KUDOM

Create more for you

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KUDOM

SOLID STATE RELAY

KUDOM

Kudom Solid State Relay

SELECTION GUIDE CATALOGUE

www.kudom-elec.com

KUDOM

Create more for you

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 1000m^2, 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

2009

SHANGHAI KUDOM ELECTRONICS TECHNOLOGY CO.,LTD. ESTABLISHED

2012

XIAMEN KUDOM ELECTRONICS TECHNOLOGY CO.,LTD. ESTABLISHED

2013

KUDOM XIAMEN FACTORY STARTED THE PRODUCTION

CERTIFIED BY ISO9001:2008 INTERNATIONAL QUALITY MANAGEMENT SYSTEM CERTIFICATION

2014

OUR DISTRIBUTION NETWORK LOCATES ALL OVER THE WORLD

2015

KUDOM XIAMEN AND KUDOM SHANGHAI WERE BOTH CERTIFIED AS HIGH AND NEW TECH ENTERPRISES

CERTIFIED BY ISO14001:2004 ENVIRONMENTAL SYSTEM

CERTIFIED BY OHSAS18001:2007 OCCUPATIONAL HEALTH SAFETY MANAGEMENT CERTIFICATION

2016

START MASS PRODUCTION OF INTELLI-GENT + BUS-CONTROL MODULES

2017

PASSED GB/ T24001-2016 IDT ISO14001:2015 ENVIRONMENTAL SYSTEM CERTIFICATION

PASSED GB/ T 28001-2011 IDT OHSAS 18001:2007 OCCUPATIONAL HEALTH SAFETY MANAGEMENT CERTIFICATION

PASSED GB/ T19001-2016 IDT ISO9001:2015 INTERNATIONAL QUALIT Y MANAGEMENT SYSTEM CERTIFICATION

CONTENTS

Products Catalogue

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℃)		
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℃)	
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℃)	
Load Current	0.1-2A
Maximum 1 Cycle Surge Current	35Apk
Maximum I^2t for Fusing (10ms)	6.1A^2s
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

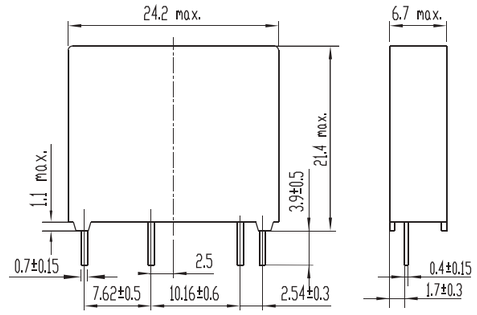
General Specifications (Ta=25℃)	
Dielectric Strength (50/60Hz)	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ
Ambient Temperature Range	-30℃ ～ +80 ℃
Storage Temperature Range	-30℃ ～ +100 ℃
Weight (Typical)	6g

PCB Mount
KSA
KSB
KSC
KSD
KSD (037)
KSFA
KSG
KSG3R
KG3RD
KSCD
KSGD
KSF
KSL
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

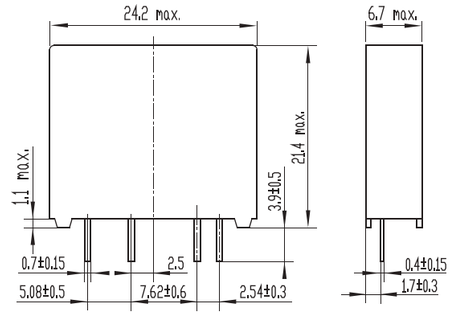
Applications

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

Outline Dimensions

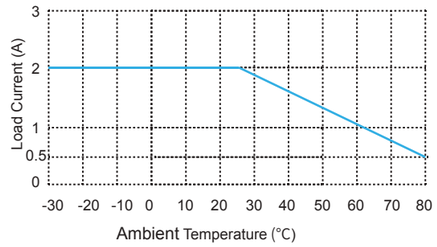


Standard Footprint



T Type Footprint

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

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℃)		
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

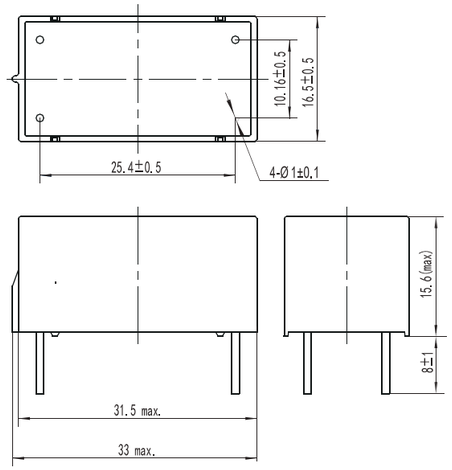
Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
Maximum Off-State Leakage Current	without RC	0.1mA
@Rated Load Voltage	with RC	5mA
Minimum Off-State dv/dt@Maximum Rated Voltage		200V/μs
Load Current Range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

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℃)	
Dielectric Strength (50/60Hz)	4000Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ
Ambient Temperature Range	-30℃ ～ +80 ℃
Storage Temperature Range	-30℃ ～ +100 ℃
Weight (Typical)	15g

Applications

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

Outline Dimensions



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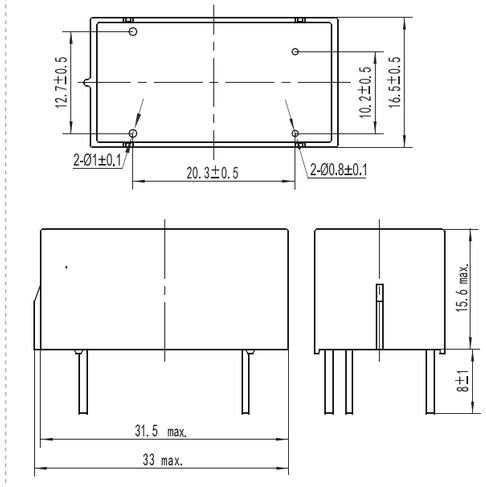
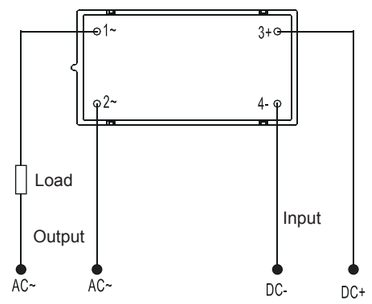
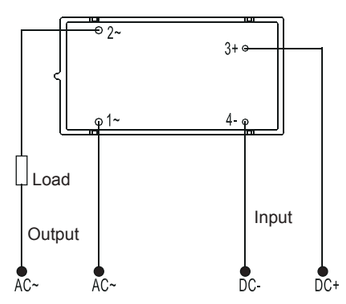


T Type Footprint

Wiring Diagram

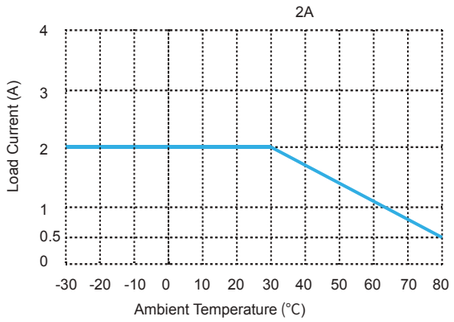


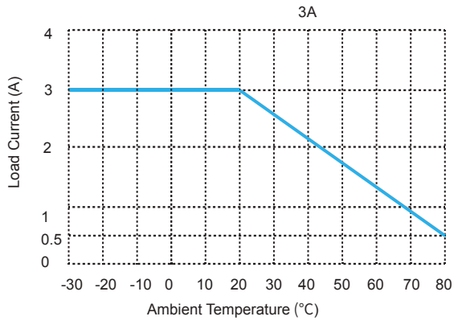
Standard Footprint



T Type Footprint

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

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 I^2t for Fusing (10ms)	1A	3.1A^2s
	2A	6.1A^2s

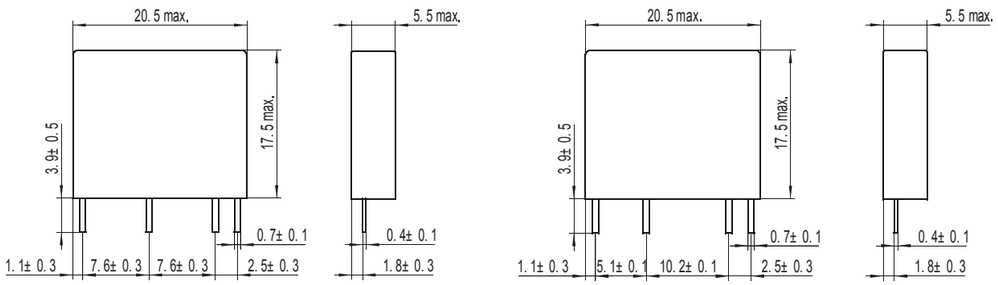
Maximum On-State Voltage Drop@Rated Current	1.5Vrms
Maximum Turn-On Time	Zero Crossing: 1/2cycle+1ms,Random-on: 1ms
Maximum Turn-Off Time	1/2cycle+1ms
Operational Frequency Range	47-63Hz
Minimum Power Factor (@ Maximum load)	0.5

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

Applications

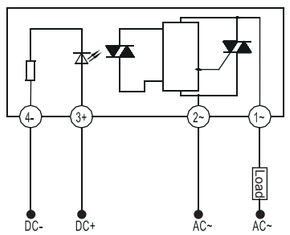
Suitable for pumps, valve control, motor control, and etc.

Outline Dimensions

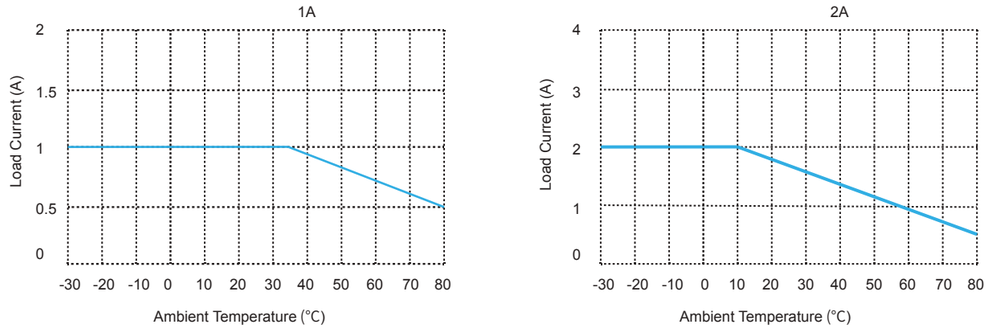


Standard Footprint　　T Type Footprint

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)

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	

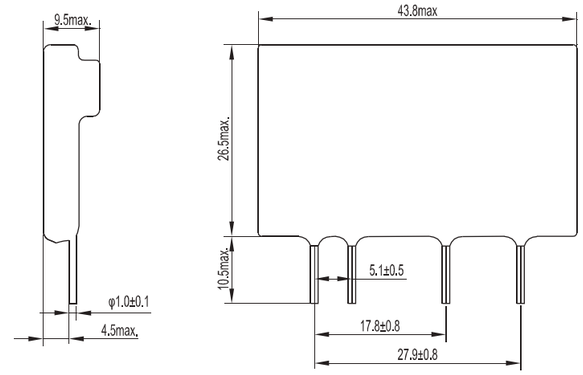
Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
	480VAC	24-530VAC
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
	480VAC	1200Vpk
Load Current Range	3A	0.1 - 3A
	5A	0.1 - 5A
Maximum Surge Current (@10ms)	3A	120A
	5A	200A
Maximum Turn-On Time	Zero Crossing	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

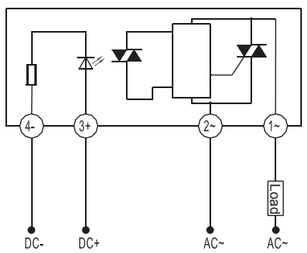
Applications

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

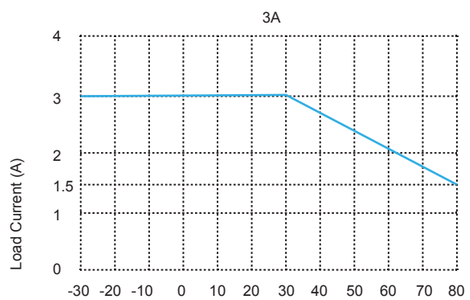
Outline Dimensions

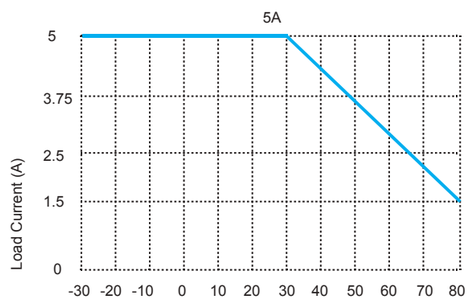


Wiring Diagram



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)

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

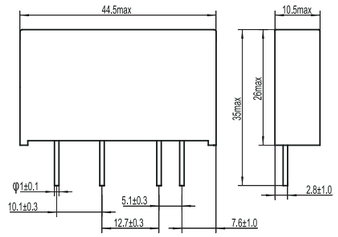
KSD (037) Series Single Phase AC Output

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

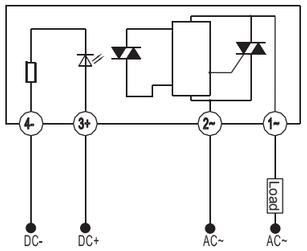
Applications

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

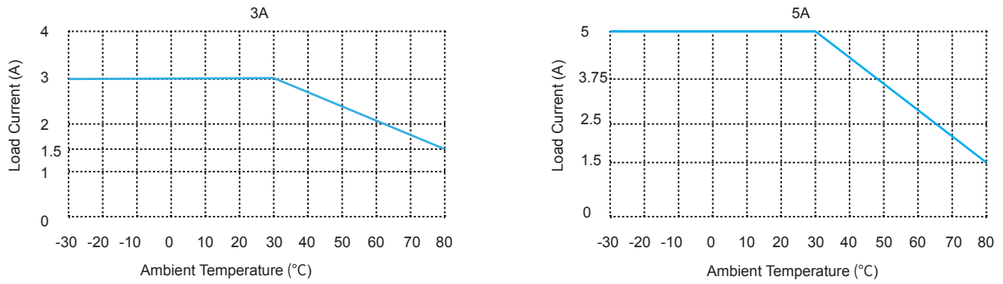
Outline Dimensions



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)

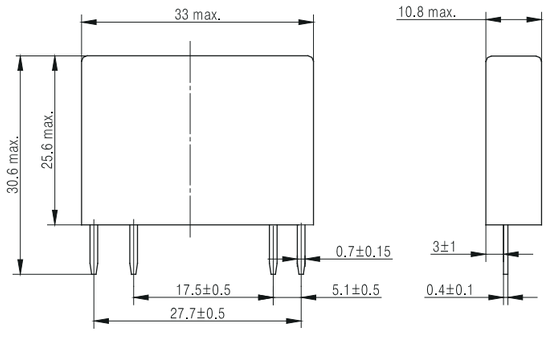
Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
Load Current Range	2A	0.1-2A
	3A	0.1-3A
Maximum 1 Cycle Surge Current (50Hz)	2A	80A
	3A	160A
Maximum Turn-On Time	Random-on	1ms
	Zero Crossing	1/2cycle+1ms
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

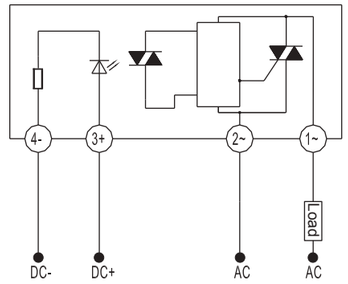
Applications

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

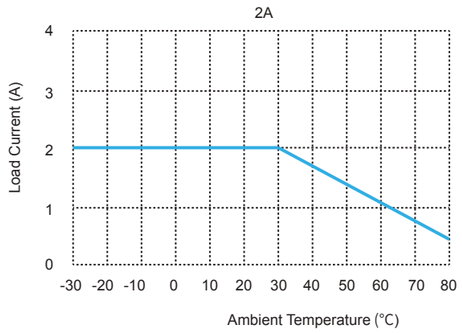
Outline Dimensions

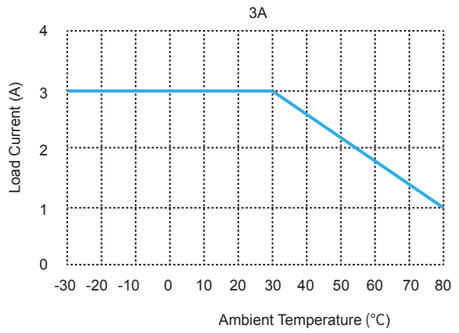


Wiring Diagram



Thermal Derating Curve





General Notes

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
- 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)

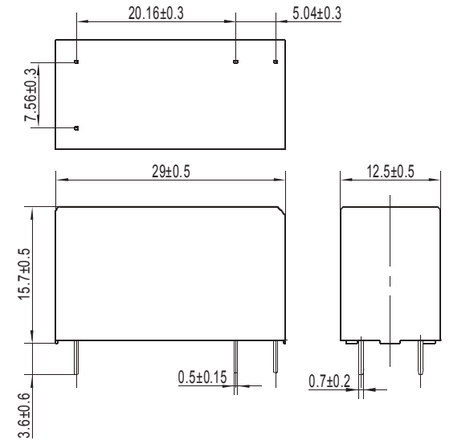
Output Specifications (Ta=25°C)		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
Load Current Range	2A	0.1-2A
	3A	0.1-3A
Maximum 1 Cycle Surge Current (50Hz)	2A	80A
	3A	120A
Maximum Turn-On Time	Random-on	1ms
	Zero Crossing	1/2cycle+1ms
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	

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

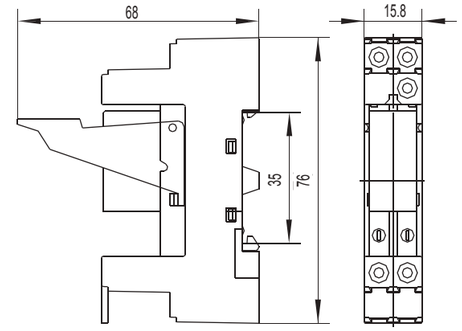
Applications

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

Outline Dimensions

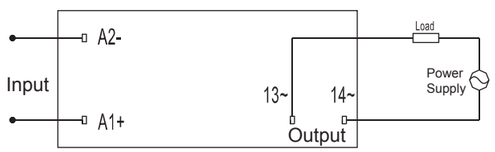


SSR

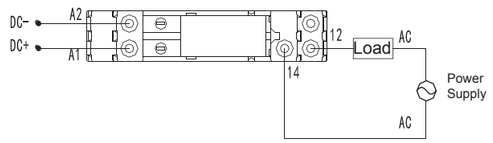


with socket

Wiring Diagram

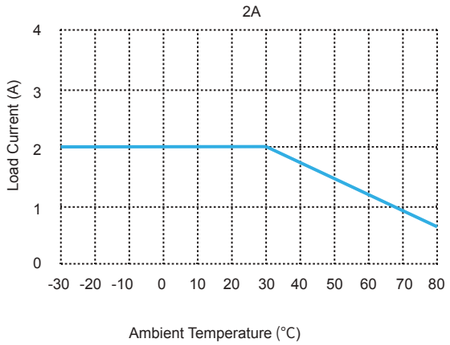


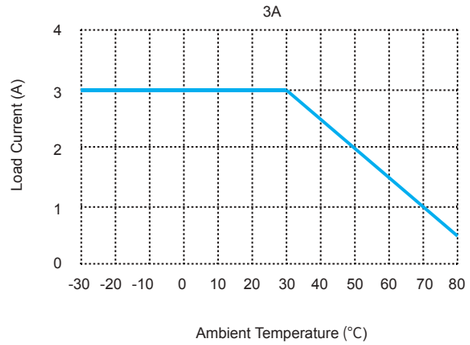
without socket



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)

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

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	

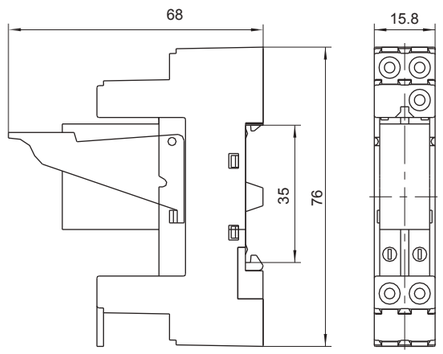
General Specifications (Ta=25℃)		
Dielectric Strength (50/60Hz)	4000Vrms	
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30℃ ~ +80℃	
Storage Temperature Range	-30℃ ~ +100℃	
Weight (Typical)	without socket	18g
	with socket	55g

Applications

Suitable for electromagnetic devices, intelligent instrument, and etc.

