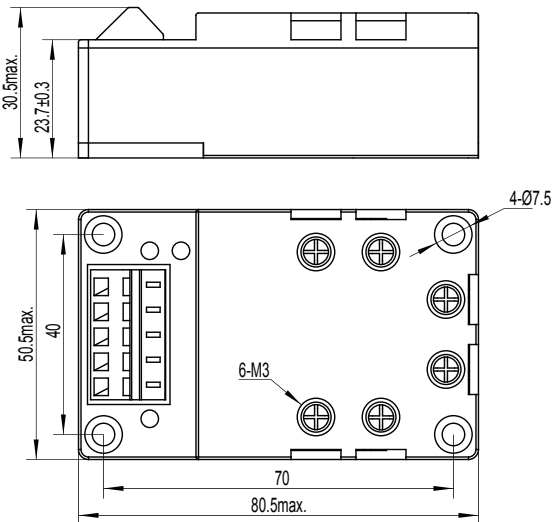
General Specifications

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	180g	

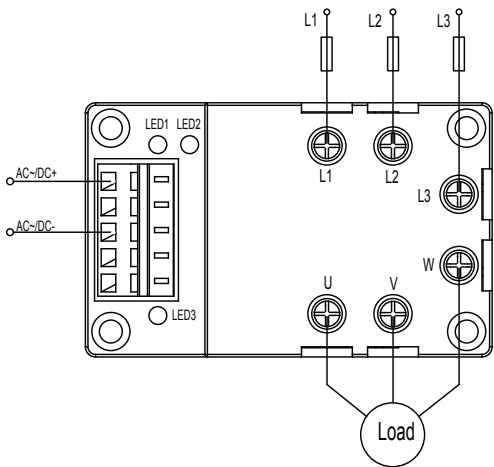
Applications

Suitable for three phase motor control, temperature control, large oven, and etc.

Outline Dimensions



Wiring Diagram



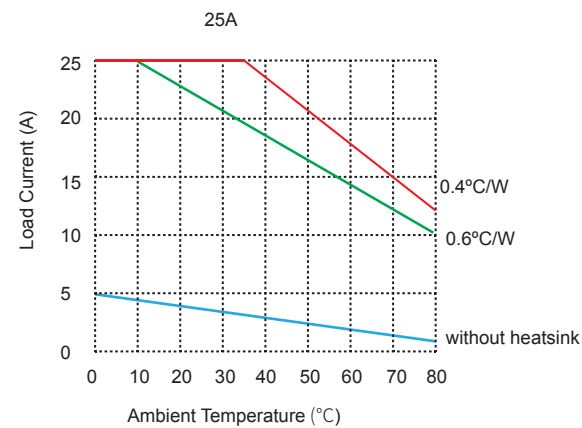
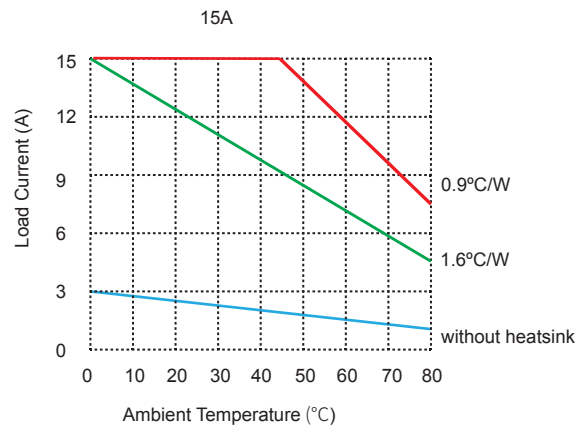
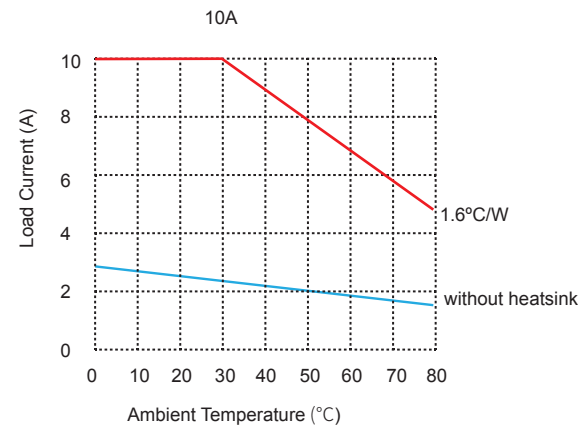
KSIM
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KSID
KSJ
KSQM
KSQE
KSQF
KSQC

Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

KSQE Series Three Phase AC Output

Thermal Derating Curve



General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in-lb/N·m.
2. When connection wiring to SSR please ensure screws are torqued down properly (input 13-15/1.5-1.7in/lb/N·m, output 18-20/2.0-2.2 in-lb/N·m).
3. When Ambient temperature is above 25℃ see thermal derating curve.

Agency Approvals (Certification)



KSQF Series Three Phase AC Output

Product Description

- ◆ Zero Crossing or Random-on Switching
- ◆ SCR Output
- ◆ Optical Isolation
- ◆ Control Voltage:DC4-32V or AC 90-280VAC
- ◆ Load Current: 25A, 40A, 60A, 80A
- ◆ Dielectric Strength: 4000Vrms
- ◆ Internal RC/MOV Protection Circuit
- ◆ RoHS Compliant



Ordering Information

KSQF	480	D	80	R	(XXX)
KSQF Series	Load Voltage 480: 480VAC 600: 600VAC	Control Mode D: DC Control A: AC Control	Load Current 25: 25Amp 40: 40Amp 60: 60Amp 80: 80Amp	Blank: Zero Crossing R: Random-on	Customized Code

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	AC Control	90-280VAC
	DC Control	4-32VDC
Must Turn-On Voltage	AC Control	90VAC
	DC Control	4VDC
Must Turn-Off Voltage	AC Control	15VAC
	DC Control	1VDC
Maximum Reverse Voltage	DC Control	32VDC
Maximum Input Current	AC Control	30mA@280VAC
	DC Control	35mA@32VDC

Output Specifications (Ta=25°C)		
Load Voltage Range	480VAC	24-530VAC
	600VAC	24-660VAC
Maximum Turn-On Time	AC Control	40ms
	DC Control	Zero Crossing 10ms
		Random-on 1ms
Maximum Turn-Off Time	AC Control	20ms
	DC Control	10ms
Maximum Surge Current (@10ms)	25A	300A
	40A	500A
	60A	860A
	80A	1280A
Transient Overvoltage	480VAC	1200Vpk
	600VAC	1600Vpk

KSIM
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KSQE
KSQF
KSQC

Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

KSIM
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Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

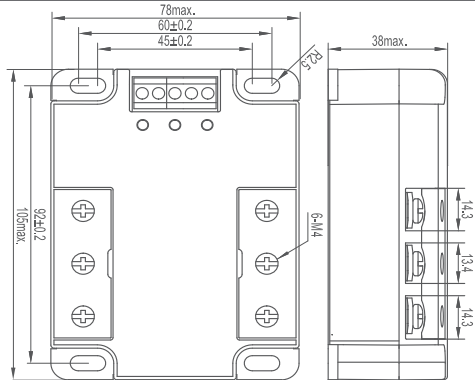
KSQF Series Three Phase AC Output

General Specifications		
Maximum I²t for Fusing (@10ms)	25A	450A²s
	40A	1250A²s
	60A	3698A²s
	80A	8192A²s
Maximum Off-State Leakage Current@Rated Load Voltage	10mA	
Maximum On-State Voltage Drop@Rated Current	1.6Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	≥500 V/μs	
General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	25A, 40A	385g
	60A, 80A	530g

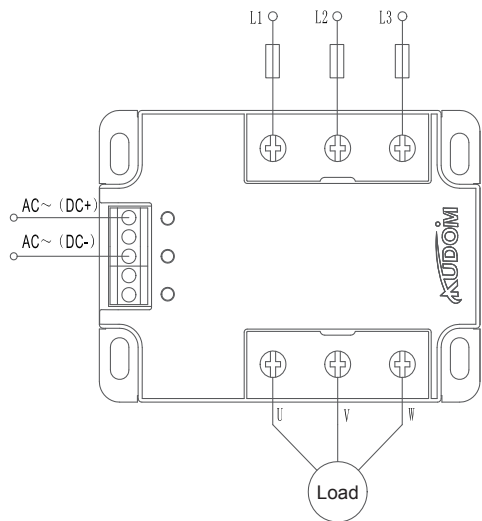
Applications

Suitable for three phase motor control, temperature control, large oven, and etc.

Outline Dimensions



Wiring Diagram

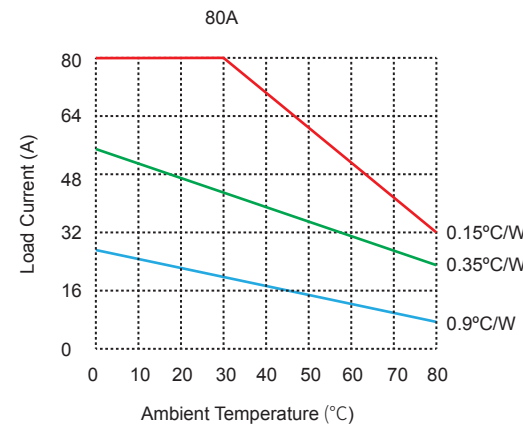
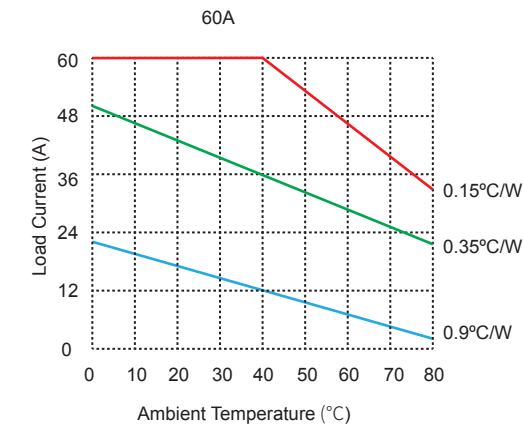
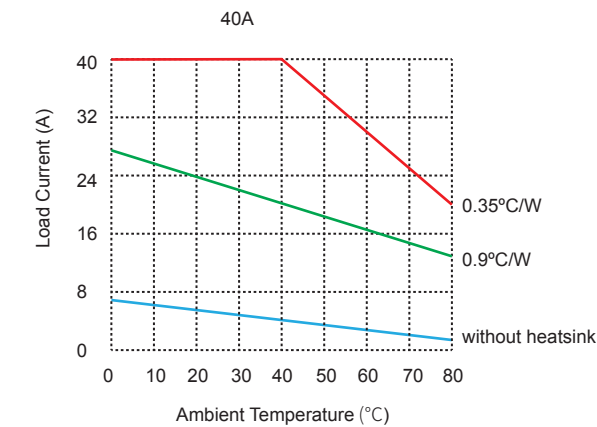
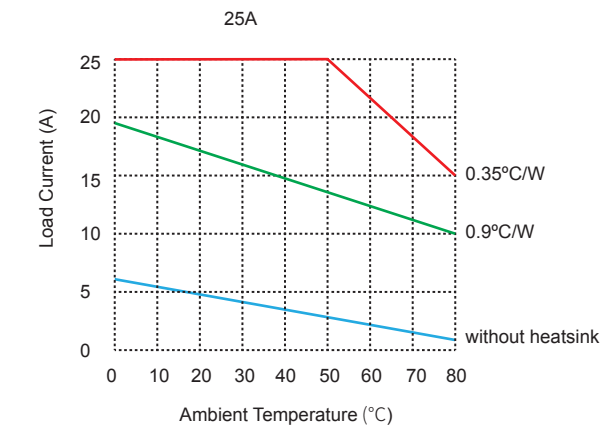


AC~ (DC+): AC Control Input (DC Control Anode Input)

AC~ (DC-): AC Control Input (DC Control Cathod Input)

KSQF Series Three Phase AC Output

Thermal Derating Curve



General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in-lb/N·m.
2. When connection wiring to SSR please ensure screws are torqued down properly (input 4.43/0.5in lb/N·m, output 18-20/2.0-2.2 in-lb/N·m).
3. When Ambient temperature is above 25 C see thermal derating.

Agency Approvals (Certification)



KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC

Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

Product Description

- ◆ Zero Crossing or Random-on
- ◆ Load Current: 25-80A
- ◆ Over-temperature Protection
- ◆ Phase-loss Detection Function
- ◆ Fault Indication Function
- ◆ SCR Failure Detection Function
- ◆ Load Disconnection Detection Function
- ◆ Alarm Contact Output (Optional)
- ◆ Internal RC/MOV Protection Circuit
- ◆ RoHS Compliant



Ordering Information

KSQC	600	D	60	R	-C
KSQC Series (1)	Load Voltage 480: 480VAC 600: 600VAC	DC Control	Load Current 25: 25Amp 40: 40Amp 60: 60Amp 80: 80Amp	Blank: Zero Crossing R: Random-on	C: Alarm Output Blank: without Alarm Output

Input Specifications (Ta=25°C)		
External Power Parameters	Rated Voltage Range	10-32VDC
	Max Current Consumption	70mA
Control Voltage	Control Voltage Range	10-32VDC
	Must Turn-On Voltage	10VDC
	Must Turn-Off Voltage	2VDC
	Maximum Input Current	10mA

Output Specifications (Ta=25°C)		
Load Voltage Range	480VAC	200-530VAC
	600VAC	200-660VAC
Transient Overvoltage	480VAC	1200Vpk
	600VAC	1600Vpk
Minimum Load Current	200mA	
Maximum Turn-On Time	100ms	
Maximum Turn-Off Time	100ms	
Maximum Surge Current (@10ms)	25A	300A
	40A	550A
	60A	1000A
	80A	1500A
Maximum Off-State Leakage Current@Rated Load Voltage		10mA
Maximum On-State Voltage Drop@Rated Current		1.6Vrms
Minimum Off-State dv/dt@Maximum Rated Voltage		500V/μs

General Specifications

General Specifications (Ta=25°C)		
Alarm Contact Parameters	Contact Resistance	<70mΩ
	Maximum Current	1A @250VAC/30VDC
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input,output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Ambient Temperature Range		-30°C ~ +80°C
Storage Temperature Range		-30°C ~ +100°C
Weight (Typical)		290g

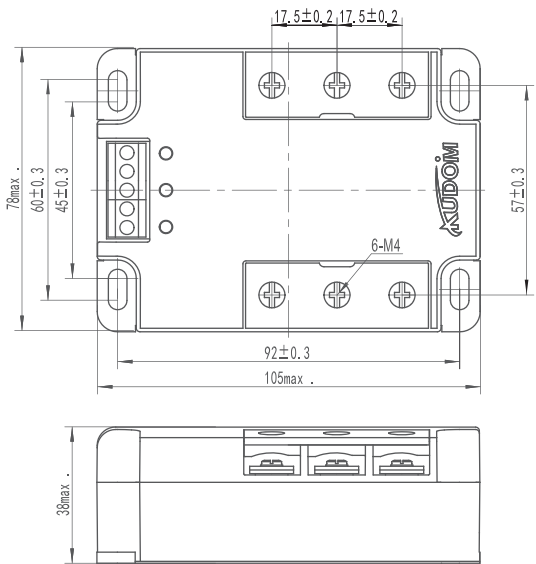
Function Introduction

Phase-loss Detection	When phase-lack failure happens during 3 phase voltage input at the work, the relay will automatically cut off the output with the fault indicator lighted and give out a fault signal.
	When no control signal, if phase-lack failure happens, the relay will give out a fault signal with the fault indicator lighted.
Over-temperature Protection	When the relay is working, the relay itself could monitor SSR power component temperature at any time; when the plate temperature is more than 85 °C, the relay would cut off the output; at the same time, alarm LED will be lighted and give out fault signal; Only when the plate temperature reduces to less than 60 °C , the relay would resume its operation;
SCR Failure and Load Disconnection Detection	When no control signal, if the load disconnection or SCR failure happens, the relay output will show fault status with the indicator lighted.
	After entering control signal and SCR starts to work properly,if SCR short circuit or load disconnection happens,the relay output will show fault status with the indicator lighted

Applications

Suitable for Motor control, Kiln temperature control system, Large oven, and etc.

Outline Dimensions



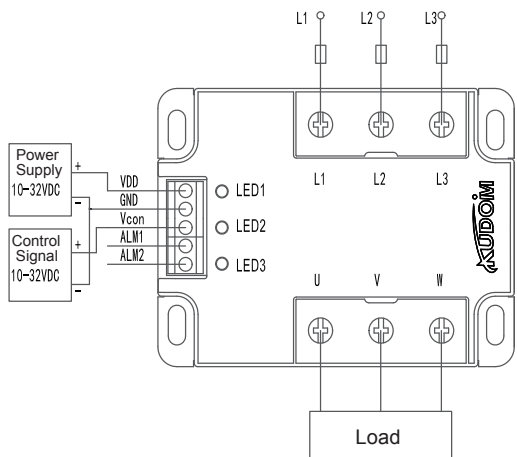
KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC

Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

KSQC Series Three Phase AC Output

Wiring Diagram



VDD: External DC power anode (10-32VDC)

GND: External DC power cathode (0V)

V_{CON}: Control voltage input (10-32VDC)

ALM1, ALM2: Failure alarm signal output

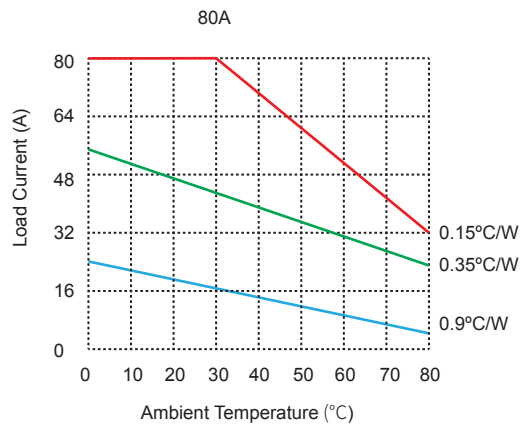
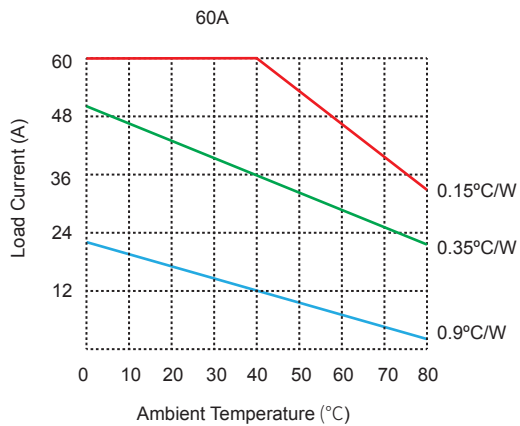
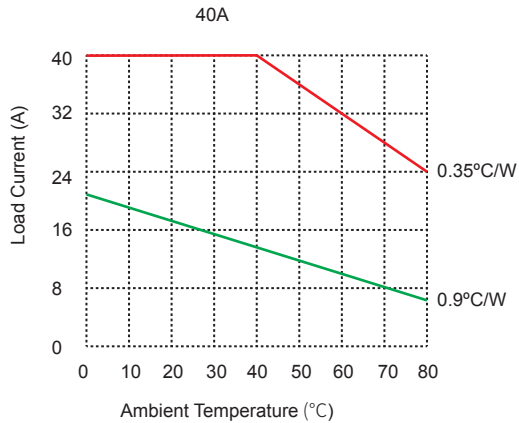
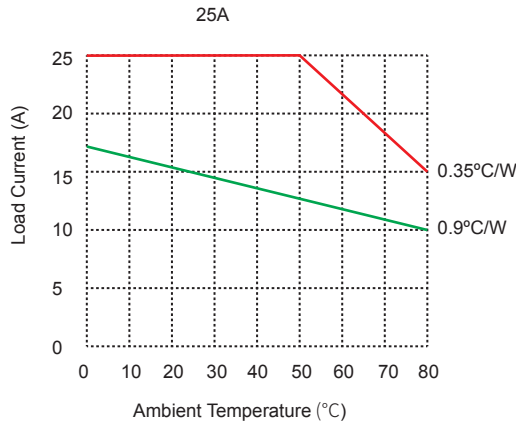
Short-circuited during failure

LED1: Power indication of external power supply

LED2: Control signal indication

LED3: Failure indication

Thermal Derating Curve



KSQC Series Three Phase AC Output

General Notes

1. With internal phase-loss protection function, L1, L2, L3 should be connected to input voltage, U, V, W should be connected to the load in order to work properly. The relay will not work if the connection is reverse.
2. The relay temperature protection function will automatically resume when the plate temperature is lower than the set value.
3. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in-lb/N·m.
4. When connecting wiring to SSR please ensure screws are torqued down properly (input 4.43/0.5 in lb/N·m, output 18-20/2.0-2.2 in lb/N·m).
5. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.
6. When controlling an inductive load, a suppression circuit should be used.
7. To avoid the damage to control circuit, correct polarity should be observed.

Agency Approvals (Certification)



KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC

Panel Mount

PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

Product Description

- ◆ TRIAC Output
- ◆ Optical Isolation
- ◆ Dielectric Strength: 2500Vrms
- ◆ Load Current: 1A, 2A
- ◆ PCB or Socket Mounted
- ◆ Load Voltage: 240VAC
- ◆ RoHS Compliant



Ordering Information

KSM	A	240	D	1	R	-5	D
KSM Series	Load Type A: AC Load	Load Voltage 240: 240VAC	DC Control	Load Current 1: 1Amp 2: 2Amp	Switching Mode Blank: Zero Crossing R: Random-on	Control Voltage 5: 5VDC 12: 12VDC 24: 24VDC 48: 48VDC 60: 60VDC	Blank: without Socket D: with Socket

Note: (1) socket with 5V control voltage is not available

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range(2)	-5	4-6VDC
	-12	9.6-14.4VDC
	-24	19.2-28.8VDC
	-48	38.4-57.6VDC
	-60	48-72VDC
Must Turn-On Voltage(3)	-5	4VDC
	-12	9.6VDC
	-24	19.2VDC
	-48	38.4VDC
	-60	48VDC
Must Turn-Off Voltage	1VDC	
Maximum Input Current	25mA	

Note: (2) For KSMA with the socket, the control voltage limit should be increased by 1.4V.

(3) If KSMA is equipped with the socket, to ensure that the control voltage should be increased by 1.4V, for example, for KSMA240D2-12D, to ensure that the control voltage is 9.6+1.4=11V min.

Output Specifications (Ta=25°C)		
Load Voltage Range	24-280VAC	
Maximum Transient Overvoltage	600Vpk	
Load Current Range	1A	0.1 - 1A
	2A	0.1 - 2A
Maximum Turn-On Time	Zero Crossing	10ms
	Random-on	1ms
Maximum Turn-Off Time	10ms	
Maximum Surge Current (@10 ms)	1A	30A
	2A	80A
Maximum Off-State Leakage Current @ Rated Load Voltage	1.5mA	
Maximum On-State Voltage Drop @ Rated Current	1.5Vrms	
Minimum Off-State dv/dt @ Maximum Rated Voltage	200V/μs	

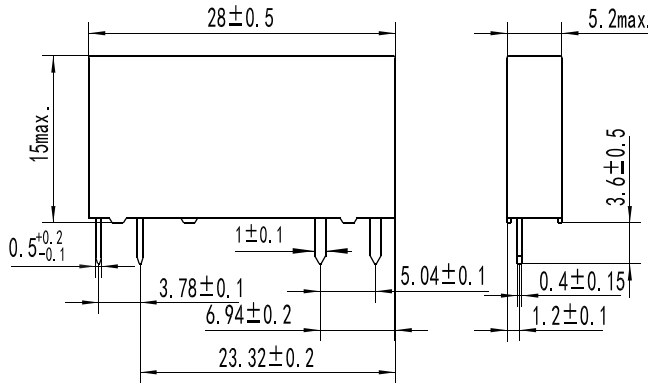
General Specifications

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	2500Vrms	
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	without Socket	4g
	D: with Socket	30g

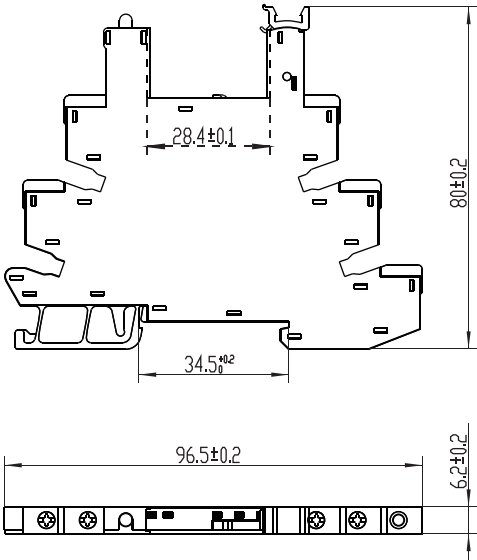
Applications

Suitable for high density PCB mounting, PLC control applications, and etc.

