



# SSR series

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

## c Sus 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.

### **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.
NOTE: Operation to -40°C is permitted for DC input types at an increased minimum input voltage of 4VDC (240V line voltage models) or 5VDC (480V line voltage models).

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).

## Features

- Standard "hockey puck" package.
- Enhanced noise immunity (designed to meet level 3 requirements of European EMC Directive).
- LED 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.
- New housing design with anti-rotation barriers

#### **Ordering Information**

Sample Part Number ► SSR -240 D 25								
1. Basic Series: SSR = "hockey puck" inverse parallel SCR output solid state relay								
<b>2. Line Voltage:</b> 240 = 24 - 240VAC 480 = 48 - 660VAC								
<b>3. Input Type &amp; Voltage:</b> A = 90 - 280VAC D = 3 - 32VDC								
<ul> <li>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</li> </ul>								
5. Options: Leave Blank = Zero voltage turn-on R = Random voltage turn-on (phase controllable)								

Our authorized	distributors are mor	e likely to maintain the following items in stock for immediate delivery.	
SSR-240A25	SSR-240D25	SSR-240D50	
SSR-240A50	SSR-240D25R	SSR-480D125	

#### Input Specifications

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



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

Parameter	Nom. Line Voltage	Conditions	Units	25A Models	50A Models	125A Models
Load Voltago Pango V	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 _*	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	$f = 60 \text{ Hz. V}_{\text{L}} = 240 \text{V rms}$	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 <sub>L</sub> = Max.		1.35		
Static dv/dt (Off-State) (Min.)	120/240 & 480V Models		V/s	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	<ul> <li>8.3 for Zero Voltage Turn-On DC input types,</li> <li>20 for Zero Voltage Turn-On AC input types,</li> <li>0.02 for Random Voltage Turn-On Models</li> </ul>		
Turn-Off Time (Max.)	120/240 & 480V Models	f = 60 Hz.	ms	8.3 for DC input types, 30 for AC input types		
I <sup>2</sup> T Rating	120/240 & 480V Models	t = 8.3 ms	A <sup>2</sup> Sec.	937	2,458	12,000
Load Power Factor Rating	120/240 & 480V Models	I <sub>L</sub> = 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

> Dimensions are in inches over (millimeters) unless

otherwise specified.



#### 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**



Specifications and availability subject to change.

www.te.com http://relays. 1105 te.com

Dimensions are shown for

reference purposes only.