AC/DC Input Solid State Relay

c UL us E93379

PCS15

FEATURES

- 10 Amp to 40 Amp Output
- 3~32VDC DC Input; 24, 110 or 220VAC AC Input
- Built-In Snubber
- Optical Isolation Between Input and Output

RoHS COMPLIANT

INPUT PARAMETERS (Ta = 30°C)

Control Voltage Range (DC Input)	4~32 VDC with LED
Control Voltage Range (AC Input)	85~132 VAC (100 VAC Input) 175~264 VAC (220 VAC Input) 19.2~28.8 VAC (24 VAC Input)
Must Turn-On Voltage (DC Input)	4 VDC with LED
Must Turn-On Voltage (AC Input)	85 VAC (110 VAC Input) 175 VAC (220 VAC Input) 19.2 VAC (24 VAC Input)
Must Turn-Off Voltage (DC Input)	1 VDC
Must Turn-Off Voltage (AC Input)	10 VAC (110 & 220 VAC Input) 2 VAC (24 VAC Input)
Max Input Current	25 mA (DC) 15 mA (AC)
Max Reverse Protection Voltage	-32 VDC

Additional Part Specific UL Ratings

Model PCS15-D-240A-25-xxx		
Control Voltage	Load Voltage	Output Current
4 ~ 32VDC with LED	240 VAC 50/60 Hz	25A, 25°C, 100K cycles, resistive
Model PCS15-D-240A-40-xxx		
Control Voltage	Load Voltage	Output Current
4 ~ 32VDC with LED	240 VAC 50/60 Hz	40A, 25°C, 100K cycles, resistive

OUTPUT CURRENT PARAMETERS (Ta = 30°C)

Load Current (100mA min)*	10A	15A	20A	25A	40A
Max Surge Current (10 ms, Apk)	100	150	200	250	400
Max I^2t (10 ms, A^2s)	78	144	312	312	880
Thermal Resistance Junction to Case (Rjc) (C/W)	2.35	2.15	1.55	1.15	1.15

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

OUTPUT VOLTAGE PARAMETERS

	240A	380A
Load Voltage Range (VAC)	48~280	48~440
Max Transient Voltage (V_{pk})	600	800
Max Turn-On Time (DC Input)	Random	1ms
	Zero Crossing	1/2 cycle + 1 ms
Max Turn-On Time (AC Input)	30 ms	
Max Off-State Leakage Current	10 mA	
Max On-State Voltage Drop	1.5 Vrms	
Min Power Factor	0.5	
Min Off-State (dv/dt)	200 V/us	

CHARACTERISTICS

Dielectric Strength	2500 VAC, 1 min Input, Output to Base 4000 VAC, 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	~70g

