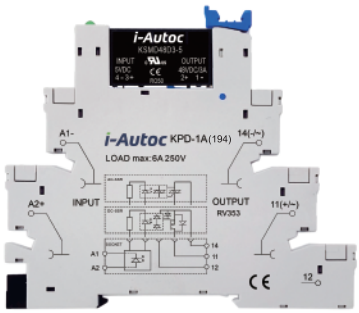
Product Description

- Transistor or MOSFET Output
- Optical Isolation
- PCB or Socket Mounted
- Load Current: 0.1A, 3A, 4A, 6A
- Load Voltage: 24VDC, 48VDC
- Dielectric Strength: 2500Vrms
- RoHS Compliant



Product Selection

KSM	D	24	D	3	-5	D
KSM Series	Load Type D: DC Load	Load Voltage 24:24VDC 48:48VDC	Control Mode D: DC Control	Load Current 0.1: 0.1Amp 3: 3Amp 4: 4Amp 6: 6Amp	Control Voltage 5: 5VDC 12: 12VDC 24: 24VDC 48: 48VDC 60: 60VDC	Socket Blank: Without Socket D: With Socket (1)

Note: (1) The types of sockets are listed in the table below.

Socket Model	Socket Type	Applicable Control Voltage
KPD-1A(194)	Screw Terminal	5VDC
KPD-1A	Screw Terminal	12VDC/24VDC/48VDC/60VDC
KPD-1A-C1	Spring Terminal	5VDC
KPD-1A-C2	Spring Terminal	12VDC/24VDC/48VDC/60VDC

Technical Specifications

Input Specifications (Ta=25°C)	Condition	KSMD...3/4/6-5			KSMD...3/4/6-12			KSMD...3/4/6-24			KSMD...3/4/6-48			KSMD...3/4/6-60			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Turn-on Voltage(2)		4	5	6	9.6	12	14.4	19.2	24	28.8	38.4	48	57.6	48	60	72	VDC
Input Current (Typ)	@Turn-on Voltage	6.6	8.9	11.1	7.1	9.2	11.2	6	7.6	9.2	4.4	5.6	6.7	3.1	3.9	4.7	mA
Turn-off Voltage		1			2.4			2.4			4.8			4.8			VDC
Input Impedance		0.44			1.19			3			8.4			15.1			kΩ

Input Specifications (Ta=25°C)	Condition	KSMD...0.1-5			KSMD...0.1-12			KSMD...0.1-24			KSMD...0.1-48			KSMD...0.1-60			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
Turn-on Voltage(2)		4	5	6	9.6	12	14.4	19.2	24	28.8	38.4	48	57.6	48	60	72	VDC
Input Current (Typ)	@Turn-on Voltage	6.7	9.1	11.4	5.6	7.2	8.8	6	7.6	9.2	3.8	4.7	5.7	3.1	3.8	4.6	mA
Turn-off Voltage		1			2.4			2.4			4.8			4.8			VDC
Input Impedance		0.43			1.51			3			9.9			15.3			kΩ

Note: (2) For KSMD with control voltage at 12V, 24V, 48V, 60V that operating with the socket, the minimum control voltage should increase 1.4V.
For example, for KSMD24D2-12D, please ensure that the minimum control voltage is 9.6V+1.4V=11V Min

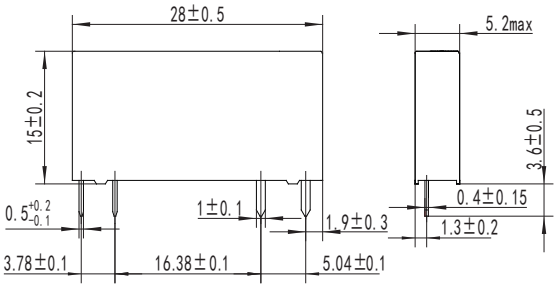
Output Specifications (Ta=25°C)	Condition	Model	Min	Typ	Max	Unit
Load Voltage Range		24V	3	24	30	VDC
		48V	3	48	58	VDC
MOSFET Transient Overvoltage		24V			75	Vpk
		48V			100	Vpk
TVS Breakdown Voltage Range	@1mA	24V	37	39	41	VDC
		48V	64.6	68	71.4	VDC
Load Current Range		0.1A	0.001		0.1	A
		3A	0.002		3	A
		4A	0.002		4	A
		6A	0.002		6	A
Turn-on Time					300	μs
Turn-off Time					300	μs
Off-State Leakage Current	@Rated Voltage				100	μA
On-State Voltage Drop	@Rated Current	0.1A		0.75	1.5	VDC
On-state Resistance	@Tj=25℃	3A/4A		16		mΩ
	@Tj=125℃				37	mΩ
	@Tj=25℃	6A		10		mΩ
	@Tj=125℃				20	mΩ
Surge Current	@10ms	0.1A		1		A
		3A		30		A
		4A		48		A
		6A		60		A