Outline Outline Dimensions

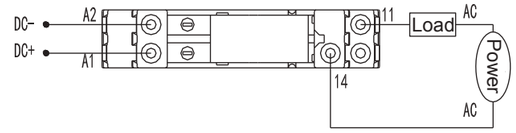
without socket



with socket

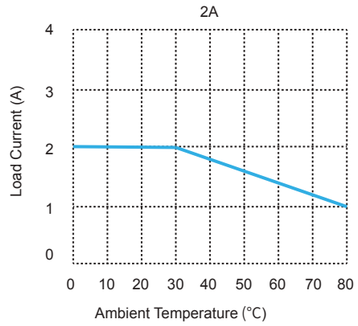
Wiring Diagram

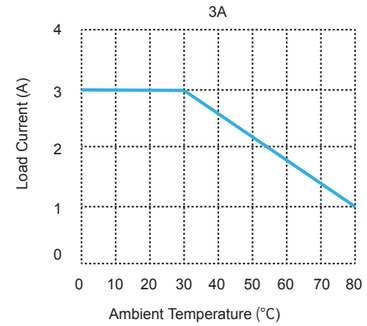
without Socket



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)

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)

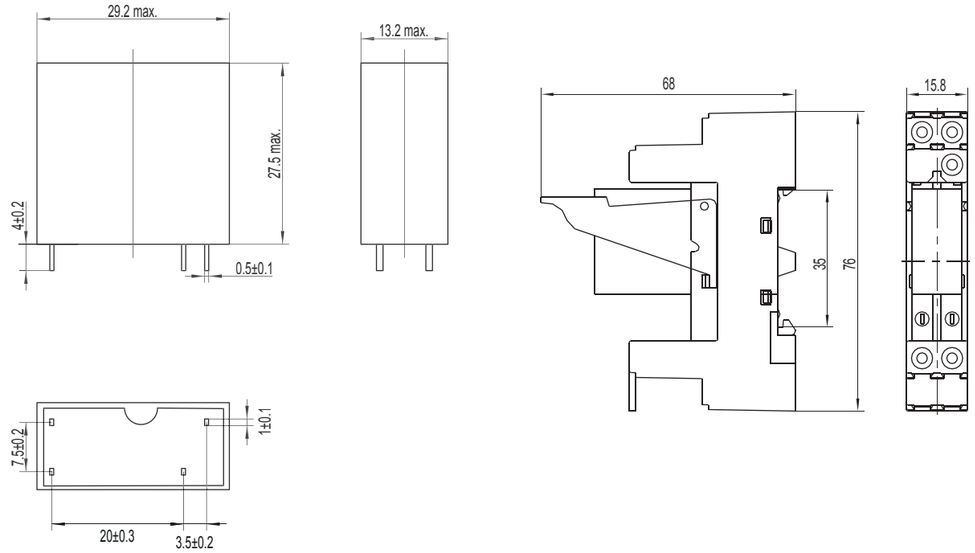
Output Specifications (Ta=25°C)		
Load Voltage Range	50VDC	3-50VDC
	100VDC	3-100VDC
Maximum Transient Overvoltage	50VDC	50Vpk
	100VDC	100Vpk
Load Current Range	0.1 - 2A	
Maximum Surge Current (@10 ms)	6A	
Maximum Turn-On Time	300μs	
Maximum Turn-Off Time	300μs	
Maximum Off-State Leakage Current@Rated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

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

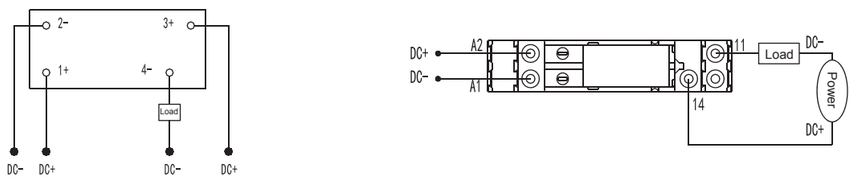
It can be widely used for DC motors, DC power supplies, electromagnetic devices in industrial automation field, and etc.

Outline Dimensions



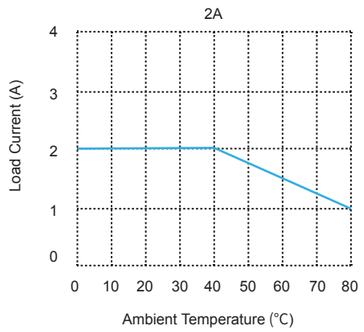
without socket　　with socket

Wiring Diagram



without socket　　with socket

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 (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

General Specifications

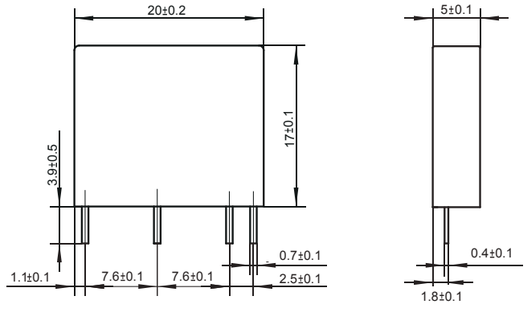
Output Specifications (Ta=25℃)	
Maximum Turn-On Time	1ms
Maximum Turn-Off Time	1ms
Maximum Off-State Leakage Current@Rated Load Voltage	0.1mA

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

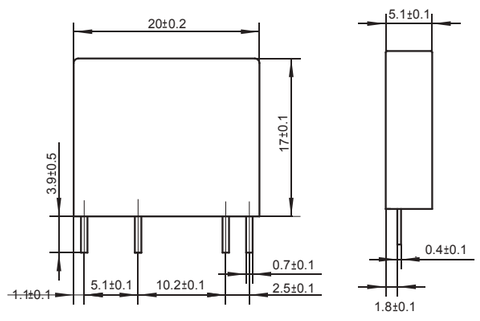
Applications

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

Outline Dimensions

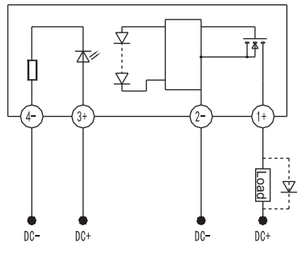


Standard Footprint

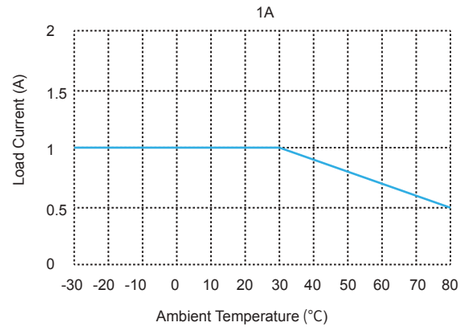


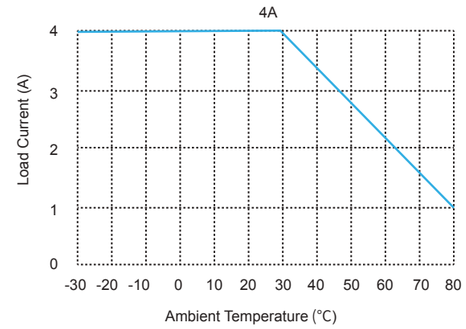
T Type Footprint

Wiring Diagram



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℃)		
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℃)		
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

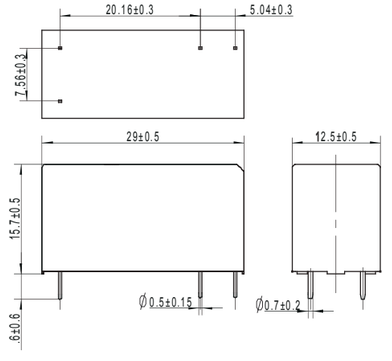
Maximum 1 Cycle Surge Current (50Hz)	2A	20A
	3A	30A
	4A	40A
	5A	50A
Maximum Turn-On Time	1ms	
Maximum Turn-Off Time	1ms	
Maximum Off-State Leakage Current@Rated Load Voltage	0.1mA	
Maximum On-State Voltage Drop@Rated Current	0.3VDC	

General Specifications (Ta=25℃)		
Dielectric Strength (50/60Hz)	2500Vrms	
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30℃ ~ +80℃	
Storage Temperature Range	-30℃ ~ +100℃	
Weight (Typical)	without socket	15g
	with socket	50g

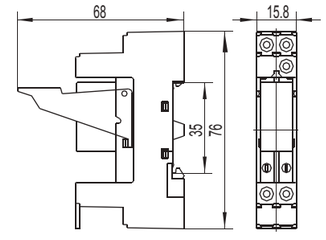
Applications

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

Outline Dimensions

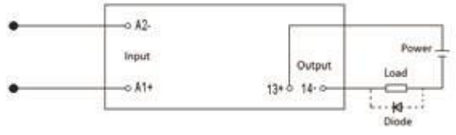


without Socket

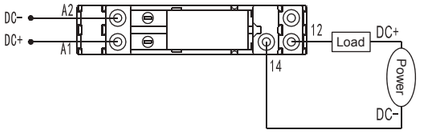


with Socket

Wiring Diagram

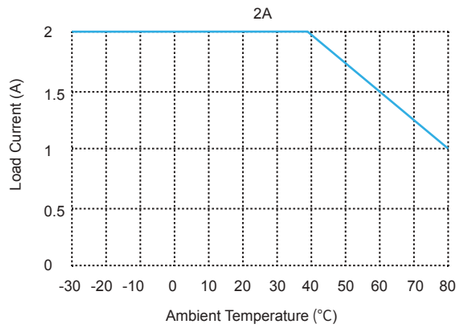


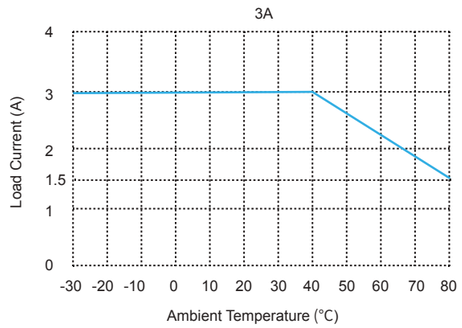
without socket

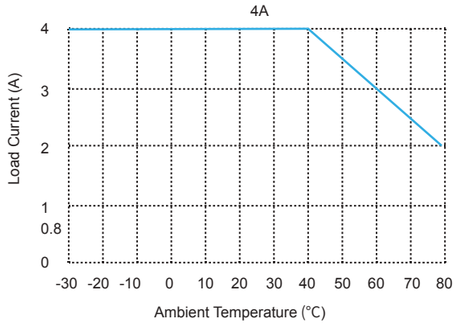


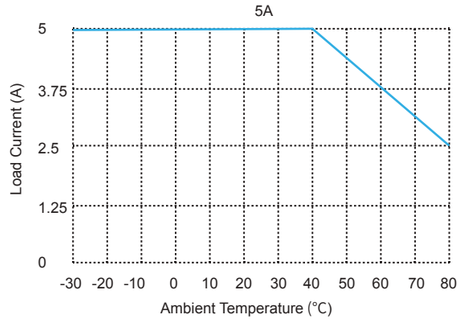
with socket

Thermal Derating Curve









General Notes

1. Soldering must be finished within 10 seconds at 260℃,or finished within 5 seconds at 350℃. 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℃, the maximum load current decreases. See thermal derating curve.

Agency Approvals (Certification)

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

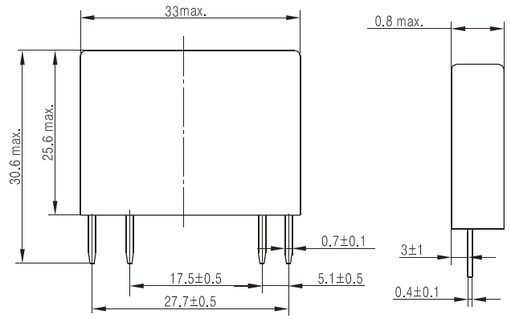
Output Specifications (Ta=25°C)	
Maximum Turn-On Time	1ms
Maximum Turn-Off Time	1ms
Maximum Off-State Leakage Current@Rated Load Voltage	0.1mA

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

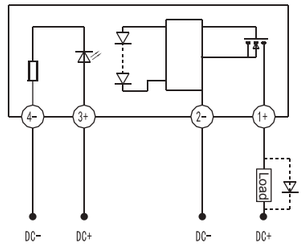
Applications

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

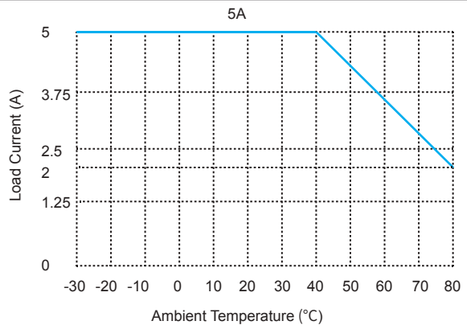
Outline Dimensions



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)

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	3-10VDC
	H	10-28VDC
Must Turn-On Voltage	L	3VDC
	H	10VDC
Must Turn-Off Voltage	1VDC	
Maximum Input Current	25mA	

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

General Specifications

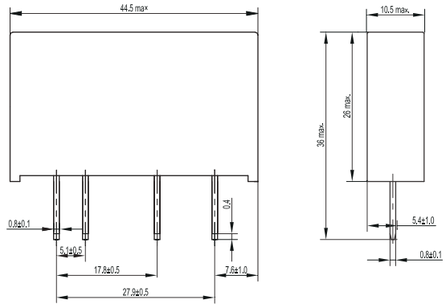
Maximum 1 Cycle Surge Current (50Hz)	3A	15A
	5A	25A
	10A	50A
	20A	100A
Maximum Turn-On Time	1ms	
Maximum Turn-Off Time	300μs	
Maximum Off-State Leakage Current@Rated Load Voltage	0.1mA	
Maximum On-State Resistance	3A	375mΩ
	5A	150mΩ
	10A	38mΩ
	20A	10mΩ

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

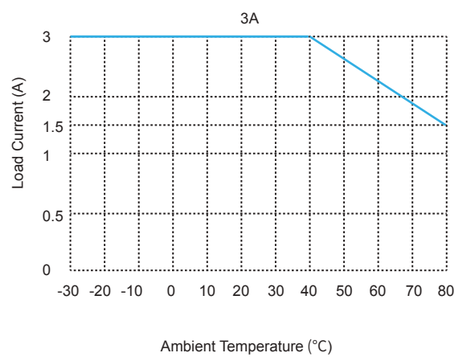
Suitable for DC motors, DC power supplies, electro-mechanical devices, and etc.

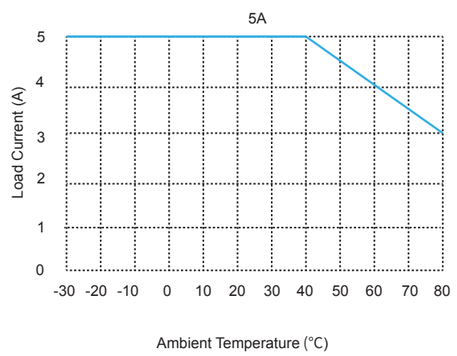
Outline Dimensions



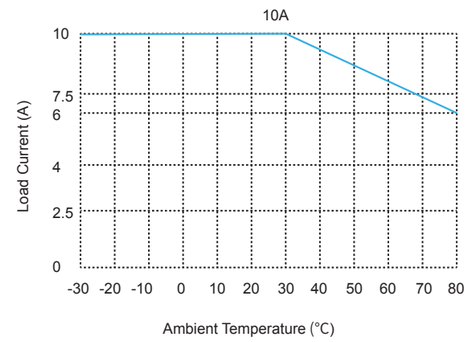
Outline Dimensions

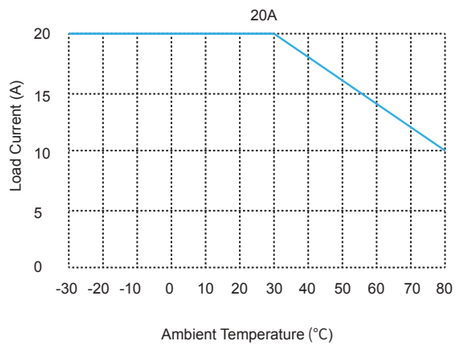
Thermal Derating Curve





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℃)		
Control Voltage Range	4-32VDC	
Must Turn-On Voltage	4VDC	
Must Turn-Off Voltage	1VDC	
Maximum Input Current	25mA	

Output Specifications (Ta=25℃)		
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℃)		
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	

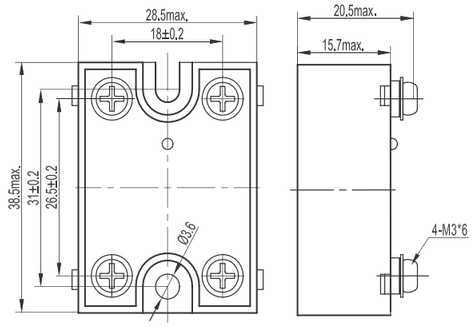
General Specifications

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

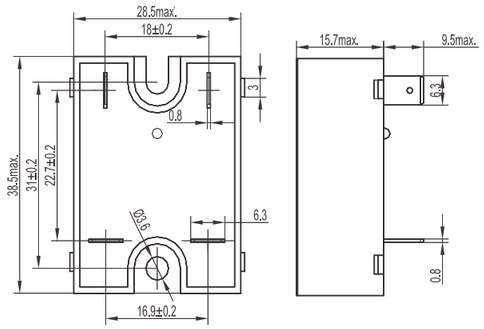
Applications

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

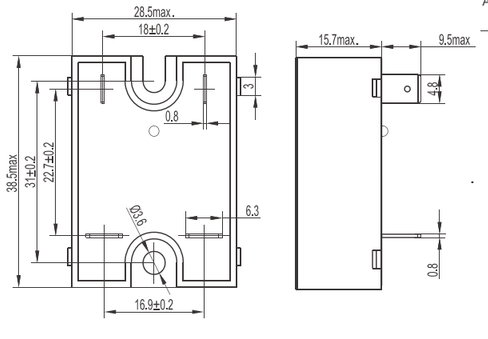
Outline Dimensions



Typical

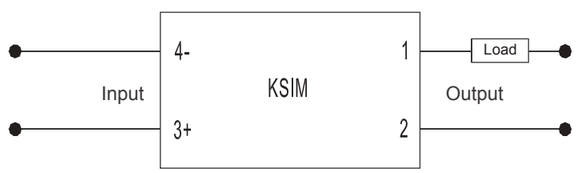


Customized Code 045

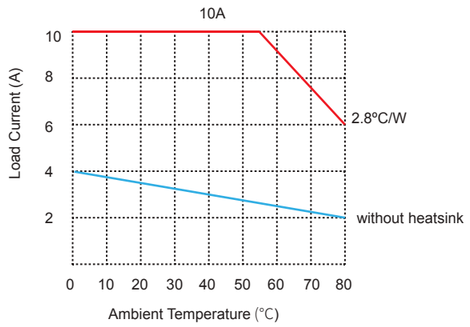


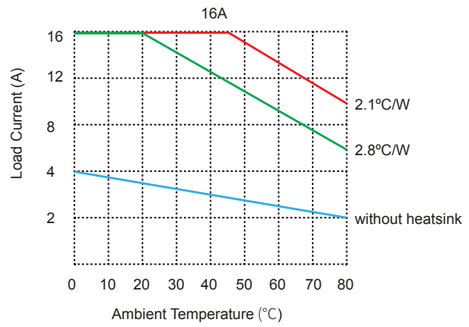
Customized Code 117

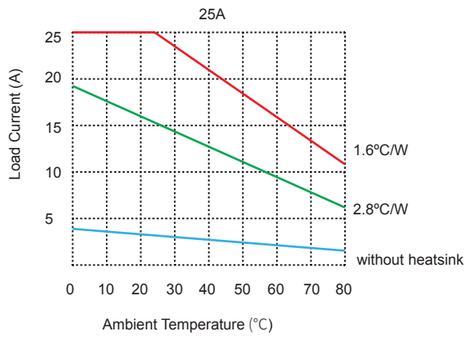
Wiring Diagram



Thermal Derating Curve







General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a 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)

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:
① TVS option is not available for load voltage @600VAC version.
② The load current with (016) version is only available from 10A ~ 40A.
③ The load current with (083) version is only available from 80A ~ 125A.
④ The load current with (068) version is available from 10A ~ 80A. For 80A version, 600VAC load voltage is not available.
⑤ The load current of standard version is available from 10A ~ 60A

General Specifications

Input Specifications (Ta=25℃)		
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

General Specifications

Output Specifications (Ta=25℃)		
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
Maximum Turn-Off Time	DC Control	10ms
	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 I^2t for Fusing (@10ms)	10A	72A^2s
	15A	128A^2s
	20A	200A^2s
	25A	312A^2s
	40A	1250A^2s
	60A	2450A^2s
	80A	5000A^2s
	100A	7812A^2s
	125A	11250A^2s
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

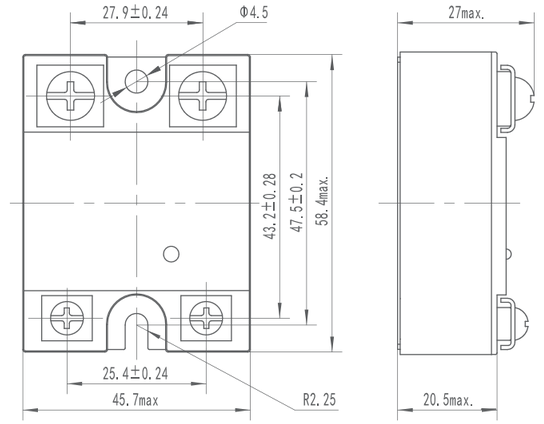
General Specifications (Ta=25℃)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30℃ ~ +80℃	
Storage Temperature Range	-30℃ ~ +100℃	
Weight (Typical)	Standard Version	96g
	Suffix with (016)	100g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

Applications

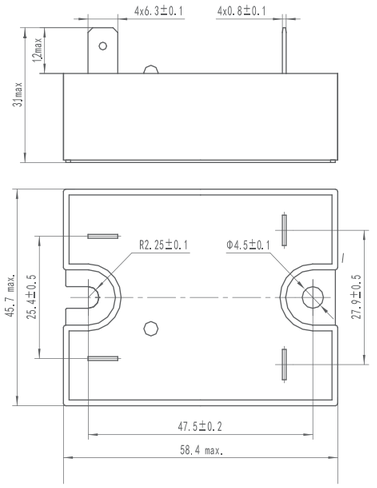
Temperature Chamber, Plastics Machinery, Food Processing Machinery, Incubator, Oiling machines, HVAC, Lighting, Fountain Controller and etc.

