



## SSR3 Series

### Three Phase Solid State Relay

UL US File E29244 CE

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

- LED indicator.
- SCR output for medium to high industrial loads.
- TRIAC output for low industrial loads.
- 10, 16, 25, 40, 50 & 75A rms.
- 48-480Vac output types.
- Zero voltage and random voltage turn-on versions.
- AC & DC input versions.
- 4000V rms optical isolation.
- Safety cover to meet IP 20 protection.
- Epoxy filled.
- Transient voltage protection by MOVs externally.
- Panel mountable.

#### Engineering Data

**Isolation:** 4000V rms minimum.

#### Temperature Range:

**Storage:** -30°C to +100°C

**Operating:** -30°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:** 16.3-18.4 oz. (461-521g)  
(Depending on the specific model)

#### Ordering Information

#### Typical Part Number

**1. Basic Series:** SSR3 = Three phase solid state relay

**2. Switching:** S = SCR Output  
T = TRIAC Output

**4. Line Voltage:** 480 = 48 - 480

**5. Input Type & Voltage:** A = 90 - 280VAC  
D = 4 - 32VDC

**6. Maximum Current Rating:**  
10=.1-10A rms, mounted to heatsink  
16=.1-16A rms, mounted to heatsink  
25=.1-25A rms, mounted to heatsink  
40=.1-40A rms, mounted to heatsink  
50=.1-50A rms, mounted to heatsink  
75=.1-75A rms, mounted to heatsink

**7. Turn-On 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.

SSR3T-480A10 SSR3T-480D25  
SSR3T-480A16 SSR3T-480D40  
SSR3T-480A25 SSR3T-480D10R  
SSR3S-480A50 SSR3S-480D50R

#### Input Specifications

| Characteristics                 | Units                | AC Input                | DC Input                |
|---------------------------------|----------------------|-------------------------|-------------------------|
|                                 |                      | Zero & Random V Turn-on | Zero & Random V Turn-on |
| Control Voltage Range           | V <sub>IN</sub>      | 90 - 280                | 4 - 32                  |
| Must Operate Voltage            | V <sub>IN(OP)</sub>  | 90                      | 4                       |
| Must release Voltage            | V <sub>IN(REL)</sub> | 10                      | 1                       |
| Input Current                   | mA                   | 9-25                    | 30-80                   |
| Max Input Current@Rated Voltage | mA                   | 25 @ 280Vac             | 80 @ 32Vdc              |

**SSR3 Series** (Continued)

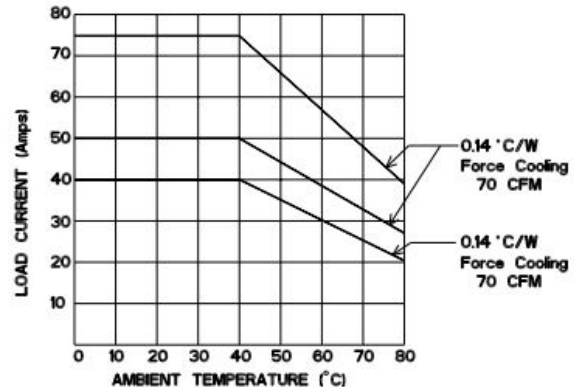
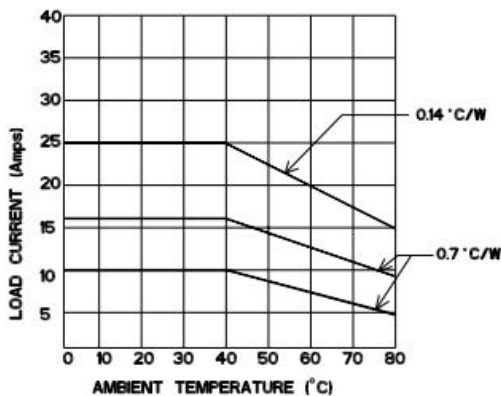
**Output Specifications (@ 25°C, unless otherwise specified)**

| Characteristics                                    | Conditions      | Units         | 10A Models                  | 16A Models | 25A Models                          |
|--|-----------------|---------------|-----------------------------|------------|-------------------------------------|
| Load Voltage Range, $V_L$                          |                 | $V_{RMS}$     | 48-480                      |            |                                     |
| Load Current Range, $I_L$                          |                 | A             | 10                          | 16         | 25                                  |
| On-State Voltage Drop                              | @ Rated Current | $V_{RMS}$     | 1.6                         |            |                                     |
| Single cycle surge current                         | For Triac / SCR | A             | 100                         | 160        | 250                                 |
| Peak Off state Voltage                             |                 | $V_{ac}$      | 800                         |            |                                     |
| Off- State Leakage Current                         | (F-60 Hz)       | mA            | 5                           |            |                                     |
| Fusing Current, $I^2T$ Rating                      | For Triac / SCR | $A^2s$        | 55                          | 144        | 340                                 |
| Static dv/dt (Off-State)                           | For Triac / SCR | $V/\mu s$     | 400                         |            |                                     |
| Zero Turn-On Voltage                               |                 | $V_{pk}$      | 25                          |            |                                     |
| Thermal Resistance, (Junction to Case, $R_{J-C}$ ) | For Triac / SCR | $^{\circ}C/W$ | 2.4                         | 2.1        | 0.6 (AC i/p & Random), 0.9 (DC i/p) |
| Turn-On Time<br>(F= 60/50 Hz)                      | AC i/p          | ms            | 40                          |            |                                     |
|  | DC i/p          |               | Zero - 10/8.3, Random - 0.1 |            |                                     |
| Turn-Off Time<br>(F= 60/50 Hz)                     | AC i/p          |               | 80                          |            |                                     |
|  | DC i/p          |               | Zero - 10/8.3, Random - 10  |            |                                     |

