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Catalog 1308242 Issued 3-03 P&B Electronics



SSR series

"Hockey Puck" **Solid State Relay With Paired SCR Output**

c % us File E81606

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Standard "hockey puck" package.
- Enhanced noise immunity (designed to meet level 3 requirements of European EMC Directive).
- LFD indicator
- Inverse parallel SCR output.
- 25, 50, & 125A rms versions.
- 120/240VAC & 480VAC output types.
- Zero voltage and random voltage turn-on versions.
- AC & DC input versions.
- 4,000V rms optical isolation.
- Floating terminal design.

Engineering Data

Form: 1 Form A (SPST-NO).

Duty: Continuous.

Isolation: 4,000V rms minimum. Capacitance: 8 pf typical (input to output).

Temperature Range:

Storage: -40°C to +100°C Operating: -20°C to +80°C Case Material: Plastic, UL rated 94V-0.

Case and Mounting: Refer to outline dimension. Termination: Refer to outline dimension. Approximate Weight: 3.5 oz. (98g).

Ordering Information

Sample Part Number ▶

SSR |-240

D

25

1. Basic Series: SSR = "hockey puck" inverse parallel SCR output solid state relay

2. Line Voltage: 240 = 24 - 240VAC 480 = 48 - 660 VAC

3. Input Type & Voltage: A = 90 - 280VAC

D = 3 - 32VDC

4. Maximum Switching Rating/Output: 25 = .1 - 25A rms, mounted to heatsink 50 = .1 - 50A rms, mounted to heatsink

125 = .1 - 125A rms, mounted to heatsink

5. Options: Leave Blank = Zero voltage turn-on

R = Random voltage turn-on (phase controllable)

Our authorized distributors are more likely to maintain the following items in stock for immediate delivery.

SSR-240D25 SSR-240D50 SSR-240A25 SSR-240A50 SSR-240D25R SSR-480D125

Input Specifications

Parameter	AC Input	DC Input		
	Zero V Turn-on Units	Zero and Random V Turn-on Units		
Control Voltage Range V _{IN}	90 - 280VAC	3 - 32VDC		
Must Operate Voltage V _{IN(OP)} (Min.)	90VAC	3VDC		
Must Release Voltage V _{IN(REL)} (Min.)	10VAC	1VDC		
Input Current (Max.)	15mA	15mA		



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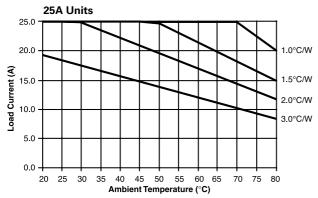
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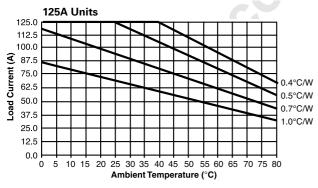
Output Specifications (@ 25° C, unless otherwise specified)

Parameter	Nom. Line Voltage	Conditions	Units	25A Models	50A Models	125A Models	
Load Voltage Range V _L	120/240V Model		V rms	24 - 280			
	480V Model		V rms	48 - 660			
Repetitive Blocking Voltage (Min.)	120/240 Model		V peak	±600			
	480V Model		V peak	±1200			
Load Current Range I L*	120/240 & 480V Models	Resistive	A rms	.05 - 25	.1 - 50	.1 - 125	
Single Cycle Surge Current (Min.)	120/240 & 480V Models		A peak	250	750	1,700	
Leakage Current (Off-State) (Max.)	120/240V Model	$f = 60 \text{ Hz. V}_{L} = 240 \text{V rms}$	mA rms	.1			
	480V Model	$f = 60 \text{ Hz. V}_{L} = 480 \text{V rms}$.25			
On-State Voltage Drop (Max.)	120/240 & 480V Models	I _L = Max.		1.35			
Static dv/dt (Off-State) (Min.)	120/240 & 480V Models		V/µs	500			
Thermal Resistance, Junction to Case $(R_{\theta J-C})$ (Max.)	120/240 & 480V Models		°C/W	0.4	0.25	.15	
Turn-On Time (Max.)	120/240 & 480V Models	f = 60 Hz.	ms	8.3 for Zero Voltage Turn-On DC input types, 20 for Zero Voltage Turn-On AC input types, 0.02 for Random Voltage Turn-On Models			
Turn-Off Time (Max.)	120/240 & 480V Models	f = 60 Hz.	ms	8.3 for DC input types, 30 for AC input types			
I ² T Rating	120/240 & 480V Models	t = 8.3 ms	A ² Sec.	937	2,458	12,000	
Load Power Factor Rating	120/240 & 480V Models	I _L = Max.		0.5 - 1.0			

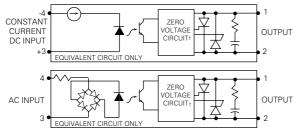
^{*}See Derating Curves

Electrical Characteristics (Thermal Derating Curves)

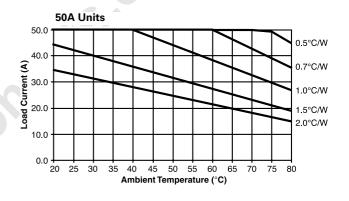




Operating Diagrams



+ Random Turn-on Units have a Random Turn-on circuit instead of Zero Voltage Circuit



Heatsink Recommendations

- We recommend that solid state relay modules be mounted to a heatsink sufficient to maintain the module's base temperature at less than 85°C under worst case ambient temperature and load conditions.
- The heatsink mounting surface should be a smooth (30-40 micro-inch finish), flat (30-40 micro-inch flatness across mating area), un-painted surface which is clean and free of oxidation.
- An even coating of thermal compound (Dow Corning DC340 or equivalent) should be applied to both the heatsink and module mounting surfaces and spread to a uniform depth of .002" to eliminate all air pockets.
- The module should be mounted to the heatsink using two #10 screws.

Outline Dimensions