Panel Mount
KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

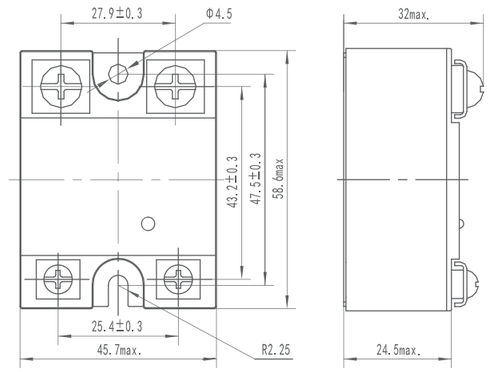
Outline Dimensions/Wiring Diagram



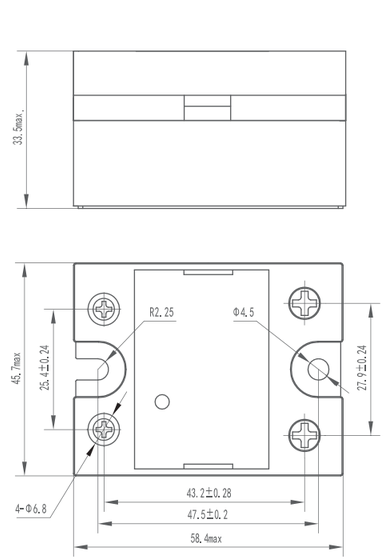
Standard Version

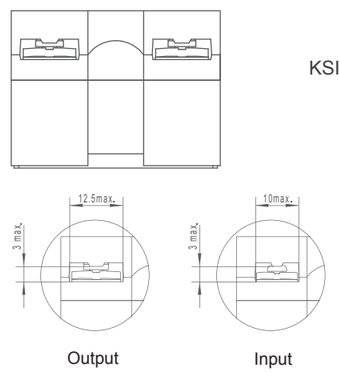


KSI (016) Outline Dimensions



KSI (083) Outline Dimensions





Output Input

KSI (068) Outline Dimensions

Ring terminal dimensions:

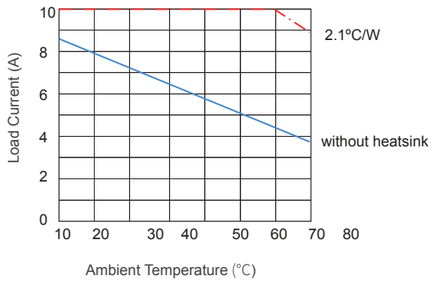
Input: W=9.5mm Max.

Output: W=12mm Max.

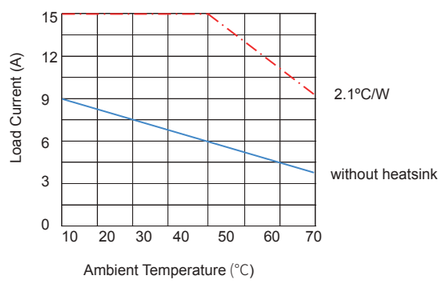
Wire dimension	Input: 3mm^2 Max.
	Output: 2x7mm^2 Max.
Torque	Input: 1.5N·m Max.
	Output: 2.0N·m Max.

Thermal Derating Curve

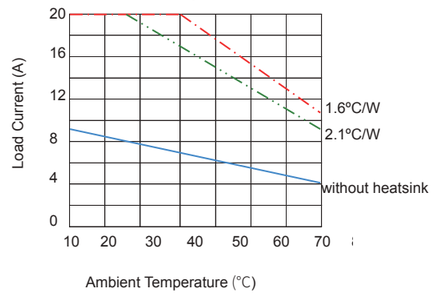
10A



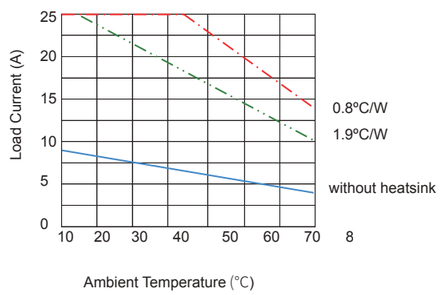
15A



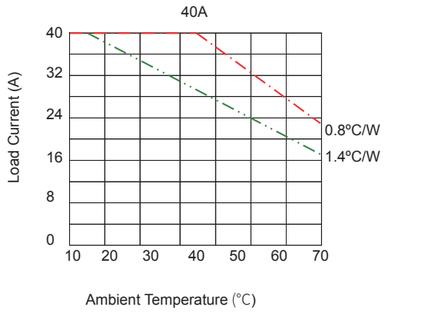
20A



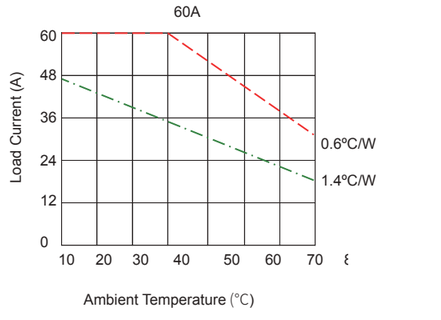
25A



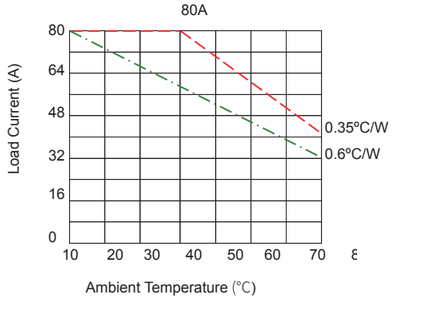
40A



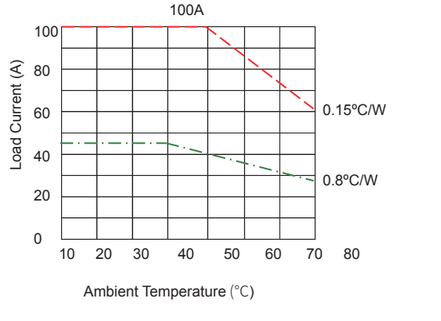
60A



80A

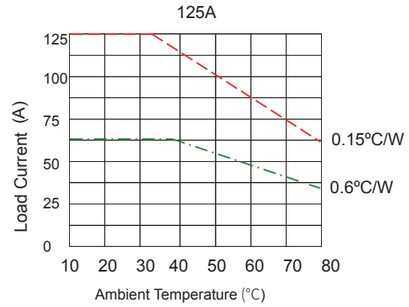


100A



Thermal Derating Curve

125A



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)

Note:

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

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℃)		
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℃)		
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 I^2t for Fusing (@10ms)	25A	312A^2s
	40A	800A^2s
	60A	1800A^2s
	80A	3200A^2s
	100A	5000A^2s

KSIA Series Single Phase AC Output

General Specifications

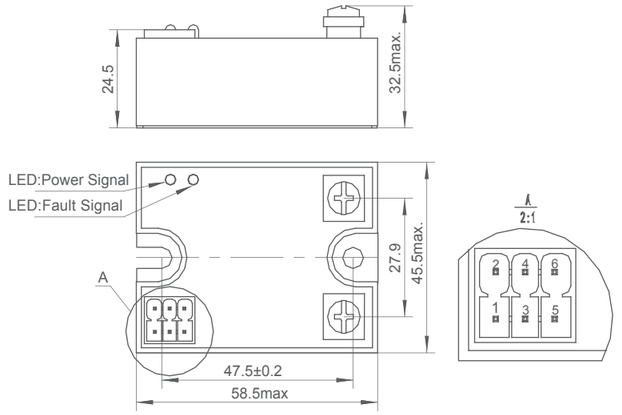
Output Specifications (Ta=25℃)		
Transient Overvoltage	240VAC	600Vpk
	480VAC	1200Vpk
	600VAC	1600Vpk
Maximum Off-State Leakage Current@Rated Load Voltage	5mA	
Maximum On-State Voltage Drop@Rated Current	1.6Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	500V/μs	

General Specifications (Ta=25℃)		
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)	25A, 40A, 60A	100g
	80A, 100A	140g

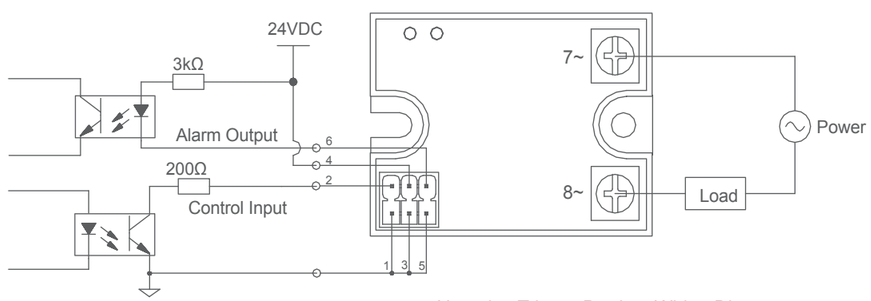
Applications

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

Outline Dimensions

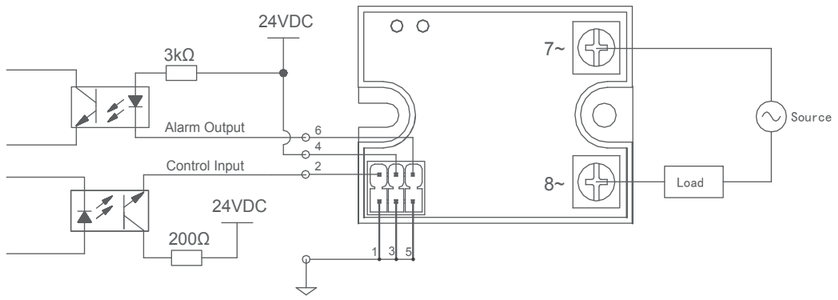


Wiring Diagram

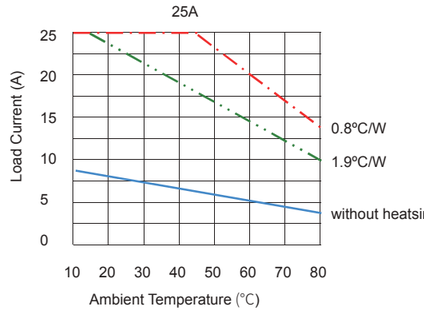


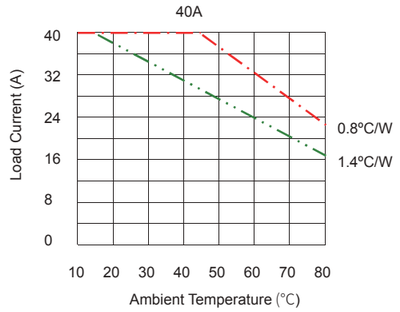
Negative Trigger Product Wiring Diagram

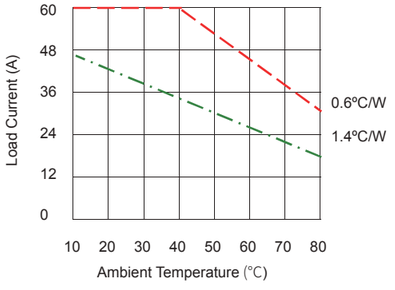
Wiring Diagram

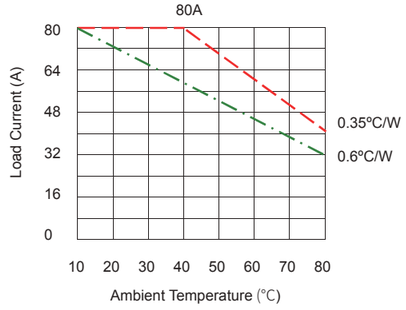


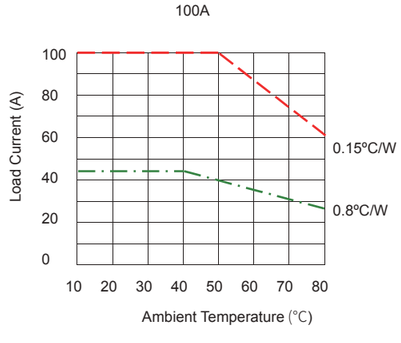
Thermal Derating Curve











General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a 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)

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
	KSID480LD25P		KSID480LD50P
	KSID480LD25RP		KSID480LD50RP
HD:15-32VDC	KSID240HD25	KSID240HD40	
	KSID240HD25R	KSID240HD40R	
	KSID480HD25	KSID480HD40	
	KSID480HD25R	KSID480HD40R	
	KSID240HD25P		KSID240HD50P
	KSID240HD25RP		KSID240HD50RP
	KSID480HD25P		KSID480HD50P
	KSID480HD25RP		KSID480HD50RP

General Specifications

Input Specifications (Ta=25℃)		
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

General Specifications

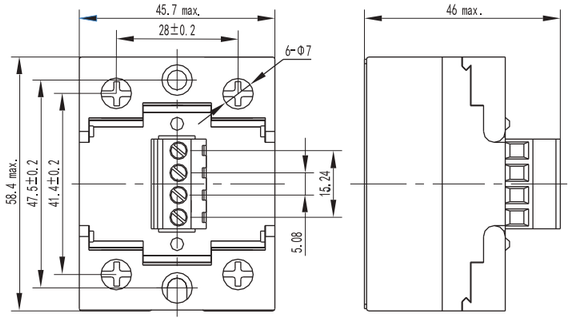
Output Specifications (Ta=25℃)		
Load Voltage Range	240VAC	24-280VAC
	480VAC	24-530VAC
Maximum Turn-On Time	Zero Crossing	10ms
	Random-on	1ms
Maximum Turn-Off Time	10ms	
Maximum 1 Cycle Surge Current (50Hz)	25A	300A
	40A	400A
	50A	500A
Maximum I²t for Fusing (@10ms)	25A	450A²s
	40A	800A²s
	50A	1250A²s
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℃)			
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

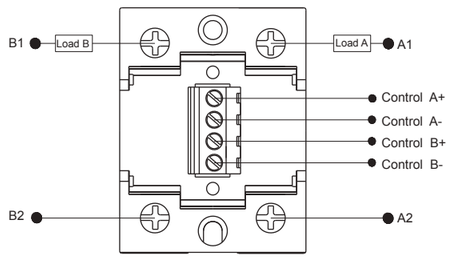
Applications

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

Outline Dimensions / Wiring Diagram



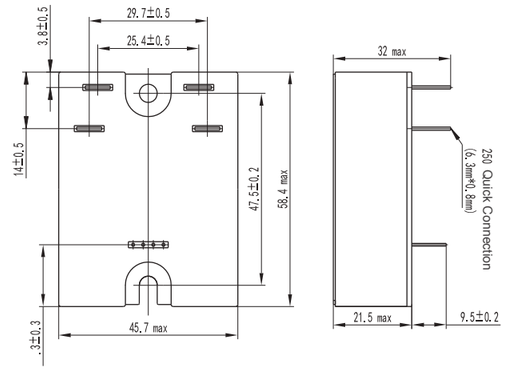
Screw Terminal (IP20)



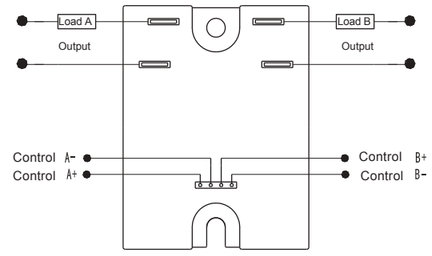
Wiring Diagram

Panel Mount
KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

Outline Dimensions / Wiring Diagram



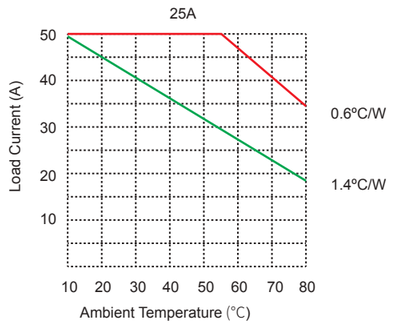
Quick Connection Terminal

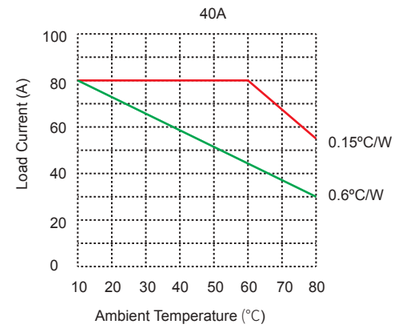


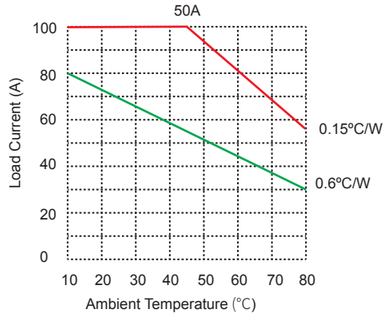
Wiring Diagram

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

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.

Agency Approvals (Certification)

TUV & S-mark are only available for IP20.

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℃)	
Control Voltage Range	4-32VDC
Must Turn-On Voltage	4VDC
Must Turn-Off Voltage	1VDC
Maximum Input Current	25mA @32VDC
Maximum Reverse Voltage	32VDC

Panel Mount
KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

General Specifications

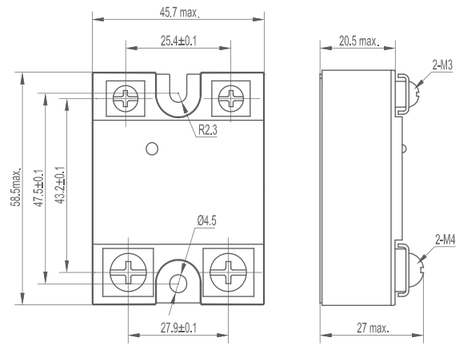
Output Specifications (Ta=25℃)	KSJ30D□-L		KSJ50D□-L		KSJ60D□-L		KSJ100D□-L				KSJ200D□-L			KSJ400D25-L	KSJ600D□-L		KSJ1200D□-L	
	50	100	40	80	7	50	20	40	80	100	10	20	40		25	50	25	50
Load Voltage Range (VDC)	0-24		0-36		0-48		0-75				0-120			0-300	0-500		0-650	
Maximum Load Current (A)	50	100	40	80	7	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℃)		
Dielectric Strength (50/60Hz)	Input/Output	2500Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30℃ ~ +80℃	
Storage Temperature Range	-30℃ ~ +100℃	
Weight (Typical)	100g	

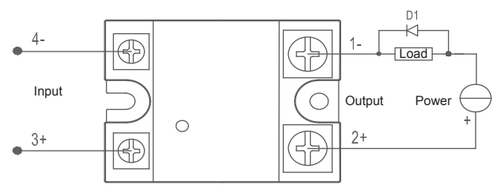
Applications

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

Outline Dimensions/Wiring Diagram



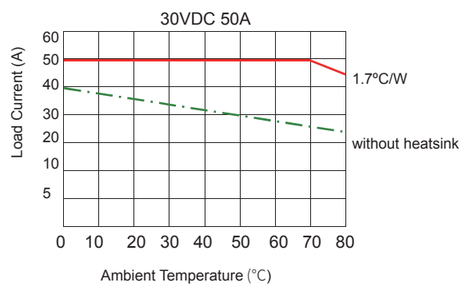
Outline Dimensions

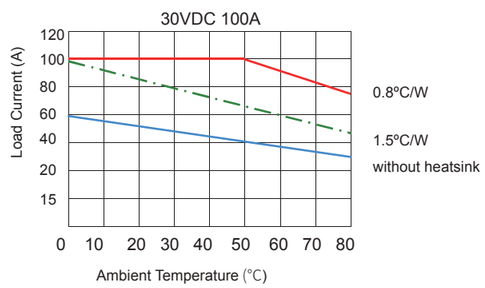


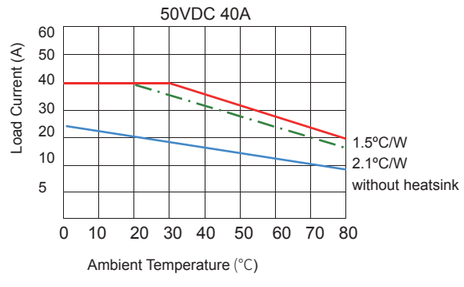
When the relay is used for inductive load control, please be sure to use a suppression circuit, just like the drawing above. Both load terminals are inverse parallelled with a fly-wheel diode D1.
D1: Fast Recovery Diode

