

Dual Solid State Relay

PCS28



FEATURES

- Two Independently Controlled Relays
- SCR Output
- Screw Terminal Available
- Built In Snubber
- Optical Isolation between Input & Output

E93379 cULus



INPUT PARAMETERS (Ta = 30°C)

| | | |
|-----------------------|----|--------------|
| Control Voltage Range | 12 | 4 ~ 15 VDC* |
| | 24 | 15 ~ 32 VDC* |
| Must Turn-On Voltage | 12 | 4 VDC |
| | 24 | 15 VDC |
| Control Current | 12 | 8 ~ 50 mA |
| | 24 | 6 ~ 30 mA |
| Must Turn-Off Voltage | | 1 VDC |

* with the SS1 package option, 12D input control range is 9.6~14.4 VDC; 24D input control range is 19.2~28.8 VDC

OUTPUT CURRENT PARAMETERS (Ta = 30°C)

| | | |
|--|------|------|
| Load Current (100mA min)** | 25A | 40A |
| Max Surge Current (10 ms, A _{pk}) | 300 | 400 |
| Max I ² t (10 ms, A ² s) | 450 | 800 |
| Thermal Resistance Junction to Case (R _{jc} , °C/W) | 1.15 | 0.25 |

**Minimum current loading over range required to fully turn on device. Standard UL endurance ratings are 6,000 cycles.

OUTPUT VOLTAGE PARAMETERS

| | | |
|--|------------------|--------|
| Load Voltage | 240A | 380A |
| Load Voltage Range (VAC) | 48~280 | 48~440 |
| Max Transient Voltage (V _{pk}) | 600 | 800 |
| Max Turn-On Time | 1 ms | |
| Random Zero Crossing | 1/2 cycle + 1 ms | |
| Max Off-State Leakage Current | 10 mA | |
| Max On-State Voltage Drop | 1.5 Vrms | |
| Min Power Factor | 0.5 | |
| Max Turn-Off Time | 1/2 cycle + 1 ms | |
| Frequency Range | 47 Hz to 63 Hz | |
| Min Off-State (dv/dt) | 500 V/us | |

CHARACTERISTICS

| | |
|-----------------------|--|
| Dielectric Strength | 2500 VAC, 50Hz/60Hz, 1 min Input, Output to Output 4000 VAC, 50Hz/60Hz, 1 min Input to Output |
| Insulation Resistance | 1000MΩ at 500 VDC |
| Operating Temperature | -30°C to 80°C |
| Storage Temperature | -30°C to 100°C |
| Relative Humidity | 45% ~ 85% |
| Weight, approx. | ~83g |

LOAD VOLTAGE / LOAD CURRENT AVAILABILITY

| | | Load Voltage | |
|--------------|----|--------------|-----|
| | | 240 | 380 |
| Load Current | 25 | | X |
| | 40 | | X |

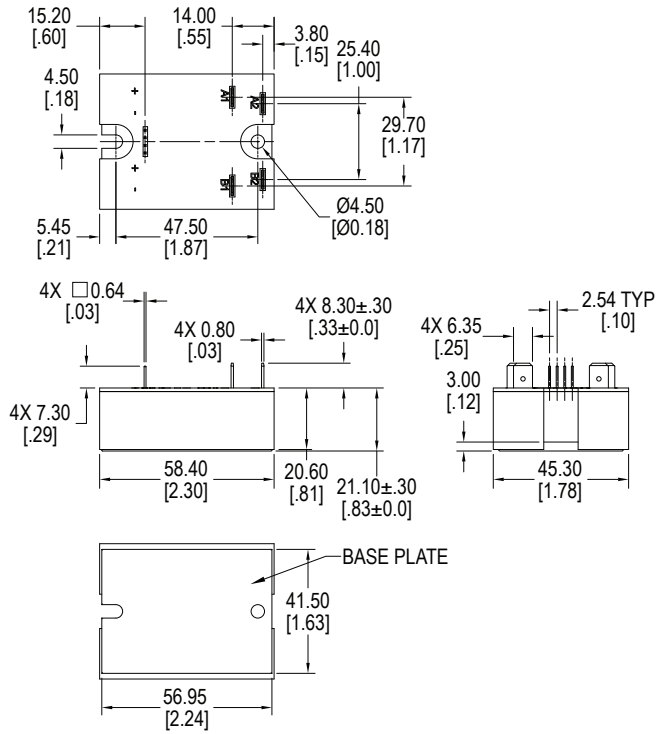
Standard Options denoted by "X", contact factory for other combinations