ORDERING INFORMATION

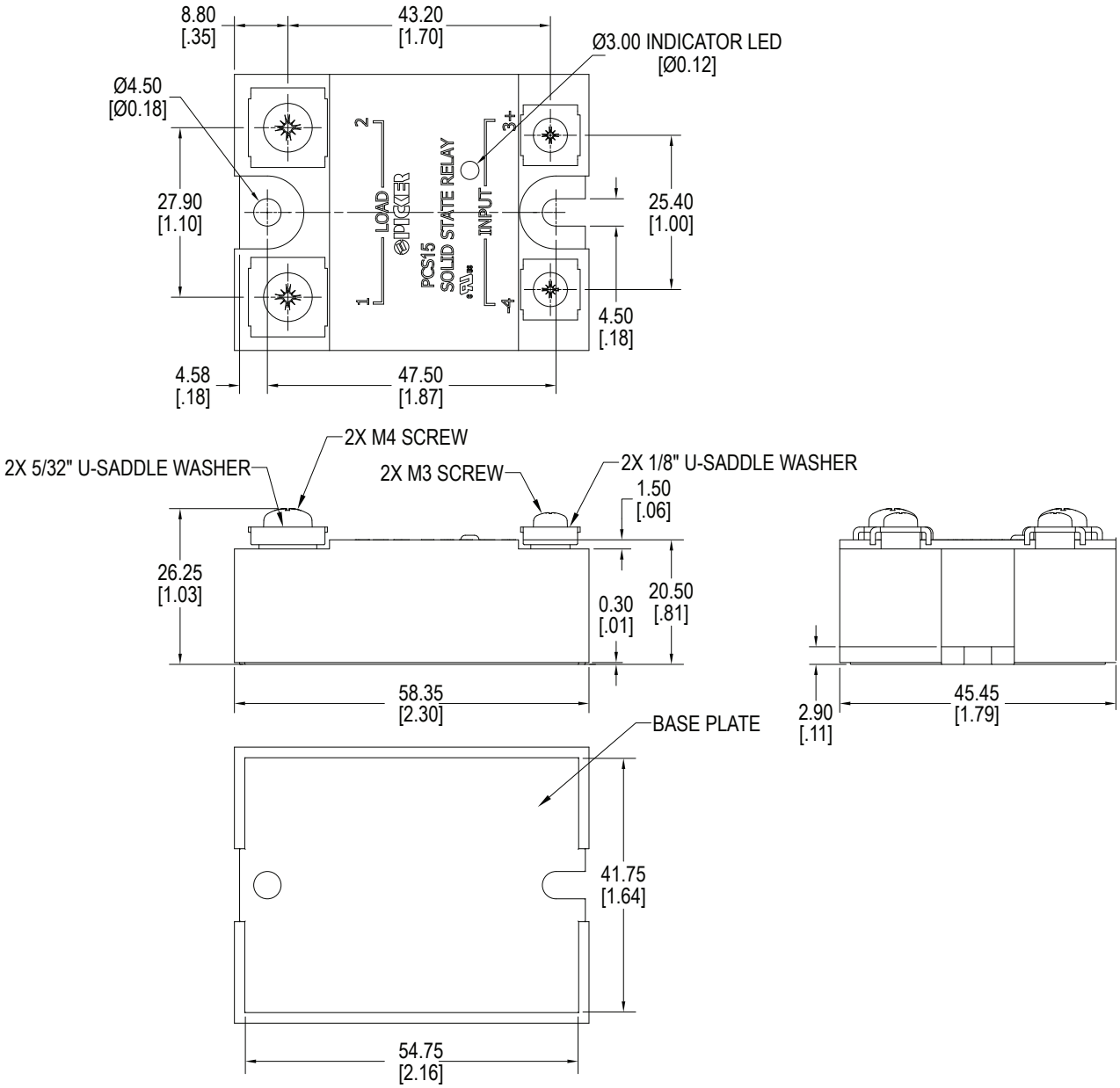
Example	PCS15	-D	-240A	-10	Z		L	
Model:	PCS15							
Control Voltage	D = 4~32VDC with LED 24A = 19.2~28.8VAC 110A = 85~132VAC 220A = 175~264VAC							
Load Voltage	240A = 48~280VAC 380A = 48~440VAC							
Load Current	10 = 10 Amp 15 = 15 Amp 20 = 20 Amp 25 = 25 Amp 40 = 40 Amp							
Switching Type	Z = Zero Crossing R = Random Turn-On / Instantaneous Turn-On*							
Over Voltage Protection	Nil = None Y = With Varistor (MOV)							
Status LED	L = Indicator LED							
Terminal Type	Nil = Screw Terminal Q = Quick Connect (1/4" Control, 3/8" Power)							