| Characteristics  | Conditions      | Units            | 40A Models                  | 50A Models | 75A Models |
|--|-----------------|------------------|-----------------------------|------------|------------|
| Load Voltage Range, V <sub>L</sub>                           |                 | V <sub>RMS</sub> | 48-480                      |            |            |
| Load Current Range, I <sub>L</sub> *                         |                 | A                | 40                          | 50         | 75         |
| On-State Voltage Drop  | @ Rated Current | V <sub>RMS</sub> | 1.6                         |            |            |
| Single cycle surge current                                   | For Triac / SCR | A                | 400 / 580                   | 520        | 750        |
| Peak Off state Voltage                                       |                 | V <sub>ac</sub>  | 800                         |            |            |
| Off- State Leakage Current                                   | (F-60 Hz)       | mA               | 5                           |            |            |
| Fusing Current, I²T Rating                                   | For Triac / SCR | A²s              | 880 / 1680                  | 1350       | 2812       |
| Static dv/dt (Off-State)                                     | For Triac / SCR | V/μs             | 500 / 1000                  | 1000       |            |
| Zero Turn-On Voltage   |                 | V <sub>pk</sub>  | 25                          |            |            |
| Thermal Resistance,<br>(Junction to Case, R <sub>J-C</sub> ) | For Triac / SCR | °C/W             | 0.6 / 0.9                   | 0.6 / 0.5  | 0.6        |
| Turn-On Time<br>(F= 60/50 Hz)                                | AC i/p          | ms               | 40                          |            |            |
|  | DC i/p          |                  | Zero - 10/8.3, Random - 0.1 |            |            |
| Turn-Off Time<br>(F= 60/50 Hz)                               | AC i/p          |                  | 80                          |            |            |
|  | DC i/p          |                  | Zero - 10/8.3, Random -10   |            |            |

\* See Derating curve

**Electrical Characteristics (Thermal Derating Curves)**



## SSR3 Series (Continued)

### Heatsink Recommendations

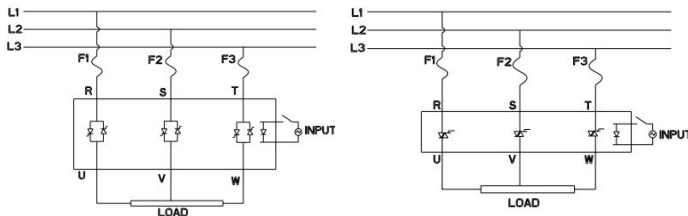
- We recommend that solid state relay modules be mounted to a heatsink sufficient to maintain the module's base temperature at less than 85°C under worst case ambient temperature and load conditions.
- The heatsink mounting surface should be a smooth (30-40 micro-inch finish), flat (30-40 micro-inch 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 #8 screws.

### Thermal Pad

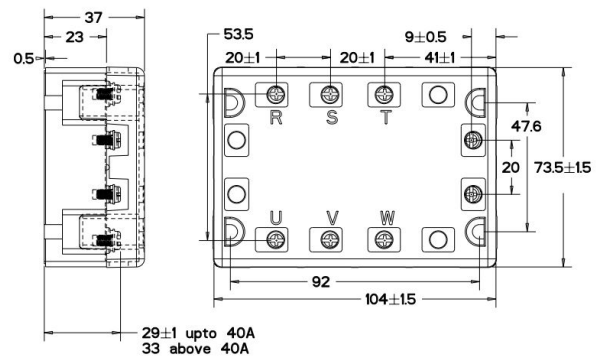
Product Code : SSR-ACC-TH-003

Part Number : 2323803-2

### Operating Diagrams



### Outline Dimensions



\* Overall height dimensions includes with clear cover  
Dimensions in mm

| Product Code  | Part Number |
|---------------|-------------|
| SSR3T-480A10  | 2345984-1   |
| SSR3T-480A16  | 2345984-2   |
| SSR3T-480A25  | 2345984-5   |
| SSR3T-480A40  | 2345984-6   |
| SSR3S-480A40  | 2345984-7   |
| SSR3S-480A50  | 2345984-8   |
| SSR3S-480A75  | 2345984-9   |
| SSR3T-480D10  | 1-2345984-1 |
| SSR3T-480D16  | 1-2345984-2 |
| SSR3T-480D25  | 1-2345984-3 |
| SSR3T-480D40  | 1-2345984-4 |
| SSR3S-480D40  | 1-2345984-5 |
| SSR3S-480D50  | 1-2345984-6 |
| SSR3S-480D75  | 1-2345984-7 |
| SSR3T-480D10R | 1-2345984-9 |
| SSR3T-480D25R | 2-2345984-0 |
| SSR3S-480D40R | 2-2345984-1 |
| SSR3S-480D50R | 2-2345984-2 |

| UNSPECIFIED DIMENSION TOLERANCE |       |         |          |
|---------------------------------|-------|---------|----------|
| 0.6                             | >6.30 | >30.120 | >120.320 |
| ±0.15                           | ±0.25 | ±0.65   | ±1.00    |

### Screw details

| Type   | Screw size     | Ampere                   | Head type         |
|--------|----------------|--------------------------|-------------------|
| Input  | M3.5/0.6       | As per data sheet        | Pan head Phillips |
| Output | M4/0.7<br>M6/1 | up to 40A<br>50A & above |                   |

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