

## SPST-N.O., 2.5 TO 25 AMPS

**UL**  
UL Recognized  
File No. E52197



### FEATURES

SMALL PACKAGES  
EIGHT DIFFERENT PACKAGES  
OPTICALLY ISOLATED.  
ZERO CROSS SWITCHING  
INTERNAL SNUBBER

IDEAL FOR TIGHT DESIGNS  
WIDE CHOICE OF DESIGN OPTIONS  
INPUT ISOLATED FROM OUTPUT  
REDUCED CURRENT SURGES FOR MOST LOADS  
EXCELLENT TRANSIENT PROTECTION

### DC INPUT-AC OUTPUT

MANUFACTURED UNDER ISO 9002

| MAX. LOAD CURRENT | CONTROL VOLTAGE RANGE | NOMINAL LOAD VOLTAGE | DESCRIPTION AND FEATURES                                                                                | STYLE    |
|-------------------|-----------------------|----------------------|---------------------------------------------------------------------------------------------------------|----------|
| 2.5 A             | 3-30 or 6-30 VDC      | 24, 120 or 240 VAC   | MINIATURE PRINTED CIRCUIT MOUNT RELAY, ONLY 0.500" HIGH                                                 | H        |
| 3 A               | 3-32 or 6-32 VDC      | 24, 120 or 240 VAC   | SINGLE IN - LINE PACKAGE, USES ONLY 0.680 SQ. INCHES BOARD AREA                                         | V        |
| 4 A               | 3-30 or 6-30 VDC      | 24, 120 or 240 VAC   | COMPACT RELAY, PRINTED CIRCUIT MOUNT                                                                    | F        |
| <b>NEW</b> 5 A    | <b>3-32 VDC</b>       | <b>24 to 280 VAC</b> | <b>SINGLE IN-LINE PACKAGE, USES ONLY 0.680 SQ. INCHES BOARD AREA</b>                                    | <b>V</b> |
| 6 A               | 3-30 or 6-30 VDC      | 120 or 240 VAC       | LOW PROFILE RELAY, PANEL OR PRINTED CIRCUIT MOUNT                                                       | L        |
| 6 A               | 3-30 or 6-30 VDC      | 120 or 240 VAC       | COMPACT RELAY, PANEL OR PRINTED CIRCUIT MOUNT                                                           | M        |
| 6 A               | 3-30 or 6-30 VDC      | 120 or 240 VAC       | COMPACT RELAY, MEETS FIT/FUNCTION REPLACEMENTS FOR LARGER CLASS 6 STYLE RELAYS, QUICK CONNECT TERMINALS | N        |
| 6 A               | 3-30 or 6-30 VDC      | 120 or 240 VAC       | COMPACT RELAY, MEETS FIT/FUNCTION REPLACEMENTS FOR LARGER CLASS 6 STYLE RELAYS, SCREW TERMINALS         | S        |
| 10 A              | 3-30 or 6-30 VDC      | 120 or 240 VAC       | COMPACT RELAY, PANEL OR PRINTED CIRCUIT MOUNT 10 AMP                                                    | M        |
| 12 A              | 3-30 or 6-30 VDC      | 120 or 240 VAC       | COMPACT RELAY, MEETS FIT/FUNCTION REPLACEMENTS FOR LARGER CLASS 6 STYLE RELAYS, QUICK CONNECT TERMINALS | N        |
| 12 A              | 3-30 or 6-30 VDC      | 120 or 240 VAC       | COMPACT RELAY, MEETS FIT/FUNCTION REPLACEMENTS FOR LARGER CLASS 6 STYLE RELAYS, SCREW TERMINALS         | S        |
| 25 A              | 3-30 VDC              | 120 or 240 VAC       | HIGH OUTPUT VERSION OF ABOVE STYLE "S"                                                                  | S        |

### DC INPUT-DC OUTPUT

| MAX. LOAD CURRENT | CONTROL VOLTAGE RANGE | NOMINAL LOAD VOLTAGE | DESCRIPTION AND FEATURES                                                                                | STYLE    |
|-------------------|-----------------------|----------------------|---------------------------------------------------------------------------------------------------------|----------|
| 3 A               | 3-15 or 9-30 VDC      | 3 to 60 VDC          | SINGLE IN - LINE PACKAGE, USES ONLY 0.680 SQ. INCHES BOARD SPACE                                        | V        |
| 3 A               | 3-15 or 9-30 VDC      | 3 to 60 VDC          | COMPACT RELAY, PRINTED CIRCUIT MOUNT                                                                    | F        |
| 5 A               | 3-15 VDC              | 3 to 60 VDC          | COMPACT RELAY, MEETS FIT/FUNCTION REPLACEMENTS FOR LARGER CLASS 6 STYLE RELAYS, QUICK CONNECT TERMINALS | N        |
| 5 A               | 3-15 VDC              | 3 to 60 VDC          | COMPACT RELAY, MEETS FIT/FUNCTION REPLACEMENTS FOR LARGER CLASS 6 STYLE RELAYS, SCREW TERMINALS         | S        |
| <b>NEW</b> 5 A    | <b>3-32 VDC</b>       | <b>3 to 60 VAC</b>   | <b>SINGLE IN-LINE PACKAGE, USES ONLY 0.680 SQ. INCHES BOARD AREA</b>                                    | <b>V</b> |