Note: *only available with DC control voltage

PRECAUTIONS

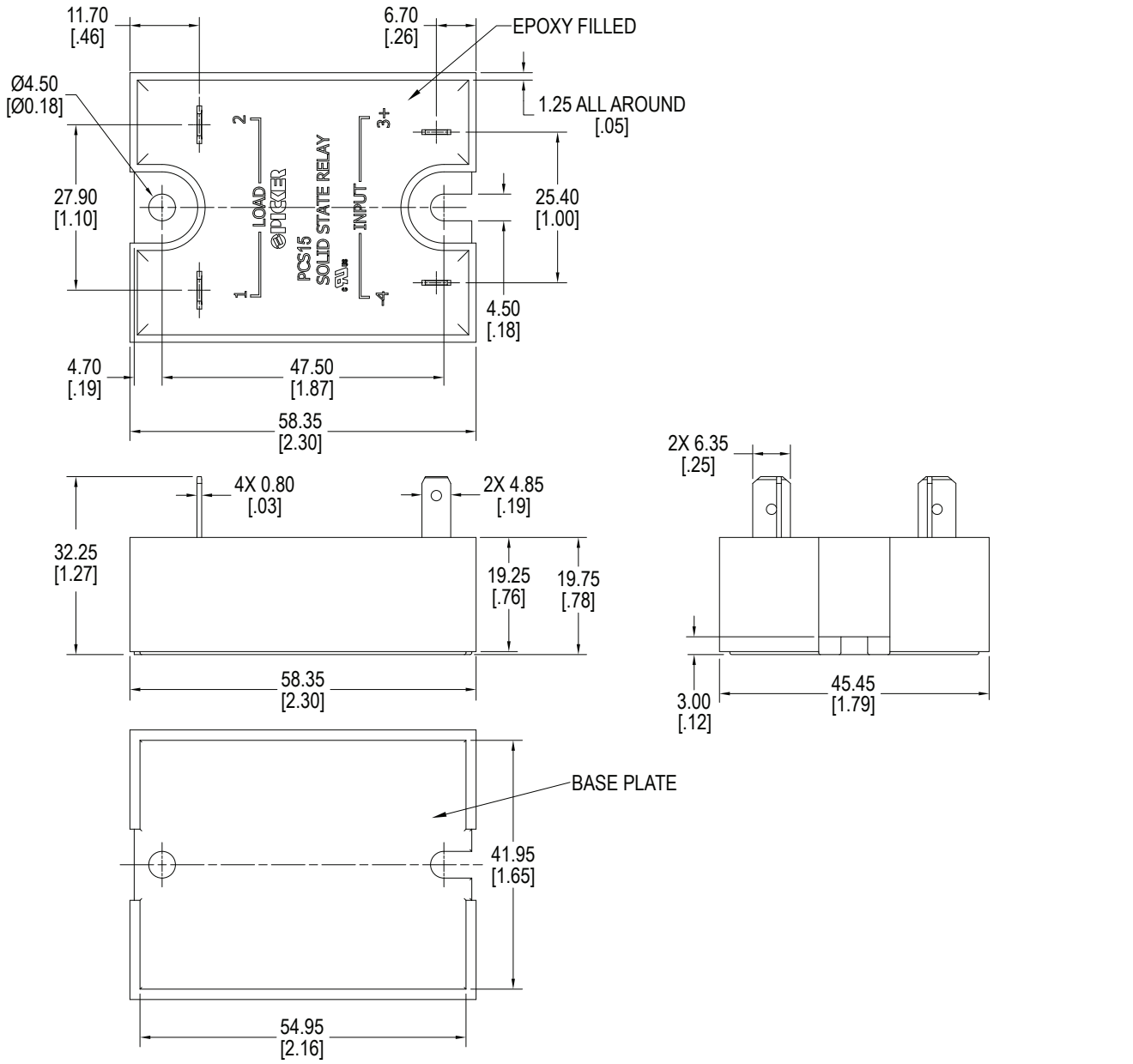
1. When choosing a Solid State Relay (SSR), note the actual load current and ambient temperature and reference the Characteristic Curves.
2. SSRs require an adequate heat sinking or other effective cooling measure.
3. With ambient temperature above 25°C, refer to the curve of Max Load Current vs. Ambient Temperature for load current derating.
4. 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.
5. 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.
6. 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.
7. When using the PCS15 relay with an inductive load, it is suggested to select Random Turn-On. (i.e. a model with "R" Switching Type)
8. The PCS15 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)
9. 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 *mm (inches)*