General Specifications (Ta=25°C)	Condition	Model	Min	Typ	Max	Unit
Dielectric Strength	50/60Hz, Input/Output			2500		Vrms
Insulation Resistance	@500VDC, Input/Output			1000		MΩ
Ambient Temperature Range			-30		+80	℃
Storage Temperature Range			-30		+100	℃
Weight		Without Socket		4		g
		With Socket		30		g

Applications

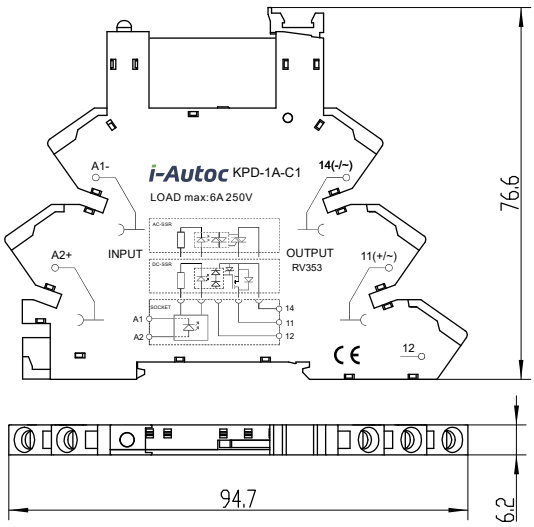
Suitable for high density PCB mounted, PLC control applications, and etc.