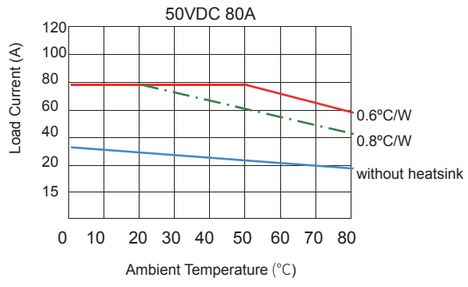
Wiring Diagram

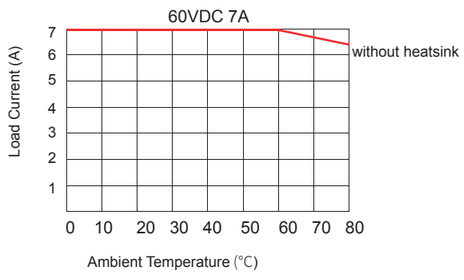
Thermal Derating Curve

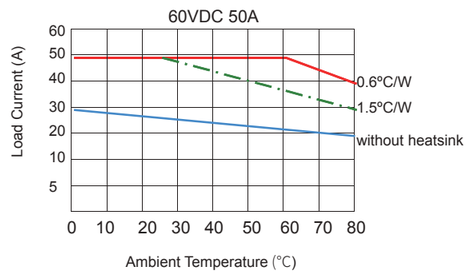


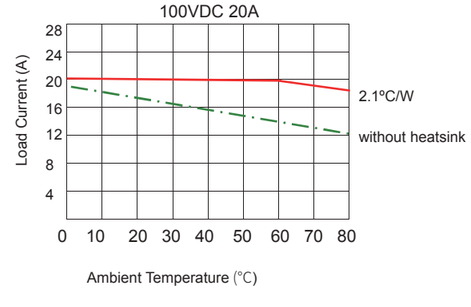


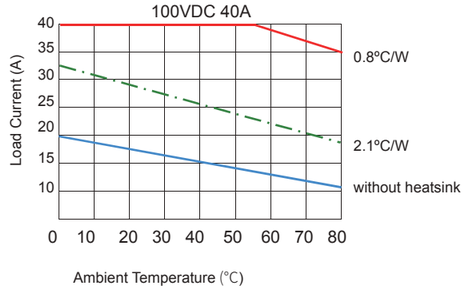




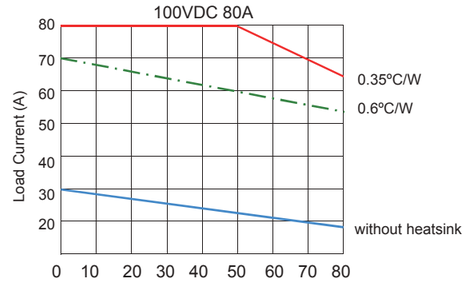


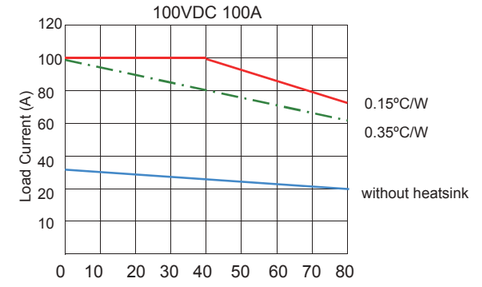


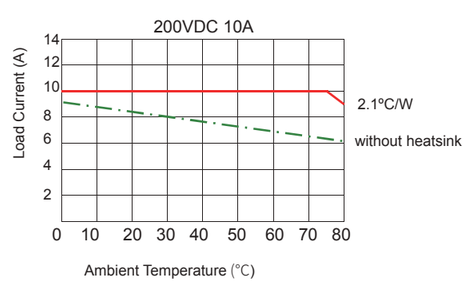


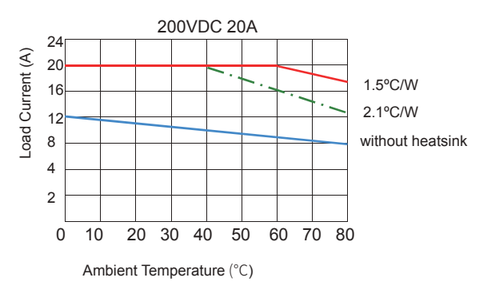


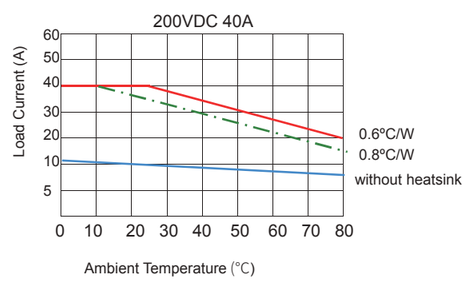
Thermal Derating Curve

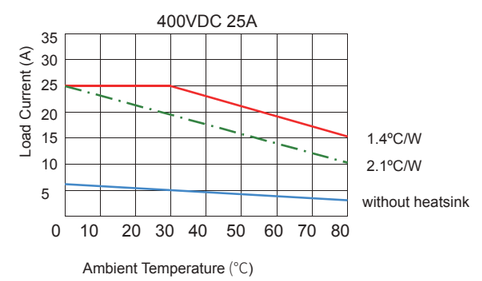


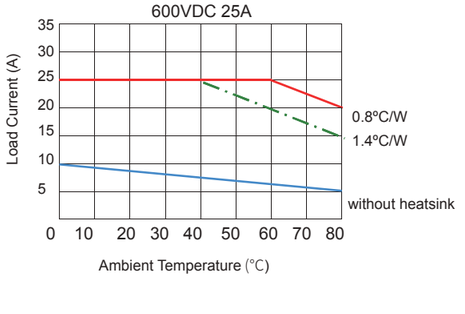


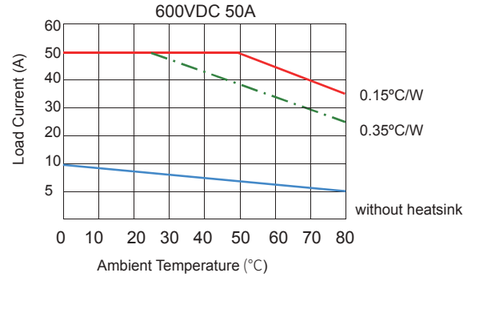




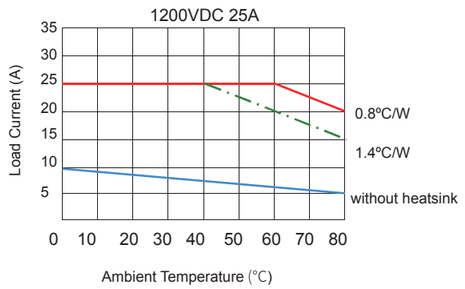


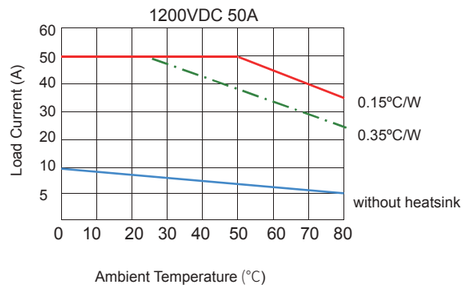






Thermal Derating Curve





General Notes

1. Relay must be mounted to proper sized heat sink based on thermal curves. Thermal grease or a 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)

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	

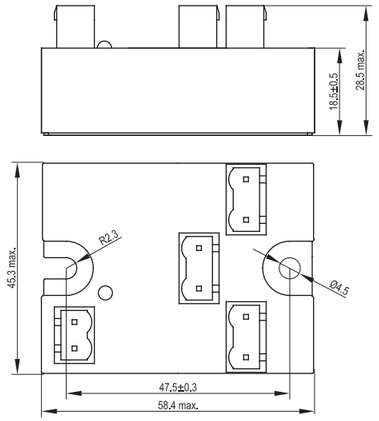
General Specifications

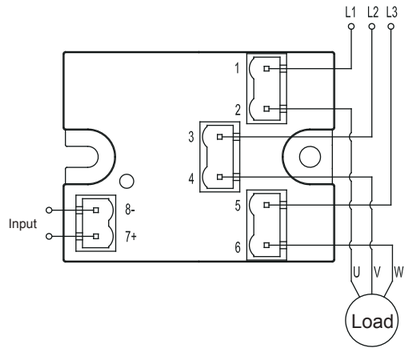
General Specifications (Ta=25℃)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30℃ ~ +80℃	
Storage Temperature Range	-30℃ ~ +100℃	
Weight (Typical)	100g	

Applications

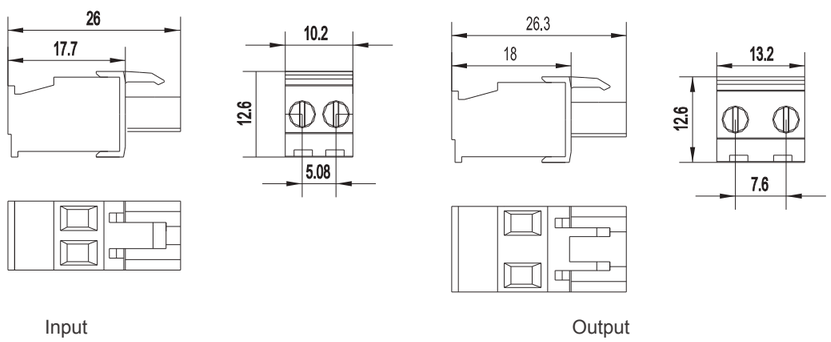
Suitable for 3 phase motor control, temperature controlling weaving machinery, and etc.

Outline Dimensions / Wiring Diagram





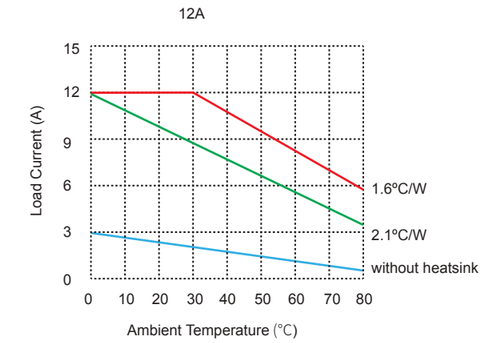
Outline Dimensions

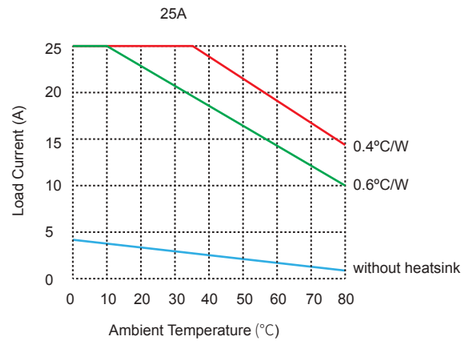


Input Output

Panel Mount
KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQC
KSQF
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

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℃ see thermal derating curve.

Agency Approvals (Certification)

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℃)		
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℃)			
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	

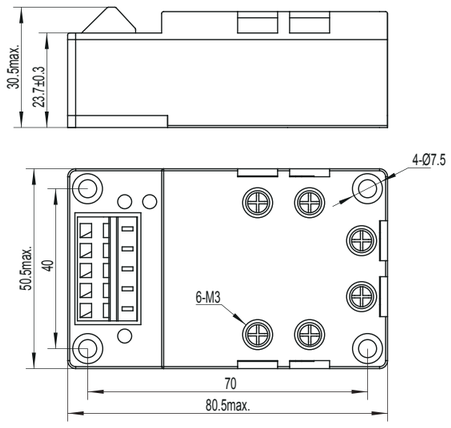
General Specifications

General Specifications (Ta=25℃)		
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	

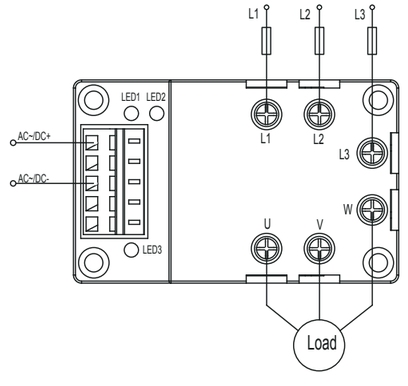
Applications

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

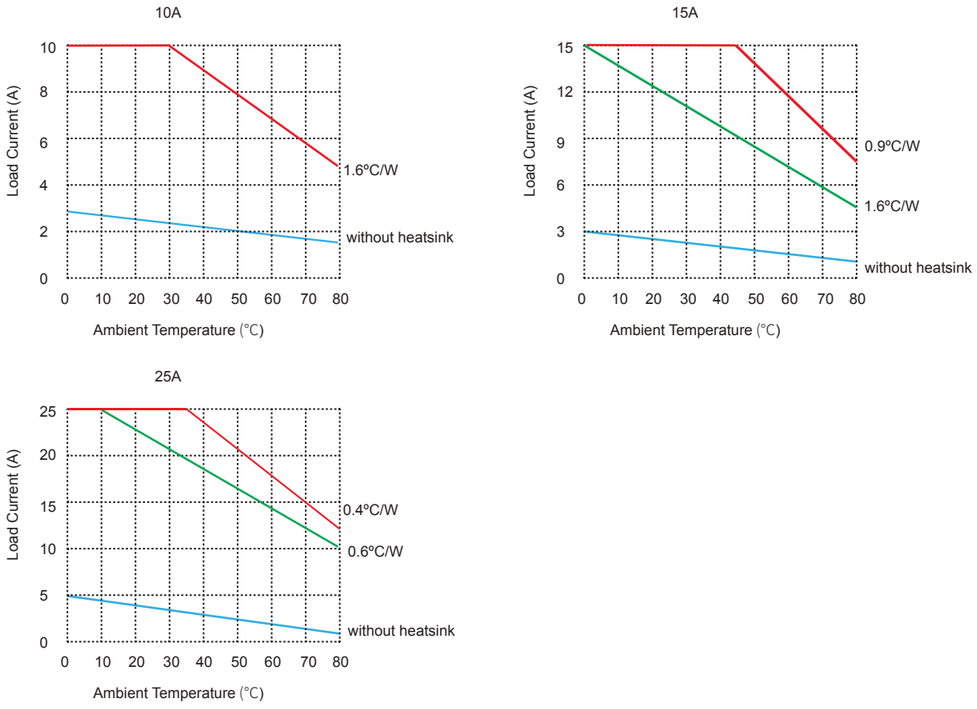
Outline Dimensions



Wiring Diagram



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)

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℃)		
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℃)			
Load Voltage Range		480VAC	24-530VAC
		600VAC	24-660VAC
Maximum Turn-On Time	DC Control	AC Control	40ms
		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

General Specifications

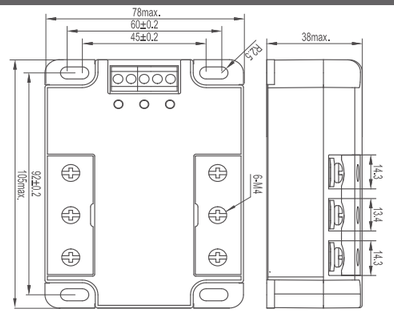
Maximum I²t for Fusing (@10ms)	25A	450A²s
	40A	1250A²s
	60A	3698A²s
	80A	8192A²s
Maximum Off-State Leakage Current@Rated Load Voltage	10mA	
Maximum On-State Voltage Drop@Rated Current	1.6Vrms	
Minimum Off-State dv/dt@Maximum Rated Voltage	≥500 V/μs	

General Specifications (Ta=25℃)		
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)	25A, 40A	385g
	60A, 80A	530g

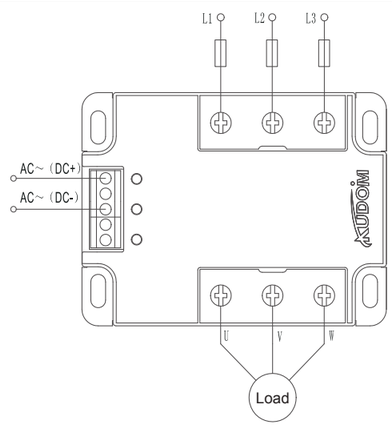
Applications

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

Outline Dimensions



Wiring Diagram

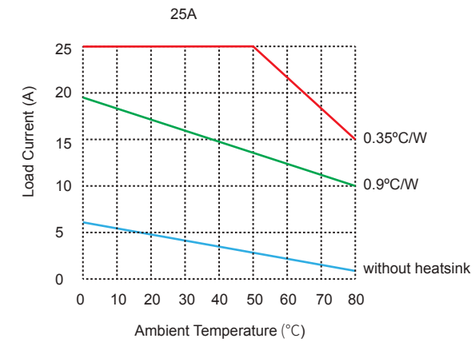


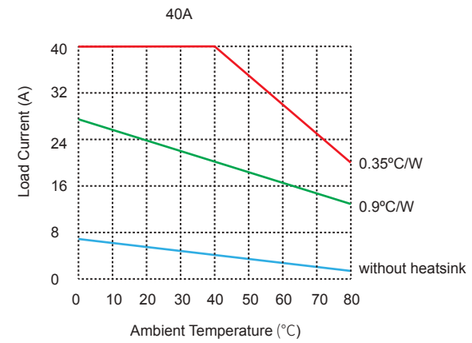
AC~ (DC+): AC Control Input (DC Control Anode Input)

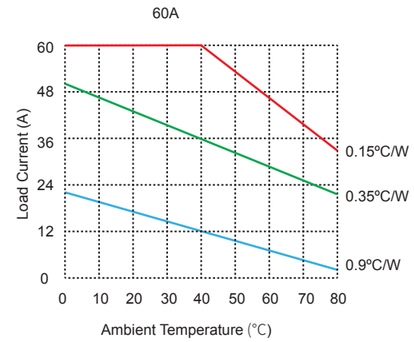
AC~ (DC-): AC Control Input (DC Control Cathod Input)

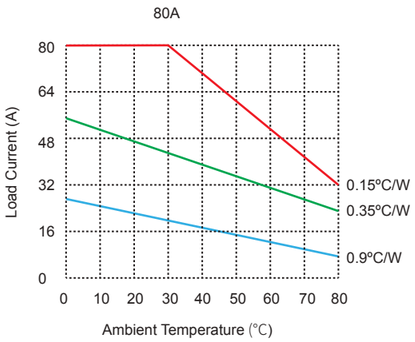
Panel Mount
KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

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℃ see thermal derating.

Agency Approvals (Certification)

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℃)		
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℃)		
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

Panel Mount
KSIM
KSI
KSIA
KSID
KSJ
KSQM
KSQE
KSQF
KSQC
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

General Specifications

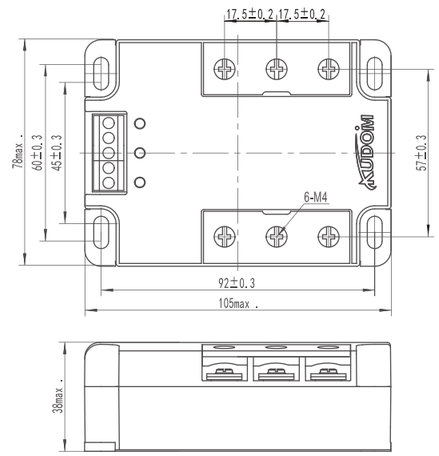
General Specifications (Ta=25℃)		
Alarm Contact Parameters	Contact Resistance	<70mΩ
	Maximum Current	1A @250VAC/30VDC
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input,output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30℃ ~ +80℃	
Storage Temperature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

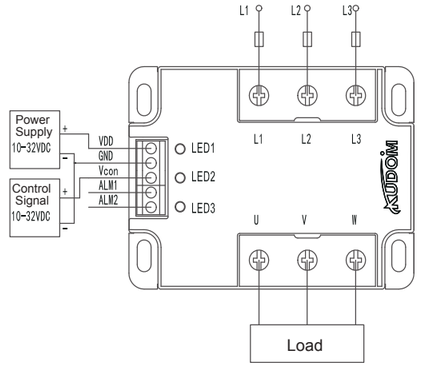
Applications

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

Outline Dimensions



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

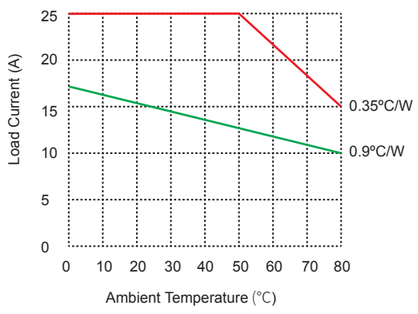
LED1: Power indication of external power supply

LED2: Control signal indication

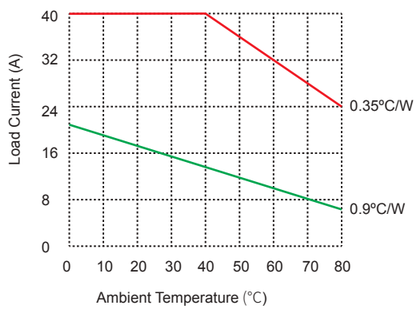
LED3: Failure indication

Thermal Derating Curve

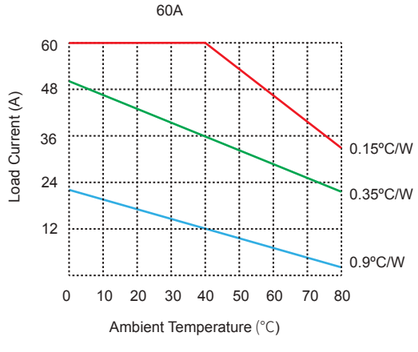
25A



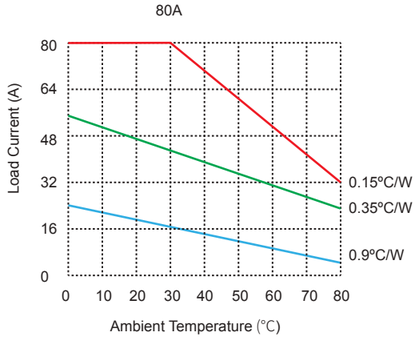
40A



60A



80A



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)

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℃)		
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℃)		
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	

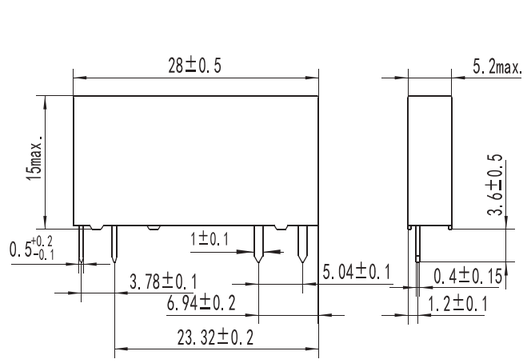
General Specifications

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

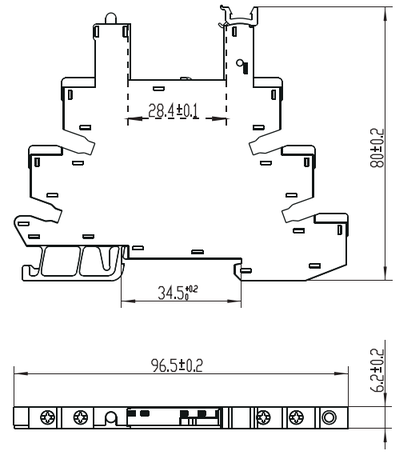
Applications

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

Outline Dimensions

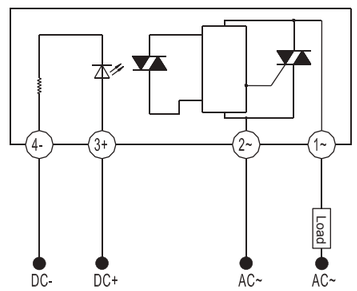


SSR



Socket Installation Drawing (Type: KPD-1A)

Wiring Diagram



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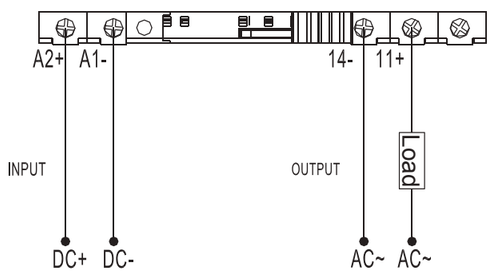
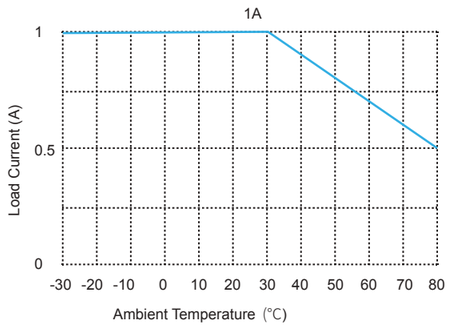
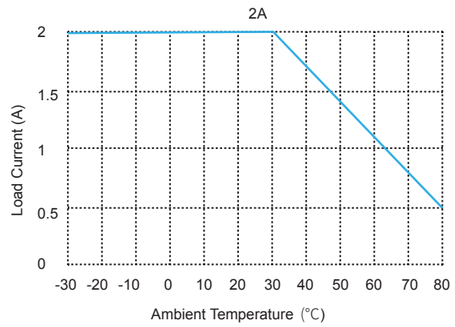


with Socket

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. 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)

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℃)		
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	

General Specifications

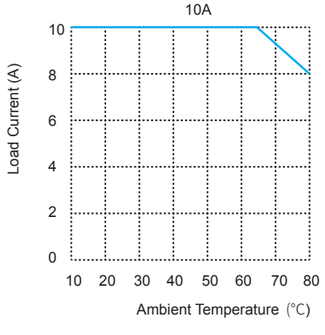
Output Specifications (Ta=25℃)		
Load Voltage Range	240VAC	24-280VAC
	480VAC	24-530VAC
Maximum Turn-On Time	DC Control Random-on	1ms
	DC Control Zero Crossing	10ms
	AC Control	40ms
Maximum Turn-Off Time	DC Control	10ms
	AC Control	40ms
Maximum Surge Current (@10ms)	10A	200A
	20A	300A
	30A	500A
	40A	600A
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	

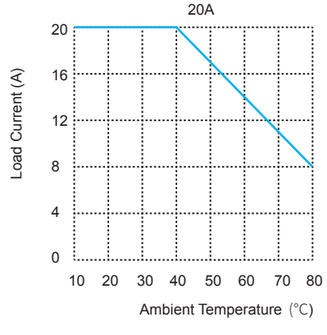
General Specifications (Ta=25℃)		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Input, output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Minimum Power Factor (at Maximum load)	0.5	
Ambient Temperature Range	-30℃ ~ +80℃	
Storage Temperature Range	-30℃ ~ +100℃	
Weight (Typical)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

Applications

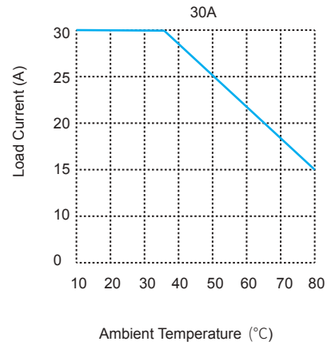
Suitable for Temperature Chamber, Injection Molding Machine, Packaging Machine, and etc.

