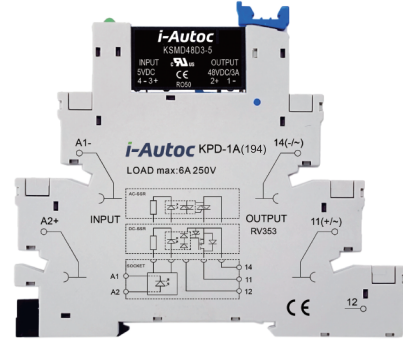


Product Description

- ◆ 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 ⁽¹⁾ | 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 5: 5VDC 12: 12VDC 24: 24VDC 48: 48VDC 60: 60VDC | Blank: without Socket D: with Socket |

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

| | 0.1A | 2A | 3A | 4A |
|-----------------|----------------|--------------|--------------|--------------|
| 5:4-6VDC | KSMD24D0.1-5 | KSMD24D2-5 | KSMD24D3-5 | KSMD24D4-5 |
| | KSMD24D0.1-5D | KSMD24D2-5D | KSMD24D3-5D | KSMD24D4-5D |
| | KSMD48D0.1-5 | KSMD48D2-5 | KSMD48D3-5 | KSMD48D4-5 |
| | KSMD48D0.1-5D | KSMD48D2-5D | KSMD48D3-5D | KSMD48D4-5D |
| 12:9.6-14.4VDC | KSMD24D0.1-12 | KSMD24D2-12 | KSMD24D3-12 | KSMD24D4-12 |
| | KSMD24D0.1-12D | KSMD24D2-12D | KSMD24D3-12D | KSMD24D4-12D |
| | KSMD48D0.1-12 | KSMD48D2-12 | KSMD48D3-12 | KSMD48D4-12 |
| | KSMD48D0.1-12D | KSMD48D2-12D | KSMD48D3-12D | KSMD48D4-12D |
| 24:19.2-28.8VDC | KSMD24D0.1-24 | KSMD24D2-24 | KSMD24D3-24 | KSMD24D4-24 |
| | KSMD24D0.1-24D | KSMD24D2-24D | KSMD24D3-24D | KSMD24D4-24D |
| | KSMD48D0.1-24 | KSMD48D2-24 | KSMD48D3-24 | KSMD48D4-24 |
| | KSMD48D0.1-24D | KSMD48D2-24D | KSMD48D3-24D | KSMD48D4-24D |
| 48:38.4-57.6VDC | KSMD24D0.1-48 | KSMD24D2-48 | KSMD24D3-48 | KSMD24D4-48 |
| | KSMD24D0.1-48D | KSMD24D2-48D | KSMD24D3-48D | KSMD24D4-48D |
| | KSMD48D0.1-48 | KSMD48D2-48 | KSMD48D3-48 | KSMD48D4-48 |
| | KSMD48D0.1-48D | KSMD48D2-48D | KSMD48D3-48D | KSMD48D4-48D |
| 60:48-72VDC | KSMD24D0.1-60 | KSMD24D2-60 | KSMD24D3-60 | KSMD24D4-60 |
| | KSMD24D0.1-60D | KSMD24D2-60D | KSMD24D3-60D | KSMD24D4-60D |
| | KSMD48D0.1-60 | KSMD48D2-60 | KSMD48D3-60 | KSMD48D4-60 |
| | KSMD48D0.1-60D | KSMD48D2-60D | KSMD48D3-60D | KSMD48D4-60D |