Outline Dimensions

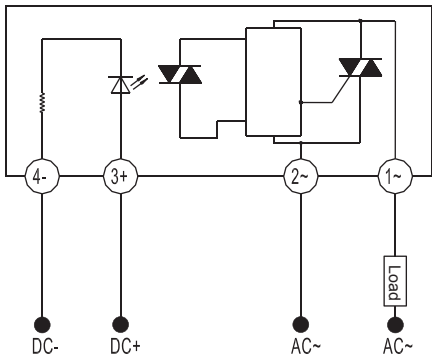


SSR

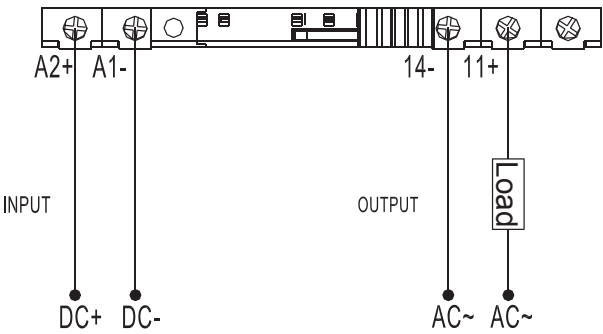


Socket Installation Drawing (Type: KPD-1A)

Wiring Diagram



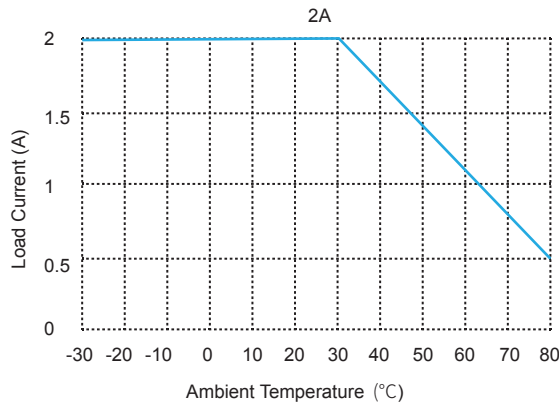
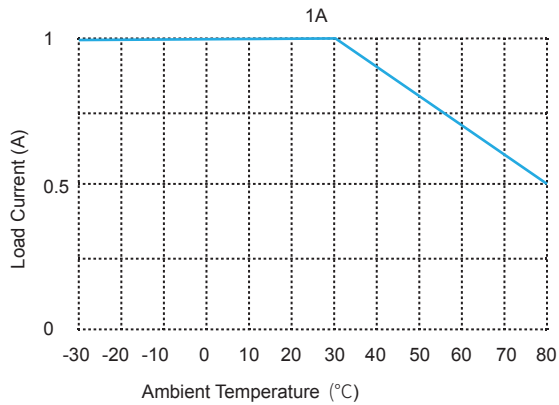
SSR



with Socket

KSMA*** D Series Single Phase AC Output

Thermal Derating Curve



General Notes

1. Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay.
2. When connecting wiring to SSR please ensure screws are torqued down properly 4.43/0.5 in lb/N·m
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KSV Series Single Phase AC Output

Product Description

- ◆ Zero Crossing or Random-on Switching
- ◆ SCR Output
- ◆ DC or AC Input
- ◆ Load Current: 10A ,20A,30A ,40A
- ◆ Dielectric Strength: 4000Vrms
- ◆ Built-in RC Snubber Circuit
- ◆ With Integrated Heatsink, Width 30mm (for 10A-30A) or 50mm (for 40A)
- ◆ 35mm Rail (DIN EN50022)
- ◆ LED Indicator
- ◆ RoHS Compliant



Ordering Information

KSV	480	D	30	R	-L	M	(XXX)
KSV Series (1)	Load Voltage 240: 240VAC 480: 480VAC	D: DC Control A: AC Control	Load Current 10: 10Amp 20: 20Amp 30: 30Amp 40: 40Amp	Switching Mode Blank: Zero Crossing R: Random-on	L: LED	M: MOV (Optional)	Customized Code

Note (1): The part number selection is subject to the following list.

Information	10A	20A	30A	40A
DC:4-32VDC	KSV240D10-L (M)	KSV240D20-L (M)	KSV240D30-L (M)	KSV240D40-L (M)
	KSV240D10R-L (M)	KSV240D20R-L (M)	KSV240D30R-L (M)	KSV240D40R-L (M)
	KSV480D10-L (M)	KSV480D20-L (M)	KSV480D30-L (M)	KSV480D40-L (M)
	KSV480D10R-L (M)	KSV480D20R-L (M)	KSV480D30R-L (M)	KSV480D40R-L (M)
AC:90-280VAC	KSV240A10-L (M)	KSV240A20-L (M)	KSV240A30-L (M)	KSV240A40-L (M)
	KSV240A10R-L (M)	KSV240A20R-L (M)	KSV240A30R-L (M)	KSV240A40R-L (M)
	KSV480A10-L (M)	KSV480A20-L (M)	KSV480A30-L (M)	KSV480A40-L (M)
	KSV480A10R-L (M)	KSV480A20R-L (M)	KSV480A30R-L (M)	KSV480A40R-L (M)

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	DC Control	4-32VDC
	AC Control	90-280VAC
Must Turn-On Voltage	DC Control	4VDC
	AC Control	90VAC
Must Turn-Off Voltage	DC Control	1VDC
	AC Control	15VAC
Maximum Input Current	25mA	

PCB Mount

Panel Mount

DIN Rail Mount

Industrial Module

Motor Reversing

Voltage Regulator

Accessory

General Specifications

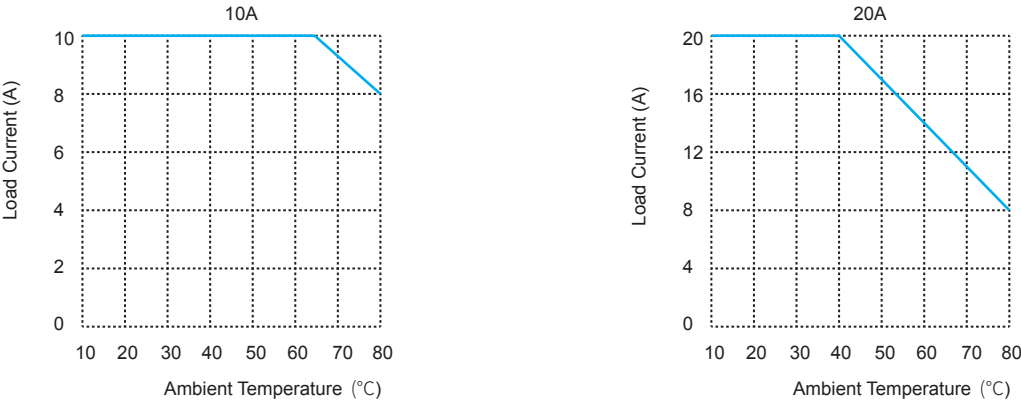
Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	24-280VAC
	480VAC	24-530VAC
Maximum Turn-On Time	DC Control Random-on	1ms
	DC Control Zero Crossing	10ms
	AC Control	40ms
Maximum Turn-Off Time	DC Control	10ms
	AC Control	40ms
Maximum Surge Current (@10ms)	10A	200A
	20A	300A
	30A	500A
	40A	600A
Maximum I²t for Fusing (@10ms)	10A	200A²s
	20A	450A²s
	30A	1250A²s
	40A	1800A²s
Maximum Transient Overvoltage	240VAC	600Vpk
	480VAC	1200Vpk
Maximum Off-State Leakage Current@Rated Load Voltage		10mA
Maximum On-State Voltage Drop@Rated Current		1.6Vrms
Minimum Off-State dv/dt@Maximum Rated Voltage		500V/µs

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Minimum Power Factor (at Maximum load)		0.5
Ambient Temperature Range		-30°C ~ +80°C
Storage Temperature Range		-30°C ~ +100°C
Weight (Typical)	10A/20A/30A	355g
	40A	540g

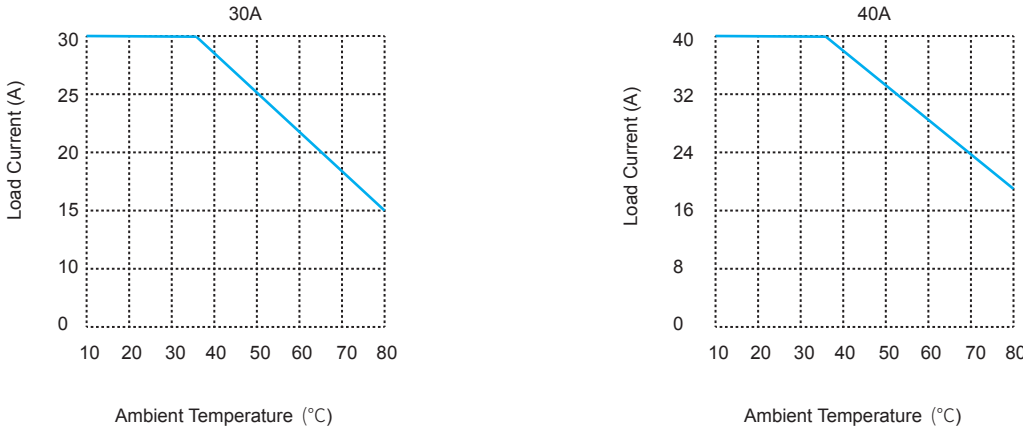
Applications

Suitable for Temperature Chamber, Injection Molding Machine, Packaging Machine, and etc.

Thermal Derating Curve



Thermal Derating Curve



General Notes

- When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.
- When connecting wiring to SSR please ensure screws are torqued down to the specs below
- Please use a suitable screwdriver to mount the relay, please refer to the following requirements:

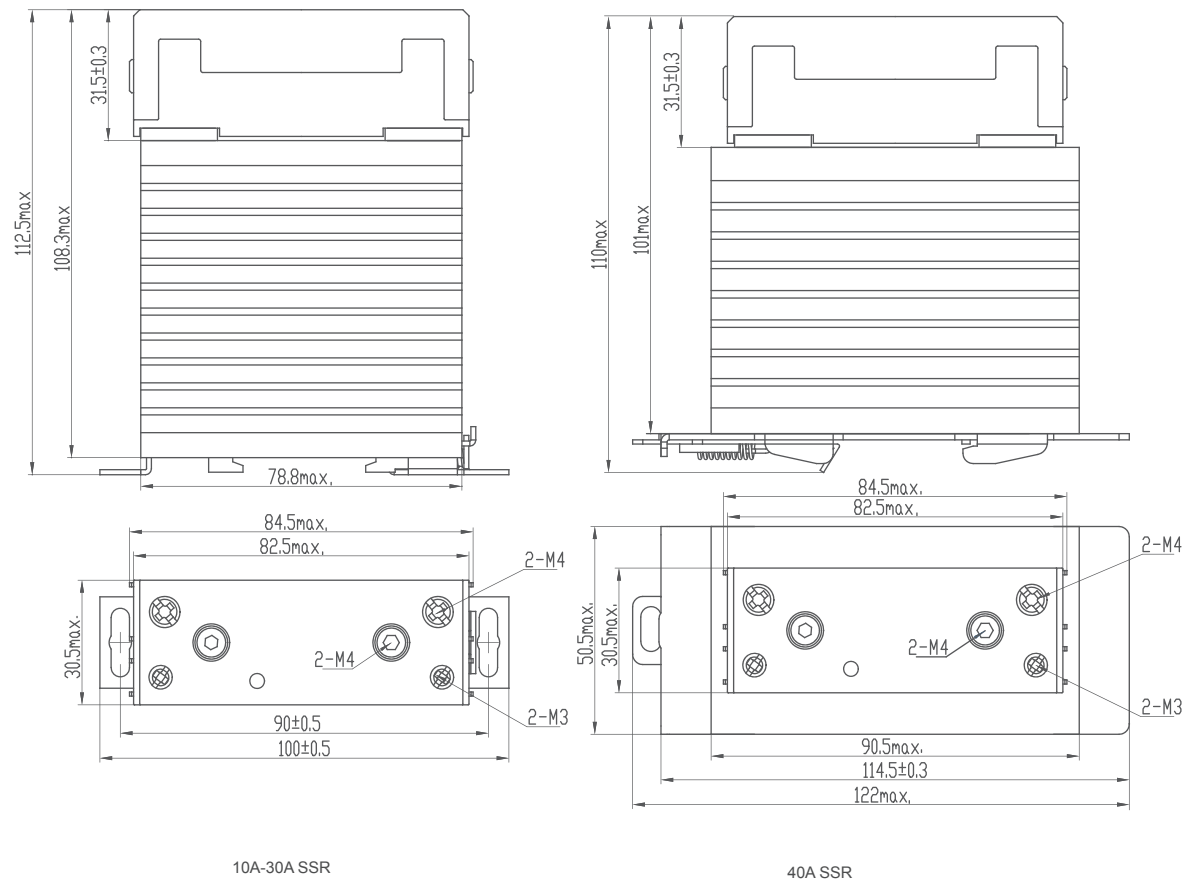
		INPUT TERMINAL (3, 4)	LOAD TERMINAL (1, 2)
Recommended Torque		0.6N·m	1N·m
Stripping Length		7mm	10mm
Optional Wire	Single Core Cable	1x0.5~2.5mm² 2x0.5~1mm²	2x1.5~6mm²
	Multi-core Cable (with ferrule)	1x0.5~2.5mm² 2x0.5~1mm²	1x1.5~10mm² 2x1.5~6mm²

Agency Approvals (Certification)



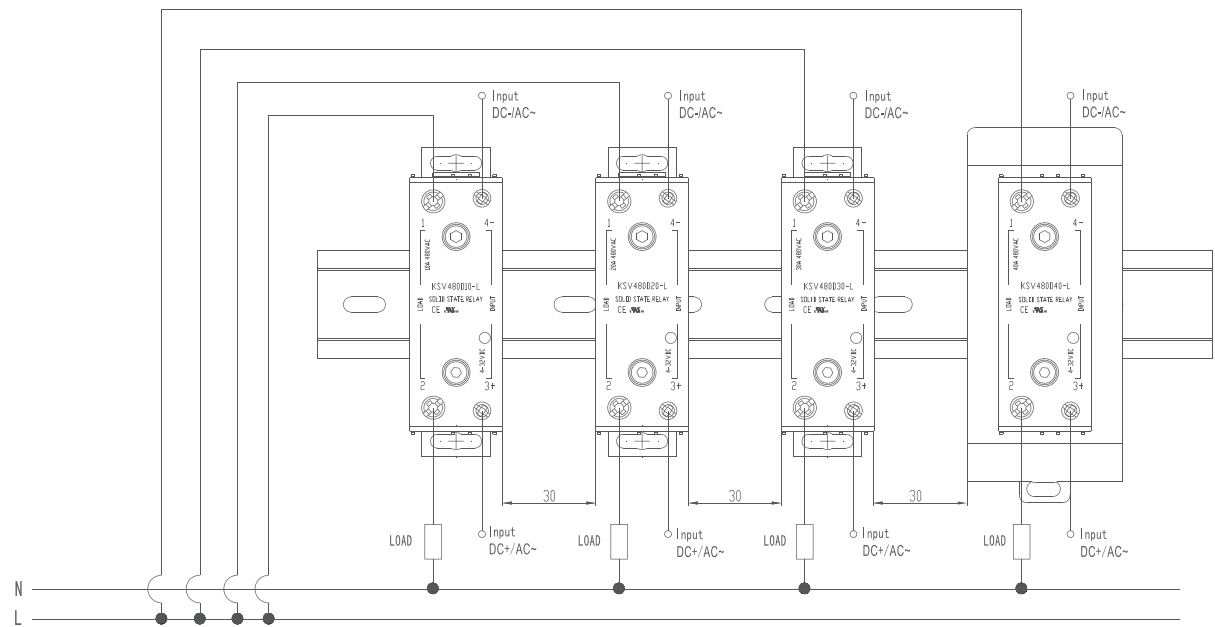
KSV Series Single Phase AC Output

Outline Dimensions



Connection Example

When mounting relays side by side please see recommended minimum spacing below.



KSMD***D Series Single Phase DC Output

Product Description

- ◆ Transistor or MOSFET Output
- ◆ Optical Isolation
- ◆ Load Current : 0.1A, 2A, 3A, or 4A
- ◆ Load Voltage: 24VDC or 48VDC
- ◆ PCB or Socket Mounted
- ◆ Dielectric Strength: 2500Vrms
- ◆ RoHS Compliant



Ordering Information

KSM	D	48	D	3	-5	D
KSM Series	Load Type D: DC Load	Load Voltage 24: 24VDC 48: 48VDC	DC Control	Load Current 0.1: 0.1Amp 2: 2Amp 3: 3Amp 4: 4Amp	Control Voltage 12: 12VDC 24: 24VDC 48: 48VDC	Blank: without Socket D: with Socket

Note: (1) socket with 5V control voltage is not available

General Specifications

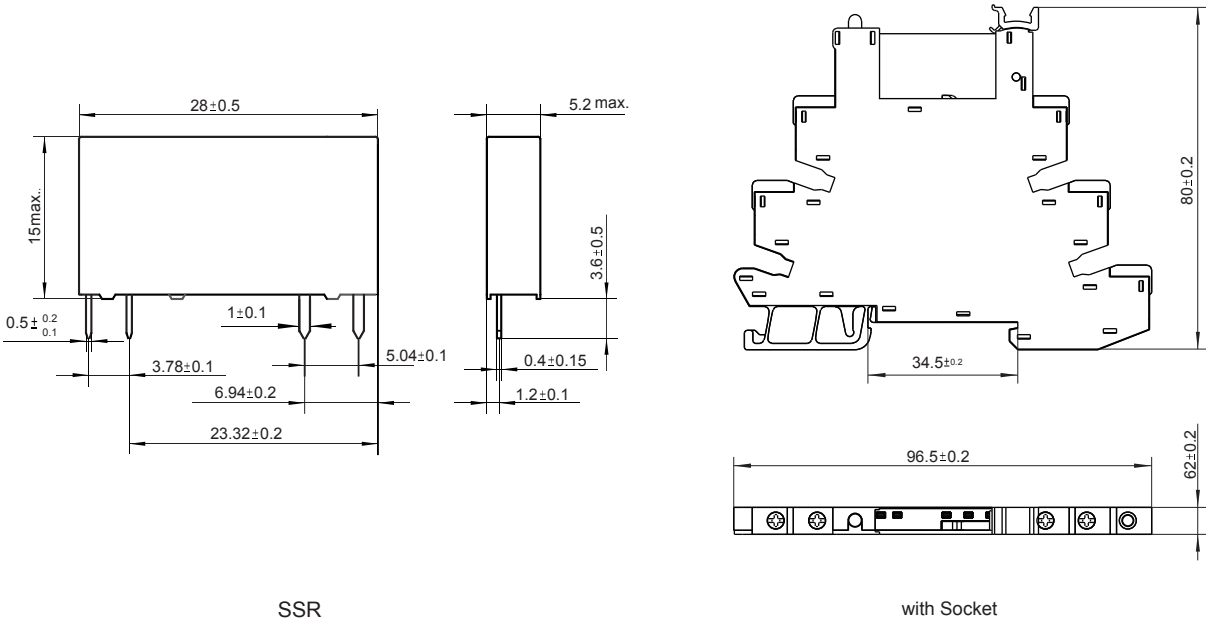
Input Specifications (Ta=25°C)		
Control Voltage Range	5	4-6VDC
	12	9.6-14.4VDC
	24	19.2-28.8VDC
	48	38.4-57.6VDC
	60	48-72VDC
Must Turn-On Voltage	5	4VDC
	12	9.6VDC
	24	19.2VDC
	48	38.4VDC
	60	48VDC
Must Turn-Off Voltage	5	1VDC
	12	2.4VDC
	24	2.4VDC
	48	4.8VDC
	60	4.8VDC
Maximum Input Current	5	25mA (@6VDC)
	12	25mA (@14.4VDC)
	24	25mA (@28.8VDC)
	48	23mA (@57.6VDC)
	60	23mA (@72VDC)

Note: (2) For KSMD with the socket, the control voltage limit should be increased by 1.4V.
(3) If KSMD is equipped with the socket, to ensure that the control voltage should be increased by 1.4V, for example, for KSMD240D2-12D, to ensure that the control voltage is 9.6+1.4=11V min.

General Specifications		
Output Specifications (Ta=25°C)		
Load Voltage Range	24V	3-28VDC
	48V	3-58VDC
Maximum Transient Overvoltage	24V	33VDC
	48V	58VDC
Load Current Range	0.1A	0.001 - 0.1A
	2A	0.002 - 2A
	3A	0.002 - 3A
	4A	0.002 - 4A
Maximum Turn-On Time	300μs	
Maximum Turn-Off Time	300μs	
Maximum Surge Current (@10 ms)	0.1A	1A
	2A	20A
	3A	30A
	4A	48A
Maximum Off-State Leakage Current@Rated Load Voltage	100μA	
Maximum On-State Voltage Drop@Rated Current	0.1A	1.5VDC
Maximum On-State Resistance	2A/3A/4A	37MΩ

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	2500Vrms	
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	without Socket	4g
	D: with Socket	30g

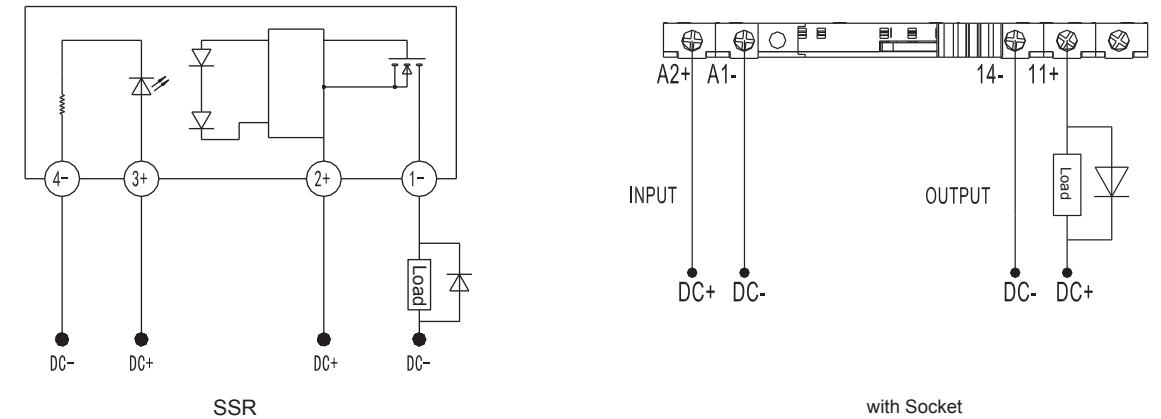
Outline Dimensions



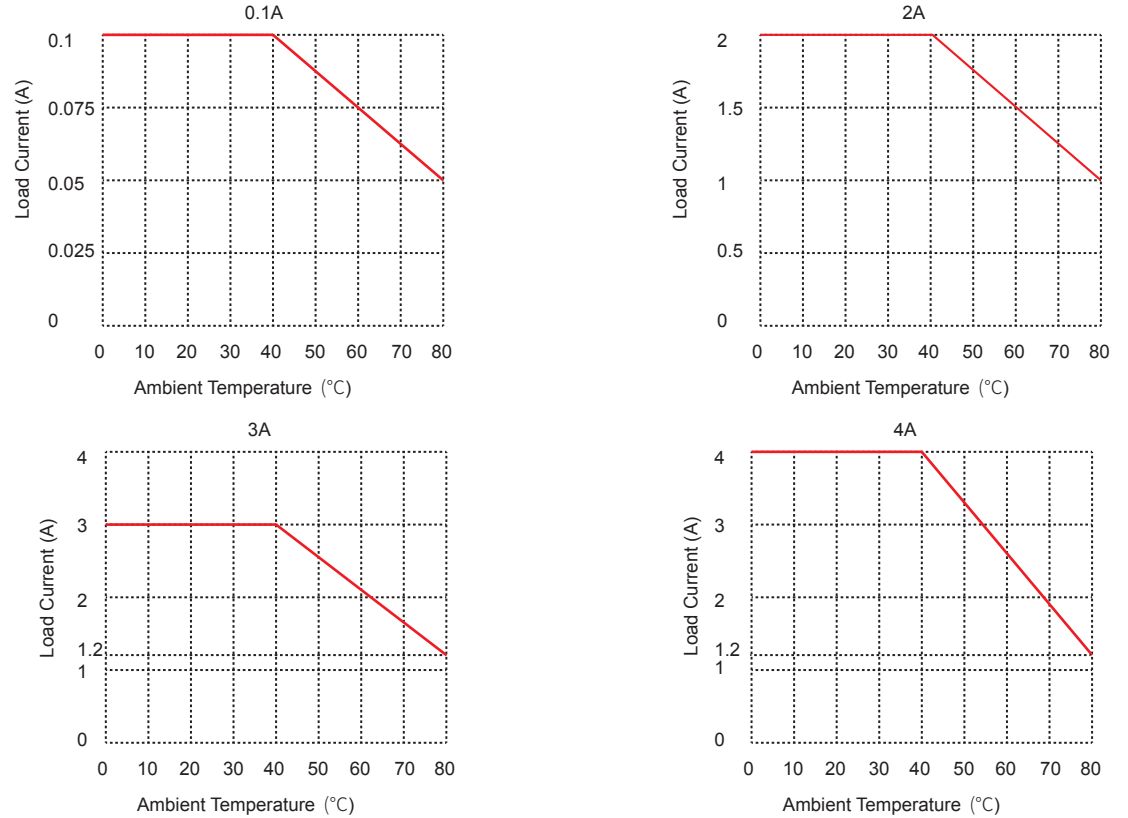
Applications

Suitable for high density PCB mounted, PLC control applications, and etc.

