

# 645S Series - Solid State On / Off

## 10 - 75 Amp



The 645S series of solid state relays uses back to back SCRs for on/control of three phase loads. Operation is three pole normally open. Inputs can be AC or DC operated. Load currents can range from 10 to 75 amps and up to a nominal voltage of 480VAC. Both random turn on or zero cross construction is available.



### GENERAL SPECIFICATIONS (@ 25° C)

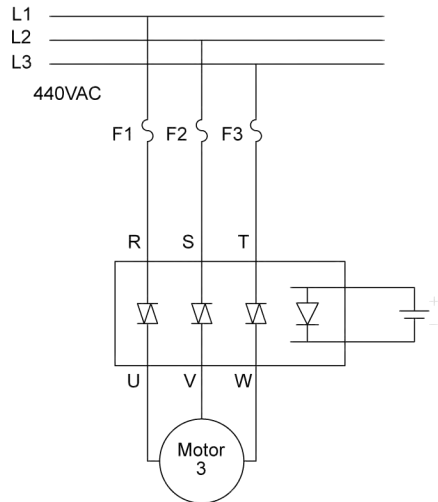
| Input Characteristics       | DC Input  | AC Input     |
|-----------------------------|-----------|--------------|
| Input Voltage               | 3 - 32VDC | 90 - 280 VAC |
| Must Release Voltage        | 1VDC      | 10VAC        |
| Maximum Input Current       | 80mA      | 30 mA        |
| Reverse Polarity Protection | Yes       | N/A          |

| Output Characteristics                             | 10 Amp       | 25 Amp       | 40 Amp       | 50 Amp          | 75 Amp          |
|----------------------------------------------------|--------------|--------------|--------------|-----------------|-----------------|
| Rated Load Current (rms)                           | 10A          | 25A          | 40A          | 50A             | 75A             |
| Min. Load current to maintain on                   | 100mA        | 120mA        | 250mA        | 250mA           | 250mA           |
| Non-Repetitive Surge Current (1 cycle)             | 80A          | 80A          | 800A         | 520A            | 1150A           |
| Maximum I <sup>2</sup> T for Fusing (Asquared sec) | 41A2 S       | 510A2 S      | 3745A2 S     | 1035A2 S        | 2600A2 S        |
| Suggested Heatsink °C/W                            | 1.0°C/W      | 0.14°C/W     | 0.14°C/W+FAN | 0.14°C/W+FAN(2) | 0.14°C/W+FAN(2) |
| Load Voltage Range                                 | 50 to 480VAC | 50 to 480VAC | 50 to 480VAC | 50 to 480VAC    | 50 to 480VAC    |
| Frequency Range                                    | 47 to 63 Hz  | 47 to 63 Hz  | 47 to 63 Hz  | 47 to 63 Hz     | 47 to 63 Hz     |
| Peak Blocking Voltage                              | 800 to 1200  | 800 to 1200  | 800 to 1200  | 800 to 1200     | 800 to 1200     |
| Maximum Rate of Rise                               | 250V/uS      | 300V/uS      | 475V/uS      | 500V/uS         | 500V/uS         |
| Off State Voltage (dv/dt)                          |              |              |              |                 |                 |
| Max. Off state leakage current (rms)               | 10mA         | 10mA         | 10mA         | 10mA            | 10mA            |
| Max. On State Voltage Drop                         | 1.6VAC       | 1.6VAC       | 1.6VAC       | 1.8VAC          | 1.8VAC          |
| Maximum Turn-On Time @ 60 Hz                       | 8.3mS        | 8.3mS        | 8.3mS        | 8.3mS           | 8.3mS           |
| Maximum Turn-Off Time @ 60 Hz                      | 8.3mS        | 8.3mS        | 8.3mS        | 8.3mS           | 8.3mS           |
| Miscellaneous Characteristics                      |              |              |              |                 |                 |
| Dielectric Strength - I or O to case               | 4000Vrms     |              |              |                 |                 |
| Operating Temperature Range                        | -30 to 80°C  |              |              |                 |                 |
| Storage Temperature Range                          | -40 to 100°C |              |              |                 |                 |
| Weight                                             | 320g         |              |              |                 |                 |
| Input Terminal Size                                | M3.5         |              |              |                 |                 |
| Output Terminal Size                               | M4           |              |              |                 |                 |

# Motor Relays

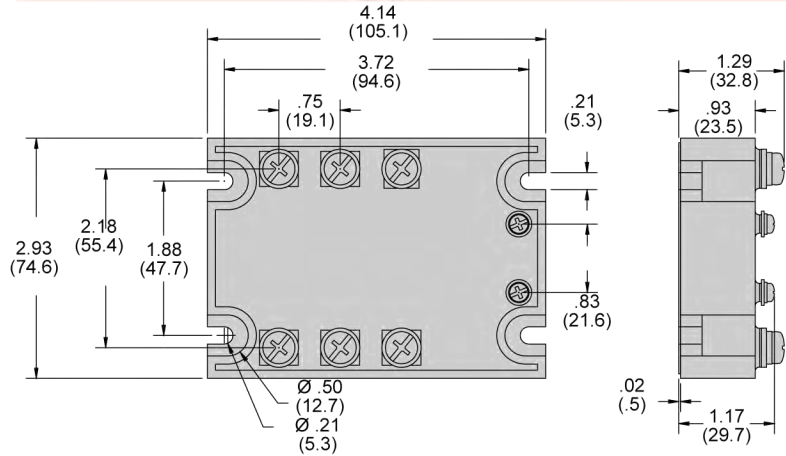
## 15 - 75 Amp

**Solid State On/Off Wire Diagram**

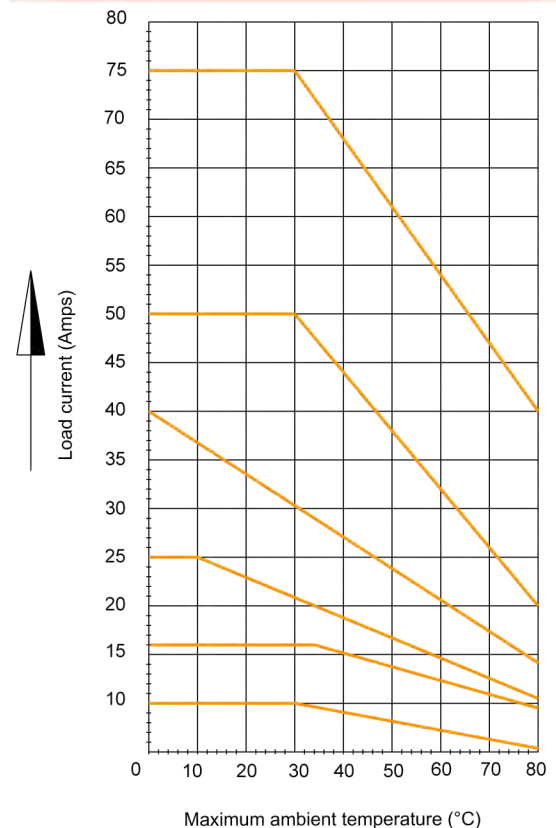


**Outline Dimensions**

Dimensions Shown in inches & (millimeters)



**Derating Curve**



**Ordering Code** 645 S Z or R 4 10 3-32VDC

**Series**  
645

**Switching**  
SCR - CODE S

**Turn on**  
Zero cross - CODE Z  
Random turn on CODE R

**Load Voltage**  
480VAC - CODE 4

**Maximum Load Current**  
10, 25, 40, 50, 75 (Amp)

**Input Voltage**  
3-32VDC  
90-280VAC