General Specifications

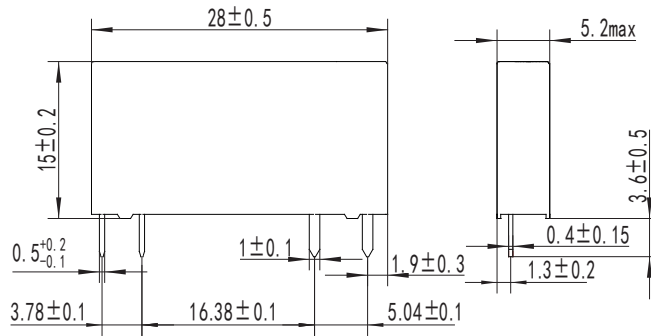
| Input Specifications (Ta=25°C) | | |
|-------------------------------------|----|-----------------|
| Control Voltage Range | 5 | 4-6VDC |
| | 12 | 9.6-14.4VDC |
| | 24 | 19.2-28.8VDC |
| | 48 | 38.4-57.6VDC |
| | 60 | 48-72VDC |
| Must Turn-on Voltage ⁽²⁾ | 5 | 4VDC |
| | 12 | 9.6VDC |
| | 24 | 19.2VDC |
| | 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 | 20mA (@57.6VDC) |
| | 60 | 15mA (@72VDC) |

Note: (2) For KSM D with control voltage at 12V, 24V, 48V, 60V equipped with a socket, the control voltage limit should be increased by 1.4V, for example, for KSM D24D2-12D, please ensure that the control voltage is 9.6V+1.4V=11V Min

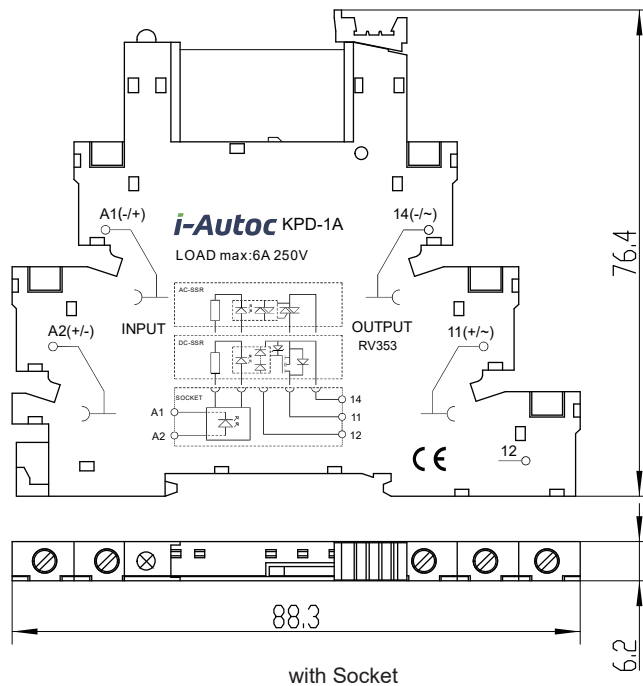
| Output Specifications (Ta=25°C) | | |
|--|----------|--------------|
| Load Voltage Range | 24V | 3-28VDC |
| | 48V | 3-58VDC |
| Maximum Transient Overvoltage | 24V | 33VDC |
| | 48V | 58VDC |
| Load Current Range | 0.1A | 0.001 - 0.1A |
| | 2A | 0.002 - 2A |
| | 3A | 0.002 - 3A |
| | 4A | 0.002 -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