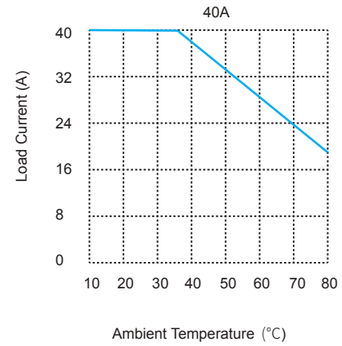
Thermal Derating Curve





Thermal Derating Curve





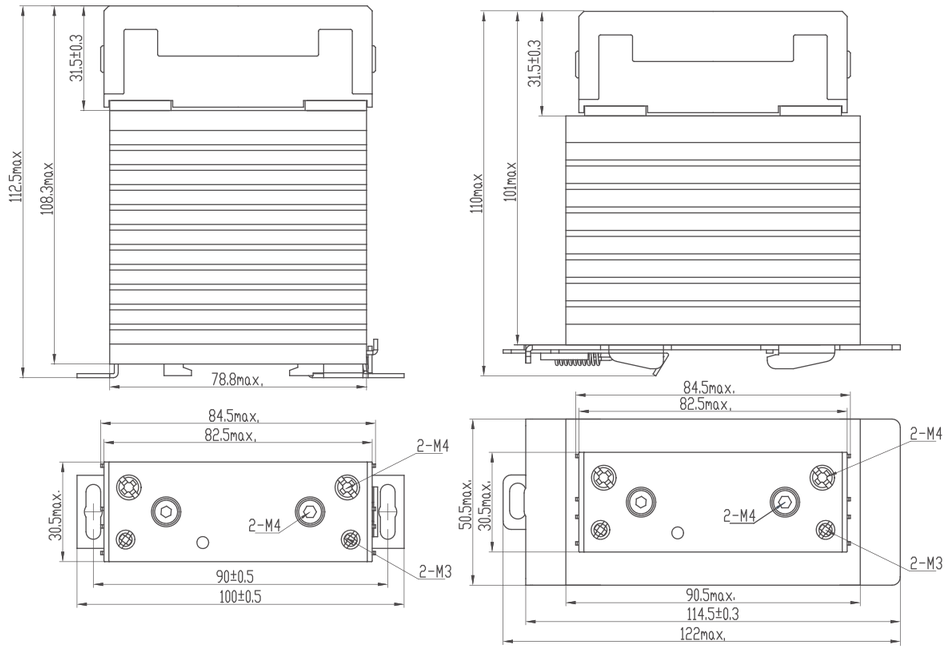
General Notes

1. When ambient temperature is above 25°C, the maximum load current decreases. See thermal derating curve.
2. When connecting wiring to SSR please ensure screws are torqued down to the specs below
3. 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)

Outline Dimensions

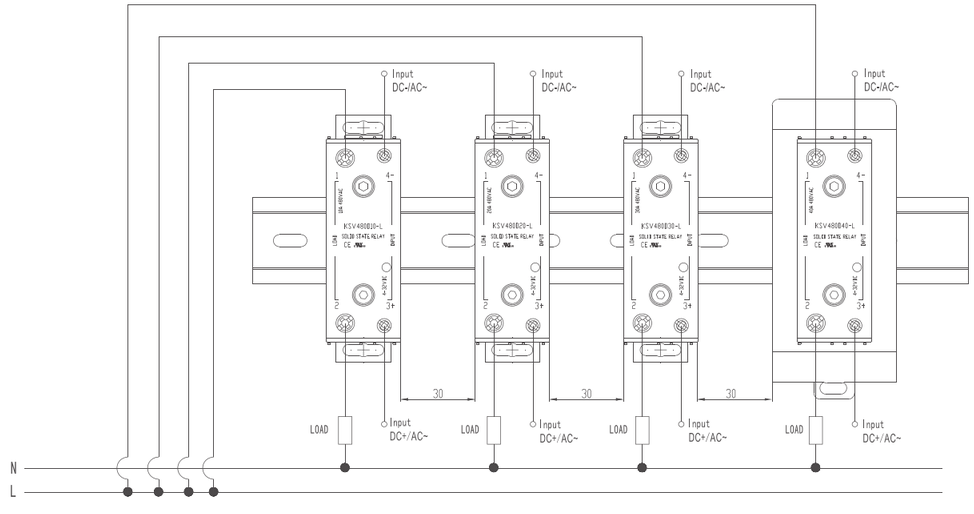


10A-30A SSR

40A SSR

Connection Example

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



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℃)		
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)

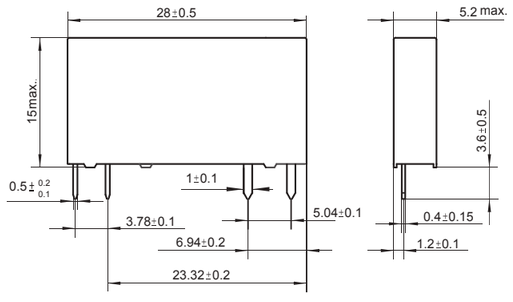
Note: (2) For KSMD with the socket, the control voltage limit should be increased by 1.4V.
(3) If KSMD is equipped with the socket, to ensure that the control voltage should be increased by 1.4V, for example, for KSMD240D2-12D, to ensure that the control voltage is 9.6+1.4=11V min.

General Specifications

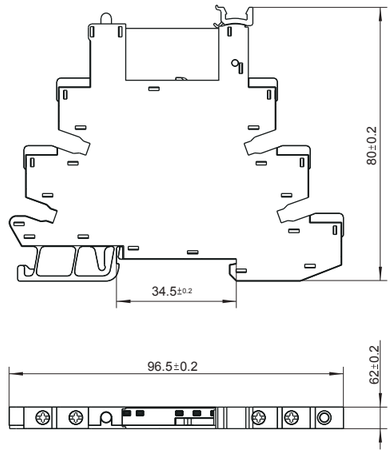
Output Specifications (Ta=25℃)		
Load Voltage Range	24V	3-28VDC
	48V	3-58VDC
Maximum Transient Overvoltage	24V	33VDC
	48V	58VDC
Load Current Range	0.1A	0.001 - 0.1A
	2A	0.002 - 2A
	3A	0.002 - 3A
	4A	0.002 - 4A
Maximum Turn-On Time	300μs	
Maximum Turn-Off Time	300μs	
Maximum Surge Current (@10 ms)	0.1A	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℃)		
Dielectric Strength (50/60Hz)	2500Vrms	
Minimum Insulation Resistance (@500VDC)	1000MΩ	
Ambient Temperature Range	-30℃ ~ +80℃	
Storage Temperature Range	-30℃ ~ +100℃	
Weight (Typical)	without Socket	4g
	D: with Socket	30g

Outline Dimensions



SSR

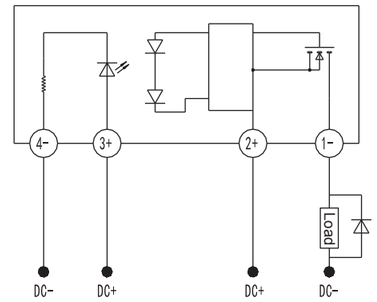


with Socket

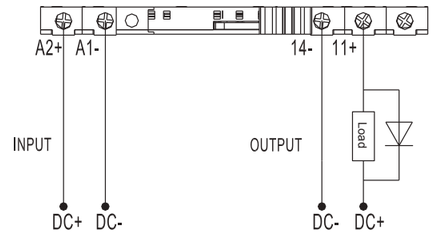
Applications

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

Wiring Diagram

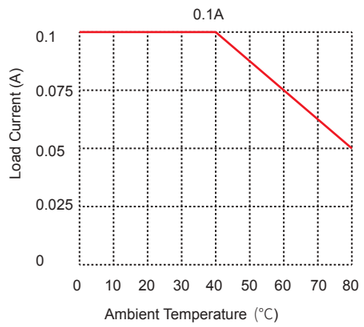


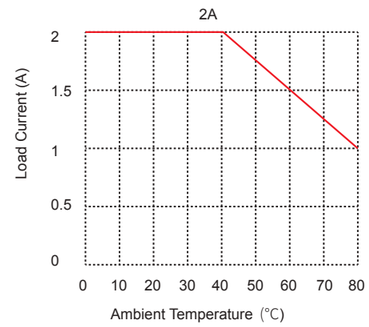
SSR

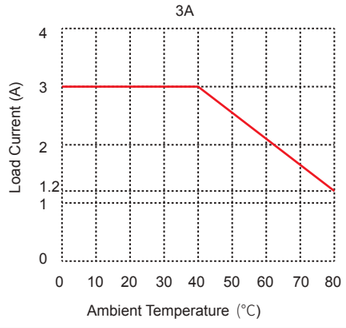


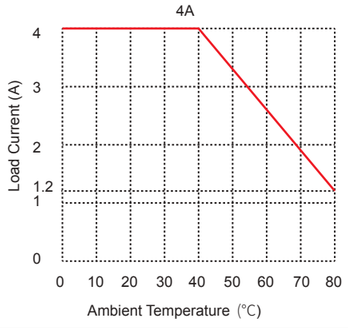
with Socket

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. damage to 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)

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

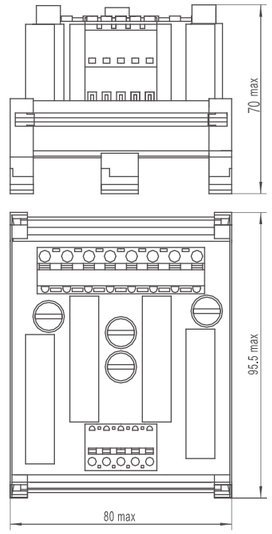
DR	A	- 8	K (1)	- KSD480D5-W (037)	(XXX)
DR Series	A: Mould A	1: 1 Channel 2: 2 Channel 4: 4 Channel 8: 8 Channel	A: Common Anode K: Common Cathode	SSR -KSD*** -KSF*** -KSL***	Customized Code

Outline Dimensions

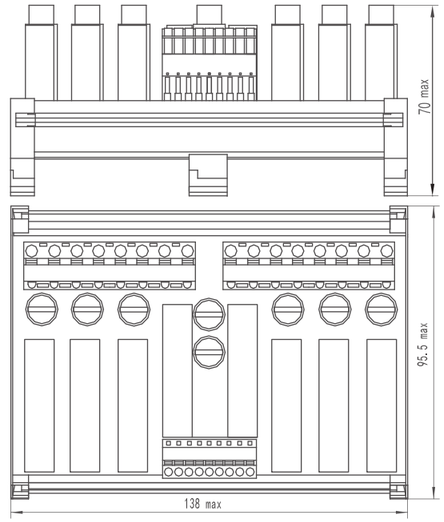
DRA-1 Series

DRA-2 Series

Outline Dimensions

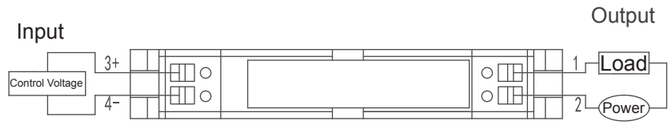


DRA-4 Series

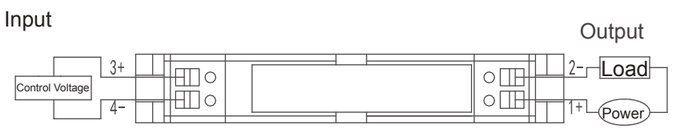


DRA-8 Series

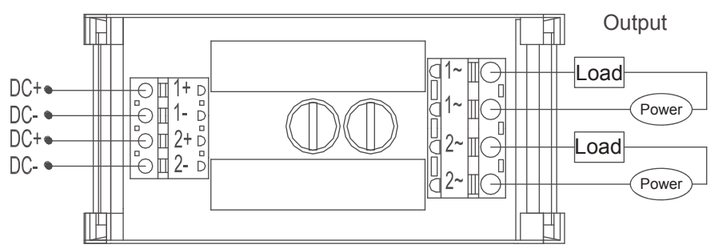
Wiring Diagram



DRA-1-KSD Series Wiring Diagram

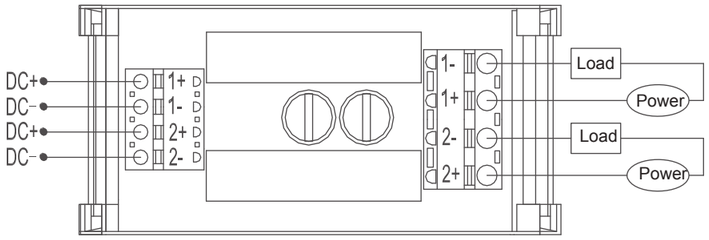


DRA-1-KSF/KSL Series Wiring Diagram

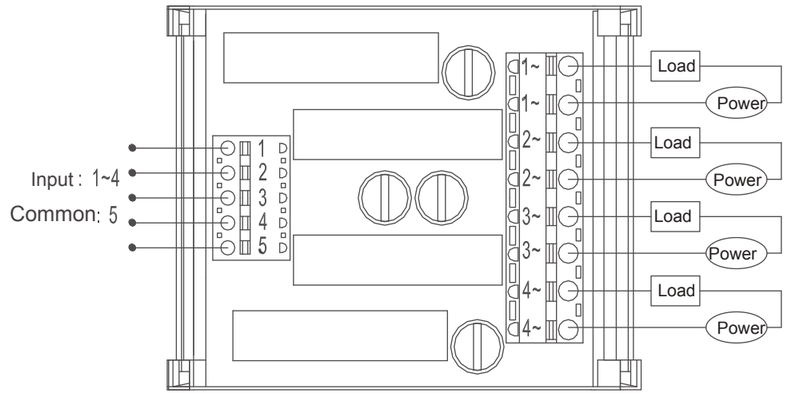


DRA-2-KSD Series Wiring Diagram

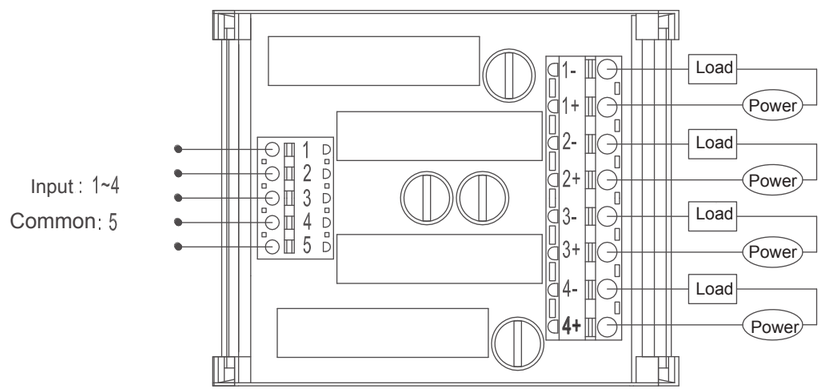
Wiring Diagram



DRA-2-KSF/ KSL Series Wiring Diagram

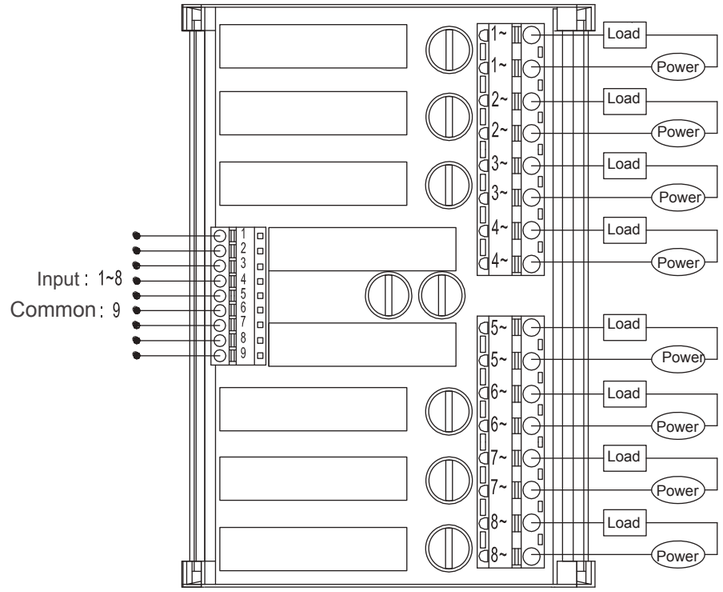


DRA-4A/K-KSD Series Wiring Diagram

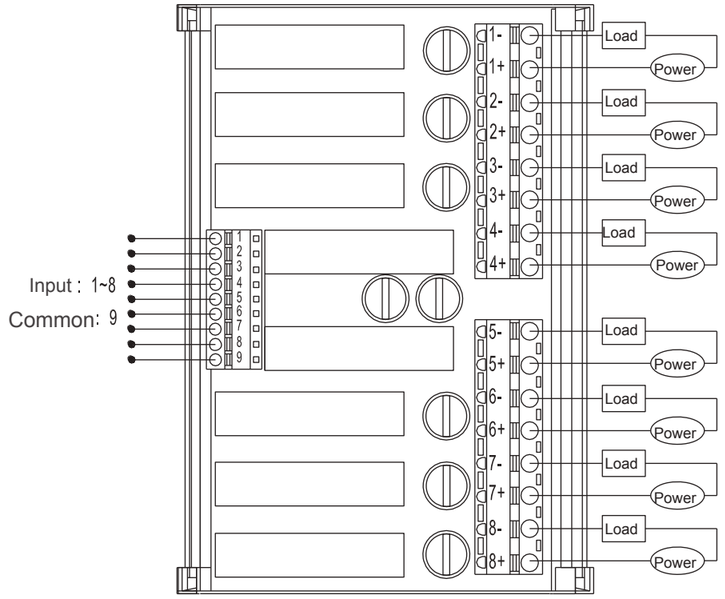


DRA-4A/K-KSF /KSL Series Wiring Diagram

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)

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 Circuirt
- 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℃)		
Control Voltage Range	-12	9.6-14.4VDC
	-24	19.2-28.8VDC
Must Turn-On Voltage	-12	9.6VDC
	-24	19.2VDC
Must Turn-Off Voltage	2VDC	
Maximum Input Current	15mA	

Output Specifications (Ta=25℃)		
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	100A
	20A	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℃)		
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℃	
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

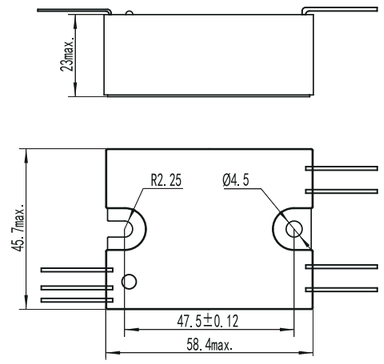
KMB Series Three-phase Motor Reversing Module