Wiring Diagram



Thermal Derating Curve



General Notes

- Soldering must be finished within 10 seconds at 260°C, or finished within 5 seconds at 350°C. Otherwise it may cause damage to the relay. damage to relay.
- When connecting wiring to SSR please ensure screws are torqued down properly 4.43/0.5 in lb/N·m
- When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



Product Description

- ◆ Din Rail Mount
- ◆ High EMC Capability
- ◆ Integrate Fast Fuse Protection
- ◆ High Capability to Inrush Current
- ◆ LED Indicator: a Blown Fuse
- SSR Failure or Load Disconnection
- ◆ RoHS Compliant



Ordering Information

DR

A

- 8

K⁽¹⁾

- KSD480D5-W (037)

(XXX)

DR Series

A: Mould A

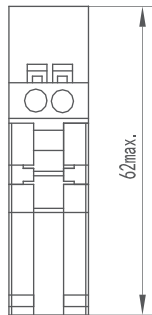
1: 1 Channel
2: 2 Channel
4: 4 Channel
8: 8 Channel

A: Common Anode
K: Common Cathode

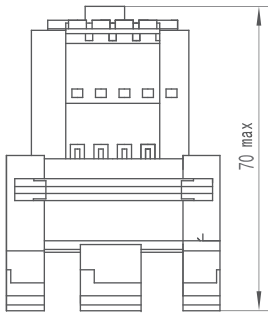
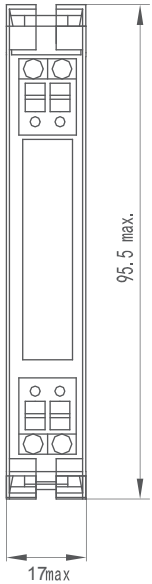
SSR
-KSD***
-KSF***
-KSL***

Customized Code

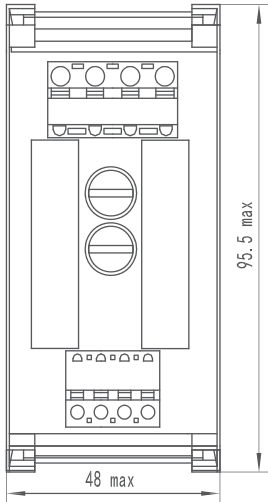
Outline Dimensions



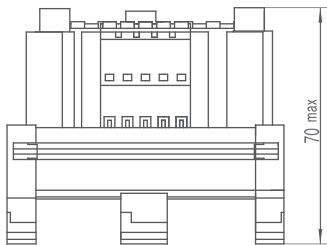
DRA-1 Series



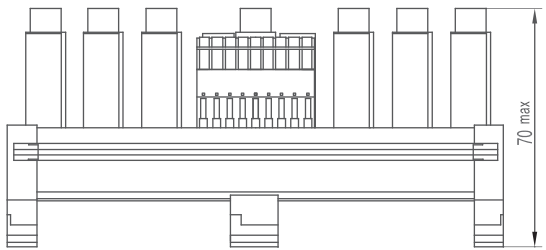
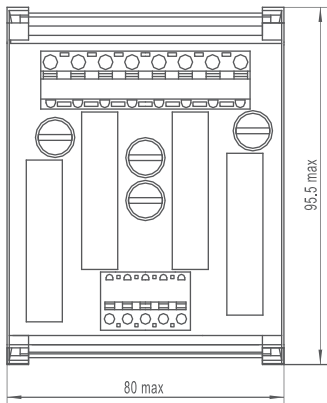
DRA-2 Series



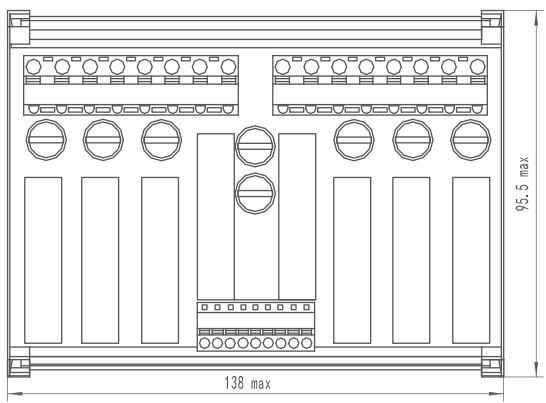
Outline Dimensions



DRA-4 Series



DRA-8 Series



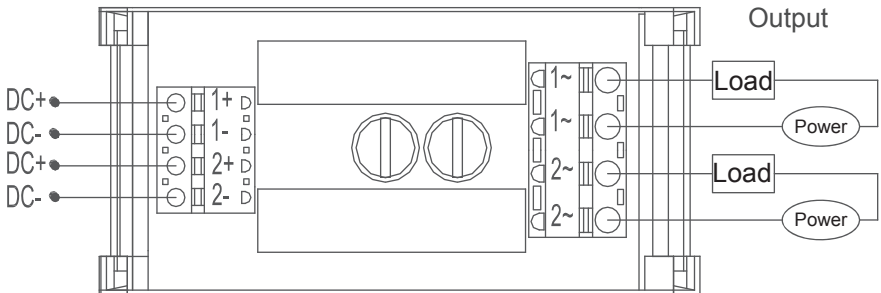
Wiring Diagram



DRA-1-KSD Series Wiring Diagram

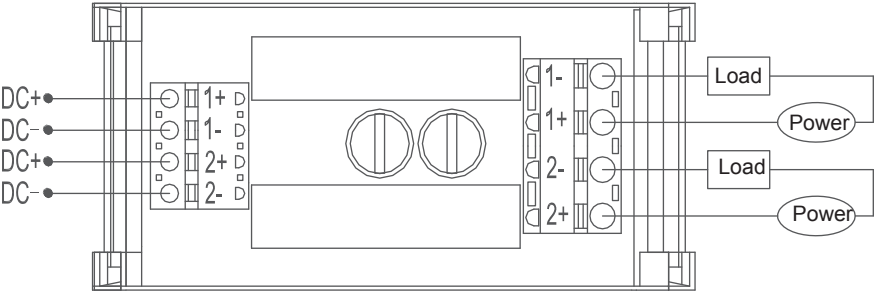


DRA-1-KSF/KSL Series Wiring Diagram

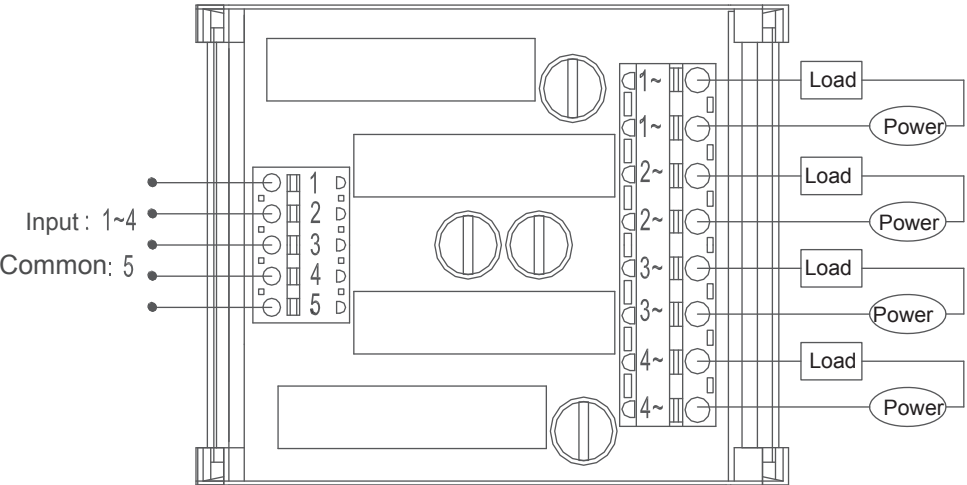


DRA-2-KSD Series Wiring Diagram

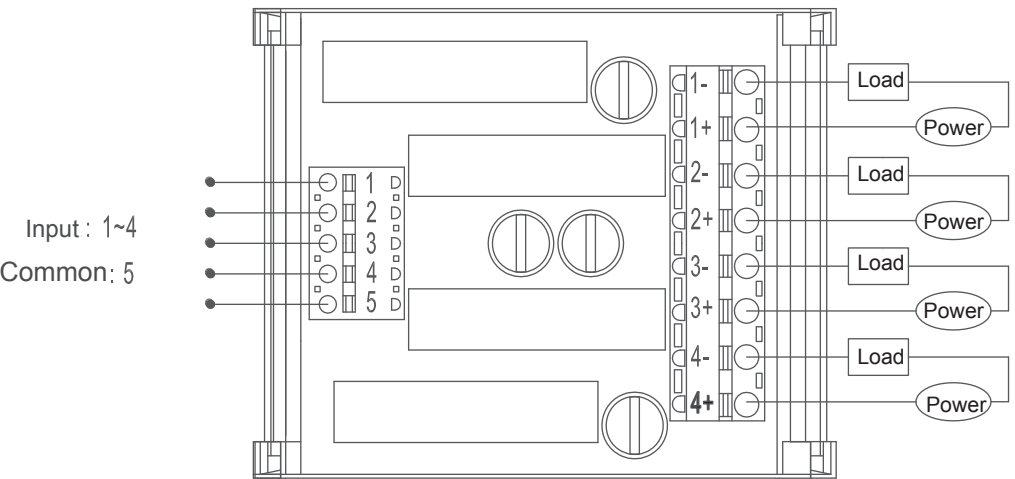
Wiring Diagram



DRA-2-KSF/ KSL Series Wiring Diagram

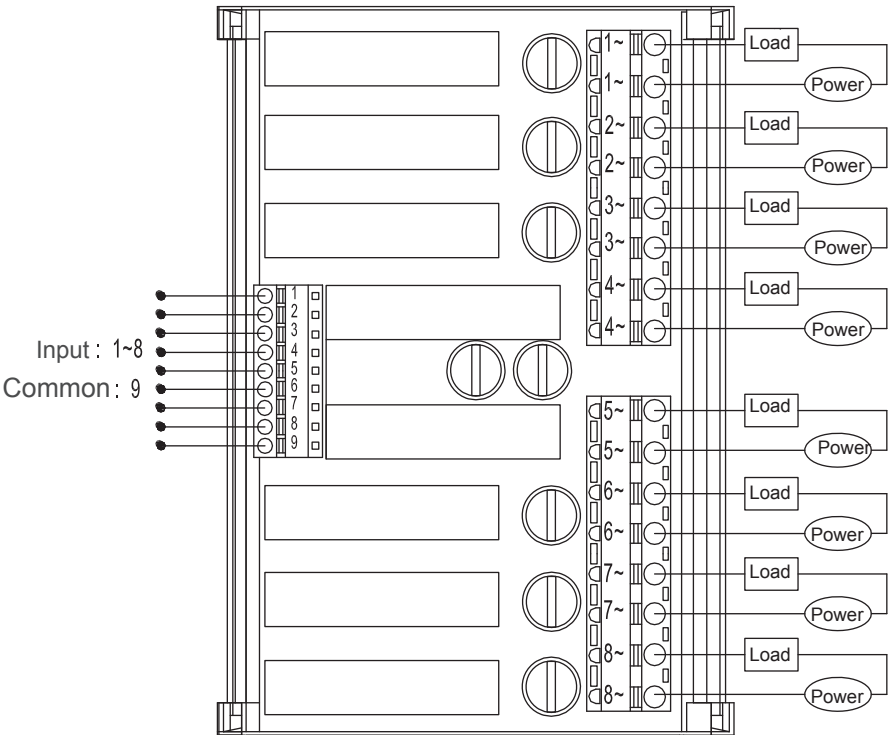


DRA-4A/K-KSD Series Wiring Diagram

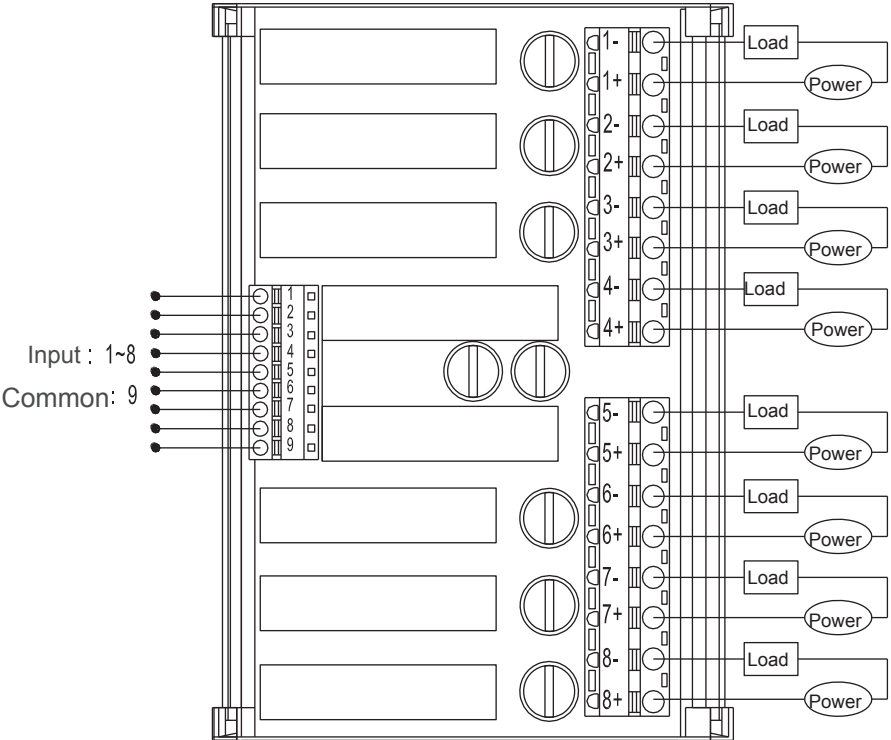


DRA-4A/K-KSF /KSL Series Wiring Diagram

Wiring Diagram



DRA-8A/ K-KSD Series Wiring Diagram



DRA-8A/ K-KSD Series Wiring Diagram

General Notes

1. Either DRA-1 or DRA-2 Series has no "A" or "K" option.

Agency Approvals (Certification)



KMB Series Three-phase Motor Reversing Module

Product Description

- ◆ Small Size
- ◆ Load Current: 10A or 20A
- ◆ 12VDC or 24VDC Input
- ◆ Internal RC/MOV Protection Circuit
- ◆ 3 Phase 2 Control, Internal Delay Circuit, Interlock Circuit
- ◆ Output Connected with Wires
- ◆ RoHS Compliant



Ordering Information

KMB	380	D	10	-24	(XXX)
KMB Series (1)	Load Voltage 380: 380VAC	D: DC Control	Load Current 10: 10Amp 20: 20Amp	Control Voltage 12: 12VDC 24: 24VDC	XXX: Customized Code

Note (1): The part number selection is subject to the following list.

Information	10A	20A
12VDC	KMB380D10-12	KMB380D20-12
24VDC	KMB380D10-24	KMB380D20-24

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	-12 -24	9.6-14.4VDC 19.2-28.8VDC
Must Turn-On Voltage	-12 -24	9.6VDC 19.2VDC
Must Turn-Off Voltage		2VDC
Maximum Input Current		15mA

Output Specifications (Ta=25°C)		
Load Voltage Range		24-440VAC
Maximum Transient Overvoltage		800Vpk
Minimum Load Current		100mA
Minimum Delay Turn-on Time		40ms
Maximum Turn-Off Time		20ms
Maximum 1 Cycle Surge Current (50Hz)	10A 20A	100A 200A
Maximum Off-State Leakage Current@Rated Load Voltage		5mA
Maximum On-State Voltage Drop@Rated Current		1.5Vrms
Minimum Off-State dv/dt@Maximum Rated Voltage		200V/μs

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Ambient Temperature Range		-30°C ~ +80°C
Storage Temperature Range		-30°C ~ +100°C
Pulse Immunity level	IEC61000-4-4	2kV/100kHz
Surge Immunity level	IEC61000-4-5	2kV/common mould, 1kV/different mould
Electrostatic Discharge Immunity level	IEC61000-4-2	4kV/contact discharge, 8kV/air discharge

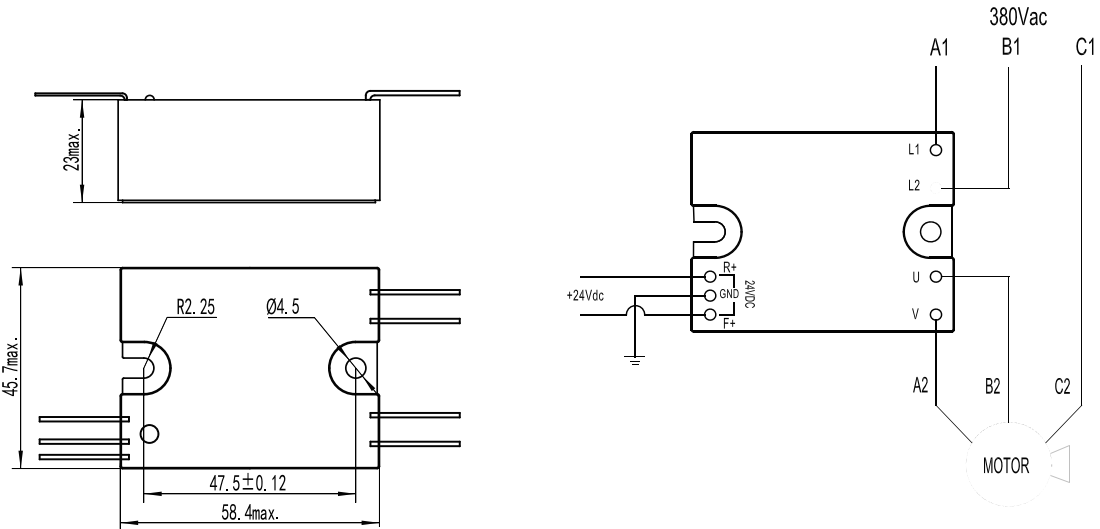
KMB Series Three-phase Motor Reversing Module

General Specifications (Ta=25°C)	
Weight (Typical)	130g
Working Status Indication	Forward: Green
	Reversion: Red

Applications

Three phase motor reversing control, such as electric actuator, transformer with onload voltage regulating, and etc.

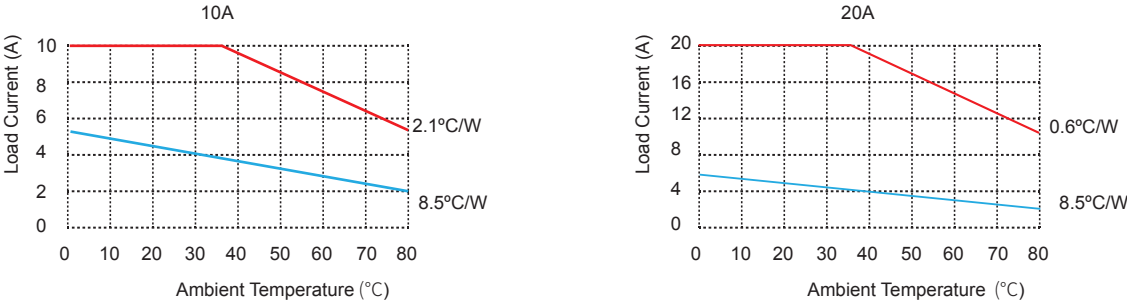
Outline Dimensions/Wiring Diagram



Outline Dimensions

Wiring Diagram

Thermal Derating Curve



General Notes

1. Please make sure the product can handle the surge current of the load.
2. Switching time must exceed 40ms.
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



Product Description

- ◆ Zero-crossing Switching
- ◆ DC Input
- ◆ Load Current: 10A, 20A, 40A
- ◆ Internal RC/MOV Protection Circuit
- ◆ RoHS Compliant



Ordering Information

KMC

KMC Series (1)

380

Load Voltage
380: 380VAC

D

Control Mode
D: DC Control

10

Load Current
10: 10Amp
20: 20Amp
40: 40Amp

-24

Control Voltage
12: 12VDC
24: 24VDC

(XXX)

Customized Code
130: Lead Terminal

Note (1): The part number selection is subject to the following list.

Information	10A	20A	40A
380VAC	KMC380D10-12	KMC380D20-12	KMC380D40-12
	KMC380D10-24	KMC380D20-24	KMC380D40-24
	KMC380D10-12 (130)	KMC380D20-12 (130)	
	KMC380D10-24 (130)	KMC380D20-24 (130)	

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	12VDC	9.6-14.4VDC
	24VDC	19.2-28.8VDC
Must Turn-On Voltage	12VDC	9.6VDC
	24VDC	19.2VDC
Must Turn-Off Voltage	12VDC	2VDC
	24VDC	2VDC
Maximum Input Current	12VDC	15mA@14.4VDC
	24VDC	25mA@28.8VDC

Output Specifications (Ta=25°C)		
Load Voltage Range	24 - 440VAC	
Maximum Turn-On Time	10ms	
Maximum Turn-Off Time	10ms	
Maximum 1 Cycle Surge Current (50Hz)	10A	100A
	20A	200A
	40A	400A
Maximum Transient Overvoltage	1200Vpk	
Maximum Off-State Leakage Current@Rated Load Voltage	5mA	
Maximum On-State Voltage Drop@Rated Current	1.6Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	200V/μs	

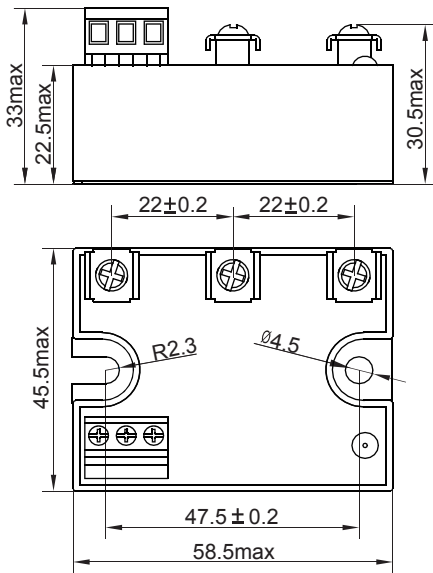
General Specifications

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	Screw Terminal	125g
	Lead Terminal	100g

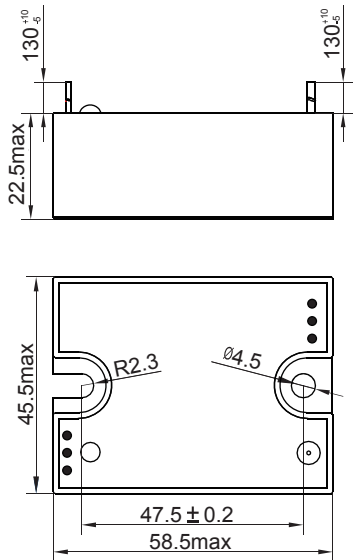
Applications

Single phase motor control

Outline Dimensions

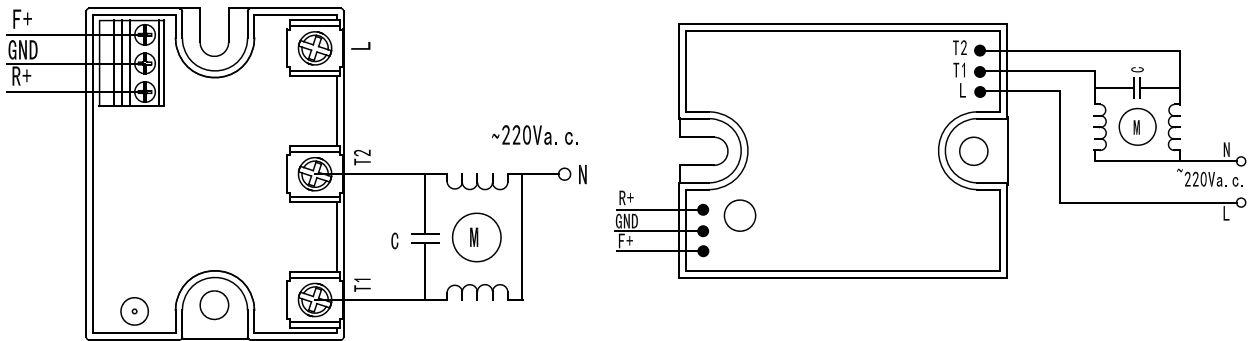


Screw Terminal



Lead Terminal

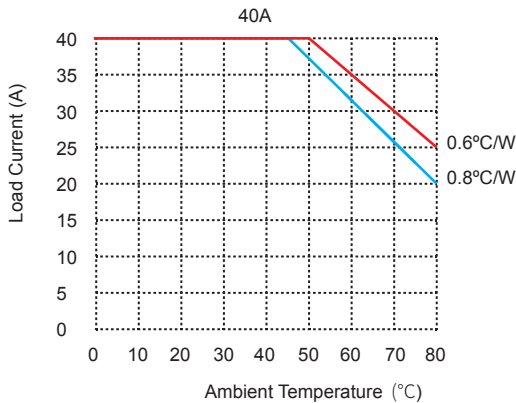
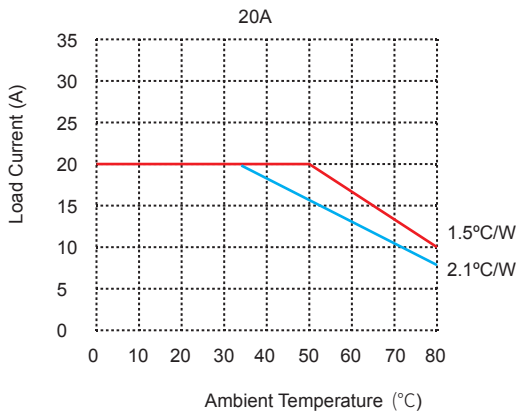
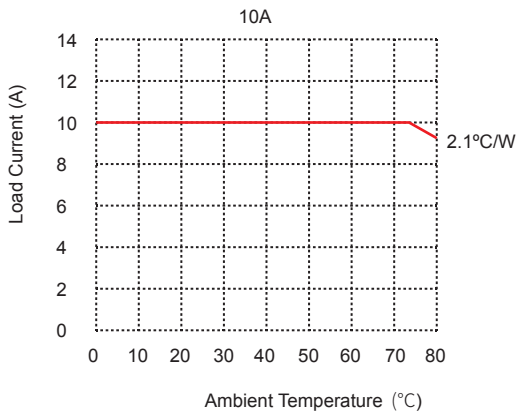
Wiring Diagram



Screw Terminal

Lead Terminal

Thermal Derating Curve



General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a therma pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in - lb/N·m.
2. When connecting wiring to SSR please ensure screws are torqued down properly (input 4.43/0.5 in-lb/N·m, output 5.13-8.67/0.58-0.98 in-lb/N·m)
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



Product Description

- ◆ Random-on Switching
- ◆ Three phase three control or three phase two control options
- ◆ Input Voltage: 10-32VDC
- ◆ Load Current: 25A, 40A, 60A
- ◆ Dielectric Strength: 4000Vrms
- ◆ Internal RC/MOV Protection Circuit
- ◆ RoHS Compliant



Ordering Information

KMS	380	D	25	P	-24	F
KMS Series (1)	Load Voltage 380: 24-440VAC 480: 24-530VAC	DC Control	Load Current 25: 25Amp 40: 40Amp 60: 60Amp	Blank: Common Cathode P: Common Anode	Control Voltage 24: 10-32VDC	Blank: Two-phase Switch F: Three-phase Switch

Note (1): The part number selection is subject to the following list.