| | | | | | | |
|---|--|------|-------|-----|---|------|
| Example | PCS28 | -12D | -240A | -25 | Z | -1SS |
| Model: | PCS28 | | | | | |
| Control Voltage: | 12D = 4~15 VDC 24D = 15~32VDC | | | | | |
| Load Voltage: <i>Note Load Voltage / Load Current Availability Chart</i> | 240A = 48~280VAC 380A = 48~440VAC | | | | | |
| Load Current: <i>Note Load Voltage / Load Current Availability Chart</i> | 25 = 25A 40 = 40A | | | | | |
| Switching Type: | Z = Zero Crossing R = Random Turn-On / Instantaneous Turn-On | | | | | |
| Package: | Nil = Quick Connect Output Pins, 4 Position Header Input Pins 1SS* = Single Input Control for Dual Output, Screw Terminal Input/Output, with LED Indicator DQ = Quick Connect, all 8 Terminals | | | | | |

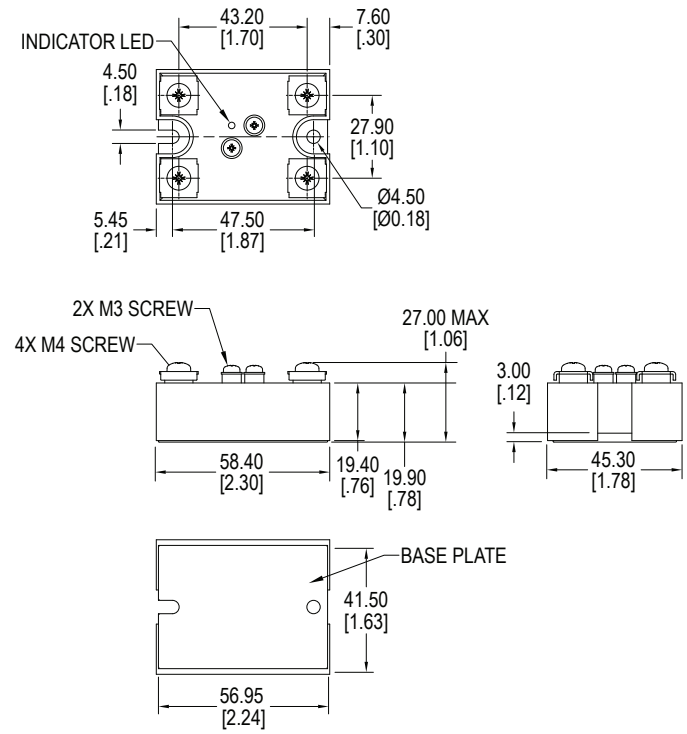
PRECAUTIONS

- When choosing a Solid State Relay (SSR), note the actual load current and ambient temperature and reference the Characteristic Curves.
- SSRs require an adequate heat sinking or other effective cooling measure.
- With ambient temperature above 25°C, refer to the curve of Max Load Current vs. Ambient Temperature for load current derating.
- Apply heat-conducting silicon grease or a thermal transfer pad on the space between the SSR and heat sink and screw the SSR firmly to the heat sink to avoid damage from overheating.
- Tighten the SSR terminal screws properly. We recommend screw installation torque as follows:
M4 screw mounting torque range is (0.98~1.37)N * m
M3 screw mounting torque range is (0.56~0.98)N * m
Loose screws will damage the SSR with heat generated from connections. Also, excessive screw torque may damage the relay's internal components.
- It is recommended to use a heat sink matched to the Current Load. With any heat sink, test that the SSR base temperature does not exceed 65°C.
- When using the PCS28 relay with an inductive load, it is suggested to select Random Turn-On. (i.e. a model with "R" Switching Type)
- The PCS28 is not suitable for capacitive loads; if you must, then do not choose products with varistor protection. (i.e. a model with the "Y" Over Voltage Protection)
- Listed parameters are based on resistive loads. Do not use the relay beyond the described current, temperature, load or voltage limits as described in this datasheet.

