



# SSRF series

## 25A SIP Solid State Relay With Paired SCR Output, Integral Heatsink

UL File E29244

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 confirm the product meets the requirements for a given application.

### Features

- Heatsink is integrated into package.
- 25A rms inverse-parallel connected SCR output.
- Choice of 240 or 480VAC nominal output.
- 3-15 / 4-15VDC input control.
- Zero voltage and random voltage turn-on versions.
- 4,000V rms optical isolation.
- Pinout compatible with OAC or OACM series output modules.

### Engineering Data

**Form:** 1 Form A (SPST-NO).

**Duty:** Continuous.

**Isolation:** 4,000V rms input-to-output-to-ground.

**Insulation Resistance:** 10<sup>9</sup> Ohms, minimum, at 500VDC.

**Capacitance:** 8.0 pF maximum (input to output).

**Temperature Range:**

**Storage:** -30°C to +125°C

**Operating:** -30°C to +80°C

**Case Material:** Thermally conductive epoxy encapsulation.

**Case and Mounting:** Refer to outline dimension drawing.

**Termination:** Printed circuit terminals. Refer to outline dimension drawing.

**Approximate Weight:** 0.85 oz. (25.0g).

### Ordering Information

Sample Part Number ▶

**SSRF -240 D 25 R**

**1. Basic Series:** SSRF = SIP Solid State Relay with Integral Heatsink

**2. Line Voltage:** 240 = 12 - 280 VAC  
480 = 48 - 660 VAC

**3. Input Type & Voltage:** D = 3 - 15VDC (240V output types) or 4 - 15VDC (480V output types)

**4. Maximum Switching Rating/Output:** 25 = 25.0A rms (with forced air cooling)

**5. Options:** Blank = Zero voltage turn-on  
R = Random voltage turn-on

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

SSRF-240D25      SSRF-480D25  
SSRF-240D25R      SSRF-480D25R

### Input Specifications

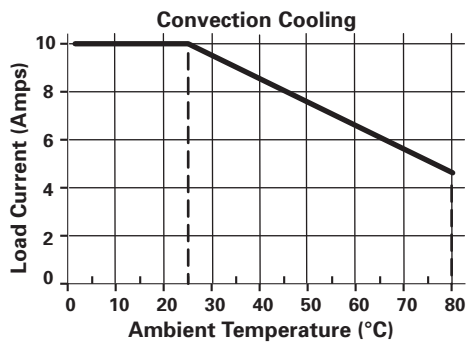
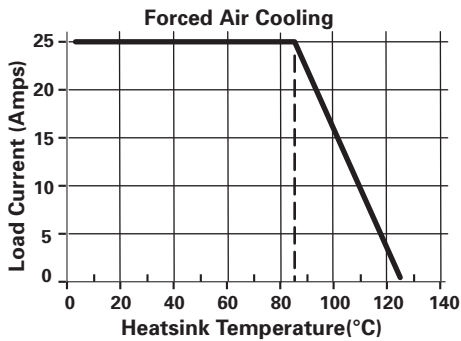
| Parameter                                 | Conditions | Units | 240V Output, Zero or Random V Turn-on | 480V Output Units, Zero or Random V Turn-on |
|---|------------|-------|---------------------------------------|---|
| Control Voltage Range $V_{IN}$            | @ 25°C     | VDC   | 3-15                                  | 4-15  |
| Must Operate Voltage $V_{IN(OP)}$ (Min.)  | @ 25°C     | VDC   | 3.0                                   | 4.0   |
| Must Release Voltage $V_{IN(REL)}$ (Min.) | @ 25°C     | VDC   | 1.0                                   | 1.0   |
| Input Current @ 5 VDC (Typ.)              | @ 25°C     | mA DC | 15                                    | 15  |
| Input Impedance (Nom.)                    | @ 25°C     | ohms  | 300                                   | 240   |

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

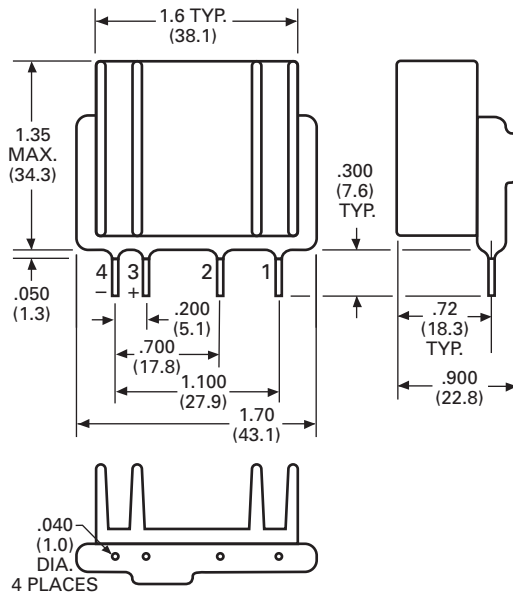
| Parameter                          | Conditions                    | Units               | 240V Nom. Output Units   | 480V Nom. Output Units   |
|------------------------------------|-------------------------------|---------------------|--|--|
| Load Voltage Range $V_L$           | $f = 47-63$ Hz.               | V rms               | 12-280   | 48-660   |
| Repetitive Blocking Voltage (Min.) |                               | V peak              | $\pm 600$  | $\pm 1200$   |
| Load Current Range $I_L^*$         | Max. Heatsink Temp. 85°C      | A rms               | .06-25.0 (Forced Air Cooling)<br>.06-10.0 (Convection Cooling)               | .06-25.0 (Forced Air Cooling)<br>.06-10.0 (Convection Cooling)               |
| Single Cycle Surge Current (Min.)  |                               | A peak              | 250  | 250  |
| Leakage Current (Off-State) (Max.) | $f = 60$ Hz, $V_L = 280$ Vrms | mA rms              | 0.1  | 0.1  |
| On-State Voltage Drop (Max.)       | $I_L = \text{Max.}$           | V peak              | 1.6  | 1.6  |
| Static dv/dt (Off-State) (Min.)    | $V_L = \text{Max.}$           | V/ $\mu$ s          | 500  | 500  |
| Turn-On Time (Max.)                | $f = 60$ Hz.                  | ms                  | 8.3 for Zero Voltage Turn-On Models<br>0.1 for Random Voltage Turn-On Models | 8.3 for Zero Voltage Turn-On Models<br>0.1 for Random Voltage Turn-On Models |
| Turn-Off Time (Max.)               | $f = 60$ Hz.                  | ms                  | 8.3  | 8.3  |
| $I^2 t$ Rating                     | $t = 8.3$ ms                  | A <sup>2</sup> Sec. | 260  | 260  |
| Load Power Factor Rating (Min.)    | $I_L = \text{Max.}$           |                     | 0.5  | 0.5  |

\*See Thermal Derating Curves.

**Electrical Characteristics (Thermal Derating Curves)**



**Outline Dimensions**



**PIN ASSIGNMENTS:**  
 PIN 1: AC LOAD  
 PIN 2: AC LOAD  
 PIN 3: + DC INPUT  
 PIN 4: - DC INPUT

**Disclaimer**

While Tyco Electronics has made every reasonable effort to ensure the accuracy of the information in this document, Tyco Electronics does not guarantee that it is error-free, nor does Tyco Electronics make any other representation, warranty or guarantee that the information is accurate, correct, reliable or current.

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