Information	25A	40A	60A
380VAC	KMS380D25 (P)-24	KMS380D40 (P)-24	KMS380D60 (P)-24
	KMS380D25 (P)-24F	KMS380D40 (P)-24F	KMS380D60 (P)-24F
480VAC	KMS480D25 (P)-24	KMS480D40 (P)-24	KMS480D60 (P)-24
	KMS480D25 (P)-24F	KMS480D40 (P)-24F	KMS480D60 (P)-24F

General Specifications

Input Specifications (Ta=25°C)	
Control Voltage Range	10-32VDC
Must Turn-On Voltage	10VDC
Must Turn-Off Voltage	3VDC
Maximum Input Current	25mA

Output Specifications (Ta=25°C)		
Load Voltage Range	380VAC	24-440VAC
	480VAC	24-530VAC
Maximum Transient Overvoltage	380VAC	1200Vpk
	480VAC	1600Vpk
Minimum Load Current	100mA	
Turn-on Time Delay	Typical	80ms
Maximum Turn-Off Time	10ms	
Maximum Surge Current (@10ms)	25A	250A
	40A	400A
	60A	600A
Maximum Off-State Leakage Current@Rated Load Voltage	5mA	
Maximum On-State Voltage Drop@Rated Current	1.5Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	500V/μs	

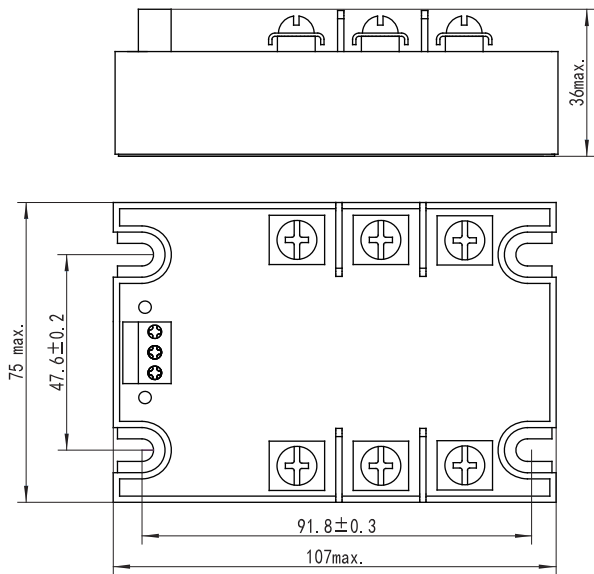
General Specifications

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Pulse immunity level	IEC61000-4-4	2kV/100kHz
Surge immunity level	IEC61000-4-5	2kV/common mould, 1kV/different mould
Electrostatic discharge immunity level	IEC61000-4-2	4kV/contact discharge, 8kV/air discharge
Ambient Temperature Range		-30°C ~ +80°C
Storage Temperature Range		-30°C ~ +100°C
Weight (Typical)		340g
LED Status Indication	Forward:Green	
	Reversion:Red	

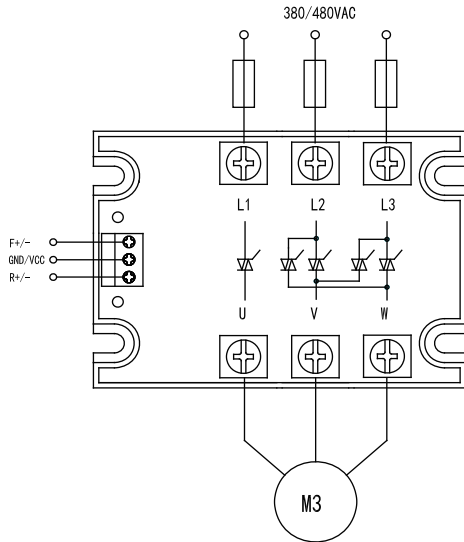
Applications

Three phase motor reversing control, such as the valve controls, and etc.

Outline Dimensions / Wiring Diagram

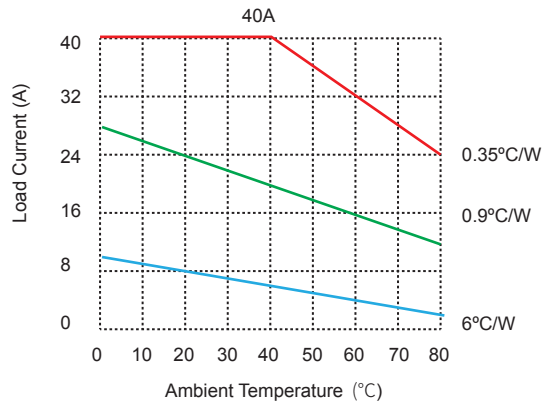
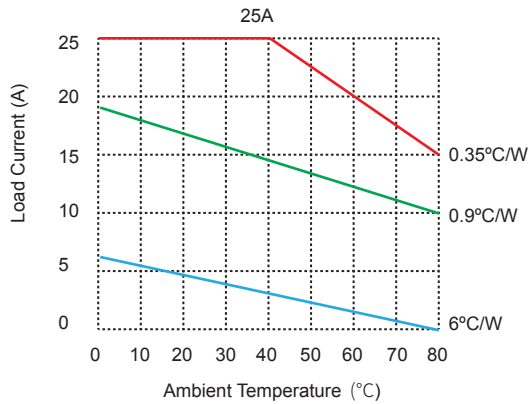


Outline Dimensions

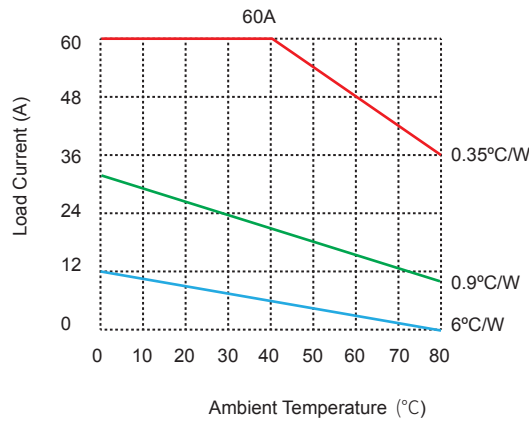


Wiring Diagram

Thermal Derating Curve



Thermal Derating Curve



General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a therma pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in - lb/N·m.
2. When connecting wiring to SSR please ensure screws are torqued down properly (input 4.43/0.5 in-lb/N·m, output 5.13-8.67/0.58-0.98 in-lb/N·m)
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KMT Two-phase Control Series

Product Description

- ◆ Random-on Switching
- ◆ SCR Output for Heavy Industrial Loads
- ◆ Input Voltage: 10-32VDC
- ◆ Load Current: 25A,50A
- ◆ Dielectric Strength: 4000Vrms
- ◆ Internal RC/MOV Protection Circuit
- ◆ RoHS Compliant



Ordering Information

KMT	380	D	50	R	P	-24
KMT Series (1)	Load Voltage 380: 380VAC 480: 480VAC	DC Control	Load Current 25: 25Amp 50: 50Amp	R: Random-on	Blank: Common Cathod P: Common Anode	Control Voltage 24: 10-32VDC

Note (1): The part number selection is subject to the following list.

Information	25A	50 A
380VAC	KMT380D25R (P)-24	KMT380D50R (P)-24
480VAC	KMT480D25R (P)-24	KMT480D50R (P)-24

General Specifications

Input Specifications (Ta=25°C)	
Control Voltage Range	10-32VDC
Must Turn-On Voltage	10VDC
Must Turn-Off Voltage	3VDC
Maximum Input Current	25mA

Output Specifications (Ta=25°C)		
Load Voltage Range	380VAC	24-440VAC
	480VAC	24-530VAC
Transient Overvoltage	380VAC	1200Vpk
	480VAC	1600Vpk
Turn-on Time Delay (Typical)	80ms	
Maximum Turn-Off Time	10ms	
Maximum Surge Current (@10ms)	25A	300A
	50A	600A
Maximum Off-state Leakage Current (@ Rated Voltage)	5mA	
Maximum On-state Voltage Drop (@ Rated Current)	1.5Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	500V/μs	

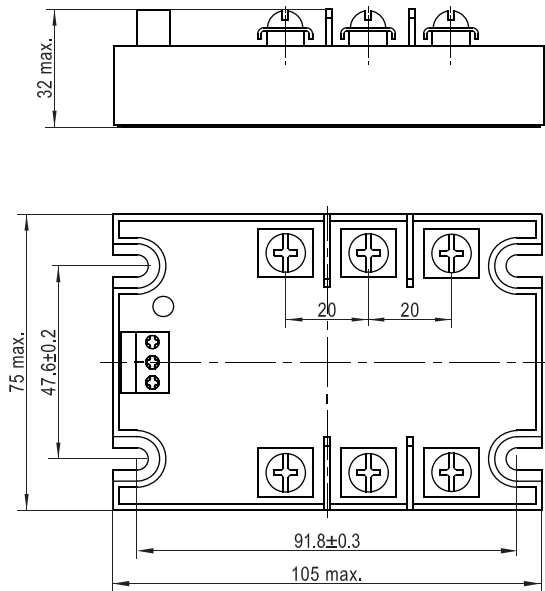
General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Pulse immunity level	IEC61000-4-4	2kV/100kHz
Surge immunity level	IEC61000-4-5	2kV/common mould, 1kV/different mould
Electrostatic discharge immunity level	IEC61000-4-2	4kV/contact discharge, 8kV/air discharge
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	338g	
LED Status Indication	Forward:Green	
	Reverse:Red	

KMT Series Two-phase Control Series

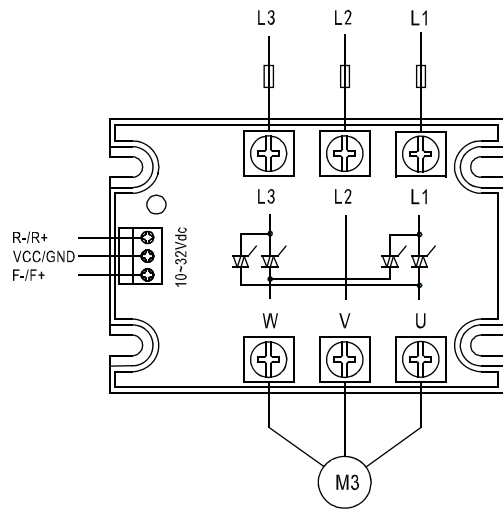
Applications

Three phase motor reversing control, such as the valve controls, and etc.

Outline Dimensions / Wiring Diagram

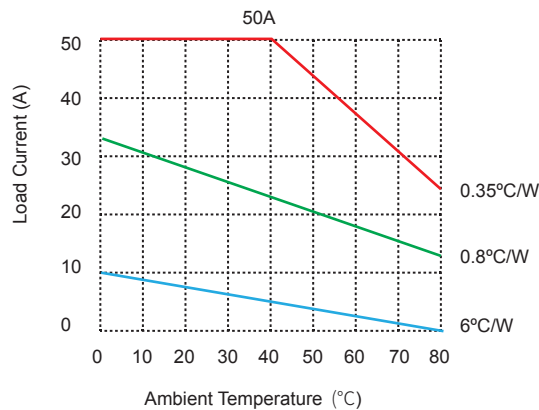
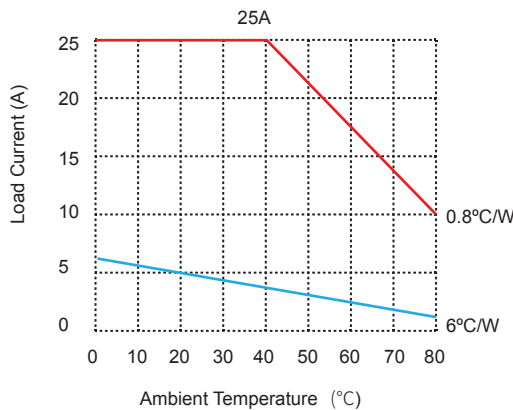


Outline dimensions



Wiring Diagram

Thermal Derating Curve



General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a therma pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in - lb/N·m.
2. When connecting wiring to SSR please ensure screws are torqued down properly (input 4.43/0.5 in-lb/N·m, output 5.13-8.67/0.58-0.98 in-lb/N·m)
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KMTY Series Three-phase Motor Reversing Module

Product Description

- ◆ 10-32VDC Input Control
- ◆ Internal RC/MOV Protection Circuit
- ◆ Dielectric Strength: 4000Vrms
- ◆ Built-in Phase Correction & Phase Loss Protection Functions
- ◆ RoHS Compliant



Ordering Information

KMTY	480	D	25	R	P	-24	F	-N
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KMTY Series	Load Voltage 480: 480VAC 600: 600VAC	DC Control	Load Current 25: 25Amp 40: 40Amp 60: 60Amp 80: 80Amp	Switching Mode: Blank: Zero Crossing R: Random-on	Blank: Common Cathod P: Common Anode	24: 10~32VDC	Blank: Two Phase Switch F: Three Phase Switch	Blank: with automatic phase correction function N: without automatic phase correction function
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General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range		10-32VDC
Must Turn-On Voltage		10VDC
Must Turn-Off Voltage		4VDC
Maximum Input Current		35 mA@32VDC
Minimum Reversible Switching Time		80±10ms

Output Specifications (Ta=25°C)		
Load Voltage Range	480VAC	24-530VAC
	600VAC	24-660VAC
Maximum Transient Overvoltage	480VAC	1200Vpk
	600VAC	1600Vpk
Minimum Load Current		100mA
Maximum Turn-Off Time		20ms
Maximum Surge Current (@10ms)	25A	250A
	40A	400A
	60A	600A
	80A	800A
Maximum Off-State Leakage Current@Rated Load Voltage		5mA
Maximum On-State Voltage Drop@Rated Current		1.7Vrms
Maximum I²t for Fusing (@10ms)	25A	312A²s
	40A	800A²s
	60A	1800A²s
	80A	3200A²s
Minimum Off-State dv/dt@Maximum Rated Voltage		200V/µs

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Ambient Temperature Range		-30°C ~ +80°C
Storage Temperature Range		-30°C ~ +100°C

KMTY Series Three-phase Motor Reversing Module

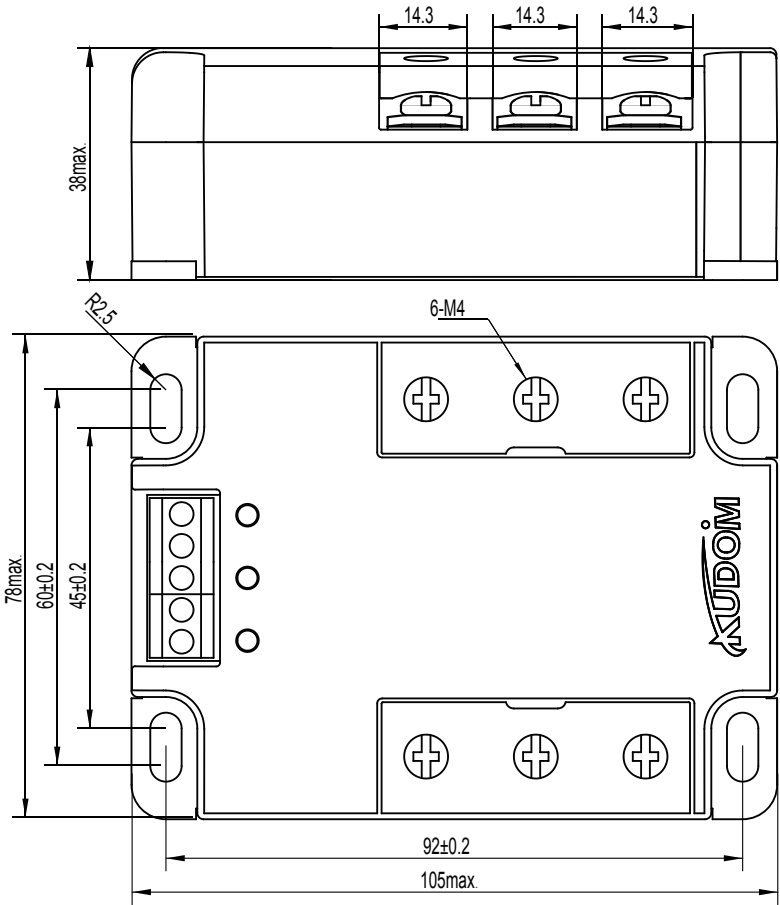
Product Description

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Ambient Temperature Range		-30°C ~ +80°C
Storage Temperature Range		-30°C ~ +100°C
Pulse immunity level	IEC61000-4-4	4kV/100kHz
Surge immunity level	IEC61000-4-5	2kV/common mould, 1kV/different mould
Electrostatic discharge immunity level	IEC61000-4-2	4kV/contact discharge, 8kV/air discharge
Weight (Typical)		400g
Working Status Indication	LED1	Forward Indication
	LED2	Reverse Indication
	LED3	Fault Indication

Applications

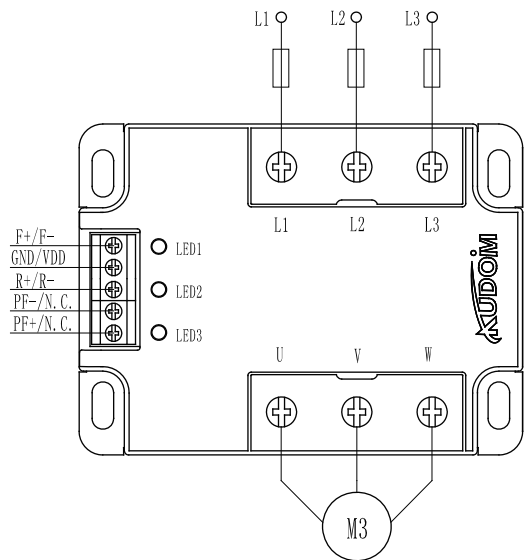
Three phase motor reversing control, such as the valve controls, and etc.