Outline Dimensions

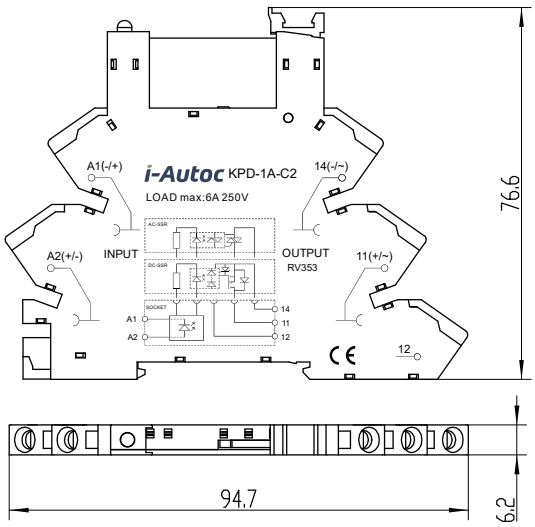


KSMD SSR

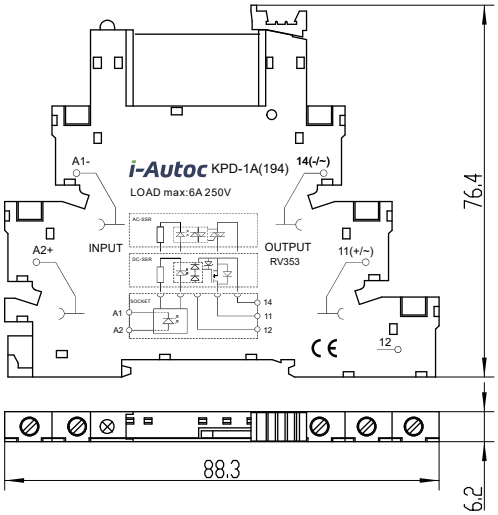
Outline Dimensions



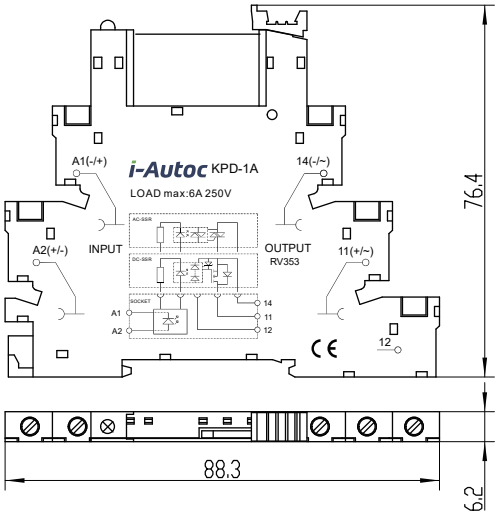
KSMD+KPD-1A-C1



KSMD+KPD-1A-C2

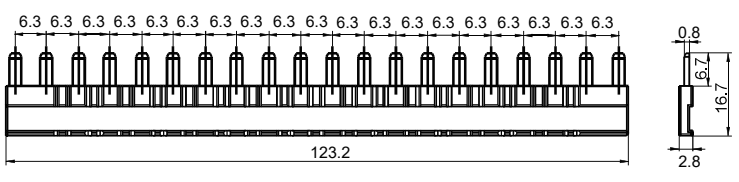


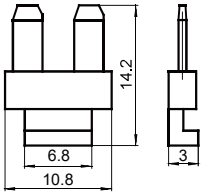
KSMD+KPD-1A(194)