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

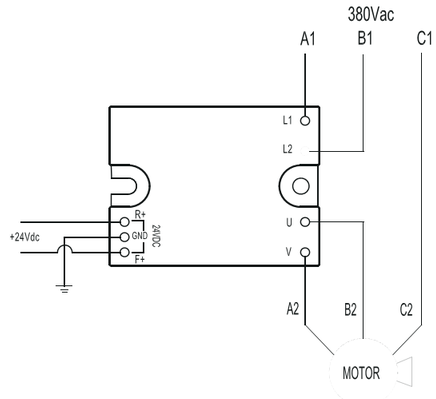
Applications

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

Outline Dimensions/Wiring Diagram

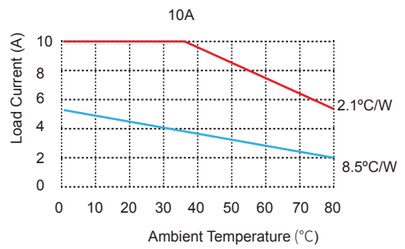


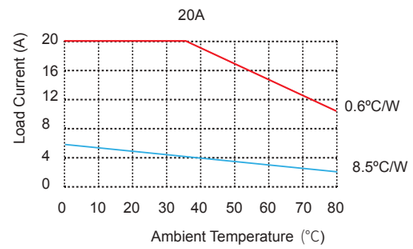
Outline Dimensions



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℃, 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	380	D	10	-24	(XXX)
KMC Series (1)	Load Voltage 380: 380VAC	Control Mode D: DC Control	Load Current 10: 10Amp 20: 20Amp 40: 40Amp	Control Voltage 12: 12VDC 24: 24VDC	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℃)		
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℃)		
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	

Motor Reversing
KMB
KMC
KMS
KMT
KMTY
KMTYM
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

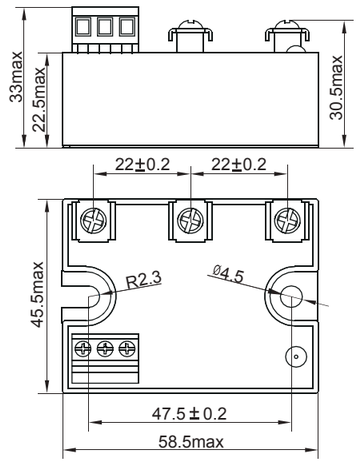
General Specifications

General Specifications (Ta=25℃)		
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)	Screw Terminal	125g
	Lead Terminal	100g

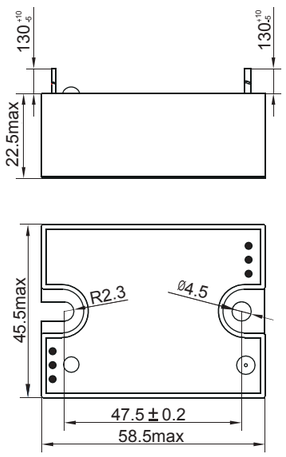
Applications

Single phase motor control

Outline Dimensions

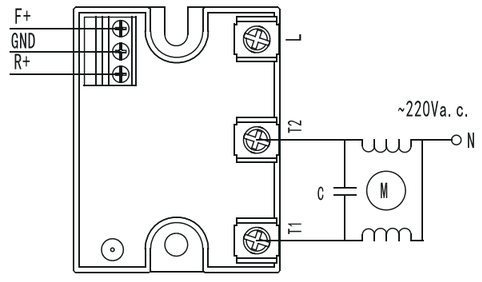


Screw Terminal

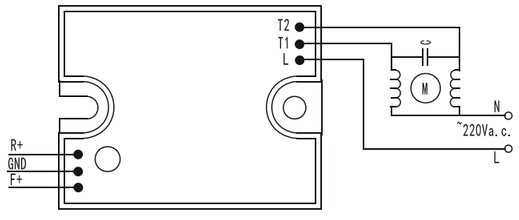


Lead Terminal

Wiring Diagram

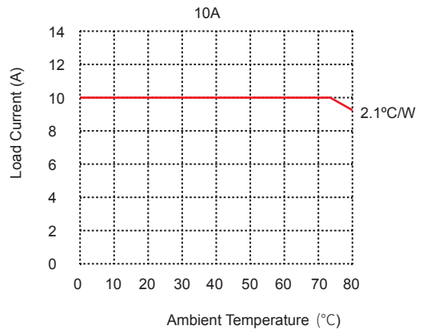


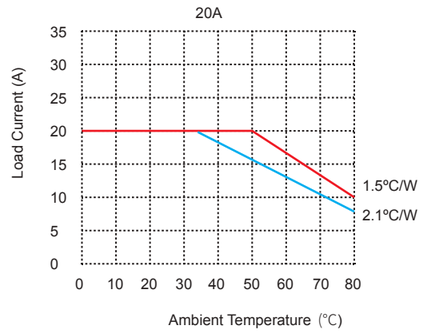
Screw Terminal

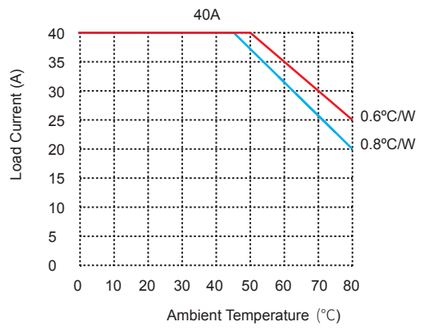


Lead Terminal

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 torgued 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℃, 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 Cathod 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	60 A
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℃)		
Control Voltage Range	10-32VDC	
Must Turn-On Voltage	10VDC	
Must Turn-Off Voltage	3VDC	
Maximum Input Current	25mA	

Output Specifications (Ta=25℃)		
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	

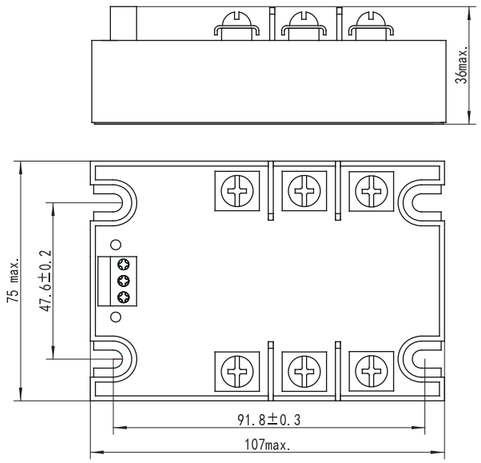
General Specifications

General Specifications (Ta=25℃)		
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℃ ~ +80℃
Storage Temperature Range		-30℃ ~ +100℃
Weight (Typical)		340g
LED Status Indication		Forward:Green
		Reversion:Red

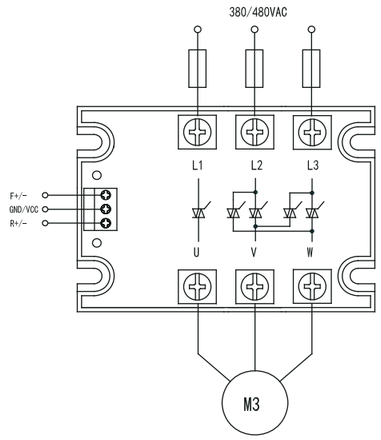
Applications

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

Outline Dimensions / Wiring Diagram

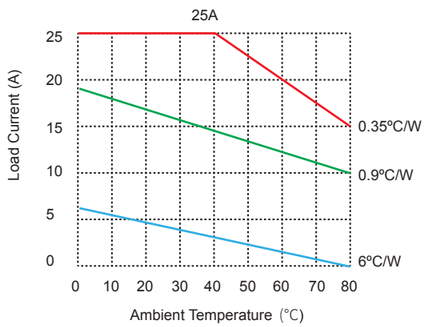


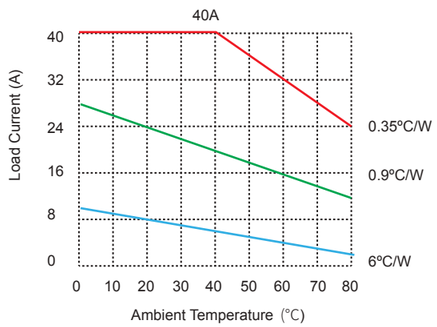
Outline Dimensions



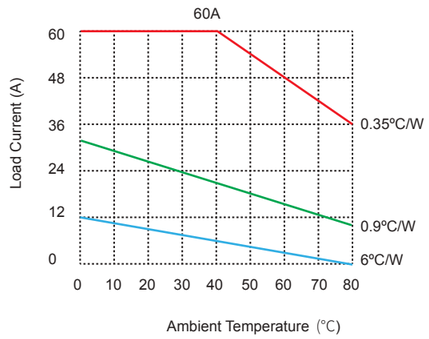
Wiring Diagram

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 torgued 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
- 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℃)		
Control Voltage Range	10-32VDC	
Must Turn-On Voltage	10VDC	
Must Turn-Off Voltage	3VDC	
Maximum Input Current	25mA	

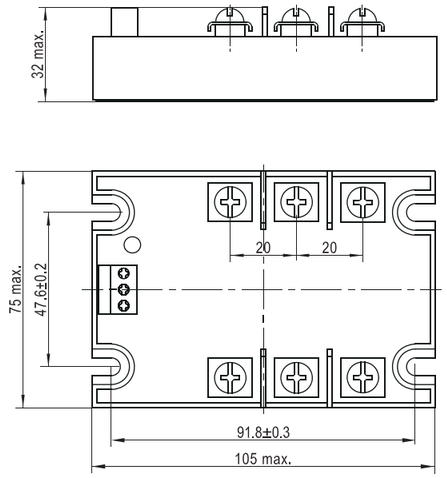
Output Specifications (Ta=25℃)		
Load Voltage Range	380VAC	24-440VAC
	480VAC	24-530VAC
Transient Overvoltage	380VAC	1200Vpk
	480VAC	1600Vpk
Turn-on Time Delay (Typical)	80ms	
Maximum Turn-Off Time	10ms	
Maximum Surge Current (@10ms)	25A	300A
	50A	600A
Maximum Off-state Leakage Current (@ Rated Voltage)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

General Specifications (Ta=25℃)		
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	

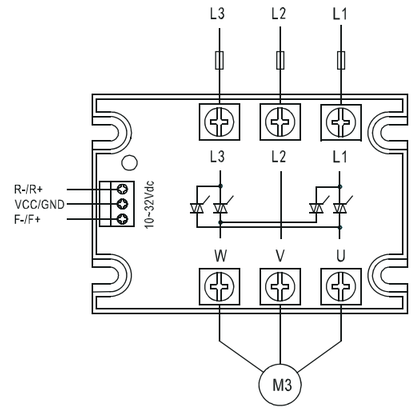
Applications

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

Outline Dimensions / Wiring Diagram

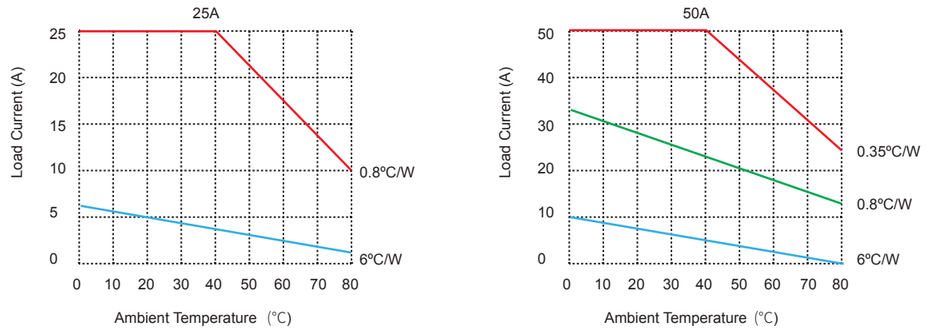


Outline dimensions



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 torgued 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

- 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
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

General Specifications

Input Specifications (Ta=25℃)		
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℃)		
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 I^2t for Fusing (@10ms)	25A	312A^2s
	40A	800A^2s
	60A	1800A^2s
	80A	3200A^2s
Minimum Off-State dv/dt@Maximum Rated Voltage	200V/μs	

General Specifications (Ta=25℃)		
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℃	

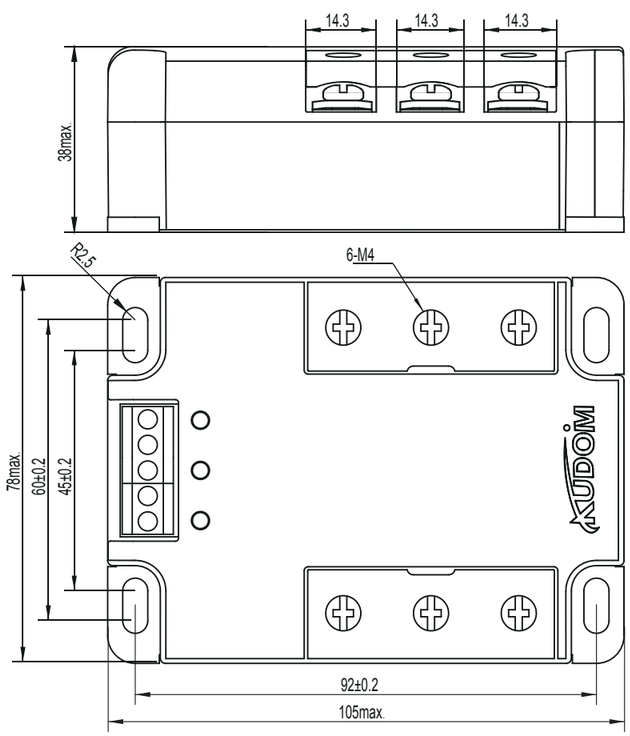
Product Description

General Specifications (Ta=25℃)		
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℃	
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

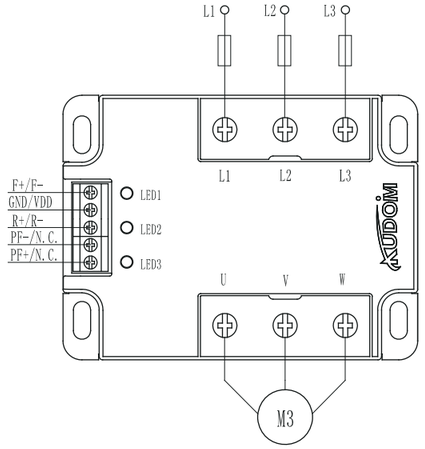
Three phase motor reversing control, such as the valve controls, and etc.

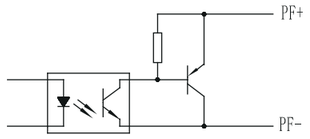
Outline Dimensions



Outline Dimensions

Wiring Diagram





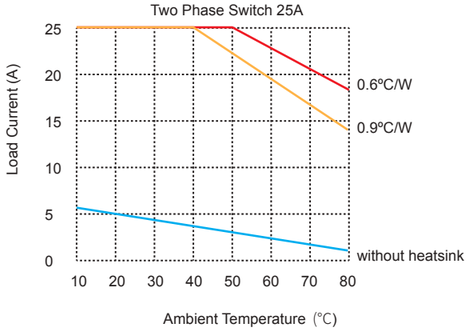
Wiring Diagram

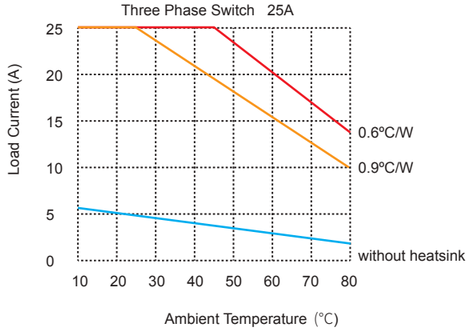
Input control on Common Cathode:
F+: Forward control please input Anode+,
GND: Common Port please input Cathode;
R+: Reversing control please input Anode+,

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

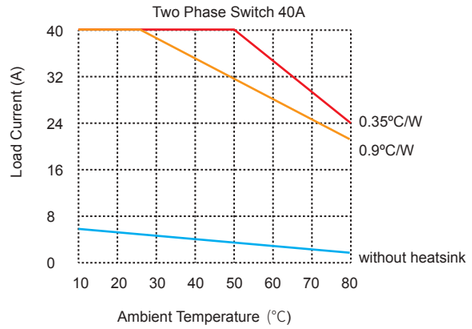
PF-: Lack of phase fault please connect Cathode in output (N.C.:No Connection)
PF+: Lack of phase Fault please connect Anode in output (N.C.:No Connection)
LED1: Forward Indication
LED2: Reversing Indication
LED3: Fault Indication: When there is lack of phase, LED is bright; When Three-phase are normal 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

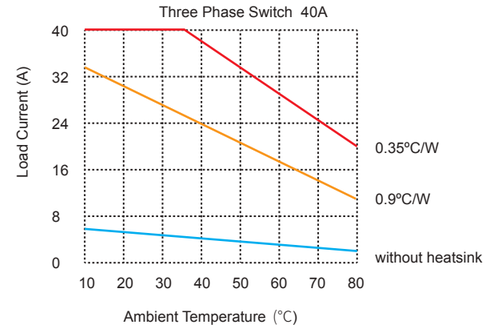
Thermal Derating Curve

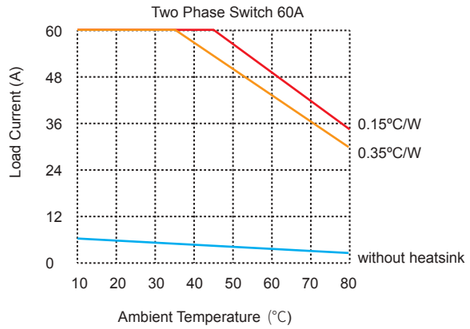


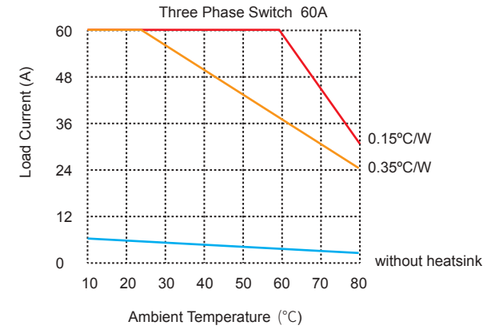


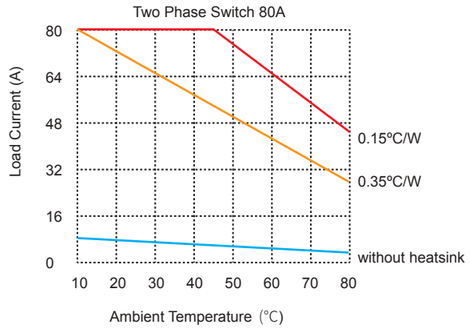
Thermal Derating Curve

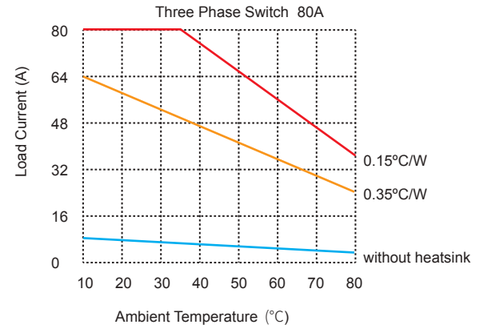












General Notes

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 torgued 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

- 10-32VDC Input
- Internal RC/MOV Protection Circuit
- Automatic Phase Correction, Phase Sequance 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℃)		
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℃)		
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℃)		
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℃	
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

Motor Reversing
KMB
KMC
KMS
KMT
KMTY
KMTYM
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

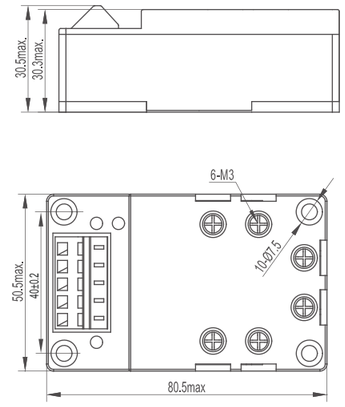
General Specifications

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

Applications

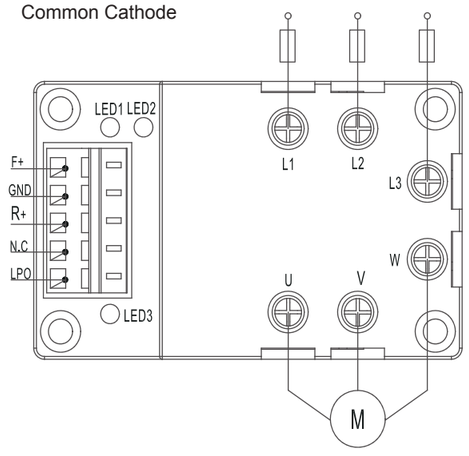
Three phase motor reversing control, such as the valve controls, and etc.

Outline Dimensions



Wiring Diagram

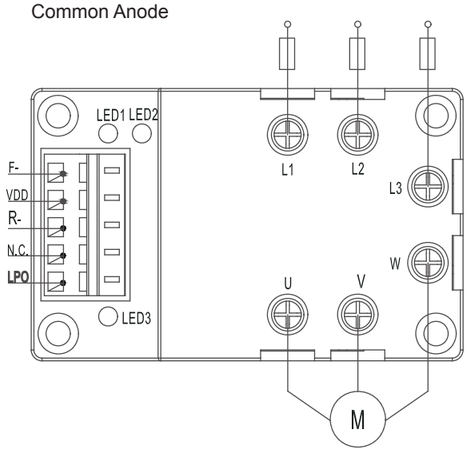
Common Cathode



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.