Outline Dimensions



Outline Dimensions

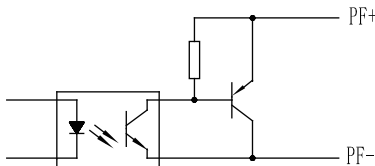
Wiring Diagram



Input control on Common Cathode:
 F+: Forward control please input Anode+,
 GND: Common Port please input Cathode;
 R+: Reversing control please input Anode+;

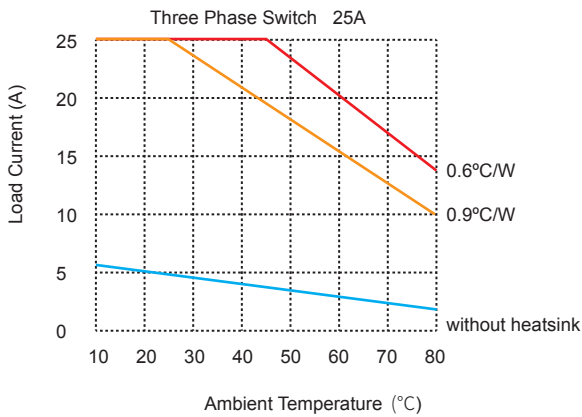
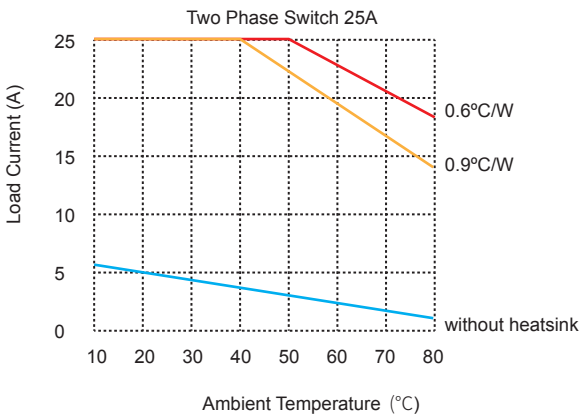
Input control on Common Anode:
 F-: Forward control please input Cathode-;
 VDD: Control power please input Anode+;
 R-: Reversing control please input Cathode-;

PF-: Lack of phase fault please connect Cathode in output (N.C.:No Connection)
 PF+: Lack of phase Fault please connect Anode in output (N.C.:No Connection)
 LED1: Forward Indication
 LED2: Reversing Indication
 LED3: Fault Indication: When there is lack of phase, LED is bright;
 When Three-phase are normal LED is off (Without automatic phase correction function LED3 is always OFF)
 L1/L2/L3: three-phase power supply input
 U/V/W: three-phase load output

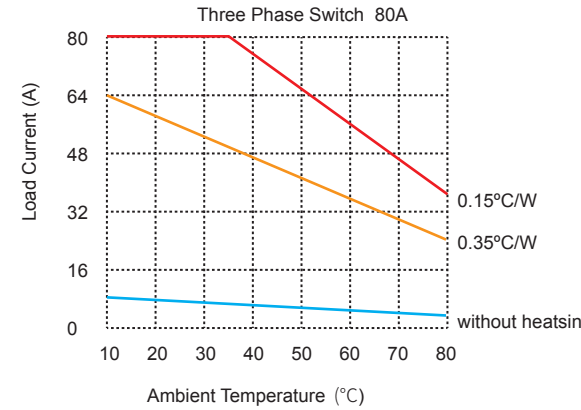
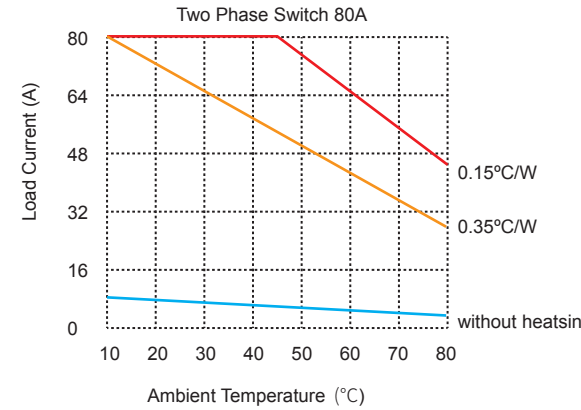
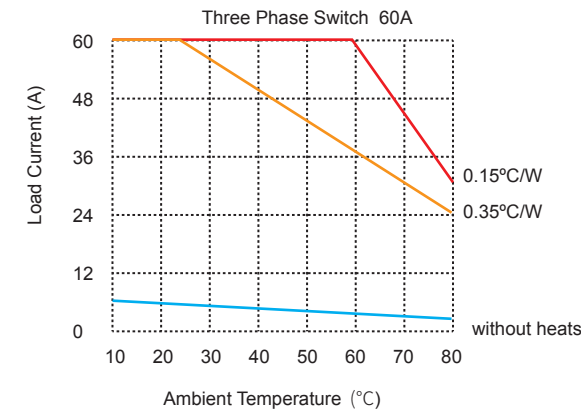
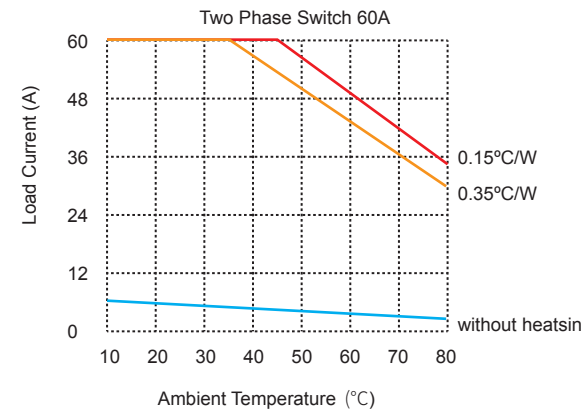
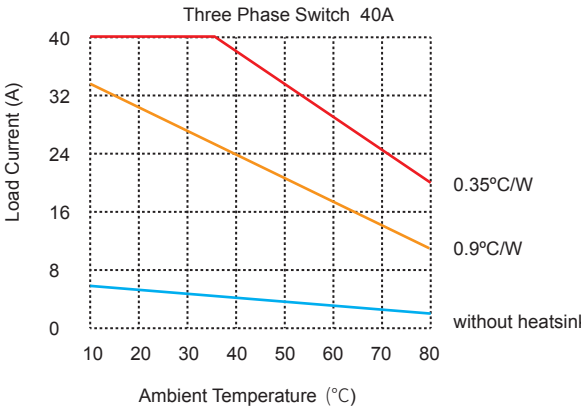
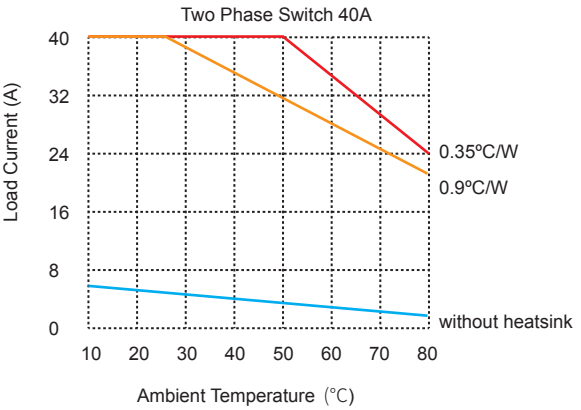


Wiring Diagram

Thermal Derating Curve



Thermal Derating Curve



General Notes

- Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a therma pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in - lb/N·m.
- When connecting wiring to SSR please ensure screws are torqued down properly (input 4.43/0.5 in-lb/N·m, output 5.13-8.67/0.58-0.98 in-lb/N·m)
- When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KMTYM Series Three-phase Motor Reversing Module

Product Description

- ◆ 10-32VDC Input
- ◆ Internal RC/MOV Protection Circuit
- ◆ Automatic Phase Correction, Phase Sequence Detection or Phase Loss Protection Function (Option)
- ◆ RoHS Compliant



Ordering Information

KMTYM	380	D	25	R	P	-24	F	-N
KMTYM Series	Load Voltage 380: 380VAC	DC Control	Load Current 15: 15Amp 25: 25Amp	Blank: Zero Crossing R: Random-on	Blank: Common Cathod P: Common Anode	24: 10~32VDC	F: Three Phase Switch Blank: Two Phase Switch	Blank: with automatic phase correction function N: without automatic phase correction function

General Specifications

Input Specifications (Ta=25°C)		
Control Voltage Range	10-32VDC	
Must Turn-On Voltage	10VDC	
Must Turn-Off Voltage	4VDC	
Maximum Input Current	Common Cathod	35mA@32VDC
	Common Anode	18mA@32VDC
Minimum Reversible Switching Time	80±10ms	

Output Specifications (Ta=25°C)		
Load Voltage Range	24-440VAC	
Maximum Transient Overvoltage	800Vpk	
Minimum Load Current	100mA	
Maximum Turn-Off Time	20ms	
Maximum Surge Current (@10ms)	15A	150A
	25A	250A
Maximum Off-State Leakage Current@Rated Load Voltage	5mA	
Maximum On-State Voltage Drop@Rated Current	1.7Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	200V/μs	

General Specifications (Ta=25°C)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Pulse immunity level	IEC61000-4-4	2kV/100kHz
Surge immunity level	IEC61000-4-5	2kV/common mould, 1kV/different mould
Electrostatic discharge immunity level	IEC61000-4-2	4kV/contact discharge, 8kV/air discharge

KMTYM Series Three-phase Motor Reversing Module

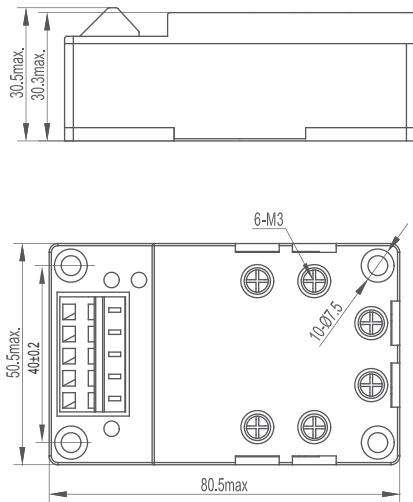
General Specifications

General Specifications (Ta=25°C)		
Weight (Typical)	180g	
Working Status Indication	LED1	Forward Indication
	LED2	Reverse Indication
	LED3	Three-phase Power Status Indication

Applications

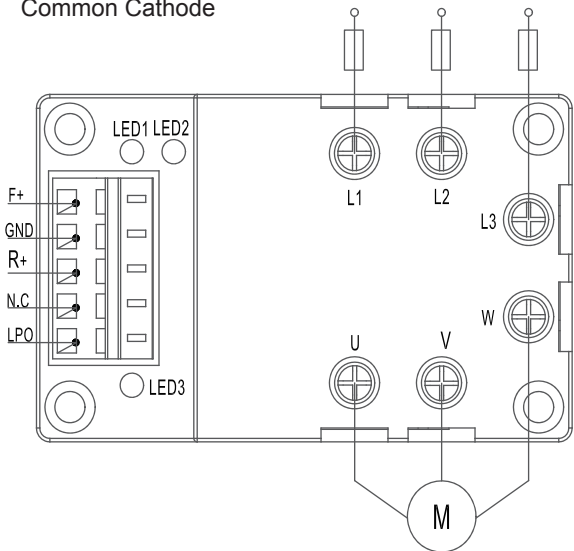
Three phase motor reversing control, such as the valve controls, and etc.

Outline Dimensions



Wiring Diagram

Common Cathode

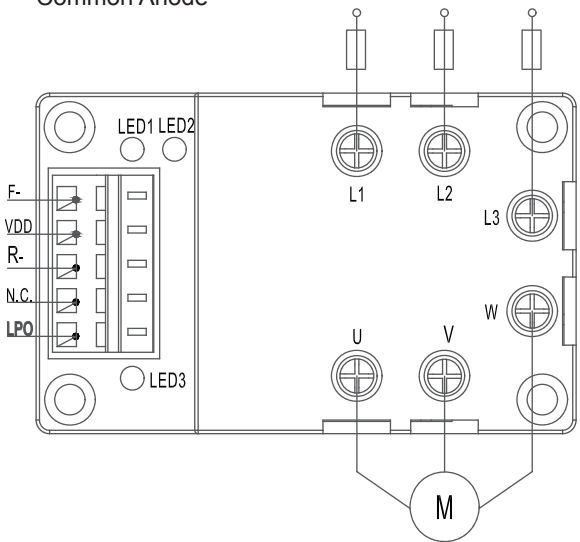


Wiring Instructions:
F+: Forwarding control should input anode;
GND: Control power supply should connect with cathode;
R+: Reversing control should input anode;
N.C.: No Connection
LPO: Phase loss output, high impedance status when there is phase loss in three-phase electricity.
Max. output current is 50mA;
Note: there is no connection wire in LPO terminal when the product does not have phase loss protection or automatic phase correction function.

KMTYM Series Three-phase Motor Reversing Module

Wiring Diagram

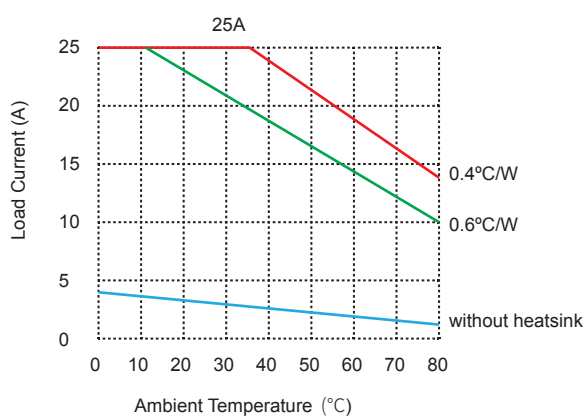
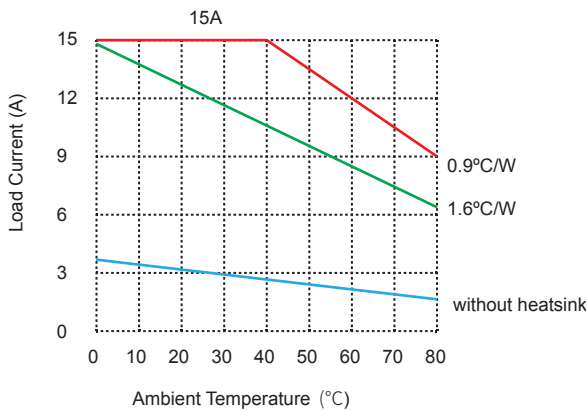
Common Anode



Wiring Instructions:

F-: Forwarding control should input cathode;
VDD: Control power supply should connect with anode,10-32VDC;
R-: Reversing control should input cathode;
N.C.: No Connection
LPO: Phase loss output, high impedance status when there is phase loss in three-phase electricity.
Max. output current is 50mA;
Note: there is no connection wire in LPO terminal when the product does not have phase loss protection or automatic phase correction function.

Thermal Derating Curve



General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a therma pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in - lb/N·m.
2. When connecting wiring to SSR please ensure screws are torqued down properly (input 4.43/0.5 in-lb/N·m, output 5.13-8.67/0.58-0.98 in-lb/N·m)
3. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)



KRB Series Bus Comm. Intellectual Regulator Module

Product Description

- ◆ RS 485 MODBUS Control
- ◆ MODBUS RTU Communication
- ◆ Multi-control Functions Available
- ◆ SCR Antiparallel Output
- ◆ Monitoring Load Current, Voltage and Base Plate Temperature
- ◆ SCR Short Circuit, Open Circuit, Load Failure Detection Function
- ◆ Load Current: 40A
- ◆ LED Indicator
- ◆ RoHS Compliant



Ordering Information

KRB	240	D	40	-C
KRB Series (1)	Load Voltage 240: 240VAC 380: 380VAC	Control Mode D: DC Control	Load Current 40: 40Amp	Current Monitoring Detect Function

Note (1): The part number selection is subject to the following list.

Information	240VAC	380VAC
model	KRB240D40-C	KRB380D40-C

Control Modes

Series	Mode Description	Input Control	Output Type
0	"On/Off mode"	RS 485	$U_{load} (ON) = U_{LN}$, $U_{load} (OFF) = 0VAC$
1	Power Proportion Output Mode		$U_{load}^2 = U_{LN}^2 \times (REG_CON/256)$
2	Cycle Control Output Mode 1		$Num_Cycletotal = 256, Num_Cycleon = REG_CON$
3	Cycle Control Output Mode 2		$Num_Cycletotal = REG_NUM, Num_Cycleon = REG_CON$
4	Voltage Proportion Output Mode		$U_{load} = U_{LN} \times (REG_CON/256)$
5	220VAC Stablized Voltage Output Mode		$U_{load} = 220 \times (REG_CON/256)^{(1)}$
6	220VAC Stablized Power Output Mode		$U_{load}^2 = 220^2 \times (REG_CON/256)^{(1)}$
7	380VAC Stablized Voltage Output Mode		$U_{load} = 380 \times (REG_CON/256)^{(1)}$
8	380VAC Stablized Power Output Mode		$U_{load}^2 = 380^2 \times (REG_CON/256)^{(1)}$

Note: (1)Power Supply Voltage U_{LN} should be higher than the setting value of output voltage U_{load} , Otherwise the output voltage is equivalent to power voltage.

General Specifications

Input Specifications		
Bias Power Supply Range	15 ~ 30VDC/AC	
Max. Bias Power Supply Current	60mA	
Input Control	RS 485	

Output Specifications		
Power Supply Voltage Range	240VAC	150-280VAC
	380VAC	300-440VAC
Maximum Surge Current (@10ms)	600A	
Maximum I ² t for Fusing (@10ms)	1800A ² s	
Maximum Transient Overvoltage	1200Vpk	
Maximum Off-State Leakage Current@Rated Load Voltage	5mA	
Maximum On-State Voltage Drop@Rated Current	1.6Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	500V/μS	

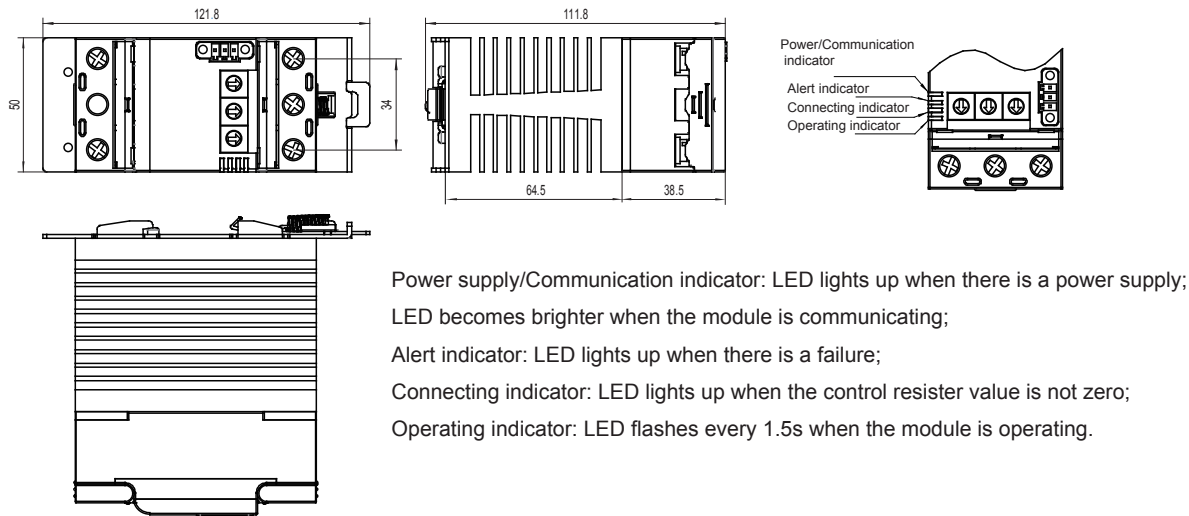
General Specifications

General Specifications		
Slave Address Range	001 ~ 255	
Maximum Nodes	255	
Signaling Rates	9.6kbps, 19.2kbps, 38.4kbps, 57.6kbps, 115.2kbps	
Communication Agreement	Modbus RTU	
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +70°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	700g	

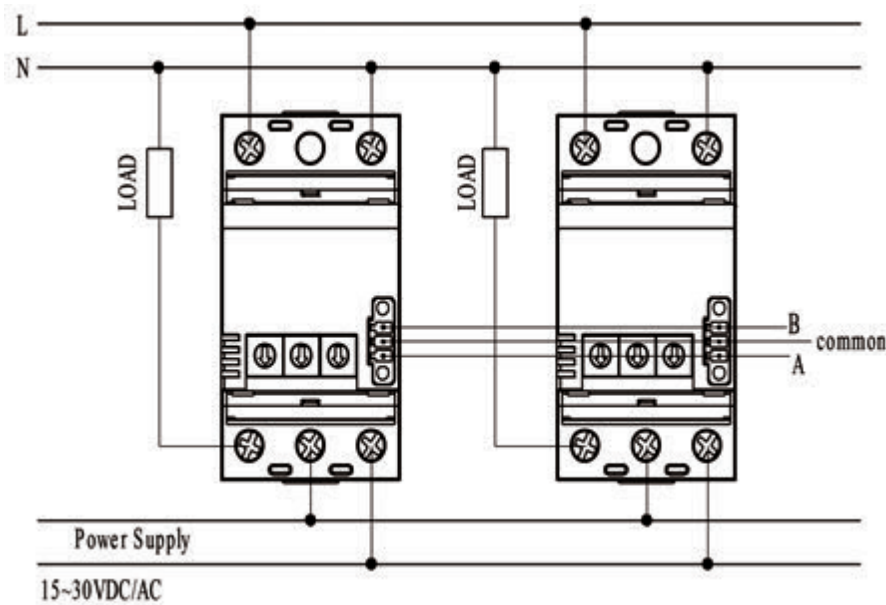
Applications

Widely used for the industry application that requests precise adjustment of temperature.

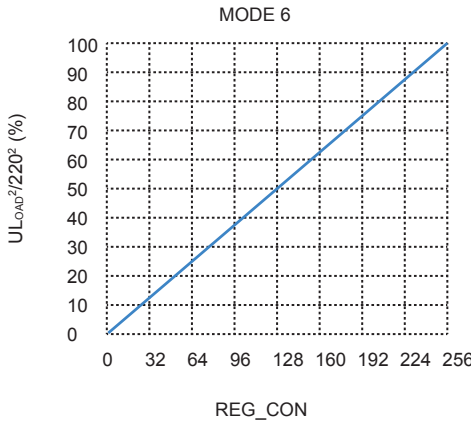
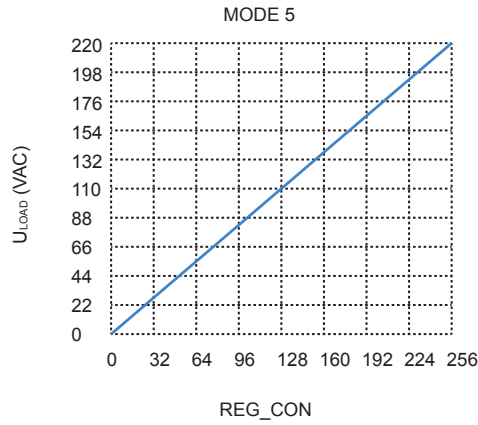
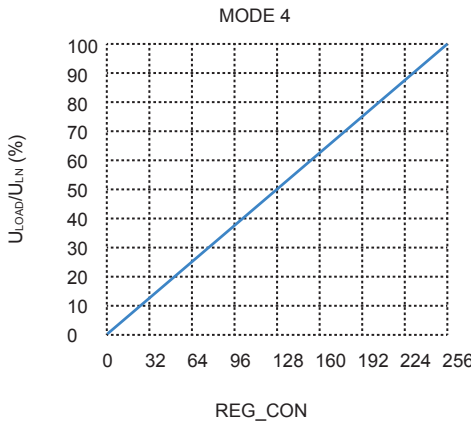
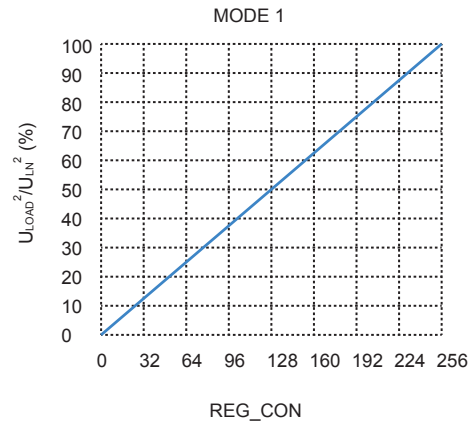
Outline Dimensions&LED



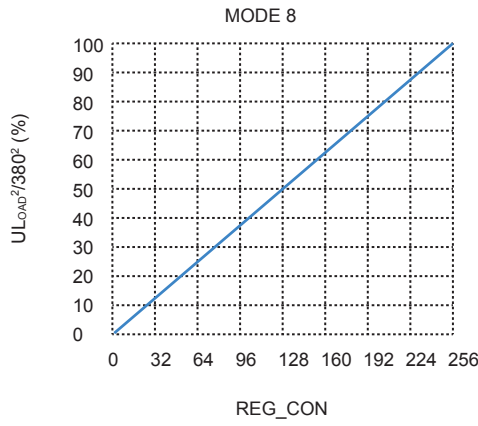
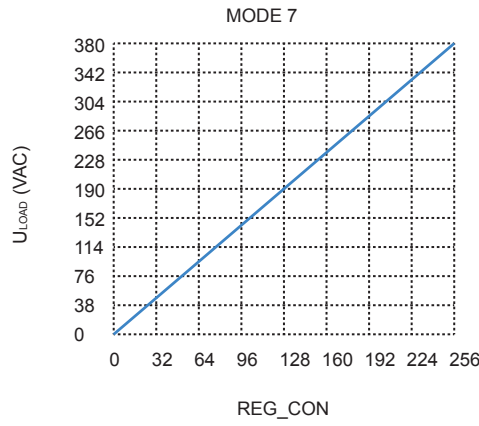
Wiring Diagram



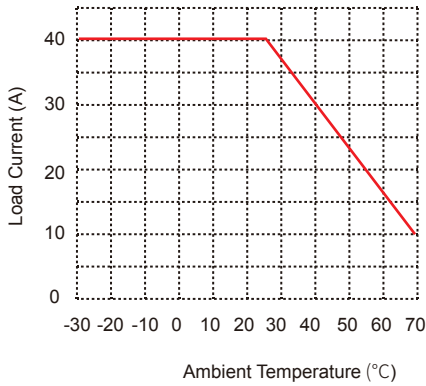
Output/Proportional Control Features



Output/Proportion control Characteristic



Thermal Derating Curve



General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20/2.0-2.2 in-lb/N·m.
2. When connection wiring to SSR please ensure screws are torqued down properly (input 13-15/1.5-1.7in/lb/N·m, output 18-20/2.0-2.2 in-lb/N·m).
3. When Ambient temperature is above 25 °C see thermal derating curve.