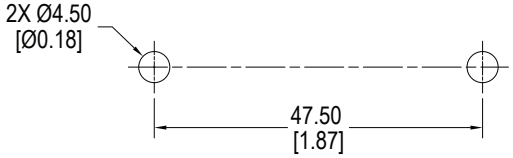
Screw Terminal

DIMENSIONS *mm (inches)*

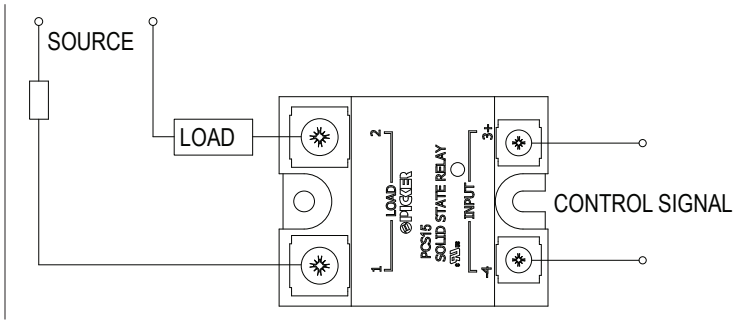


Quick Connect

MOUNTING LAYOUT



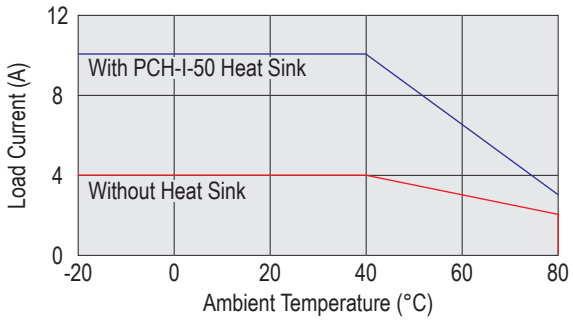
WIRING DIAGRAM



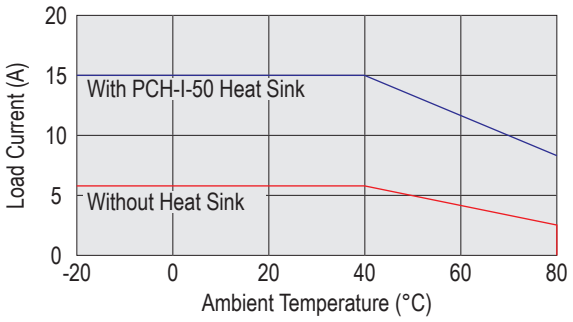
ACCESSORIES

Heat Transfer Pad	HTP100
Protective Cover	SSR100
Heat Sink	PCH-I-50 for applications up to 25 Amp @ 25°C Ambient Temperature PCH-M-120 for applications up to 35 Amp @ 25°C Ambient Temperature PCH-H-150 for applications up to 40 Amp @ 25°C Ambient Temperature

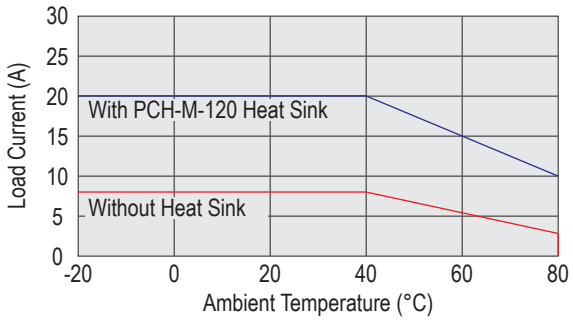
CHARACTERISTIC CURVES



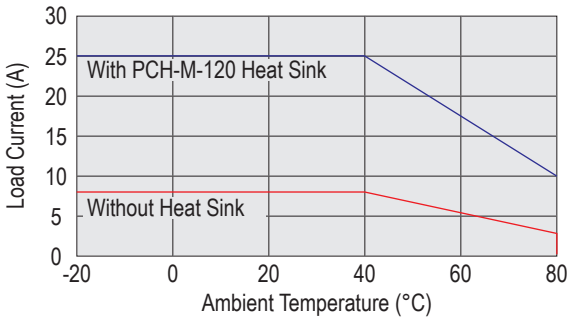
Max Load Current vs. Ambient Temperature - 10A



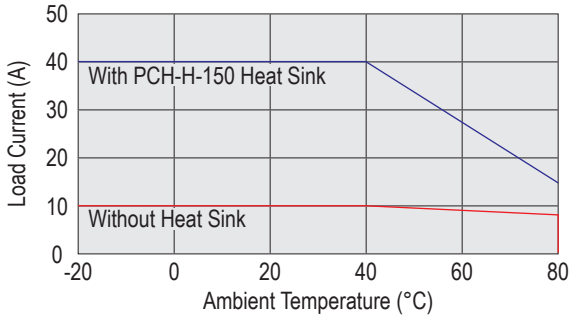
Max Load Current vs. Ambient Temperature - 15A