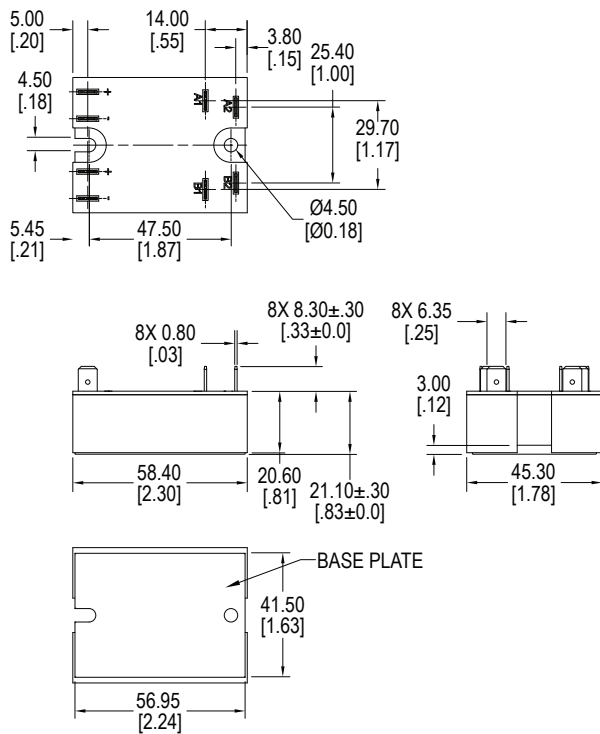
DIMENSIONS



Standard Package, Quick Connect Output Pins, 4 Position Header Input Pins

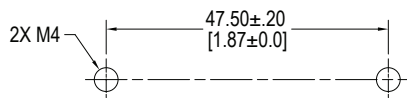


1SS, Input Control for Dual Output, Screw Terminal Input/Output, with LED Indicator

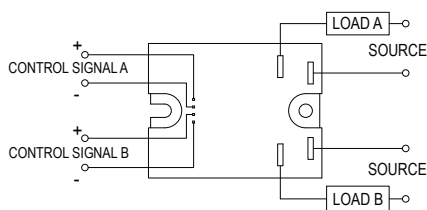


DQ Package, Quick Connect all 8 Pins

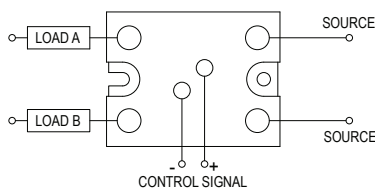
Mounting Layouts



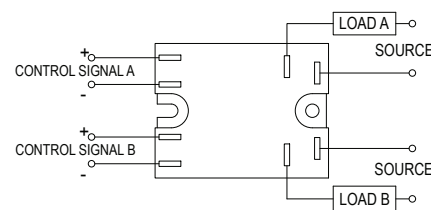
Wiring Diagrams



Standard



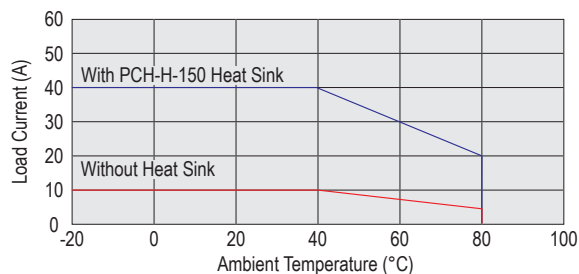
1SS



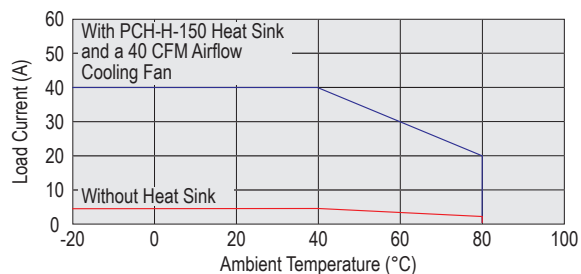
DQ

CHARACTERISTIC CURVES

Max Load Current vs. Ambient Temperature (40A, one output conducting)



Max Load Current vs. Ambient Temperature (40A, both outputs conducting)

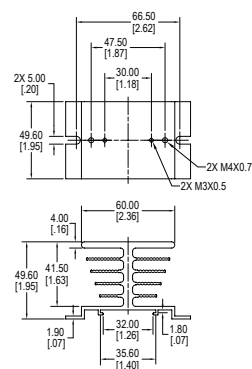


ACCESSORIES — Sold Separately

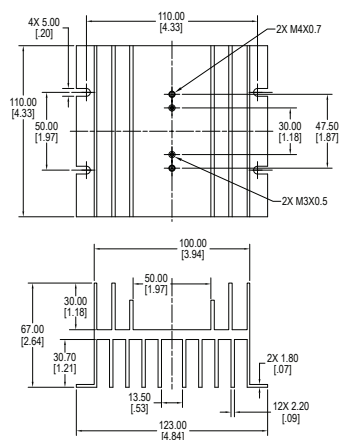
| | |
|-------------------|---|
| Heat Transfer Pad | HTP100 |
| Heat Sinks | PCH-I-50 for application up to 20 Amps @ 25°C PCH-M-120 for application up to 35 Amps @ 25°C |



HTP100 — Heat Transfer Pad



PCH-I-50 Heat Sink



PCH-M-120 Heat Sink