Agency Approvals (Certification)



Product Description

- ◆ Non-isolated Single Phase Voltage Regulator
- ◆ Load Current: 10A, 25A, 40A, 60A, 80A, 100A
- ◆ Regulating Potentiometer 150K/2W, 220K/2W, 470K/2W
- ◆ Protection Cover (optional)
- ◆ Internal RC Protection Circuit
- ◆ Potentiometer Gear
- ◆ LED Indicator
- ◆ RoHS Compliant



Ordering Information

KWR	240	F	40	-L
KWR Series	Load Voltage 240: 240VAC 380: 380VAC 480: 480VAC	Regulating Potentiometer F: 150K/2W G: 220K/2W H: 470K/2W	Load Current 10: 10Amp 25: 25Amp 40: 40Amp 60: 60Amp 80: 80Amp 100: 100Amp	L: LED

General Specifications

Input Specifications		
Regulating Potentiometer	F	150K/2W
	G	220K/2W
	H	470K/2W

Output Specifications		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
	480VAC	24-530VAC
Maximum Surge Current (@10ms)	10A	100A
	25A	250A
	40A	400A
	60A	600A
	80A	800A
	100A	1000A
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
	480VAC	1200Vpk
Maximum Off-State Leakage Current@Rated Load Voltage		5mA

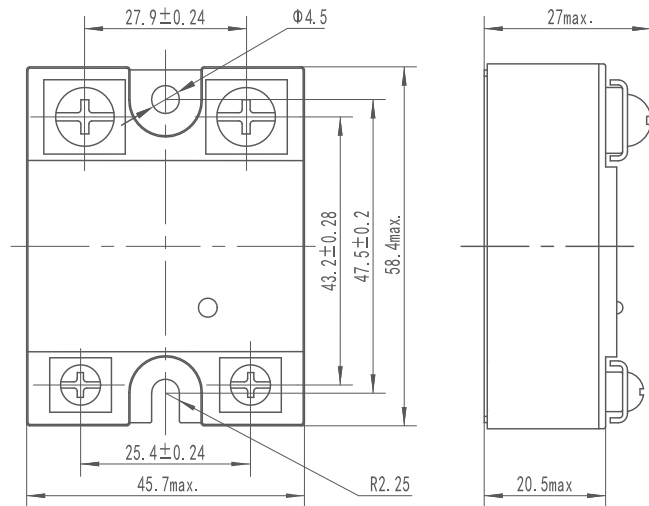
General Specifications		
Dielectric Strength (50/60Hz)	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30°C ~ +80°C	
Storage Temperature Range	-30°C ~ +100°C	
Weight (Typical)	10A/25A/40A/60A/80A	90g
	100A	150g

KWR Series AC Output

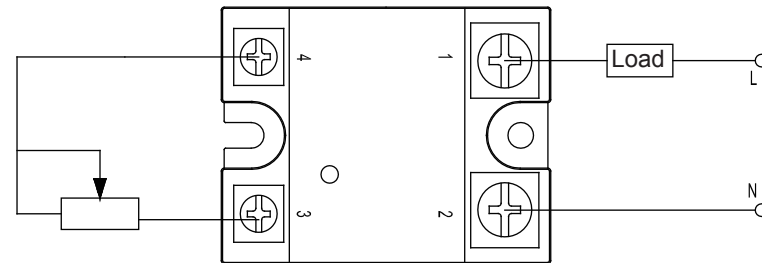
Applications

Temperature adjustment devices, plastic molding machines, vulcanization machine, and etc.

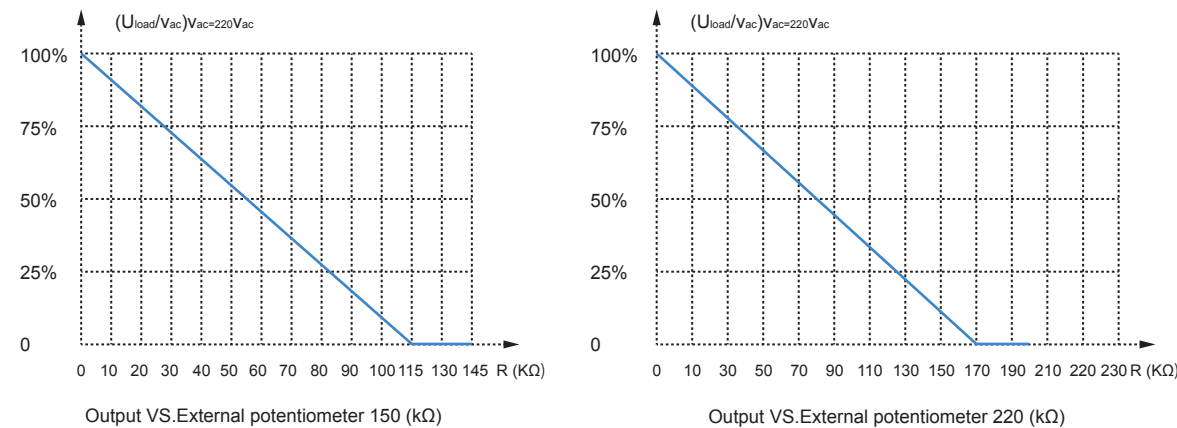
Outline Dimensions



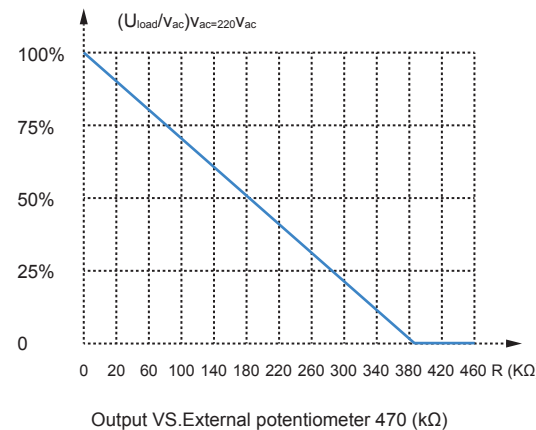
Wiring Diagram



Regulating Potentiometer Resistance VS Voltage Output Effective Value Curves

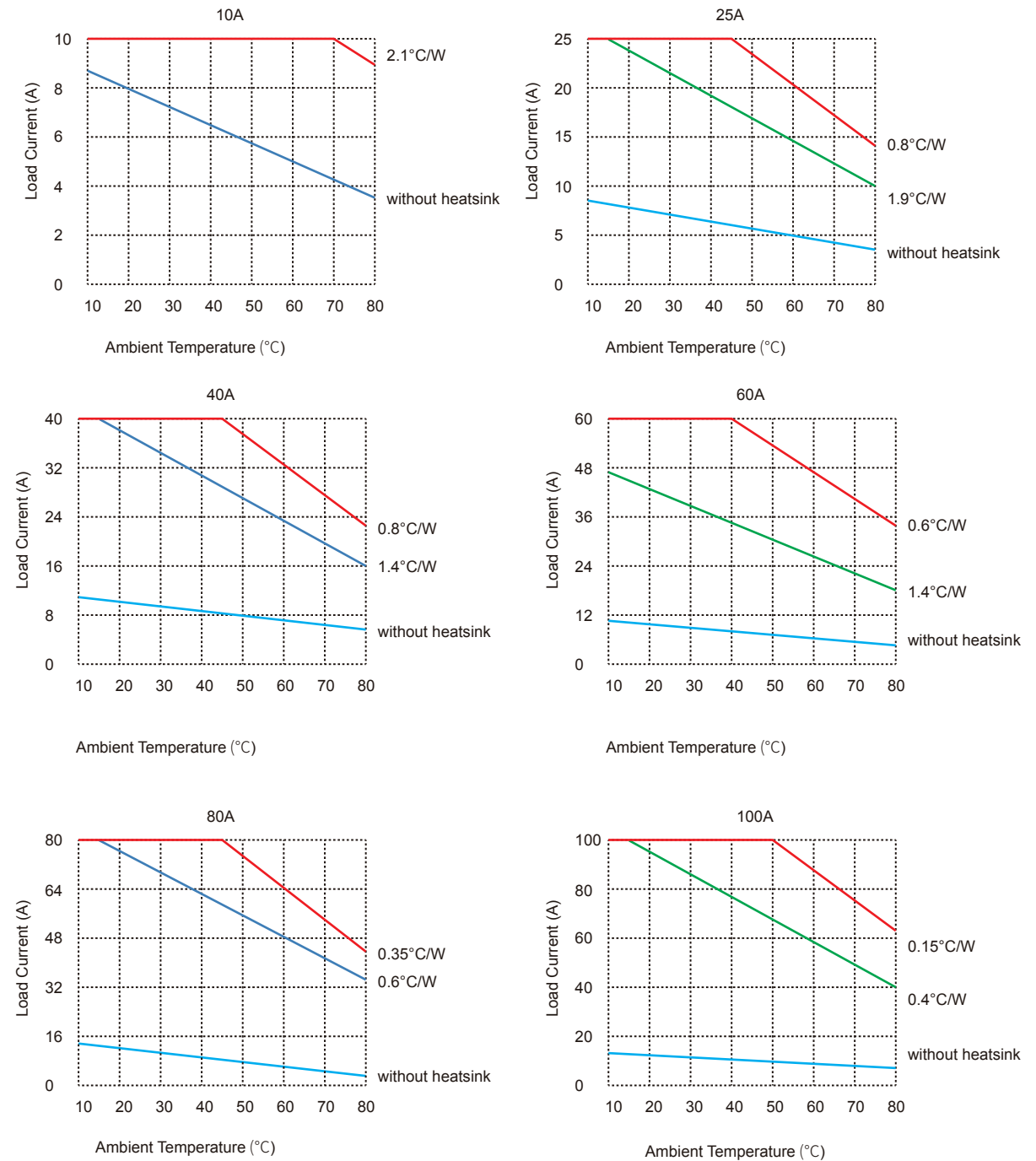


Regulating Potentiometer Resistance VS Voltage Output Effective Value Curves



KWR Series AC Output

Thermal Derating Curve



General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20 /2.0-2.2 In-lb/N·m.
2. When connecting wiring to SSR please ensure screws are torqued down properly (input 4.43/0.5 in-lb/N·m M3 screws 5.13-8.67/0.58-0.98 in-lb/N·m, M4 screws 8.67 -12.13/0.98-1.37 in-lb/N·m)
3. When Ambient temperature is above 25°C see Thermal Derating Curves.

Agency Approvals (Certification)



KYR Series Single-Phase AC Voltage Regulator Module

Product Description

- ◆ Phase-Shift Control Output
- ◆ SCR Output
- ◆ Control Signal: 0-5VDC, 0-10VDC or 4-20mA
- ◆ Load Current: 25A, 40A, 60A , 80A
- ◆ LED Indicator
- ◆ RoHS Compliant



Ordering Information

KYR	P	240	L	25	P	(XXX)
KRA Series	Output Type P: Power Proportional Output	Load Voltage 240: 240V 480: 480V	L : 0-5VDC H: 0-10VDC I : 4-20mA	Load Current 25: 25Amp 40: 40Amp 60: 60Amp 80: 80Amp	IP20 Optional Blank: without Cover P: IP20 Safety Cover	Customized Code

Note: (1) When it is current control version, the drive voltage should be more than 10V.

Model

Series	Output Type	Control Mode	Load Current	Output Type
KYR Series	KYRPxxLxx KYRPxxlxx	L/H: 0-5VDC/0-10VDC I : 4-20mA	25: 25Amp 40: 40Amp 60: 60Amp 80: 80Amp	Voltage Control: $U_{OUT}^2=U_{ac}^2 \times V_{CONTROL} / 5$ (10) Current Control: $U_{OUT}^2=U_{ac}^2 \times (I_{CON}-4) / 16$

General Specifications

Input Specifications				
Input Control	Voltage Control	Auxiliary Power Supply Voltage Range		10-32VDC
		Control Voltage Range	L	0-5VDC
			H	0-10VDC
		Open Voltage	L	0.2VDC Max.
		Open Voltage	H	0.4VDC Max.
		Turn-Off Voltage	L	0.1VDC Min.
		Turn-Off Voltage	H	0.2VDC Min.
		Input Impedance	L	30kΩ Typical.
		Input Impedance	H	60kΩ Typical.
	Current Control	Control Current Range	4-20mA	
		Open Current	4.6mA MAX	
		Turn-Off Current	3.8mA MIN	
		Input Impedance	200Ω Typical. (1)	

Note: When "I" option is used, the drive voltage should be more than 10V.

KYR Series Single-phase AC voltage regulator module

General Specifications

Output Specifications		
Load Voltage Range	240	176-280VAC
	480	300-530VAC
Maximum Surge Current (@10ms)	25A	250A
	40A	400A
	60A	600A
	80A	800A
Maximum Transient Overvoltage	1200Vpk	
Output power	0-99%	
Operational Frequency Range	47-63Hz	
Maximum Off-State Leakage Current@Rated Load Voltage	5mA	
Minimum Off-State dv/dt@Maximum Rated Voltage	500V/μs	

General Specifications		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30℃ ~ +80℃	
Storage Temperature Range	-30℃ ~ +100℃	
Weight (Typical)	KYRPxxL/Hxx Series	123g
	KYRPxxlxx Series	96g
	KYRPxxlxx-P Series	121g
LED (Green)	When the product is connected, LED lights up.	

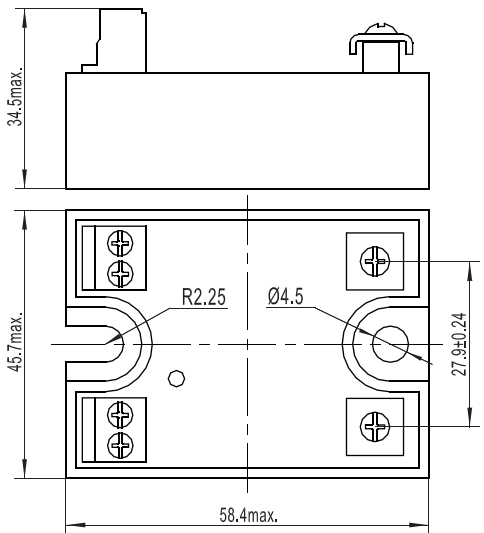
Applications

Temperature chamber, plastic machinery, incubator, dimmer, solar panel welding machine, and etc.

Outline Dimensions

Unit: mm

Voltage Control



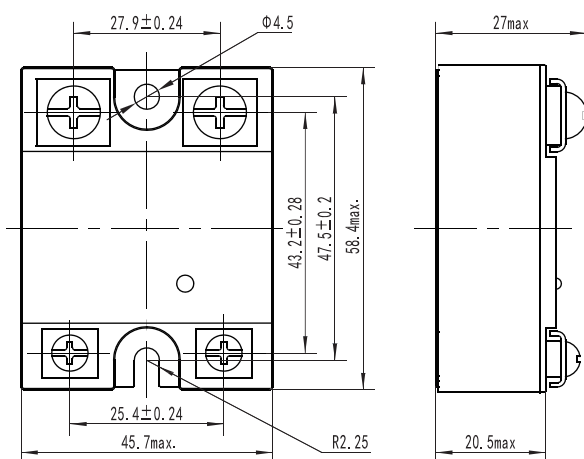
Torque	Input:0.5N·m max Output:0.98-1.37N·m
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KYR Series Single-phase AC voltage regulator module

Outline Dimensions

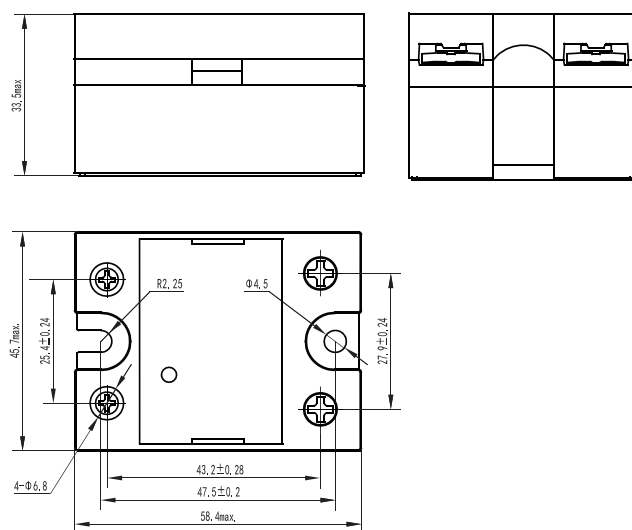
Unit: mm

Current Control (Without P)

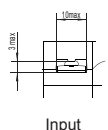
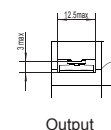


Torque Input: 0.5N·m max
Output: 0.98-1.37N·m

Current Control (With P)



Ring terminal dimensions
Input: W=9.5mm Max.
Output: W=12mm Max.

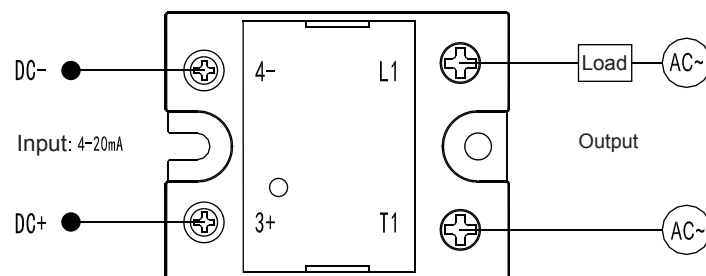


Wire Dim ension
Input : Max.3mm2
Output: Max.7mm2
Torque Input: 0.58 - 0.98 N·m
Output: 0.98 - 1.37 N·m

Note: Use M4 screws when mounting to heat sink.

Wiring Diagram

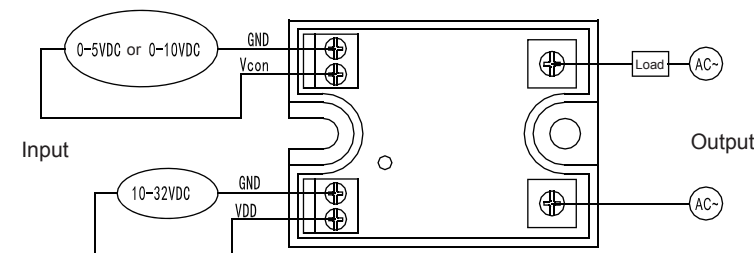
Current Control



KYR Series Single-Phase AC Voltage Regulator Module

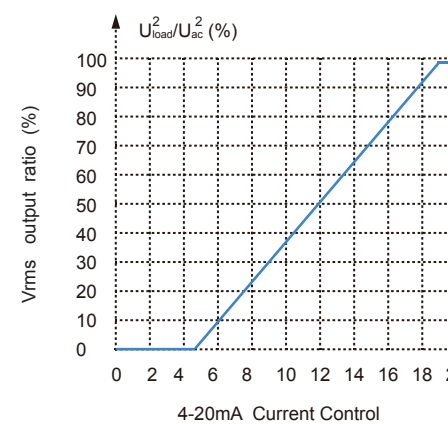
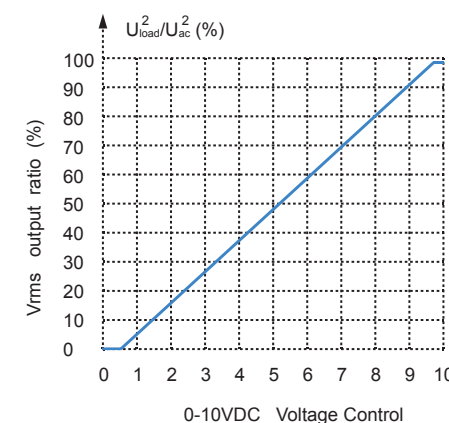
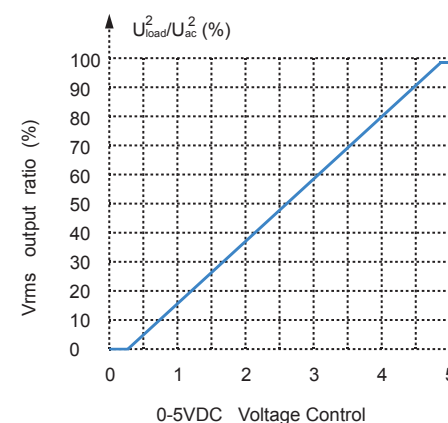
Wiring Diagram

Voltage Control⁽²⁾



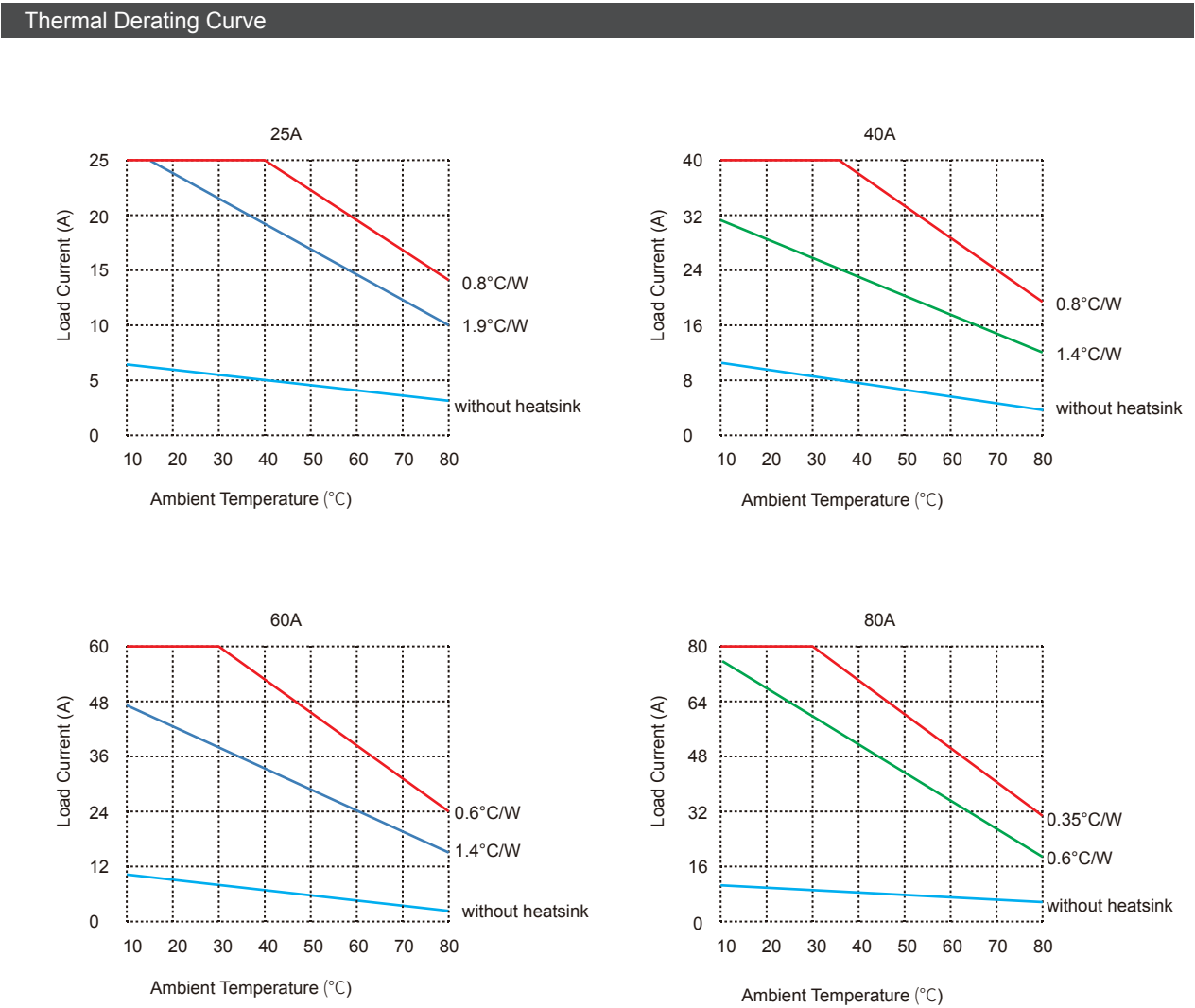
Note: (2) The auxiliary power supply GND and the input control GND should be connected internally to the earth ground; if the external control signal and the power supply are not connected together to the earth ground, then both should be connected to each GND respectively.

Output/Proportional Control Features



KYR Series Single-Phase AC Voltage Regulator Module

KYRT Series Three Phase Voltage Regulator Module



- General Notes
1. Relay must be mounted to proper sized heat sink badsed on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink .
 2. When connecting wiring to SSR please ensure screws are torqued down properly (input 4.43/0.5 in-lb/N·m M3 screws 5.13-8.67/0.58-0.98 in-lb/N·m, M4 screws 8.67 -12.13/0.98-1.37 in-lb/N·m)
 3. When Ambient temperature is above 25°C, see Thermal Derating Curves.