### ORDERING CODE

**70S2-** **04-** **D-** **03 -** **V**

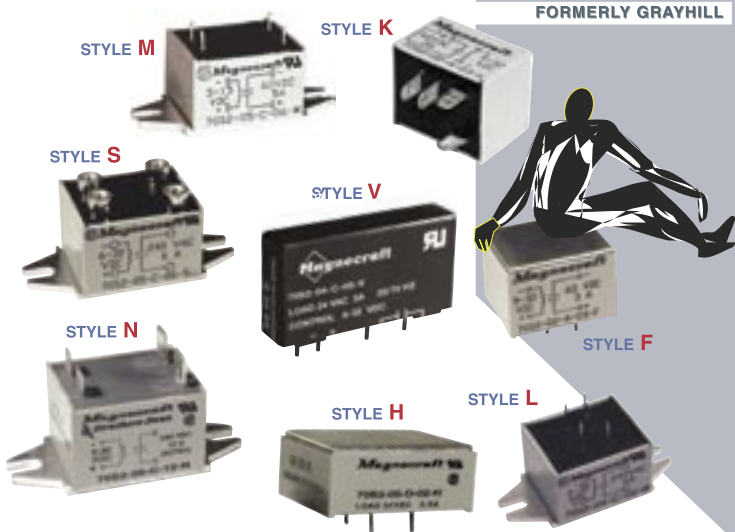
**CLASS:** \_\_\_\_\_

**CONTROL VOLTAGE:** \_\_\_\_\_  
01 = 3 - 15 VDC, DC/DC RELAYS  
02 = 9 - 30 VDC, DC/DC RELAYS  
03 = 3 - 30 VDC, 25 A S PACK  
04 = 3 - 30 VDC (OR 32 VDC), DC/AC RELAYS  
05 = 6 - 30 VDC (OR 32 VDC), DC/AC RELAYS

**LOAD VOLTAGE RANGE:** \_\_\_\_\_  
A = 3-60 VDC B = 120 VAC  
C = 240 VAC D = 24 VAC

**MAX CURRENT RATING** \_\_\_\_\_  
02 = 2.5 A 04 = 4 A 06 = 6 A 12 = 12 A  
03 = 3 A 05 = 5 A 10 = 10A 25 = 25 A

**PACKAGE STYLE** \_\_\_\_\_  
F, H, L, M, N, S OR V.



# 70S2 SERIES SOLID STATE "K" STYLE RELAY

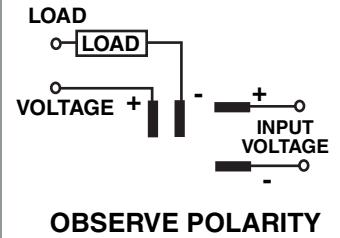


## DC/AC, SPST-N.O., 4 AMPS

WIRING DIAGRAM  
(VIEWED FROM PIN END)

UL US  
UL Recognized  
File No. E52197

CS  
168986



## GENERAL SPECIFICATIONS (@ 25°C)

### INPUT CHARACTERISTICS

| Style:                        | 70S2-04-B  | 70S2-04-C    | 70S2-04-D  | 70S2-04-B   | 70S2-05-C  | 70S2-05-D    | 70S2-01-A  | 70S2-02-A  |
|-------------------------------|------------|--------------|------------|-------------|------------|--------------|------------|------------|
| Control Voltage Range:        | 3 - 30 VDC | 3 - 30 VDC   | 3 - 30 VDC | 6 - 30 VDC  | 6 - 30 VDC | 6 - 30 VDC   | 3 - 15 VDC | 9 - 30 VDC |
| Typical Input Current:        | 1.0 -17 mA | 1.0 - 6.0 mA | 1.0 -17 mA | 1.0 -6.0 mA | 1.0 -17 mA | 1.0 - 6.0 mA | 5 - 40 mA  | 5 - 17 mA  |
| Must Release Voltage:         | 1.0 VDC    | 1.0 VDC      | 1.0 VDC    | 1.0 VDC     | 1.0 VDC    | 1.0 VDC      | 1.0 VDC    | 2 VDC      |
| Max. Reverse Control Voltage: | 5 VDC      | 5 VDC        | 5 VDC      | 5 VDC       | 5 VDC      | 5 VDC        | 5 VDC      | 5 VDC      |