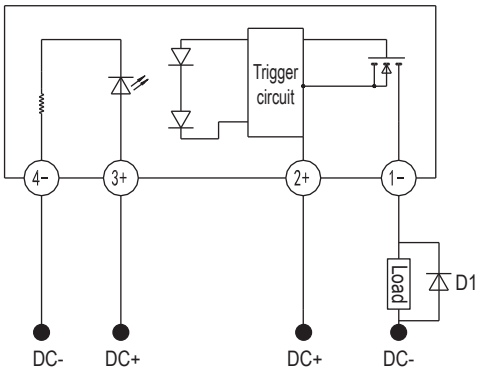
KSMD+KPD-1A

Jumper Strap Dimensions

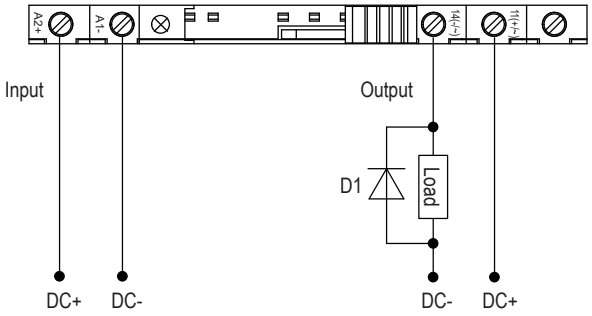




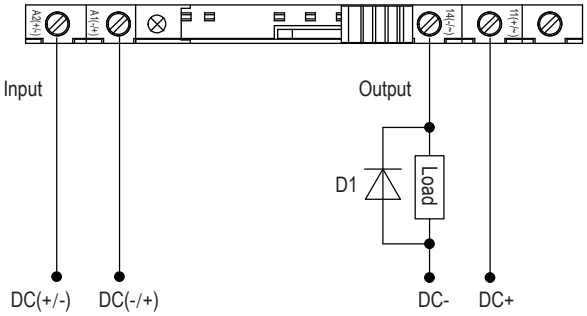
Wiring Diagram



SSR



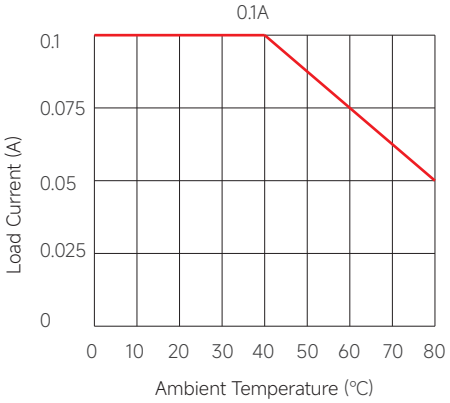
KSMD...-5D

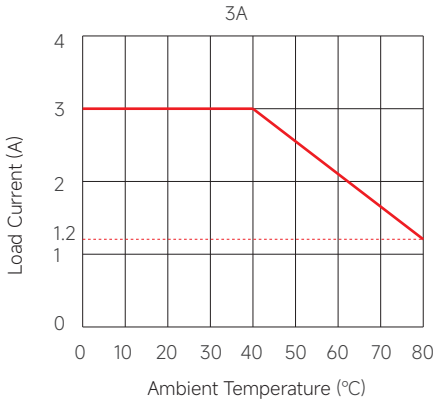


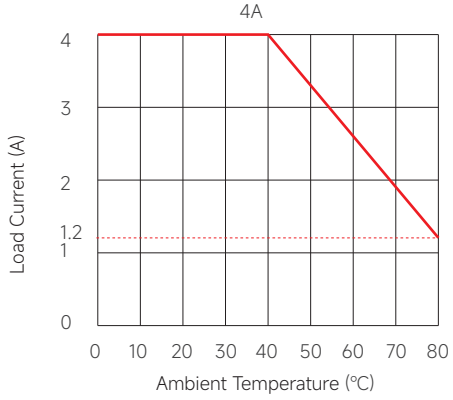
KSMD...-12/24/48/60D

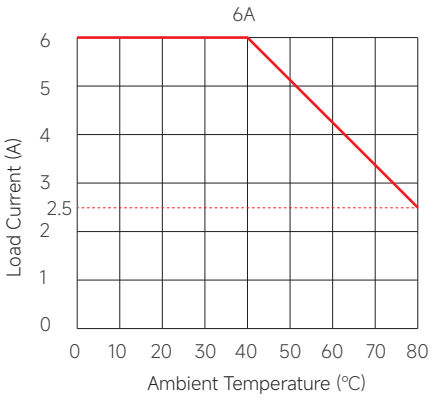
Note: When the relay is used for inductive load control, please be sure to use a suppression circuit, just like the drawing above. Both load terminals are inverse anti-paralleled with a fly-wheel diode D1. D1: Fast Recovery Diode

Thermal Derating Curve









Installation Instructions

1. Install the relay
Set the blue clip of socket in the open state (see Figure 1), and insert the relay into the socket cavity (see Figure 2). Then press the relay down until the relay is fully installed in the socket (see Figure 3).

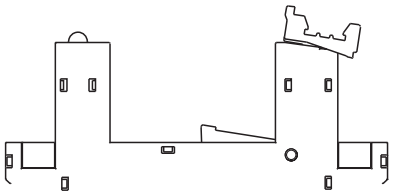


Figure 1

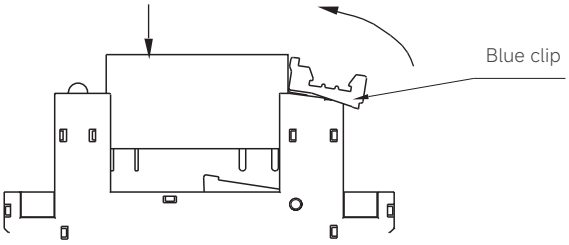


Figure 2

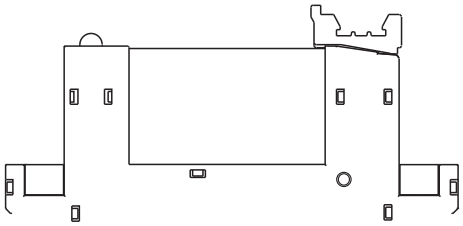


Figure 3

2. Remove the relay
Pull the blue clip of socket to remove the relay (see Figure 4-6).
Note: When disassembling the relay, in order to prevent the relay from being ejected and causing it to fall, please be sure to hold the relay and then pull the blue clip to remove the relay.

