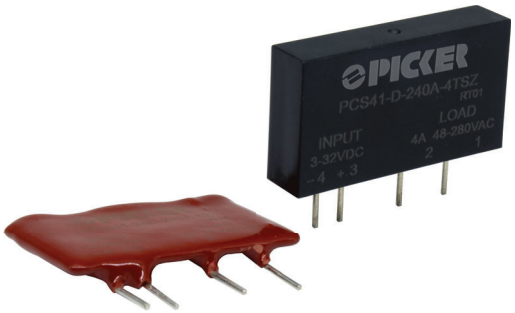
AC Output Solid State Relay

c UL us E93379

PCS41



FEATURES

- 3 Amp, 4 Amp and 5 Amp Rating
- 4,000 Volt Dielectric Strength
- Compatible with AC Type I/O Modules
- Optional RC Snubber and I/O Module Package
- Back to Back SCR or TRIAC Output

ROHS COMPLIANT

INPUT PARAMETERS (Ta = 25°C)

Control Voltage Range	D	3~32 VDC
	12D*	4~15 VDC
	24D*	15~32 VDC
Must Turn-On Voltage	D	3 VDC
	12D*	5 VDC
	24D*	15 VDC
Must Turn-Off Voltage		1 VDC
Max Input Current	D	25 mA
	12D*	40 mA
	24D*	20 mA

*UL Approved models, must contain either 12D or 24D control voltage and 4A load current

OUTPUT CURRENT PARAMETERS (Ta = 25°C)

Rated Voltage	240 VAC	380 VAC	480 VAC
Load Voltage Range VAC	48~280	48~440	48~530
Max. Transient Overvoltage	600 Vpk	800 Vpk	1200 Vpk
Load Current Range	0.1A to 5A		
Max Surge Current (10 ms, Apk)	TRIAC Output	120 Apk	
	SCR Output	250 Apk	
Max On-State Voltage Drop	1.5 VRMS		
Max Off-State Leakage Current	1.5 mA		
Min Off-State (dv/dt)	200 V/us		
Max Turn-On Time	Zero Cross	1/2 cycle + 1 ms	
	Random	1 ms	
Max Turn-Off Time	1/2 cycle + 1 ms		
Min Power Factor	0.5		
Max I^2t (10 ms)	Zero Cross	78 A^2s	
	Random	310 A^2s	

CHARACTERISTICS

Dielectric Strength	4000VAC, 50~60 Hz, 1 min Input to Output
Insulation Resistance	1000MΩ at 500 VDC
Shock Resistance	980 m/s^2
Vibration Resistance	10 Hz~55Hz, 1.5 mm DA
Operating Temperature	-30ºC ~ 80ºC
Storage Temperature	-30ºC ~ 100ºC
Relative Humidity	45% ~ 85%
Weight	15g

AVAILABILITY TABLE

	Control Voltage		
Load Voltage	D: 3~32 VDC	12D: 4~15VDC	24D: 15~32VDC
24 : 240 VAC	TRIAC only	SCR or TRIAC	SCR or TRIAC
38 : 380 VAC	TRIAC only	SCR or TRIAC	SCR or TRIAC
48 : 480 VAC	-	SCR only	SCR only

ORDERING INFORMATION

Example	PCS41	-12D	-240A	-3	T	S	Z	-P

Model:	PCS41
Control Voltage*	D = 3~32VDC 12D = 4~15VDC* 24D = 15~32VDC*
Load Voltage**	240A = 48~280VAC** 380A = 48~440VAC** 480A = 48~530VAC
Load Current*	3 = 3 Amp 4 = 4 Amp* 5 = 5 Amp
Output Component	Nil = SCR T = TRIAC
RC Snubber	Nil = Without RC Snubbers S = With RC Snubbers
Switching Type	Z = Zero Crossing R = Random Turn-On**
Housing	Nil - Silicon Epoxy P = Output Module Plastic

Note : See availability table for options in production
* UL Approved Models, must contain either 12D or 24D voltage control and 4A load current
** Random Turn-On is available for 240 VA and 380VAC

PRECAUTIONS

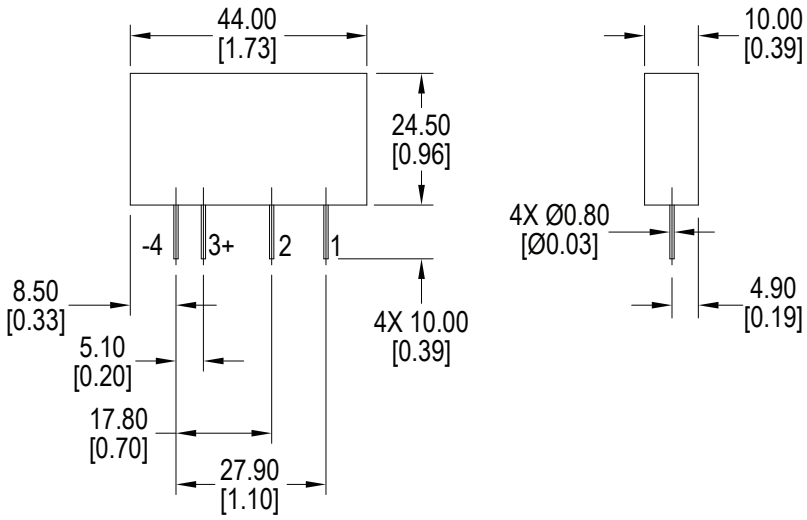
1. Maximum soldering temperatures : 260°C for maximum of 10 seconds ro 350°C for maximum of 5 seconds
2. The SSR case serves to dissipate heat. Intall the relays so that they are adequately ventilated. If poor ventilation is unavoidable, the load current must be reduced. Please refer to “Max Load Current vs. Ambient Temperature” chart.
3. The input circuitry does not incorporate a circuit protecting the SSR from being damaged due to a reversed connection. Make sure that the polarity and the input and output are correct when applying the control voltage.
4. When using the relay in phase control applications, at a phase control angle close to 180 degree the relay’s input signal will turn off at the trailing edge of the AC sine wave. The phase delay must be limited to end 200us before AC zero cross. This assures that the relay has time to switch off. Shorter times may cause loss of control at the follwing half cycle
5. If the output transient voltage excees the nominal value, the use of a varistor placed in parallel with the output terminals is recommended to prevent the SSR from being damaged. The recommended varistor voltages are:

   470VAC varistor voltage for 220VAC applications

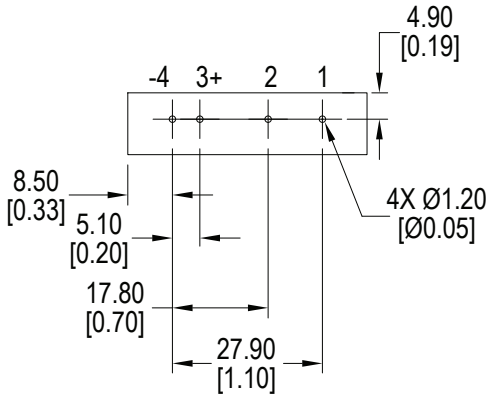
   750VAC varistor voltage for 380VAC applications

   1,100vac varistor voltage for 480VAC applications

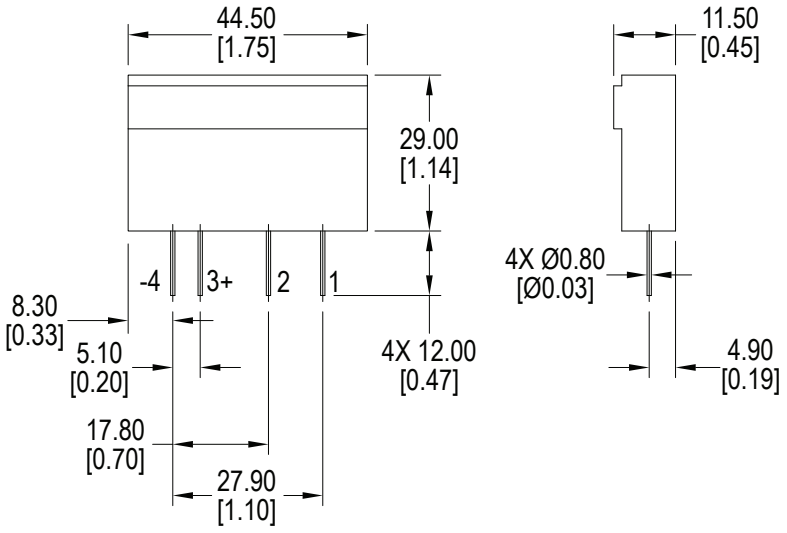
DIMENSIONS *mm (inches)*



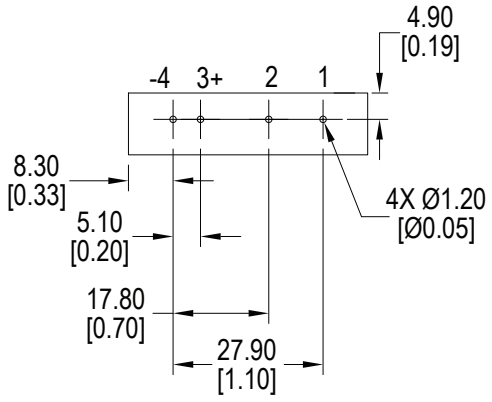
Standard Cover



PCB Layout

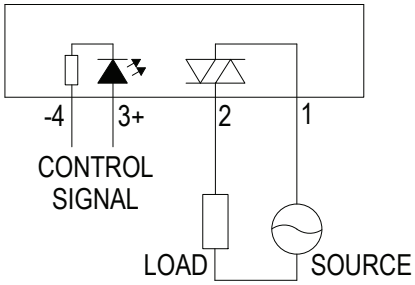


Epoxy Cover

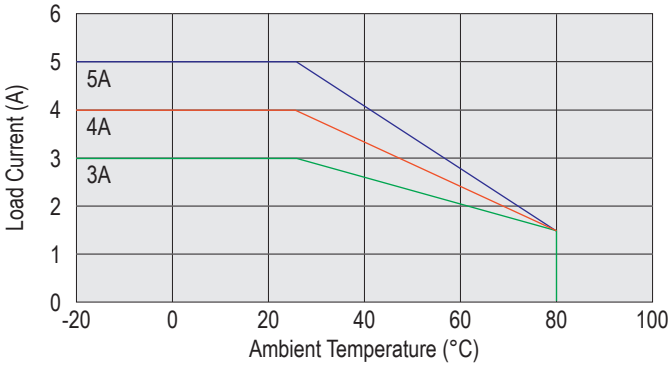


PCB Layout

WIRING DIAGRAM



CHARACTERISTIC CURVES



Max Load Current vs. Ambient Temperature