Max Load Current vs. Ambient Temperature - 20A



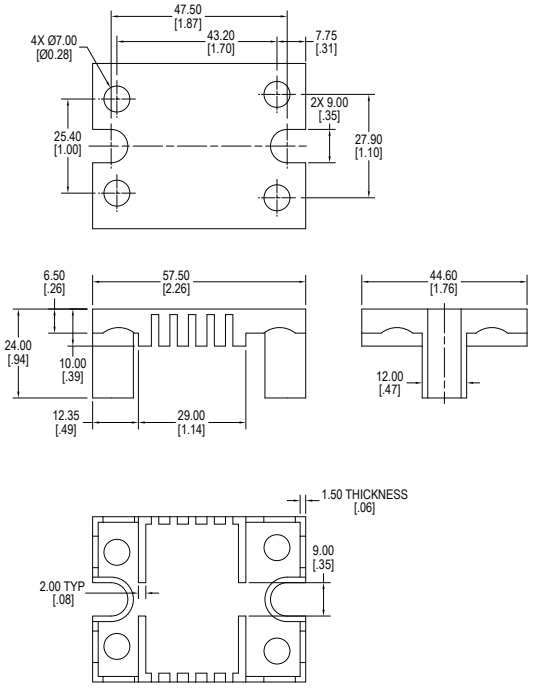
Max Load Current vs. Ambient Temperature - 25A



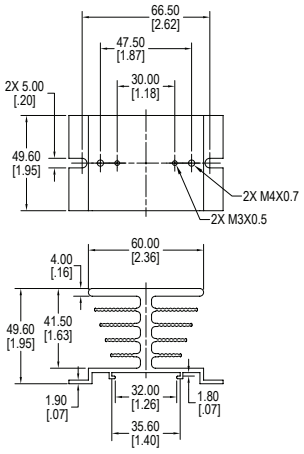
Max Load Current vs. Ambient Temperature - 40A

ACCESSORIES

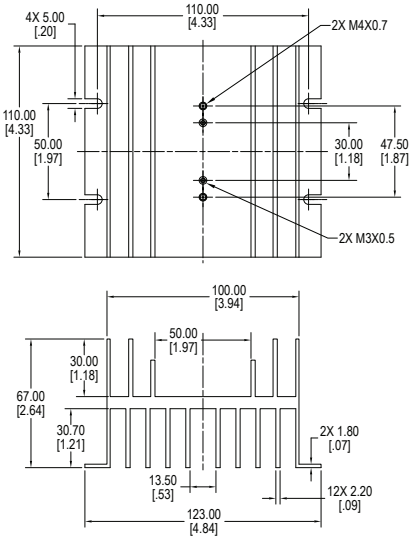
HTP100 — Heat Transfer Pad



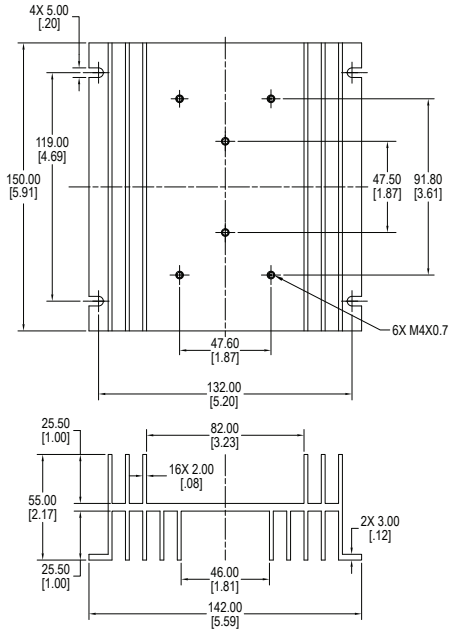
SSR100— Protective Cover
Removable, made of UL94V-O approved clear polycarbonate



PCH-I-50 Heat Sink



PCH-M-120 Heat Sink



PCH-H-150 Heat Sink