

SSR series

“Hockey Puck” Solid State Relay With Paired SCR Output

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).
- 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.

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 - 660VAC | | | | |
| 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-240A25 | SSR-240D25 | SSR-240D50 |
| SSR-240A50 | SSR-240D25R | SSR-480D125 |

Input Specifications

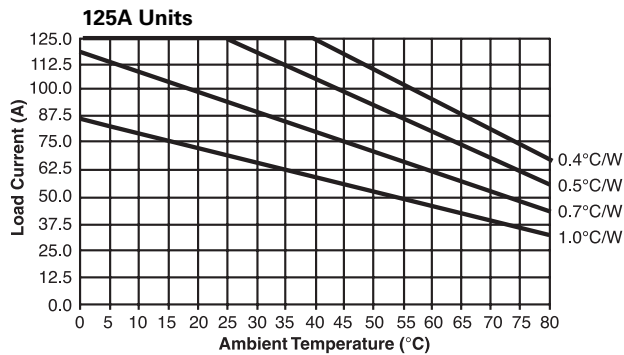
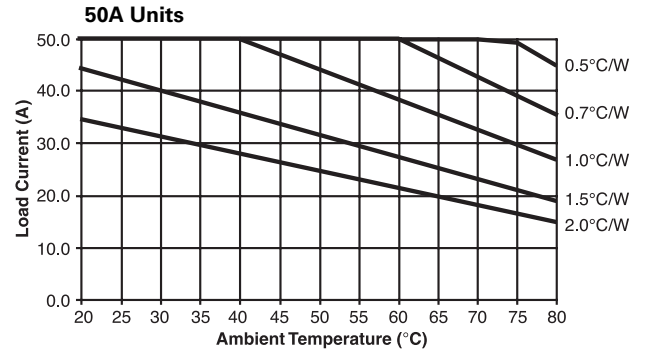
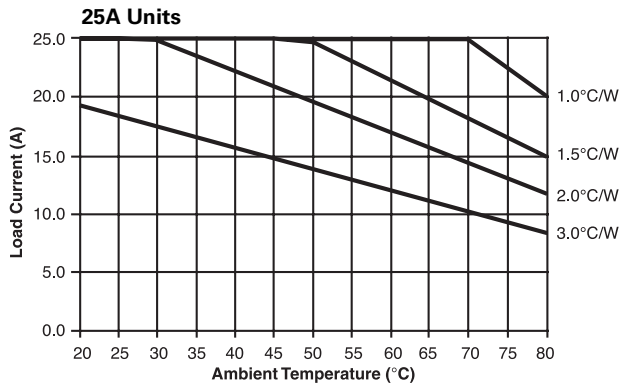
| Parameter | AC Input | DC Input | |
|---|----------------------|---------------------------------|---------------------|
| | Zero V Turn-on Units | Zero and Random V Turn-on Units | |
| | | 240VAC Rated Models | 480VAC Rated Models |
| Control Voltage Range V_{IN} | 90 - 280VAC | 3 - 32VDC | 4 - 32VDC |
| Must Operate Voltage $V_{IN(OP)}$ (Min.) | 90VAC | 3VDC | 4VDC |
| Must Release Voltage $V_{IN(REL)}$ (Min.) | 10VAC | 1VDC | 1VDC |
| Input Current (Max.) | 15mA | 15mA | 15mA |

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 Hz, $V_L = 240V$ rms | mA rms | .1 | | |
| | 480V Model | f = 60 Hz, $V_L = 480V$ rms | | .25 | | |
| On-State Voltage Drop (Max.) | 120/240 & 480V Models | $I_L = \text{Max.}$ | | 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^2T 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 | $I_L = \text{Max.}$ | | 0.5 - 1.0 | | |

*See Derating Curves

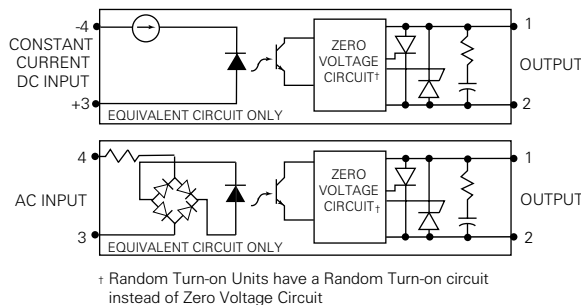
Electrical Characteristics (Thermal Derating Curves)



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.

Operating Diagrams



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

Outline Dimensions