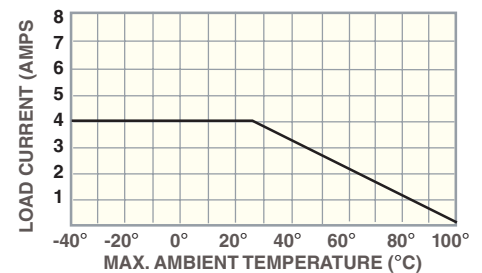
### OUTPUT CHARACTERISTICS

|                                          |             |             |             |             |              |             |            |            |
|------------------------------------------|-------------|-------------|-------------|-------------|--------------|-------------|------------|------------|
| Load Voltage Range:                      | 24 -140 VAC | 24-280 VAC  | 8 - 50 VAC  | 24 -140 VAC | 24 - 280 VAC | 8 - 50 VAC  | 3 - 60 VDC | 3 - 60 VDC |
| Rated Load Current :                     | 4 Amp       | 4 Amp       | 4 Amp       | 4 Amp       | 4 Amp        | 4 Amp       | 3 Amp      | 3 Amp      |
| Maximum off-State Voltage dv/dt:         | 300 V/u Sec |             |             |             |              |             |            |            |
| Minimum Load Current:                    | 75 mA       | 75 mA       | 75 mA       | 75 mA       | 75 mA        | 75 mA       | 100 mA     | 100 mA     |
| Non-Repetitive Surge Current (1 Cycle):  | 60 Amp      | 60 Amp      | 60 Amp      | 60 Amp      | 60 Amp       | 60 Amp      | 7 Amp-1sec | 7 Amp-1sec |
| Maximum Off State Leakage Current (Rms): | 6 mA        | 6 mA        | 3 mA        | 6 mA        | 6 mA         | 6 mA        | 10 uA      | 10 uA      |
| Typical On-State Voltage Drop (Rms):     | 1.6 V       | 1.6 V       | 1.6 V       | 1.6 V       | 1.6 V        | 1.6 V       | 1.2 V      | 1.2 V      |
| Minimum Peak Blocking Voltage:           | 400 V       | 600 V       | 200 V       | 400 V       | 600 V        | 200 V       | 105 V      | 105 V      |
| Operating Frequency Range:               | 25 to 70 Hz | 25 to 70 Hz | 25 to 70 Hz | 25 to 70 Hz | 25 to 70 Hz  | 25 to 70 Hz | DC         | DC         |
| Maximum Turn - On Time:                  | 8.3 mS      | 8.3 mS      | 8.3 mS      | 8.3 mS      | 8.3 mS       | 8.3 mS      | 75 uS      | 75 uS      |
| Maximum Turn - Off Time:                 | 8.3 mS      | 8.3 mS      | 8.3 mS      | 8.3 mS      | 8.3 mS       | 8.3 mS      | 500 uS     | 500 uS     |

### MISCELLANEOUS CHARACTERISTICS

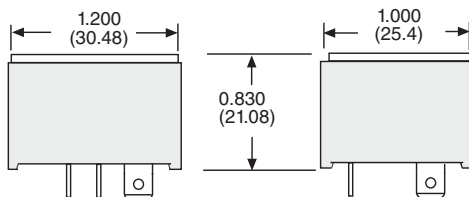
|                                          |                               |
|------------------------------------------|-------------------------------|
| Dielectric Strength (Input/Output/Base): | 3000 V rms. Min.              |
| Insulation Resistance:                   | 100 megohms minimum @ 500 VDC |
| Operating Temperature Range:             | -40°C to +100°C               |
| Storage Temperature Range:               | -40°C to +125°C               |
| Weight:                                  | 40 grams approx.              |

Figure 1: Maximum Continuous Current vs. Ambient Temperature

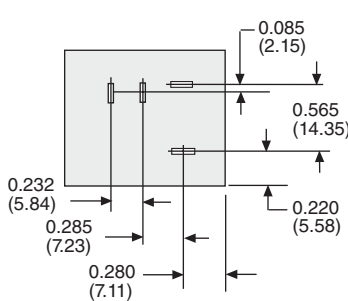


### OUTLINE DIMENSIONS

DIMENSIONS SHOWN IN INCHES & (MILLIMETERS).



### TERMINAL BOTTOM VIEW



QUICK CONNECT  
TERMINALS

Mating Sockets  
70-459-1: SCREW/DIN  
See Section 7

| STANDARD PART NUMBERS | LOAD VOLTAGE RANGE | RATED LOAD CURRENT |
|-----------------------|--------------------|--------------------|
| 70S2-04-B-04-K        | 24 - 140 VAC       | 4 AMPS             |
| 70S2-04-C-04-K        | 24 - 280 VAC       | 4 AMPS             |
| 70S2-04-D-04-K        | 8 - 50 VAC         | 4 AMPS             |
| 70S2-05-B-04-K        | 24 - 140 VAC       | 4 AMPS             |
| 70S2-05-C-04-K        | 24 - 280 VAC       | 4 AMPS             |
| 70S2-05-D-04-K        | 8 - 50 VAC         | 4 AMPS             |
| 70S2-01-A-03-K        | 3 - 60 VDC         | 3 AMPS             |
| 70S2-02-A-03-K        | 3 - 60 VDC         | 3 AMPS             |

CONSULT FACTORY FOR OTHER CONFIGURATIONS.

9/04