Wiring Diagram

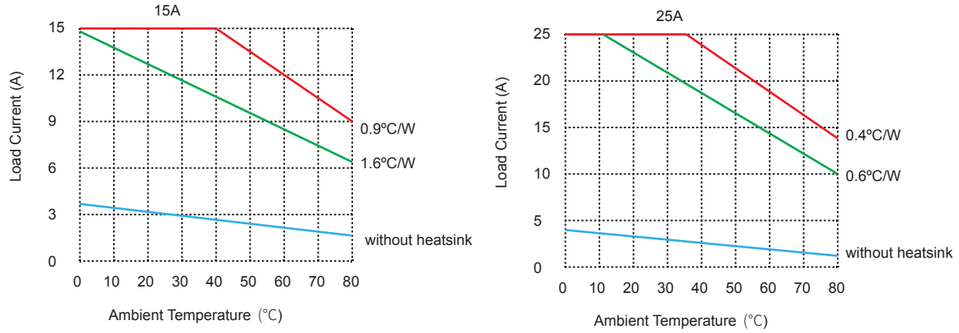
Common Anode



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 torgued 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

- 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 ULN 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^2t for Fusing (@10ms)		1800A^2s
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

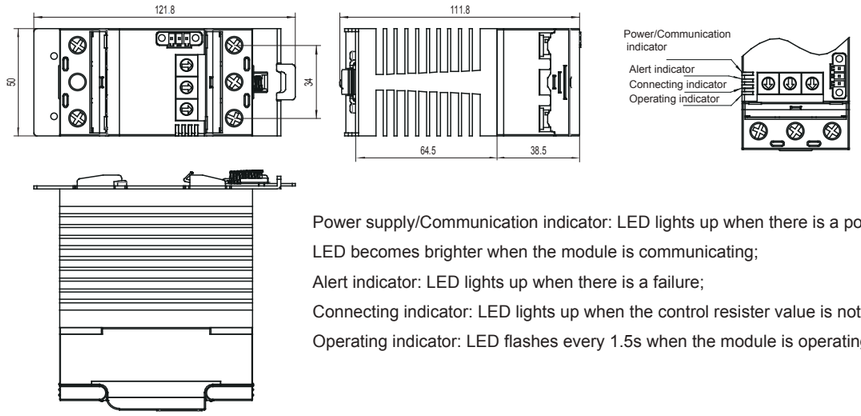
General Specifications

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℃ ～ +70℃	
Storage Temperature Range	-30℃ ～ +100℃	
Weight (Typical)	700g	

Applications

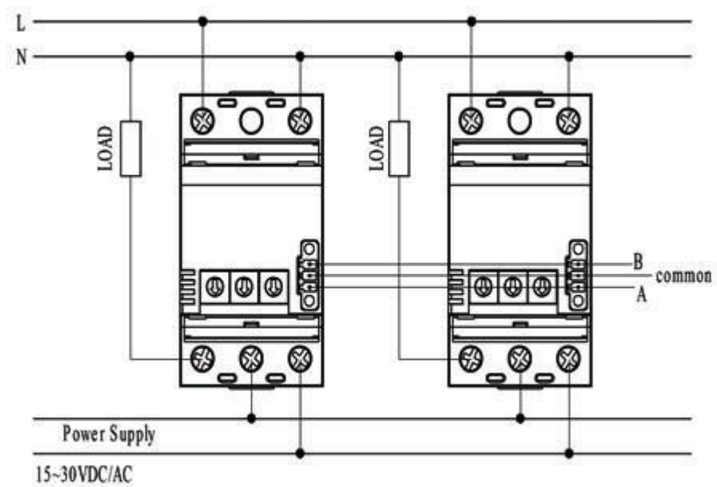
Widely used for the industry application that requests precise adjustment of temperature.

Outline Dimensions&LED

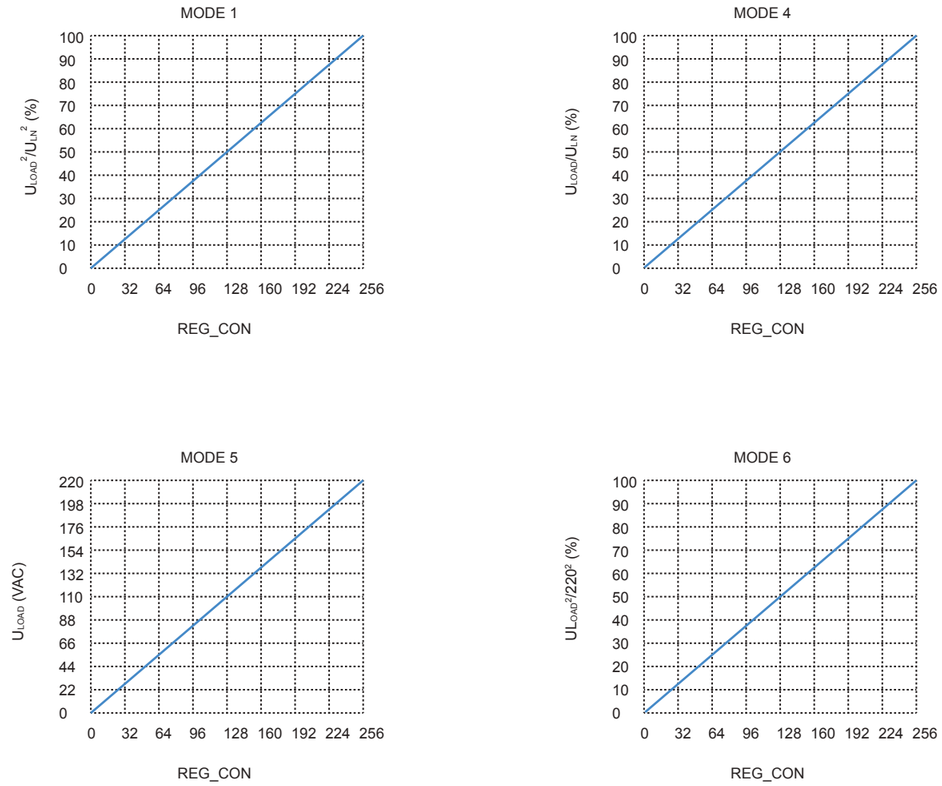


Power supply/Communication indicator: LED lights up when there is a power supply;
LED becomes brighter when the module is communicating;
Alert indicator: LED lights up when there is a failure;
Connecting indicator: LED lights up when the control resister value is not zero;
Operating indicator: LED flashes every 1.5s when the module is operating.

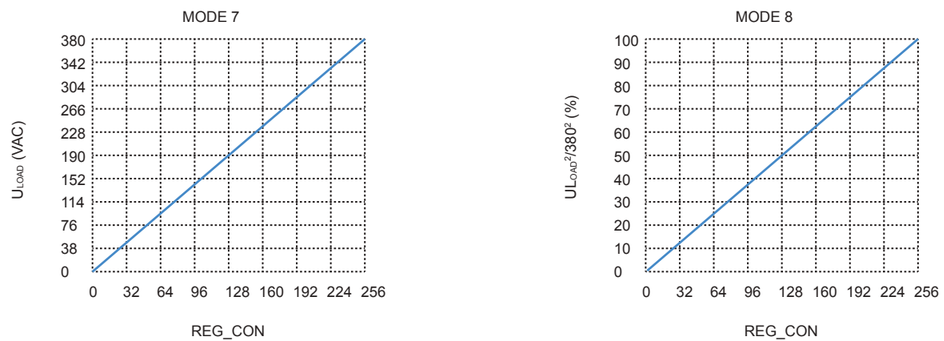
Wiring Diagram



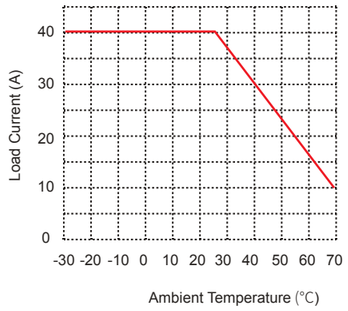
Output/Proportional Control Features



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℃ 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

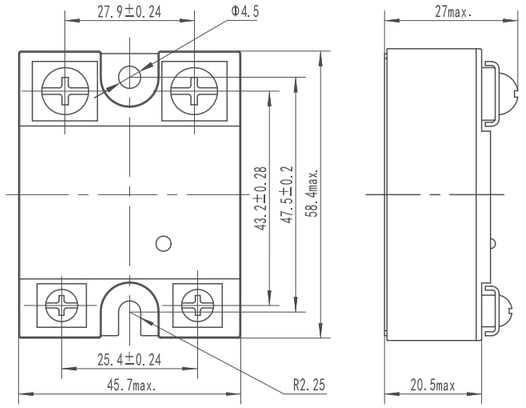
Output Specifications		
Load Voltage Range	240VAC	24-280VAC
	380VAC	24-440VAC
	480VAC	24-530VAC
Maximum Surge Current (@10ms)	10A	100A
	25A	250A
	40A	400A
	60A	600A
	80A	800A
	100A	1000A
Maximum Transient Overvoltage	240VAC	600Vpk
	380VAC	800Vpk
	480VAC	1200Vpk
Maximum Off-State Leakage Current@Rated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

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

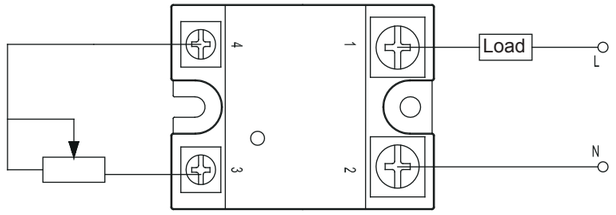
Applications

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

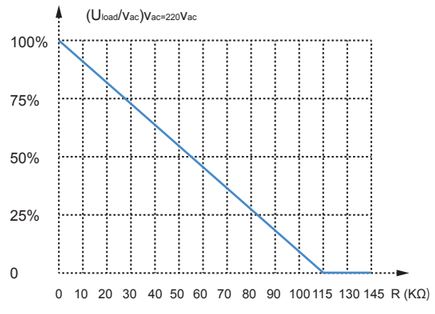
Outline Dimensions



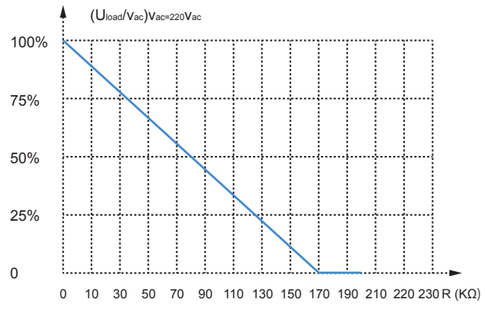
Wiring Diagram



Regulating Potentiometer Resistance VS Voltage Output Effective Value Curves

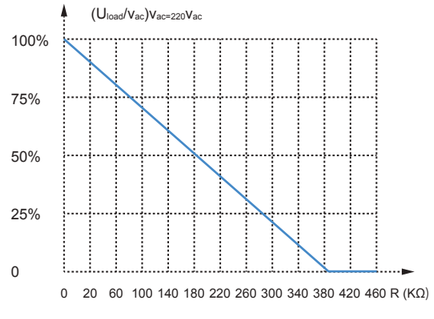


Output VS.External potentiometer 150 (kΩ)



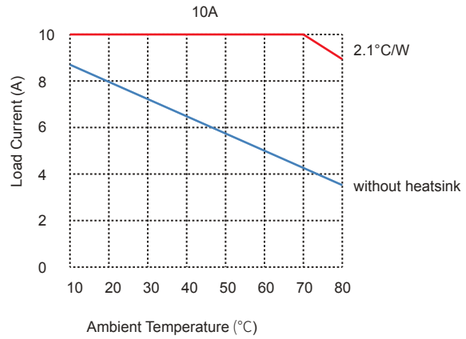
Output VS.External potentiometer 220 (kΩ)

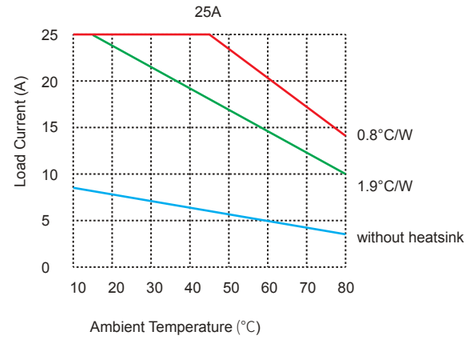
Regulating Potentiometer Resistance VS Voltage Output Effective Value Curves

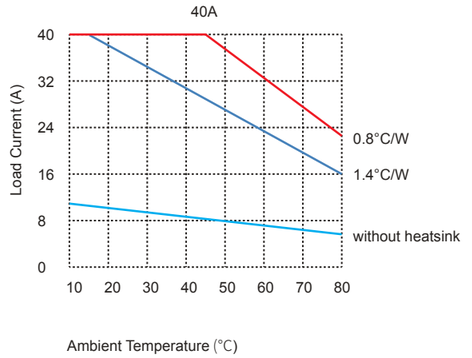


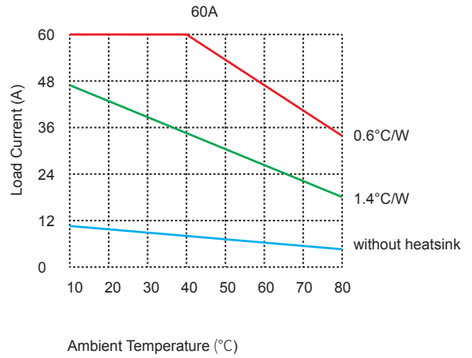
Output VS.External potentiometer 470 (kΩ)

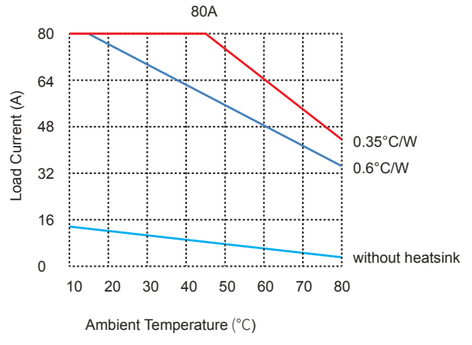
Thermal Derating Curve

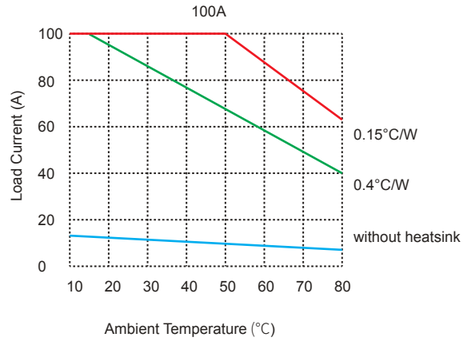












General Notes

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 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℃ see Thermal Derating Curves.

Agency Approvals (Certification)

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 KYRPxxIxx	L/H：0-5VDC/0-10VDC I ：4-20mA	25：25Amp 40：40Amp 60：60Amp 80：80Amp	Voltage Control：$U_{OUT}^2=Uac^2\times V_{CONTROL}/5$ (10) Current Control：$U_{OUT}^2=Uac^2\times (I_{CON}-4)/16$

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.

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°C ～ +80°C	
Storage Temperature Range	-30°C ～ +100°C	
Weight (Typical)	KYRPxxL/Hxx Series	123g
	KYRPxxIxx Series	96g
	KYRPxxIxx-P Series	121g
LED (Green)	When the product is connected, LED lights up.	

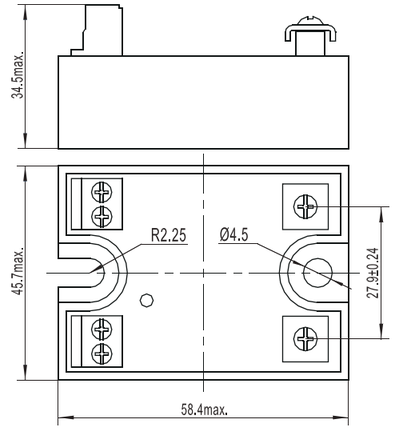
Applications

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

Outline Dimensions

Unit：mm

Voltage Control

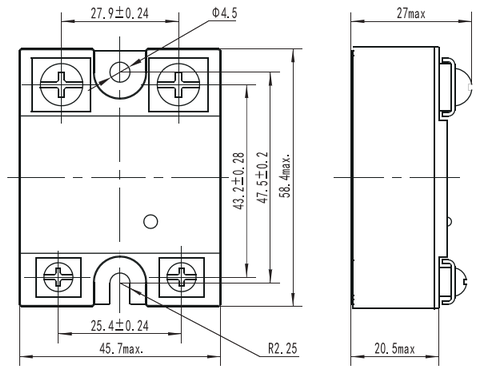


Torque	Input:0.5N·m max Output:0.98-1.37N·m

Outline Dimensions

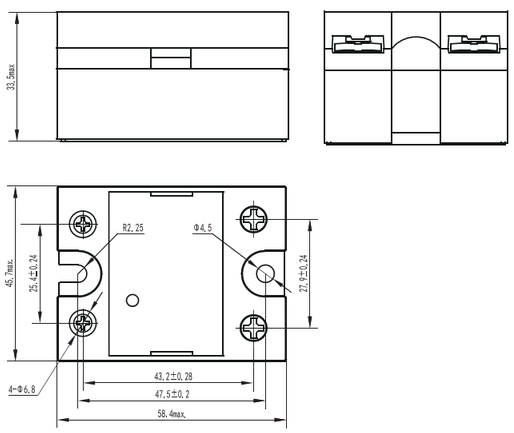
Unit：mm

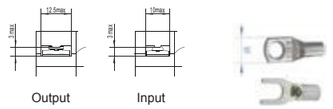
Current Control (Without P)



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

Current Control (With P)





Ring terminal dimensions

Input: W=9.5mm Max.

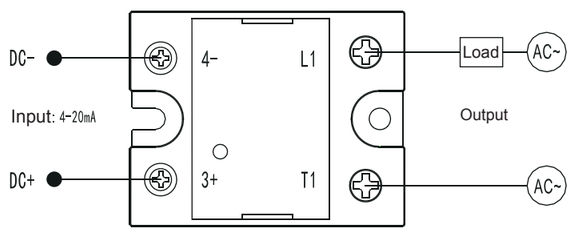
Output: W=12mm Max.

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

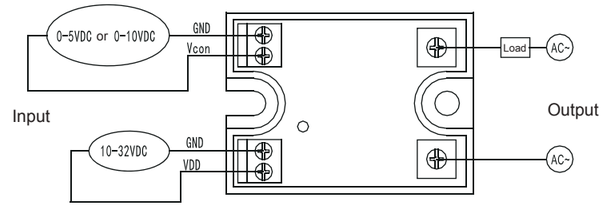
Current Control



Voltage Regulator
KRB
KWR
KYR
KYRT
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

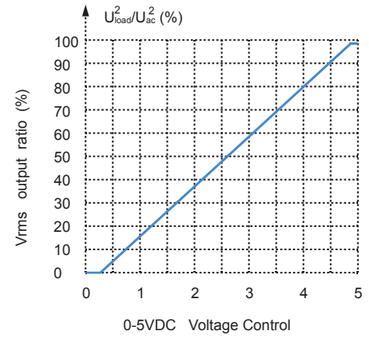
Wiring Diagram

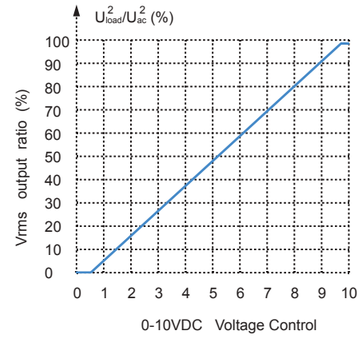
Voltage Control (2)

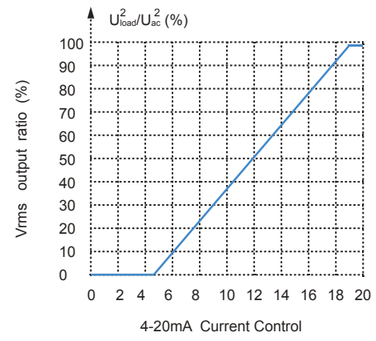


Note: (2) The auxiliary power supply GND and the input control GND should be connected internally to the earth ground; if the external control signal and the power supply are not connected together to the earth ground, then both should be connected to each GND respectively.