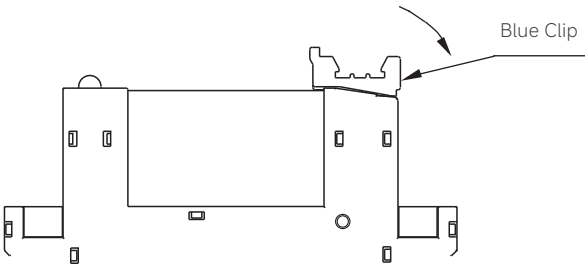


Figure 4

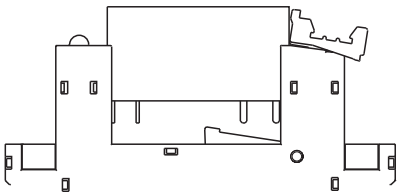


Figure 5

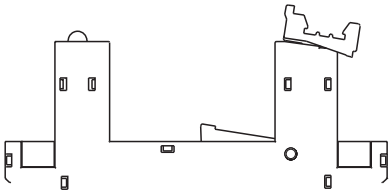


Figure 6

3. Install the socket
Insert part A of the socket into the din-rail first, and then press the socket down in the direction of the arrow(see Figure 7).

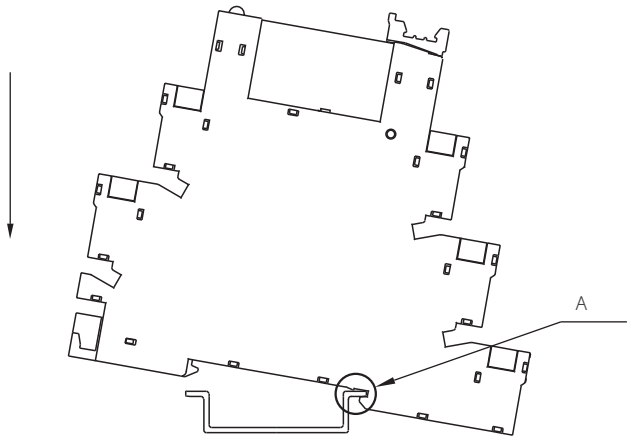


Figure 7

4. Remove the socket
Insert a proper size screwdriver into part B of the socket, turn the screwdriver in the direction of the arrow, and then remove the socket (see Figure 8).

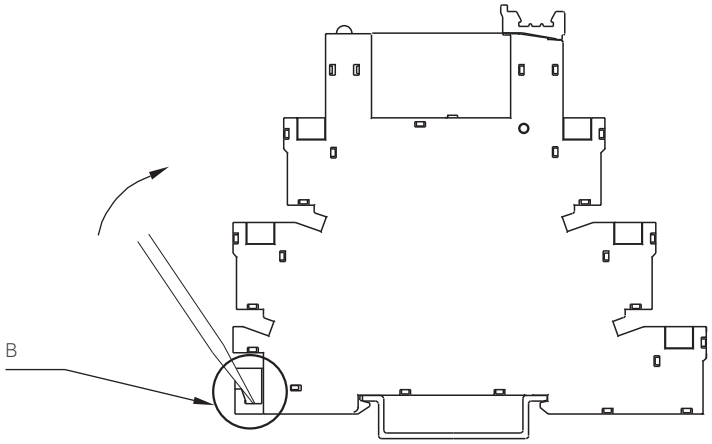


Figure 8

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 the ambient temperature of the product is high, derate the product according to the temperature curve.
4. Capacitive load will produce very high surge current at the moment of conduction, which may lead to the damage of solid state relay due to the excessive surge current. Therefore, if the actual load is capacitive, or the load has paralleled large capacitance, it is strongly recommended that NTC should be connected in series in the load loop to suppress surge current in order to avoid damage to the product.

! Warnings

1. The product's may become hot during operation, allow it to cool before touching.
2. Disconnect all power before installing or working with this equipment.
3. Verify all connections and replace all covers before turning on power.

Certification Standards

Certification	Test Standard
UL	UL508
	C22.2 No. 14-13
CE	EN 60947-1:2007/A2:2014
	EN 60947-5-1:2017
TUV	EN 60947-1:2007/A2:2014
	EN 60947-5-1:2017