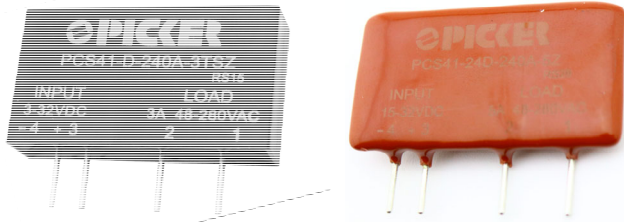


# AC Output Solid State Relay/Output Module PCS41



### FEATURES

- 3 Amp, 4 Amp and 5 Amp Rating @ 30° C
- Compatible with AC Type I/O Modules
- 4,000 Volt Dielectric Strength
- Back to Back SCR or Triac Output
- Optional RC Snubber
- Optional I/O Module Package
- Epoxy Encapsulated
- RoHS Compliant

### INPUT PARAMETERS (Ta = 25°C)

**UL** **US** **E93397**

Control Voltage Range	D	3 VDC - 32 VDC
	12D <sup>#</sup>	4 VDC - 15 VDC
	24D <sup>#</sup>	15 VDC - 32 VDC
Must Turn-On Voltage	D	3 VDC
	12D <sup>#</sup>	5 VDC
	24D <sup>#</sup>	15 VDC
Must Turn-Off Voltage		1.0 VDC
Max. Input Current	D	25 mA
	12D <sup>#</sup>	40 mA
	24D <sup>#</sup>	20 mA

### OUTPUT 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	1,200 Vpk
Load Current Range	0.1 A to 5 A		
Max. Surge Current (10 ms)	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 Cycles + 1 ms;		
	Random: 1 ms		
Max. Turn-Off Time	1/2 Cycles + 1 ms		
Min. Power Factor	0.5		
Max. I <sup>2</sup> t (10 ms)	Triac Output: 78 A <sup>2</sup> s		
	SCR Output: 310 A <sup>2</sup> s		

### AVAILABILITY TABLE

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

\*Notes: See Availability Table for Options in Production

#4 Amp, 12D and 24D Only

\*\*3 Amp and 5 Amp Versions are not UL

\*\*\* Random Turn On is Available for 240 VAC and 380 VAC

Box Quantity: XXX; Inner Box YYY

**CHARACTERISTICS**

Dielectric Strength	4,000 VAC, 50 Hz/60 Hz, 1 min. (Input to Output)
Insulation Resistance	1,000 MΩ at 500 VDC
Shock Resistance	980 m/s <sup>2</sup>
Vibration Resistance	10 Hz - 55 Hz, 1.5 mm DA

**CHARACTERISTICS Continued**

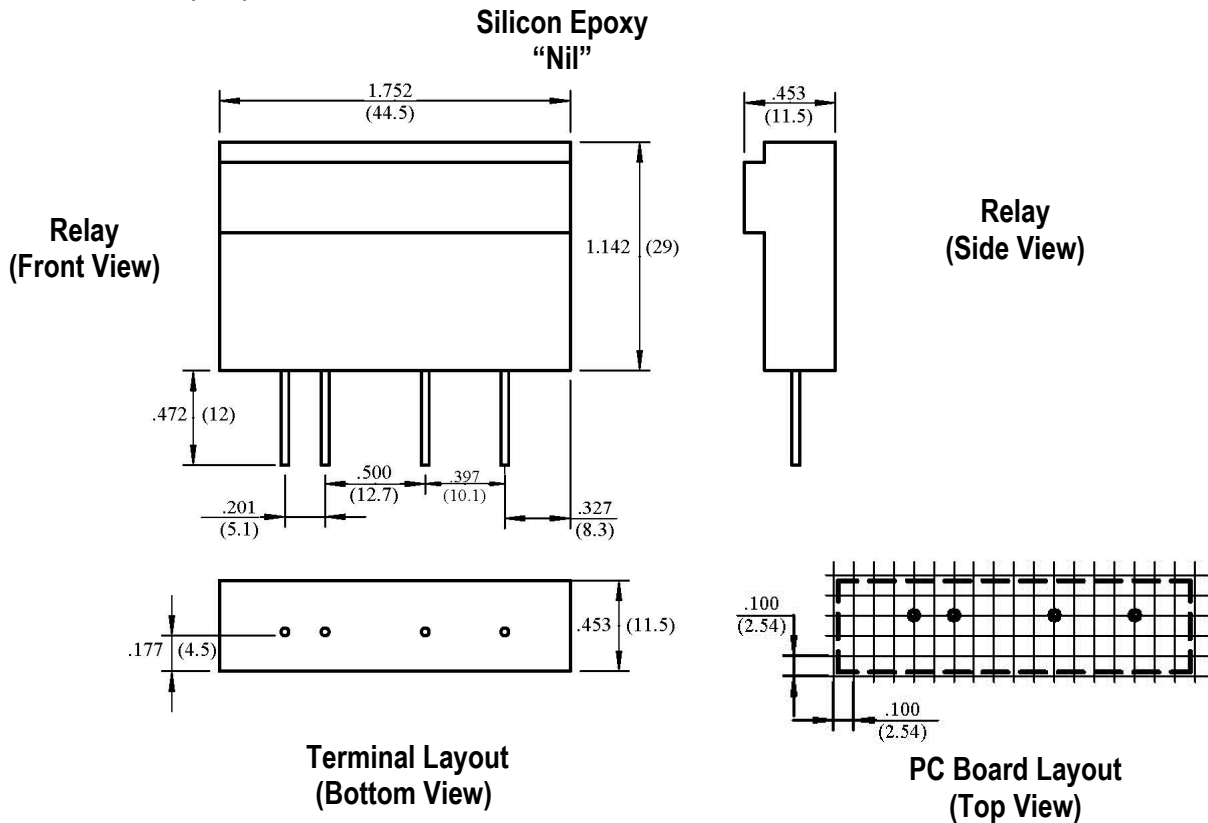
Operating Temperature	- 30°C to 80°C
Storage Temperature	- 30°C to 100°C
Relative Humidity	45% - 85%
Weight	Approximately 15 g