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

Outline Dimensions

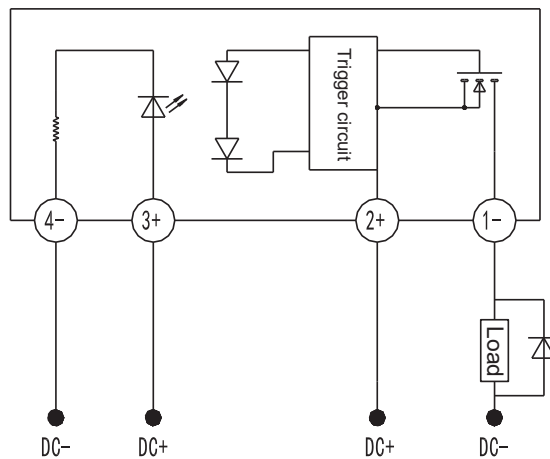


SSR



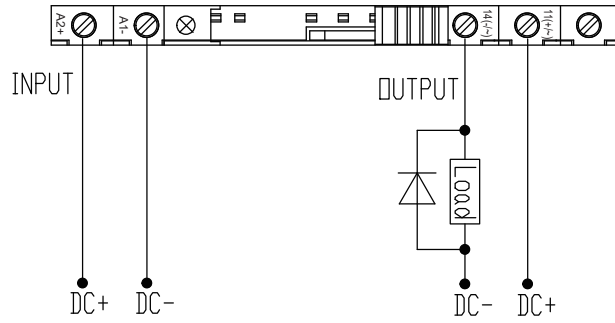
with Socket

Wiring Diagram

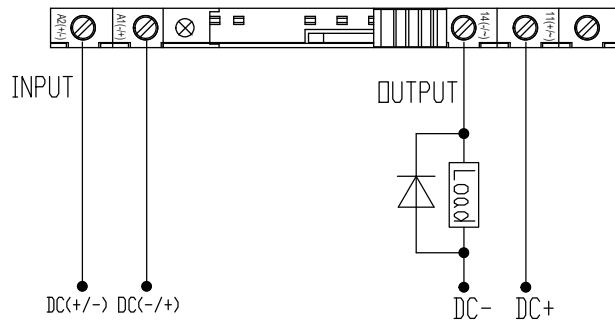


SSR

Wiring Diagram



KSMDXXX-5D

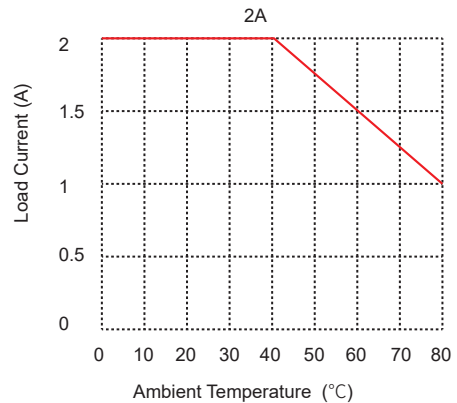
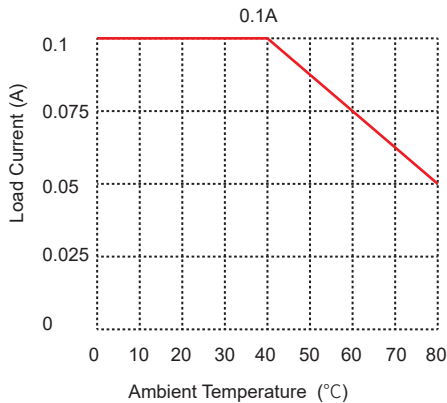


KSMDXXX-(12, 24, 48, 60)D

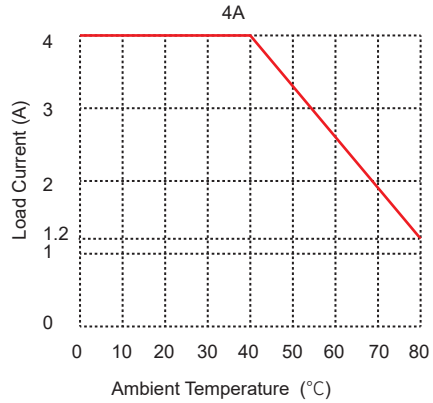
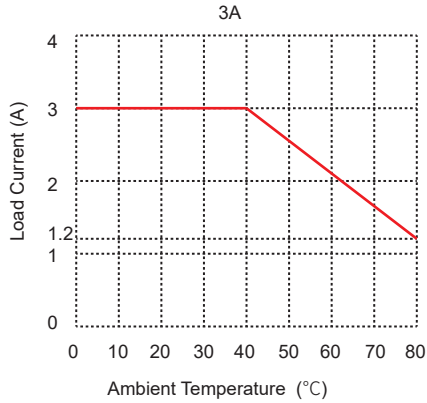
Applications

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

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.
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.

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 |