Agency Approvals (Certification)



Product Description

- ◆ SCR Output for Heavy Industrial Loads
- ◆ Phase Angle or Distributed Full Cycle Switching Mode Available
- ◆ High EMC Immunity Design
- ◆ Control Inputs: 0-5VDC, 0-10VDC, 4-20mA
- ◆ Load Current:25A-80A
- ◆ Integrated RC/MOV Protection Circuit
- ◆ IP20 Finger Touch Protection
- ◆ RoHS Compliant



Ordering Information

KYRT	V	480	L	25	-L
KYRT Series	Output Type V: Voltage Proportional Output P: Power Proportional Output	Load Voltage 380: 440VAC 480: 530VAC	Control Mode L: 0-5VDC; 4-20mA H: 0-10VDC; 4-20mA	Load Current 25: 25Amp 40: 40Amp 60: 60Amp 80: 80Amp	L: LED

General Specifications

Input Specifications		
Control Voltage Range	L	0-5VDC
	H	0-10VDC
Control Current Range		4-20mA
Input impedance (Typ.)	0-5V	110kΩ
	0-10V	22kΩ
	4-20mA	200Ω
Turn-on Voltage	L	≤0.2VDC
	H	≤0.4VDC
Turn-on Current		≤4.5mA
Turn-off Voltage		≥0.1VDC
Turn-off Current		≥3.9mA
External Power Supply Range		10-32VDC
Output Specifications		
Load Voltage Range	380VAC	180-440VAC
	480VAC	180-530VAC
Maximum Surge Current (@10ms)	25A	300A
	40A	400A
	60A	600A
	80A	1250A
Maximum I ² t for Fusing (@10ms)	25A	450A ² s
	40A	800A ² s
	60A	1800A ² s
	80A	7800A ² s
Maximum Transient Overvoltage	380VAC	800Vpk
	480VAC	1200Vpk
Maximum Off-State Leakage Current@Rated Load Voltage		5mA
Maximum On-State Voltage Drop@Rated Current		1.6Vrms
Minimum Off-State dv/dt@Maximum Rated Voltage		500V/μs

KYRT Series Three Phase Voltage Regulator Module

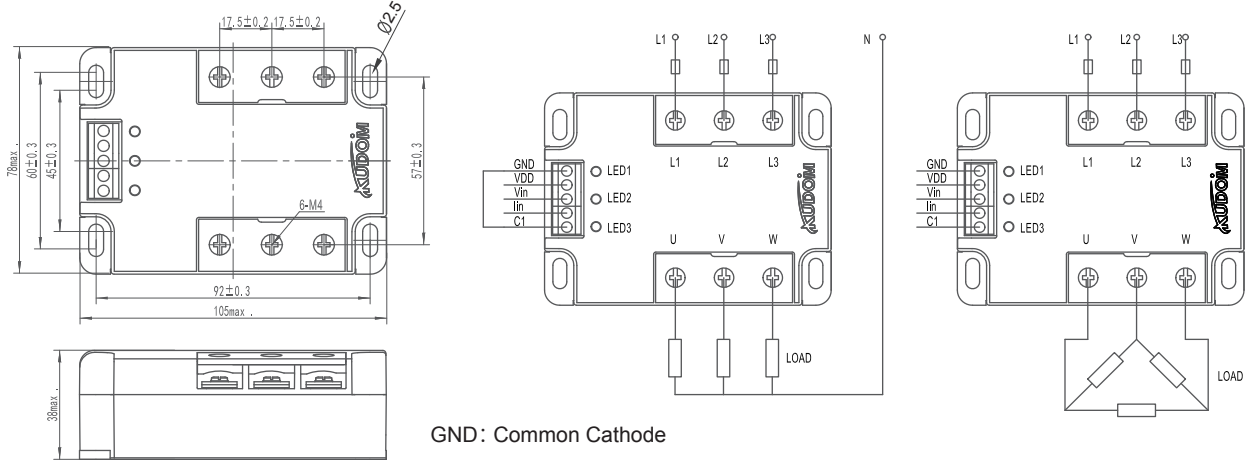
General Specifications (@25°C)

General Specifications		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Burst Immunity Level	IEC61000-4-4	2kV/100kHz
Surge Immunity Level	IEC61000-4-5	2kV/Line-PE, 1kV/Line-Line
Electrostatic Discharge Immunity Level	IEC61000-4-2	4kV/Touching, 8kV/In the Air
Ambient Temperature Range		-30°C ~ +80°C
Storage Temperature Range		-30°C ~ +100°C
Weight (Typical)	25A/40A	360g
	60A/80A	560g

Applications

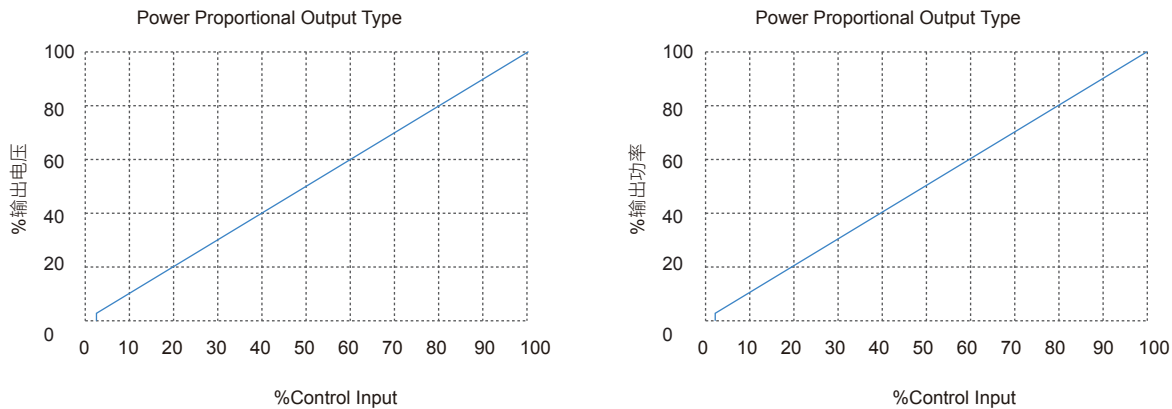
Used for resistive load, such as three-phase heating loads, and etc.

Outline Dimensions/Wiring Diagram



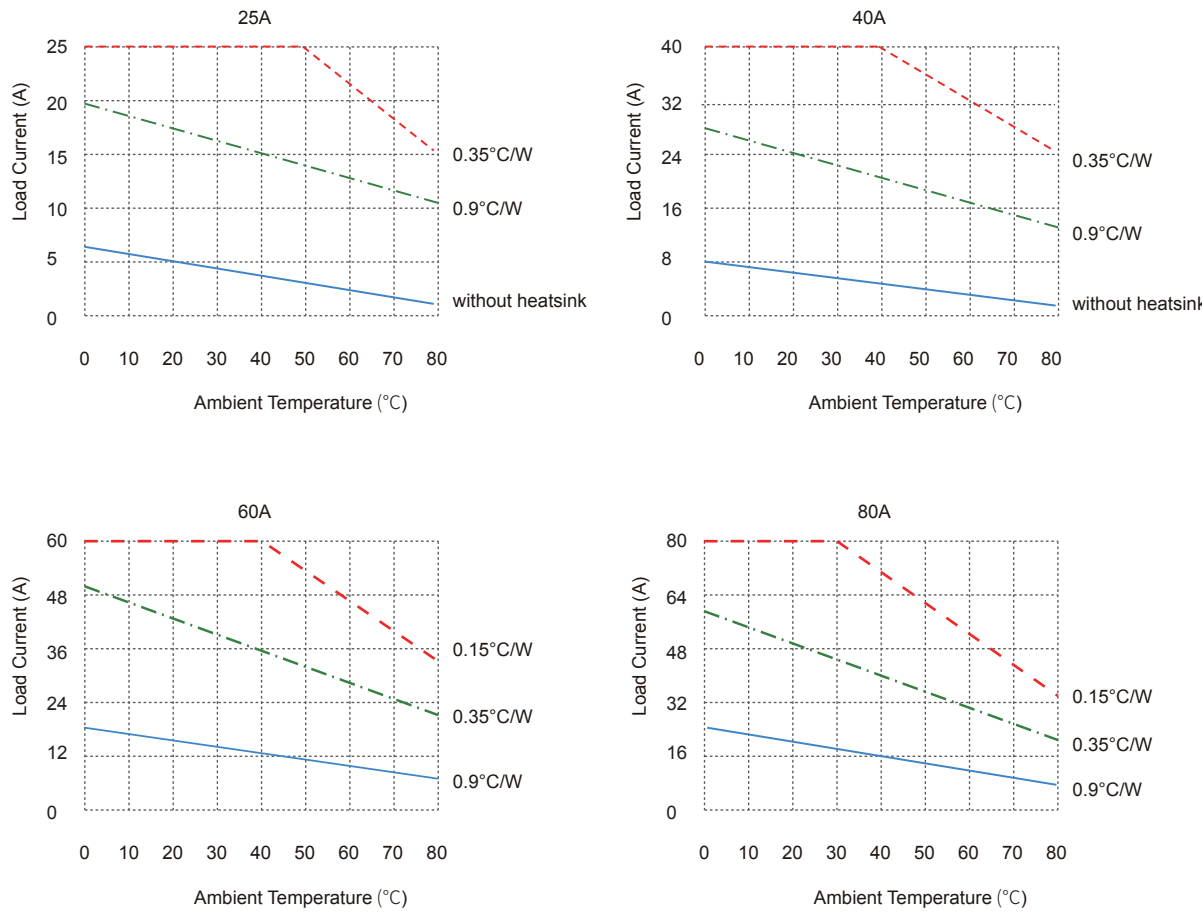
GND: Common Cathode
VDD: Anode of the power supply
Vin: Voltage control input
Iin: Current control input
C1: Load type selection. C1 connect to VDD or open for load without neutral line.
C1 connect to GND for load with neutral line.
LED1: Power supply indication
LED2: Load connected indication
LED3: Line undervoltage error indication

Output / proportional Control Characteristic



KYRT Series Three Phase Voltage Regulator Module

Thermal Derating Curve



General Notes

1. For product with internal phase detection circuit, L1/L2/L3 should be connected to input line voltage, U/V/W should be connected to load. Product will not work when the connection is reverse.
2. To ensure the C1 terminal connected correctly according to the different load connections, otherwise the product will not work properly.
3. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a thermal pad must be used between relay and heat sink and be torqued down to 18-20 /2.0-2.2 in-lb/N·m.
4. When connecting wiring to SSR please ensure screws are torqued down properly (input 4.43/0.5 in-lb/Nm M3 screws 5.13-8.67/0.58-0.98 in-lb/Nm, M4 screws 8.67 -12.13/0.98-1.37 in-lb/Nm)
5. When operating temperature is above 25°C see Thermal Derating Curves.

Agency Approvals (Certification)



Heat Sink KHS Series

Product Description

- ◆ Material: Aluminum
- ◆ Din-rail Optional
- ◆ Fan Optional
- ◆ Customization Available
- ◆ RoHS Compliant



Ordering Information

KHS	-D	50	-F	110AC	(XXX)
KHS Series	Series	Length	Accessory	Fan Voltage	Customized Code
	A: A Series	32: 32mm	Blank: No Accessory	Blank: No Fan	
	B: B Series	49: 49mm	F: Fan	24DC: 24VDC	
	C: C Series	50: 50mm	D: Din-rail	110AC: 110VAC	
	D: D Series	70: 70mm	B: Fan & Din-rail	220AC: 220VAC	
	E: E Series	76: 76mm			
	F: F Series	90: 90mm			
	G: G Series	110: 110mm			
		150: 150mm			

Part Numbers

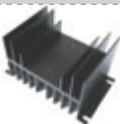
Heat Sink P/N	Dimension (mm)	Thermal Resistance (°C/W)	Suitable for SSR P/N
KHS-A32	80×50×32	2.8	KSIM
KHS-A50	80×50×50	2.1	KSI, KSIA, KSID, KSQM, KMB, KMC
KHS-B70	50×69×70	1.9	KSI, KSIA, KSID, KSQM, KMB, KMC
KHS-B70-D	50×83×81	1.9	KSI, KSIA, KSID, KSQM, KMB, KMC
KHS-B90-D	50×78×122	1.7	KSI, KSIA, KSID, KSQM, KMB, KMC
KHS-C49	100×80×49	1.7	KSI, KSIA, KSID, KSQM, KMB, KMC
KHS-C110	100×80×110	0.9	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS, KRA, KSQE, KME, KMTYM
KHS-C110-F□□□	100×80×140	0.4	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS, KRA, KSQE, KME, KMTYM
KHS-D50	101×105×50	1.6	KSI, KSIA, KSID, KSQM, KMB, KMC, KRA, KSQE, KME, KMTYM
KHS-D50-F□□□	101×105×80	0.6	KSI, KSIA, KSID, KSQM, KMB, KMC, KRA, KSQE, KME, KMTYM
KHS-D110	101×105×110	0.8	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS, KRA, KSQE, KME, KMTYM
KHS-D110-F□□□	101×105×140	0.35	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS, KRA, KSQE, KME, KMTYM
KHS-E76	123×67×76	1.5	KSI, KSIA, KSID, KSQM, KMB, KMC

Heat Sink KHS Series

Model	Dimension (mm)	Thermal Resistance (°C/W)	Suitable for SSR P/N
KHS-F150	142×55×150	1.1	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS
KHS-G150	125×135×150	0.4	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS
KHS-G150-F□□□	125×135×193	0.15	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS

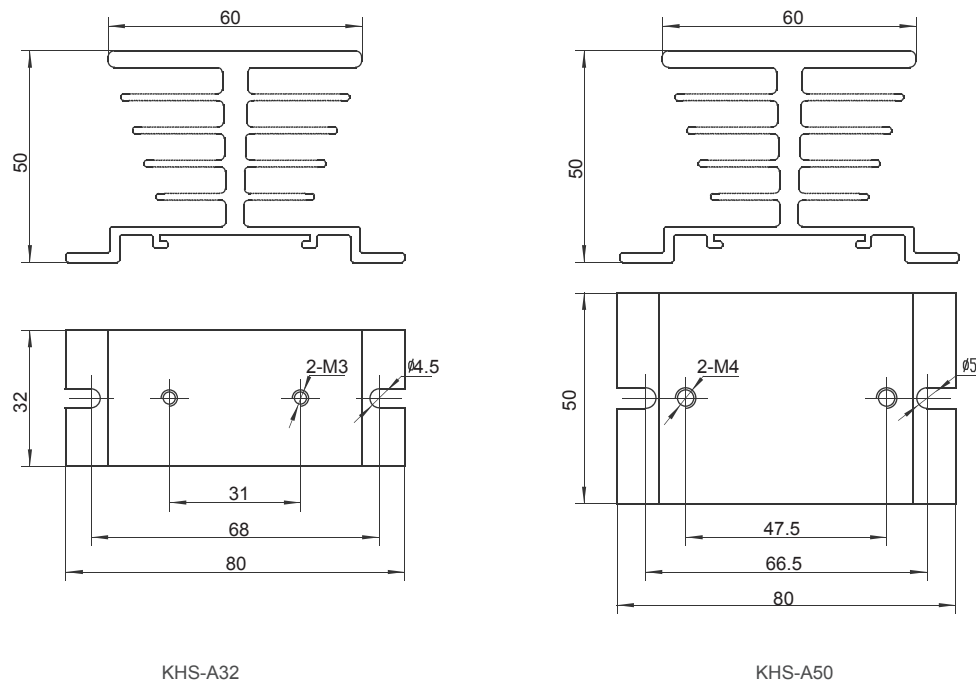
General Specifications

Series	A Series		B Series
Photo			
Model	KHS-A32	KHS-A50	KHS-B70
Thermal Resistance (°C/W)	2.8	2.1	1.9
N.W. (g)	70	115	235
Outer Dimension (mm)	80×50×32	80×50×50	50×69×70
Suitable for	KSIM	KSI, KSIA, KSID, KSQM, KMB, KMC	KSI, KSIA, KSID, KSQM, KMB, KMC
Series	B Series		C Series
Photo			
Model	KHS-B70-D	KHS-B90-D	KHS-C49
Thermal Resistance (°C/W)	1.9	1.7	1.7
N.W. (g)	290	390	255
Outer Dimension (mm)	50×83×81	50×78×122	100×80×49
Suitable for	KSI, KSIA, KSID, KSQM, KMB, KMC	KSI, KSIA, KSID, KSQM, KMB, KMC	KSI, KSIA, KSID, KSQM, KMB, KMC
Series	C Series		D Series
Photo			
Model	KHS-C110	KHS-C110-F□□□	KHS-D50 (x)
Thermal Resistance (°C/W)	0.9	0.4	1.6
N.W. (g)	560	830	406
Outer Dimension (mm)	100×80×110	100×80×140	101×105×50
Suitable for	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS, KRA, KSQE, KME, KMTYM	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS, KRA, KSQE, KME, KMTYM	KSI, KSIA, KSID, KSQM, KMB, KMC, KRA, KSQE, KME, KMTYM
Series	D Series		
Photo			
Model	KHS-D50-F□□□ (x)	KHS-D110 (x)	KHS-D110-F□□□ (x)
Thermal Resistance (°C/W)	0.6	0.8	0.35
N.W. (g)	675	895	1160
Outer Dimension (mm)	101×105×80	101×105×110	101×105×140
Suitable for	KSI, KSIA, KSID, KSQM, KMB, KMC, KRA, KSQE, KME, KMTYM	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS, KRA, KSQE, KME, KMTYM	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS, KRA, KSQE, KME, KMTYM

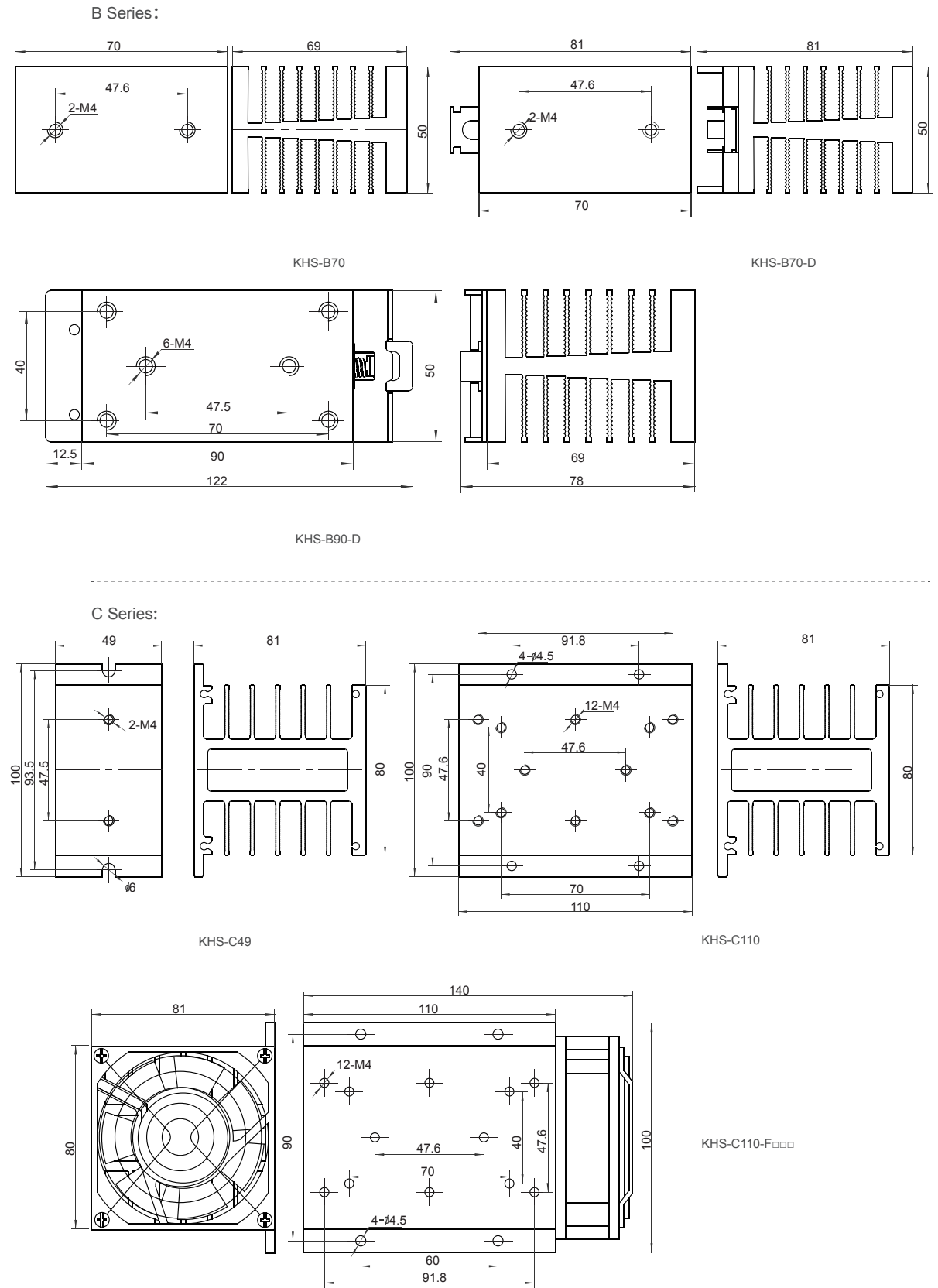
General Specifications			
Series	E Series	F Series	G Series
Photo			
Model	KHS-E76	KHS-F150	KHS-G150
Thermal Resistance (°C/W)	1.5	1.1	0.4
N.W. (g)	300	539	2320
Outer Dimension (mm)	123×67×76	142×55×150	125×135×150
Suitable for	KSI, KSIA, KSID, KSQM, KMB, KMC	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS
Series	G Series		
Photo			
Model	KHS-G150-F		
Thermal Resistance (°C/W)	0.15		
N.W. (g)	2590		
Outer Dimension (mm)	125×135×193		
Suitable for	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSQF, KMS		

Outline Dimensions

A Series:

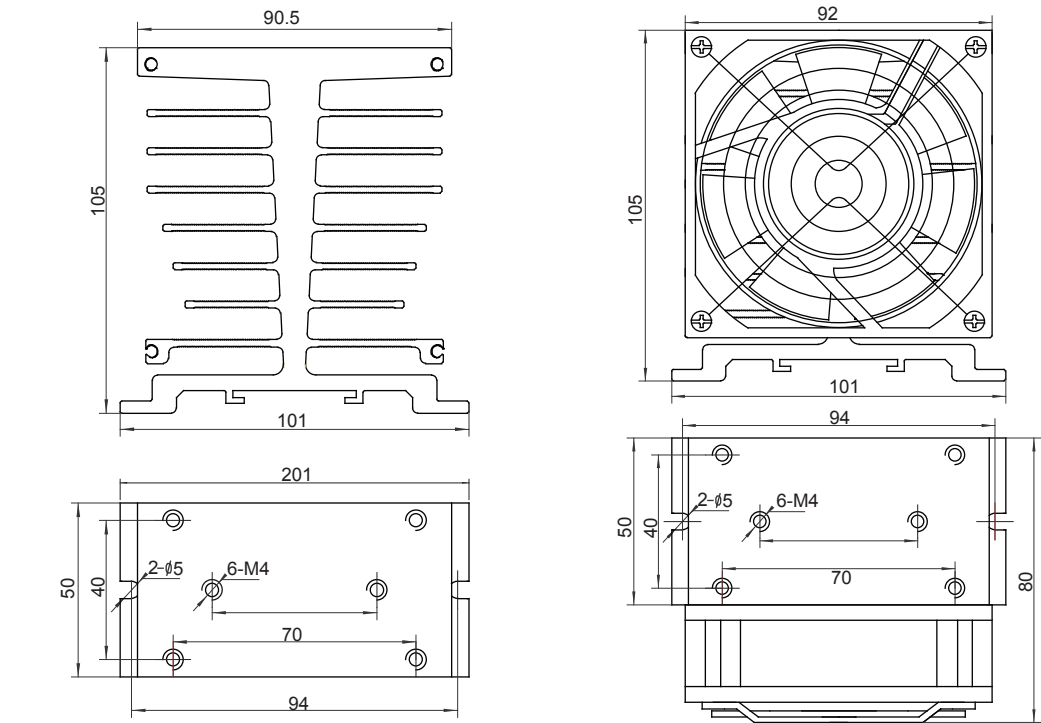


Outline Dimensions



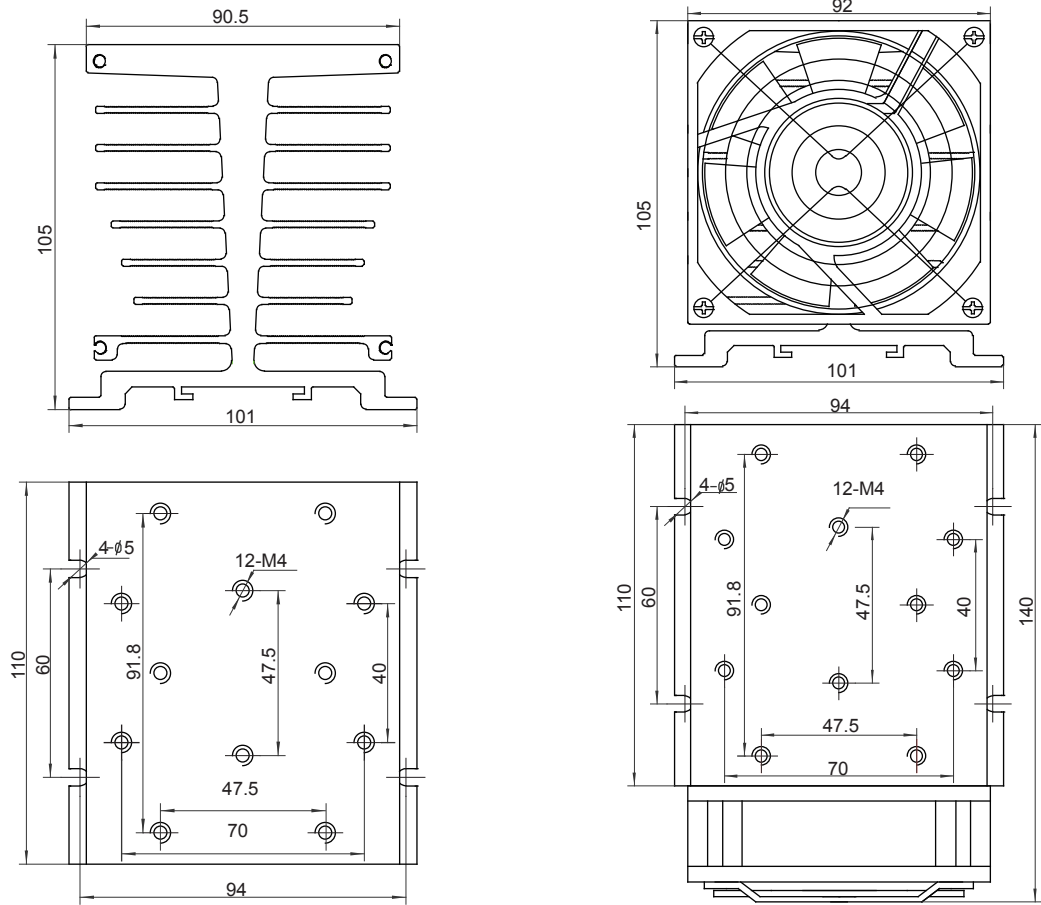
Outline Dimensions

D Series:



KHS-D50 (x)

KHS-D50-F□□□ (x)

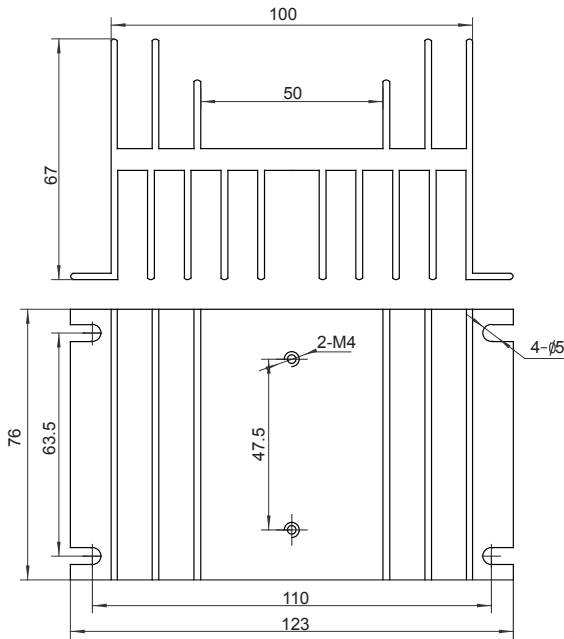


KHS-D110 (x)

KHS-D110-F□□□ (x)

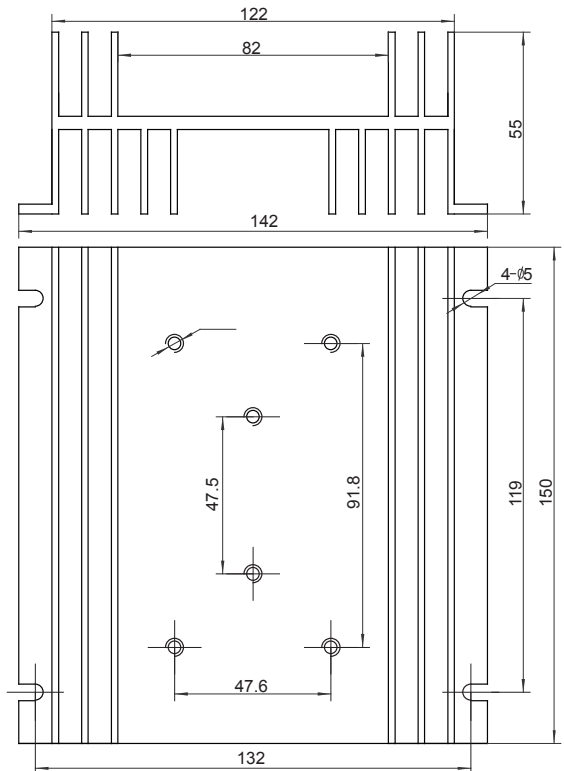
Outline Dimensions

E Series:

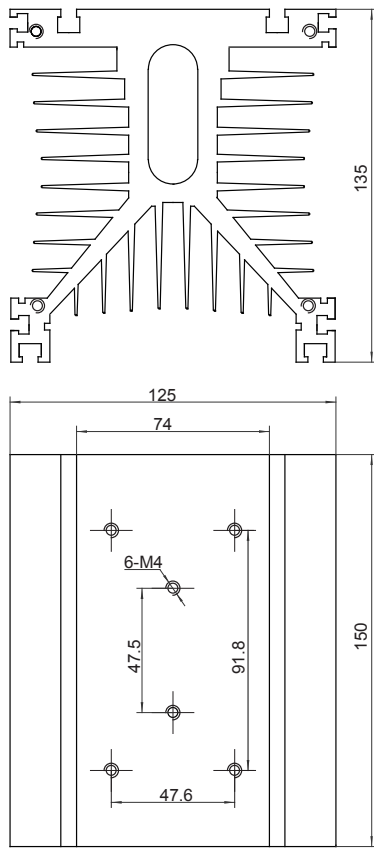


KHS-E76

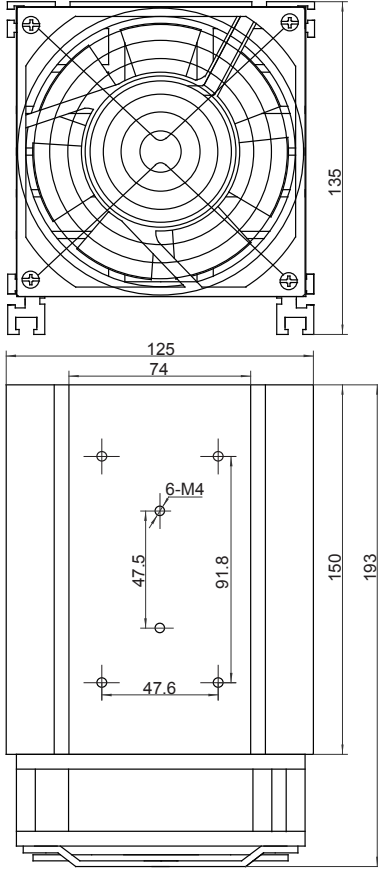
F Series:



G Series:



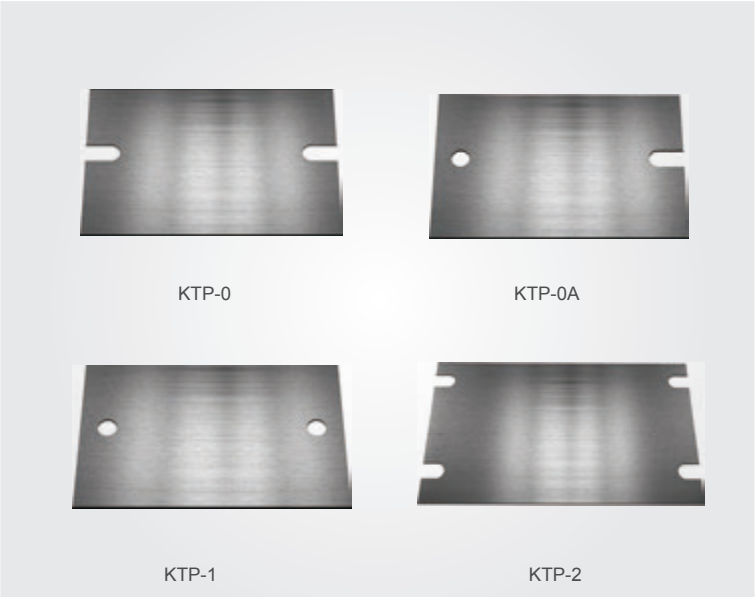
KHS-G150



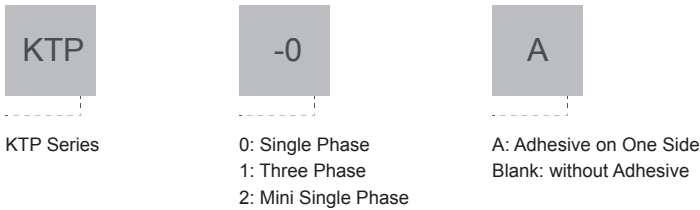
KHS-G150-F□□□

Product Description

- ◆ Low Thermal Resistance
- ◆ KTP-0 (A) Suitable for KSI / KSJ / KSIA / KSID / KSQM / KWR / KMB / KMC / KYR single phase relay
- ◆ KTP-1 Suitable for KMS / KMT / KYRT / KMTY / KSQC Three Phase Relay
- ◆ KTP-2 Suitable for KSIM Mini Single Phase Relay
- ◆ Adhesive on One Side (Optional)
- ◆ Silicon Resin / Glass Fiber or Graphite
- ◆ RoHS Compliant



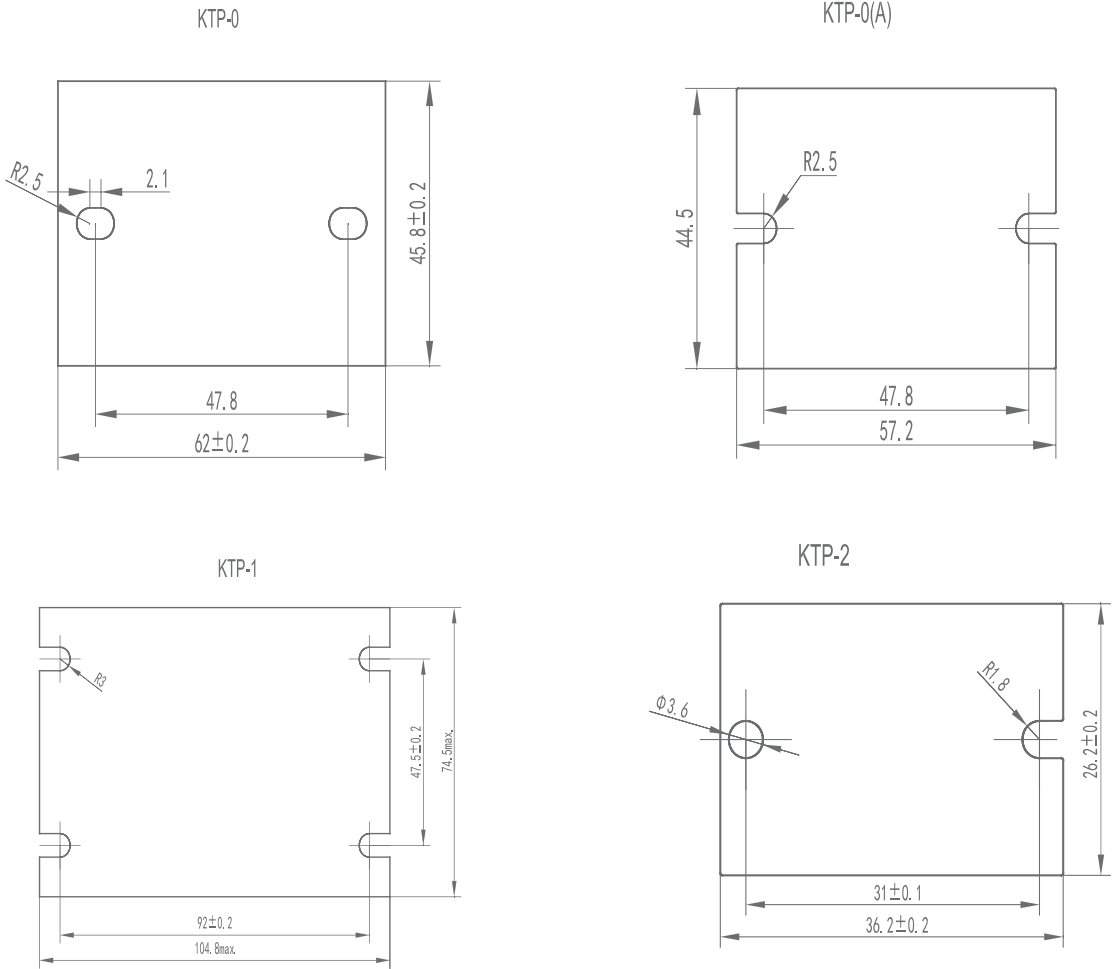
Ordering Information



General Specifications

Color	Black	
Thickness	0.15mm	
Material	KTP-0A	Silicon Resin or Glass Fiber
	KTP-2	Silicon Resin or Glass Fiber
	KTP-0	Graphite
	KTP-1	Graphite
Adhesive One Side	KTP-0 (A)	Optional
Thermal Resistance	0.48°C-in2 / W@25 psi	
Thermal Conductivity	2.0W/m-K	
Flame Rating	V-0	
Continuous Temperature Range	-60°C ~180°C	
Storage Conditions	KTP-0A	Temperature: 23~27°C Humidity: 65±20%rh
Weight (Typical)	KTP-0 (A)	0.4g
	KTP-1	0.9g
	KTP-2	0.16g

Outline Dimensions

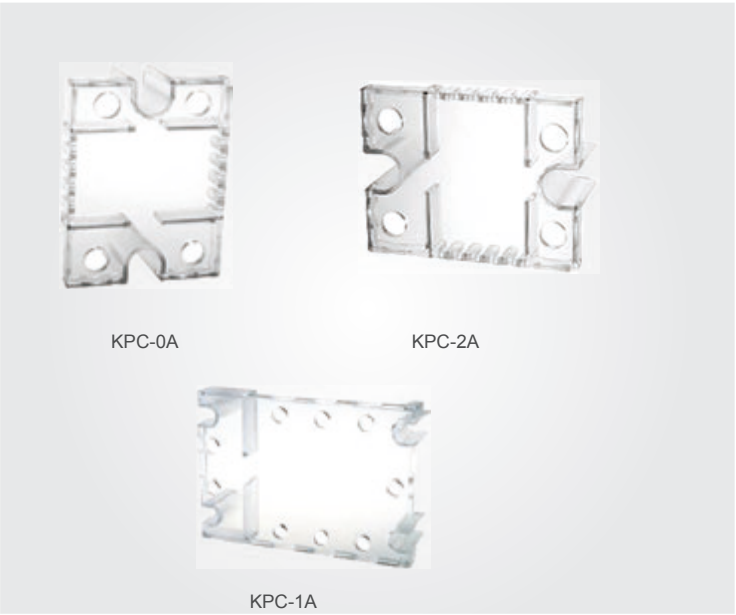


Agency Approvals (Certification)

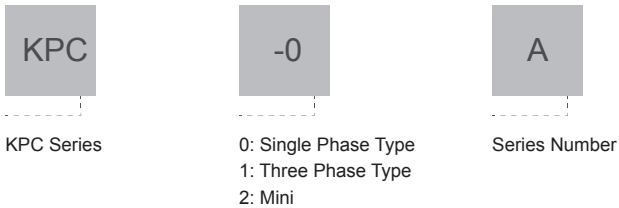


Product Description

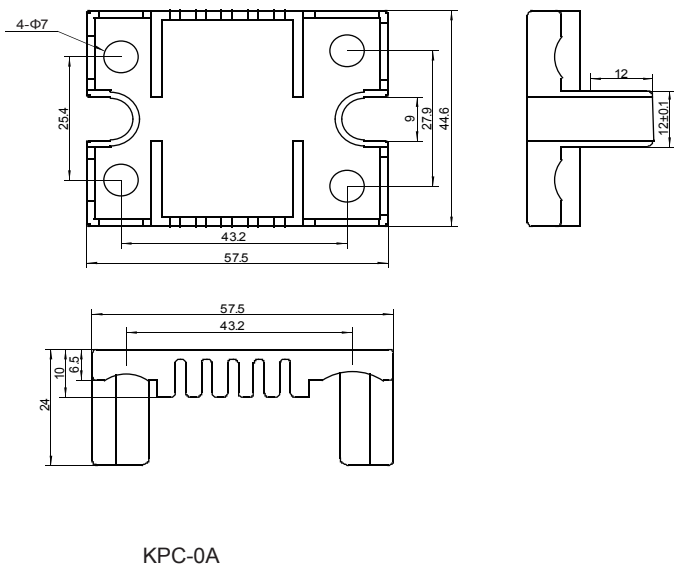
- ◆ KPC-0A Suitable for KSI, KSJ, KWR Single Phase Relay
- ◆ KPC-1A Suitable for KMT, KSQ Three Phase Relay
- ◆ KPC-2A Suitable for KSIM Single Phase Relay
- ◆ RoHS Compliant



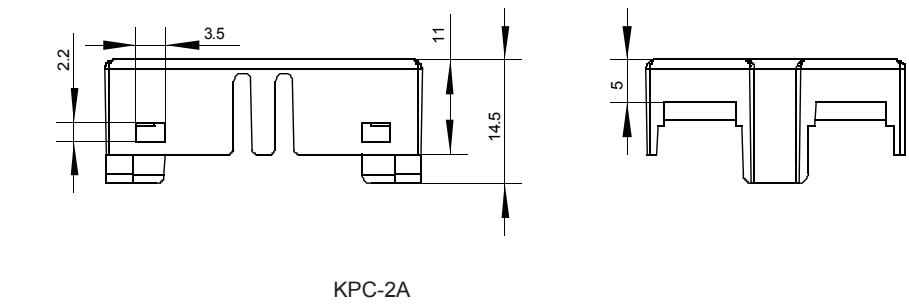
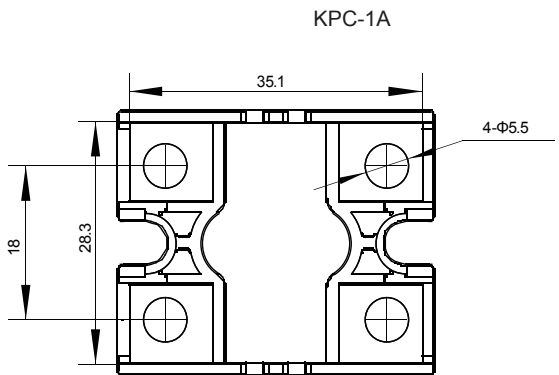
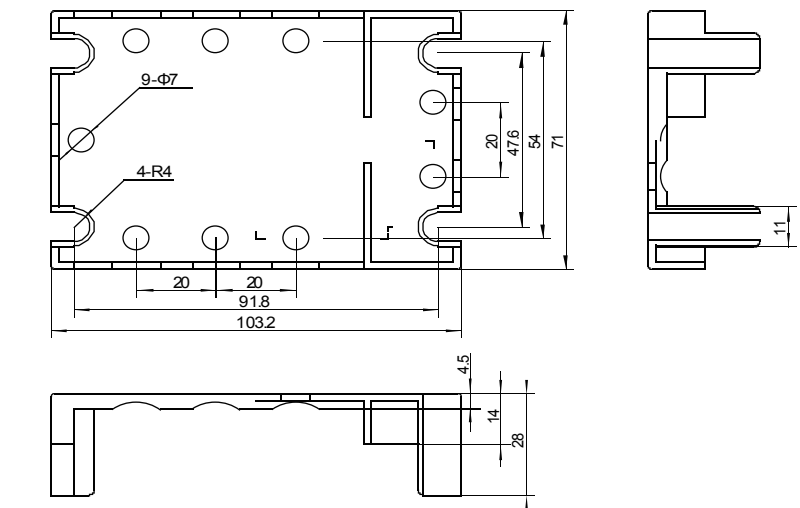
Ordering Information



Outline Dimensions



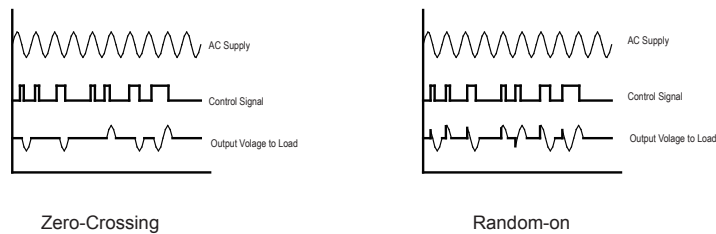
Outline Dimensions



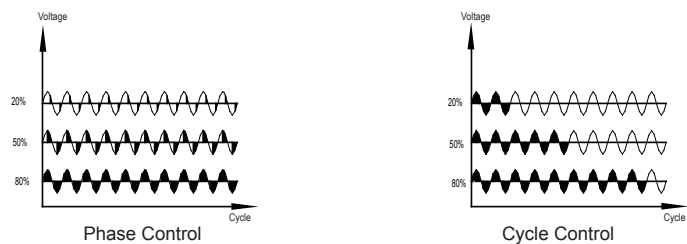
Agency Approvals (Certification)



1. Typical operation sequence of an AC SSR



2. Typical operation sequence of an AC voltage regulator



3. What types of loads are used for Zero Cross and Random turn-on SSR?

For AC output SSR, there are two switching ways zero-crossing and random-on. Except for some special application (for example, phase angle control must apply random-on), zero-crossing SSR is recommended for, resistive, capacitive, lamp and slightly inductive loads. Random-on relays are used for highly inductive loads, or when you need to phase angle fire a load. If a SSR is applied to a special application, please contact KUDOM for technical support.

4. How to calculate the rating current of a resistive load?

Single-phase: $I = P/220$ or $I = P/380$

Three-phase: $I = P\sqrt{3}/380$

Considering the ambient temperature, heat emission and other conditions, KUDOM think it's prudent to include 40-80% safety margin for load current, when selecting a SSR for resistive load.

5. How to calculate the steady-state current of a motor load?

Single-phase motor: $I = P/220/0.85$

Three-phase motor: $I = P/\sqrt{3}/380/0.85$

When the motor turns on, the surge current could be 5-7 times of steady-state current for several seconds.

6. How to choose an appropriate MOV for an application using a SSR?

SSR is used for various applications, overvoltage may occur during its operation. We can use MOV to suppress the transient voltage on power components, reducing the damage to SSR. To choose an appropriate MOV, first you must determine circuit conditions such as peak voltage and current during the event. You also must determine the number of surges the MOV must survive as well as the acceptable let-through voltage for the application.

The transient overvoltage endurance of a 380 series AC SSR is 800V, it can operate a 220VAC load, or lower, without MOV.

The transient overvoltage endurance of a 480 series AC SSR is 1200V, it can operate a 380VAC load, or lower, without MOV.

7. Over-current and short-circuit protection

There is no over-current protection designed in KUDOM regular SSR.

We suggest that, a thermal relay can be series to the load for over-current protection, and a fast fuse can be series to the load circuit for short-circuit protection.

8. How to protect a DC SSR controlling an inductive load?

To protect a DC SSR from the electromagnetic field (EMF) when the inductive load is turned off, you need to place a diode in reverse parallel across the load.

9. Why do I see leakage current from the SSR when the relay is not on?

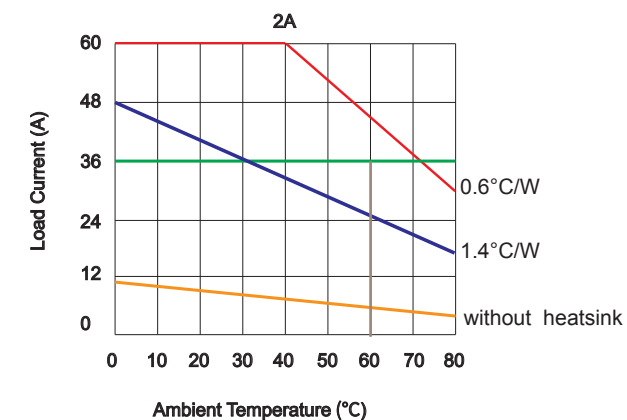
During the SSR is turned-off, we can observe an extremely small current when apply a voltage to SSR output, due to the power component has an impedance. Besides, the leakage current is caused by the snubber network which is a resistor and capacitor in series placed in parallel across the output of the SSR. This snubber protects the relay from static and commutating dv/dt.

10. Why do I need to use a heat sink with a SSR?

When a SSR is on, the relay will generate heat due to the forward voltage drop across the output. The amount of power generated is a function of the load current. The maximum chip temperature for a SCR is 125°C, if the SCR exceeds this temperature it can go into thermal run away. This will cause you to lose the ability to turn the relay off. The heat sink takes the heat generated by the SSR and dissipate it keeping the SSR cooler.

11. Selection of heat sink

To select the proper sized heat sink, you need to know 2 things: the load current and the maximum ambient temperature the relay will be exposed to. Once you know these parameters and have selected the proper SSR, you can now use the thermal derating curves included in the data sheet of the particular model you have selected. For example: SSR # KSI240D60-L, if you want to use it load current at 36A, ambient temperature at 60°C, with this example we go to the data sheet and find 60 A thermal curve. On the left side we find 36A and draw a line straight across to the right then we find the ambient temperature of 60°C on the bottom and draw a line straight up until it intersects with the previous line. At this point we can see that the point falls between the 1.4°C/W and the 0.6°C/W line. You always pick the rating above your point since the heat sink rating below would not keep the relay cool enough. So therefore we need a 0.6°C/W sized heat sink.



PCB Mount

Panel Mount

DIN Rail Mount

Industrial Module

Motor Reversing

Voltage Regulator

Accessory

PCB Mount

Panel Mount

DIN Rail Mount

Industrial Module

Motor Reversing

Voltage Regulator

Accessory