The use of the PCS41 with an AC Voltage Surge load greater than the rated voltage is possible with the use of a varistor for transient voltage suppression. For 220 VAC applications, a 470 VAC varistor is recommended. For 380 VAC applications, a 750 VAC varistor is recommended. For 480 VAC applications, a 1,100 VAC varistor is recommended.

**PRECAUTIONS**

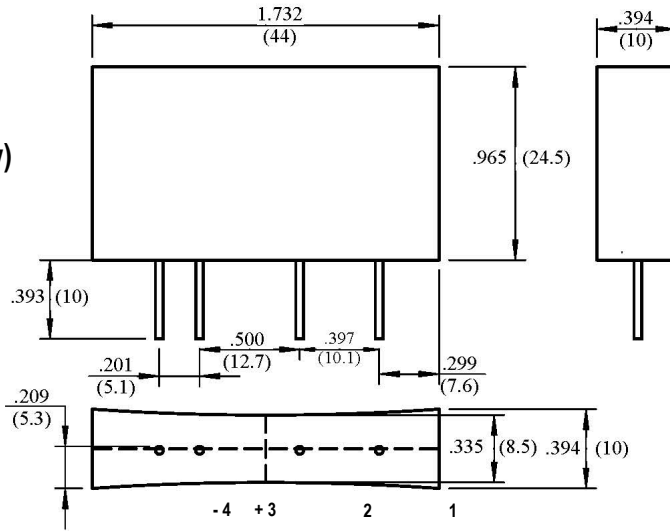
1. Maximum Soldering Temperatures: 260°C for a maximum of 10 seconds or 350°C for a maximum of 5 seconds.
2. The SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, the load current must be reduced. Please refer to the curve of "Max. Load current Vs. Ambient Temperature".
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 connecting.
4. If the output transient voltage exceeds the nominal value a varistor should be mounted on the SSR output terminals in parallel to prevent a breakdown of the triac output junction. The result could be a permanent short of the output. The recommended varistor voltage 470V.
5. When using the relay in phase control applications, at a phase control angle close to 180 degrees 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 following half cycle.

**DIMENSIONS in Inches (mm)**

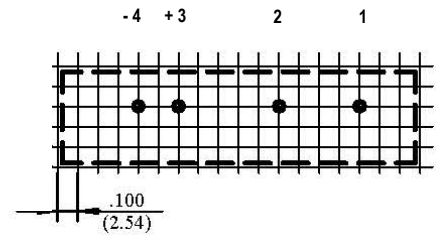


Output Module Plastic  
"P"

Relay  
(Front View)

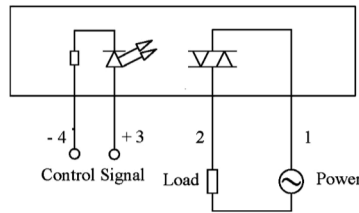


Relay  
(Side View)



Terminal Layout  
(Bottom View)

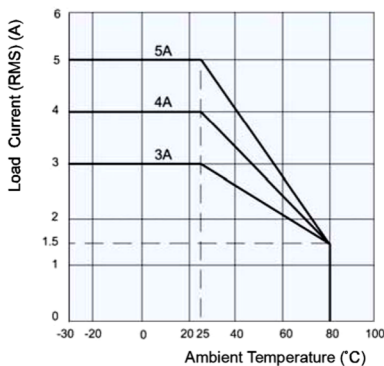
PC Board Layout  
(Top View)



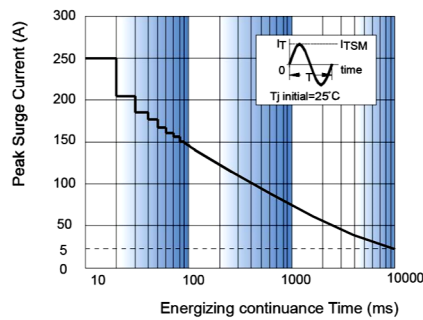
Wire Diagrams  
(Bottom View)

CHARACTERISTIC CURVES

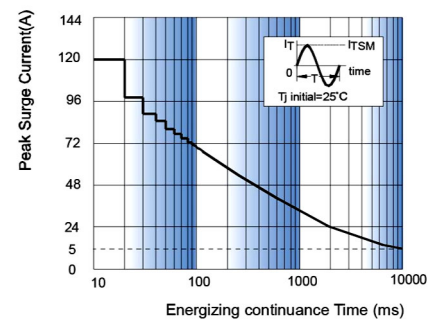
Max. Load Current vs. Ambient Temp.



Max. Permissible Non-repetitive Peak Surge Current vs. Continuance time (SCR AC switch output)



Max. Permissible Non-repetitive Peak Surge Current vs. Continuance time (TRIAC AC switch output)



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Dimensions are listed for reference purposes only.

Specifications and Availability subject to change without notice.