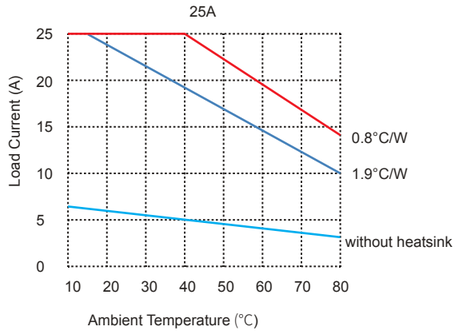
Output/Proportional Control Features

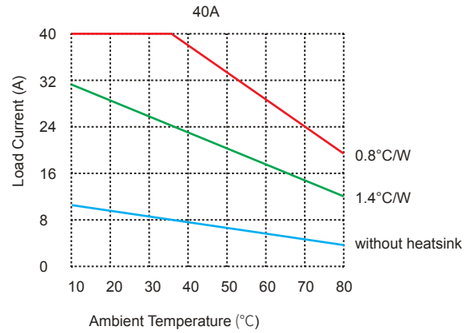


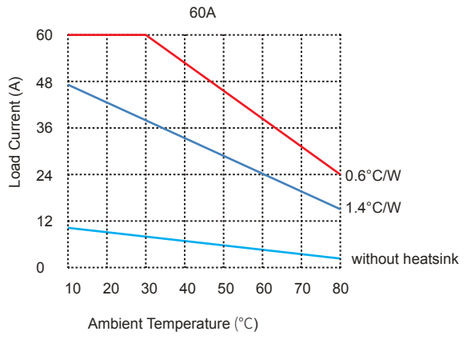


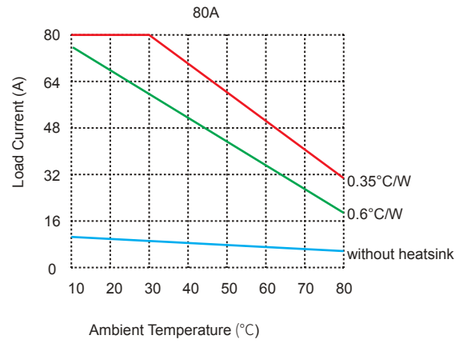


Thermal Derating Curve









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℃, 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^2t for Fusing (@10ms)	25A	450A²s
	40A	800A²s
	60A	1800A²s
	80A	7800A²s
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	

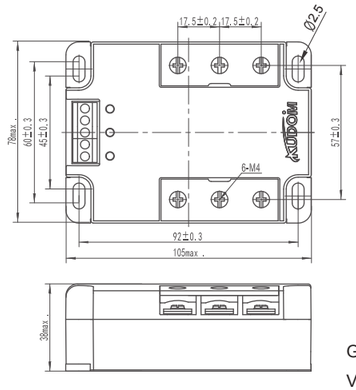
General Specifications (@25℃)

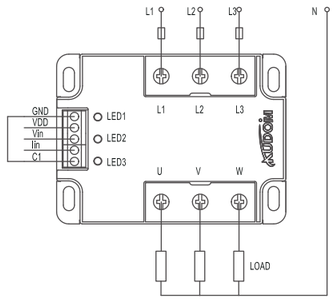
General Specifications		
Dielectric Strength (50/60Hz)	Input/Output	4000Vrms
	Output/Base	2500Vrms
Minimum Insulation Resistance (@500VDC)		1000MΩ
Burst Immunity Level	IEC61000-4-4	2kV/100kHz
Surge Immunity Level	IEC61000-4-5	2kV/Line-PE, 1kV/Line-Line
Electrostatic Discharge Immunity Level	IEC61000-4-2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

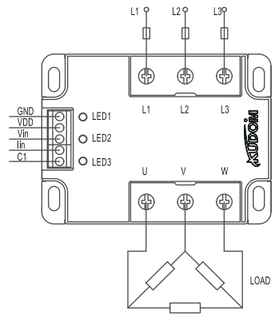
Applications

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

Outline Dimensions/Wiring Diagram

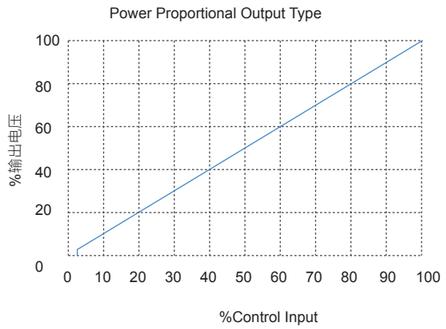


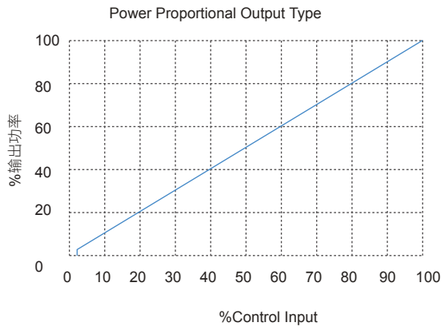




GND：Common Cathode
VDD：Anode of the power supply
Vin：Voltage control input
Iin：Current control input
C1： Load type selection. C1 connect to VDD or open for load without neutral line.
C1 connect to GND for load with neutral line.
LED1：Power supply indication
LED2：Load connected indication
LED3：Line undervoltage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

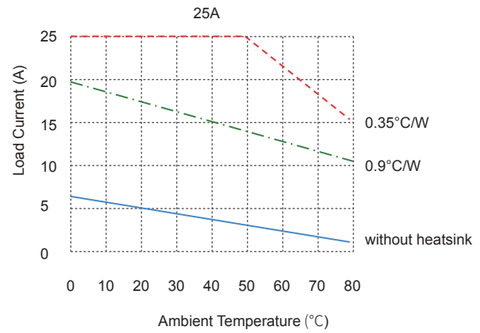
Output / proportional Control Characteristic

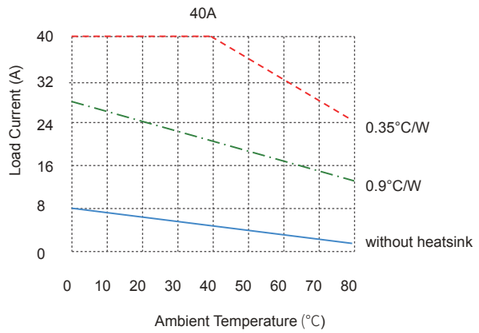


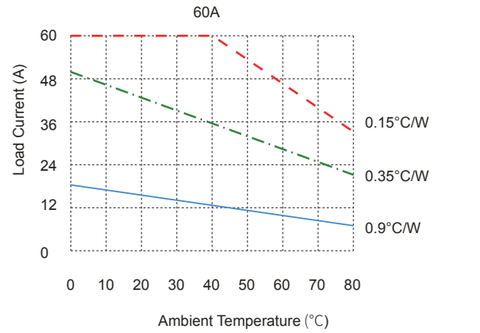


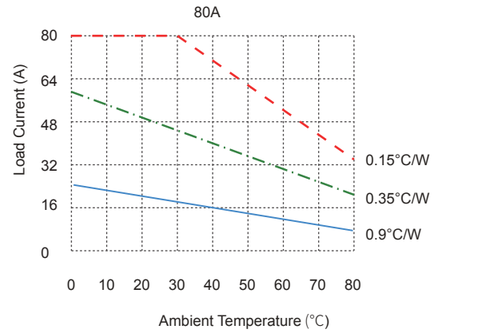
KYRT Series Three Phase Voltage Regulator Module

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 badsed 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℃ see Thermal Derating Curves.

Agency Approvals (Certification)

Product Description

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

Ordering Information

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

Part Numbers

Heat Sink P/N	Dimension (mm)	Thermal Resistance (℃/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

Model	Dimension (mm)	Thermal Resistance (℃/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 (℃/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 (℃/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 (℃/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 (℃/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

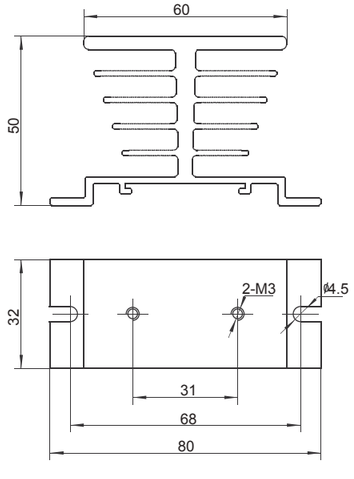
General Specifications

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, KSF, KMS	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSF, KMS

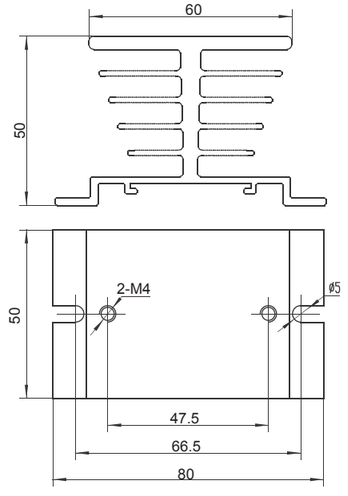
Series	G Series
Photo	
Model	KHS-G150-F□□□
Thermal Resistance (°C/W)	0.15
N.W. (g)	2590
Outer Dimension (mm)	125×135×193
Suitable for	KSI, KSIA, KSID, KSQM, KMB, KMC, KSR, KSQ, KSQA, KSQC, KSF, KMS

Outline Dimensions

A Series:



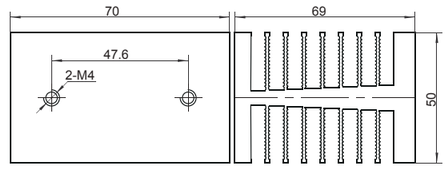
KHS-A32



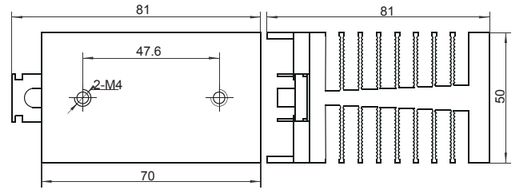
KHS-A50

Outline Dimensions

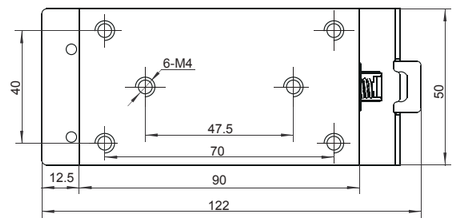
B Series:



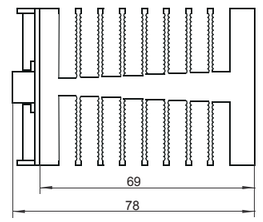
KHS-B70



KHS-B70-D



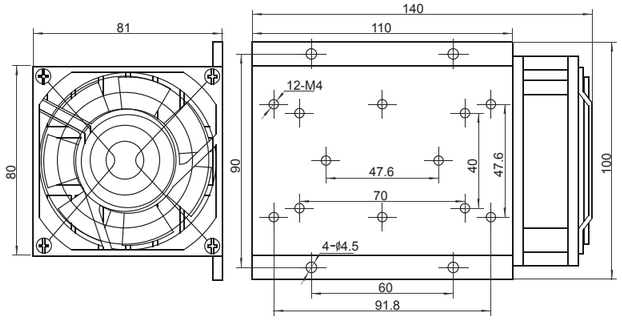
KHS-B90-D



C Series:

KHS-C49

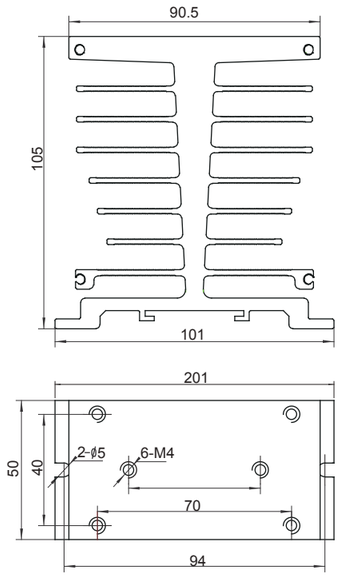
KHS-C110



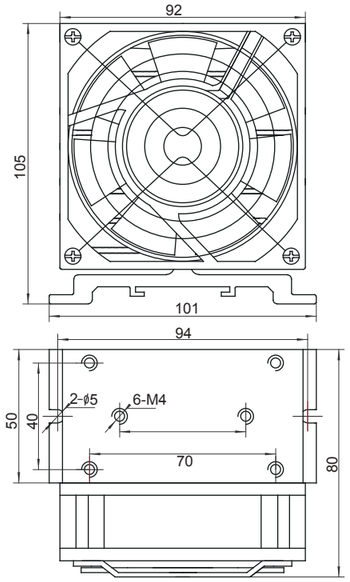
KHS-C110-F□□□

Outline Dimensions

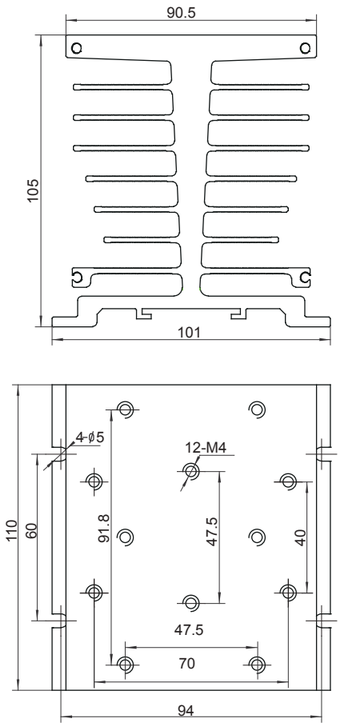
D Series:



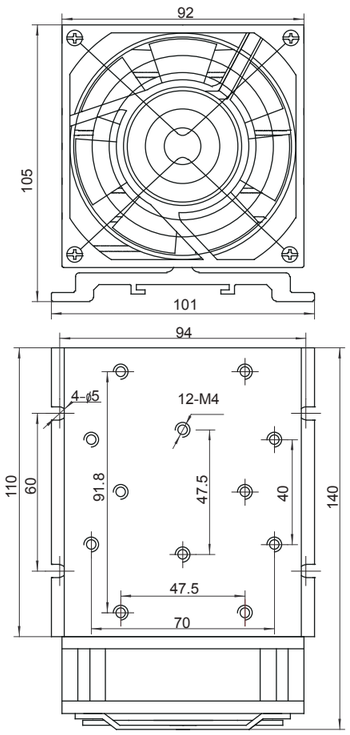
KHS-D50 (x)



KHS-D50-F□□□ (x)



KHS-D110 (x)

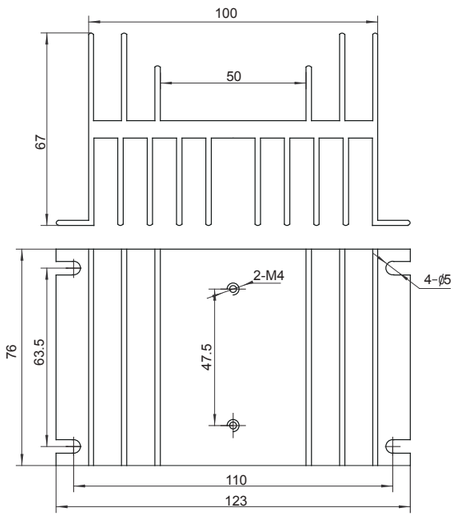


KHS-D110-F□□□ (x)

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

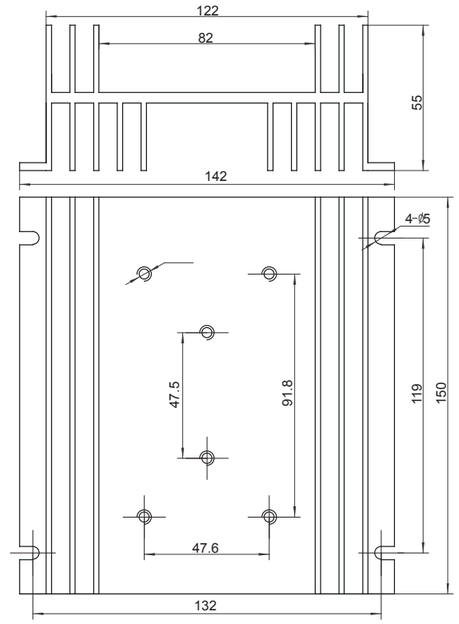
Outline Dimensions

E Series:

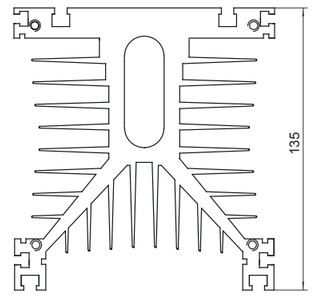


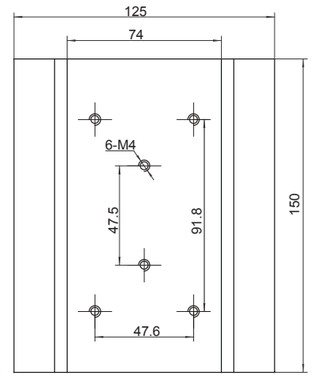
KHS-E76

F Series:

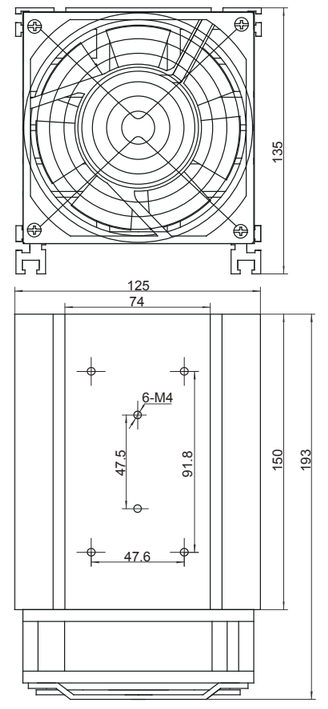


G Series:





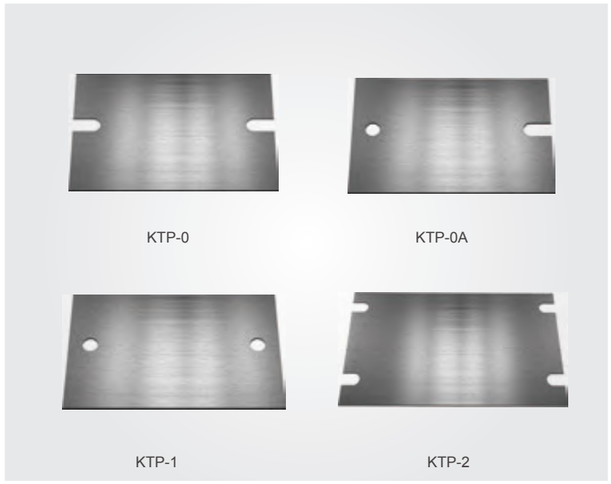
KHS-G150



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

KTP	-0	A
KTP Series	0: Single Phase 1: Three Phase 2: Mini Single Phase	A: Adhesive on One Side Blank: without Adhesive

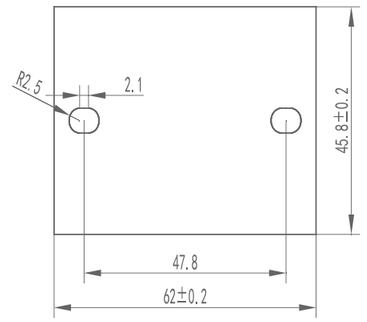
General Specifications

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

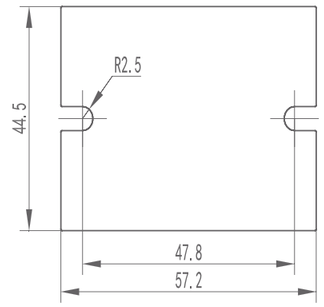
Accessory
KHS
KTP
KPC
PCB Mount
Panel Mount
DIN Rail Mount
Industrial Module
Motor Reversing
Voltage Regulator
Accessory

Outline Dimensions

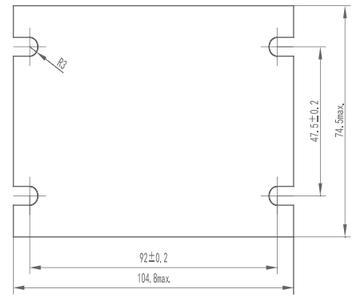
KTP-0



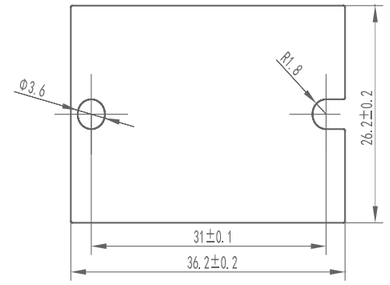
KTP-0(A)



KTP-1



KTP-2

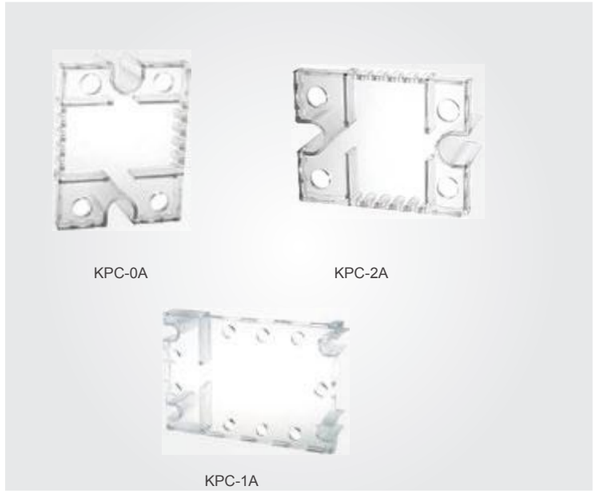


Agency Approvals (Certification)

RoHS

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



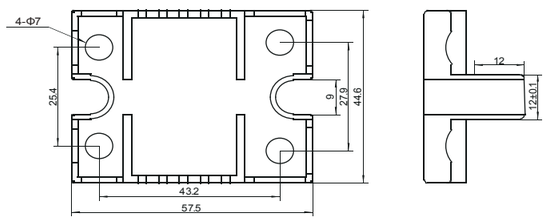
KPC-0A KPC-2A

KPC-1A

Ordering Information

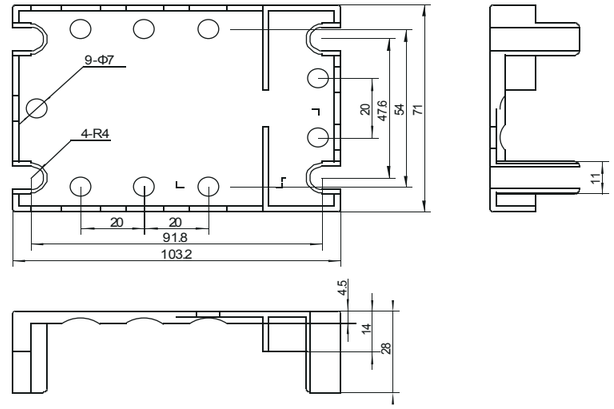
KPC	-0	A
KPC Series	0: Single Phase Type 1: Three Phase Type 2: Mini	Series Number

Outline Dimensions

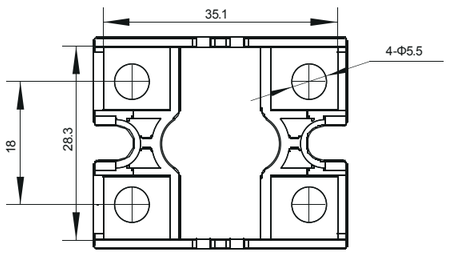


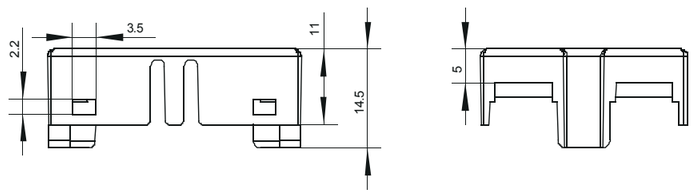
KPC-0A

Outline Dimensions



KPC-1A



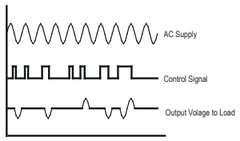


KPC-2A

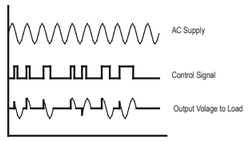
Agency Approvals (Certification)

RoHS

1. Typical operation sequence of an AC SSR

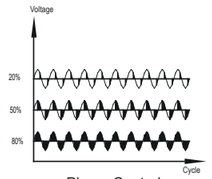


Zero-Crossing

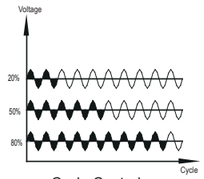


Random-on

2. Typical operation sequence of an AC voltage regulator



Phase Control



Cycle Control

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 angel 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.