

| Part Number | Relay Description                                   |
|-------------|---|
| C60-X0      | Solid-State Relay, Terminals for Through Hole Mount |
| SC60-X0     | Solid-State Relay, Terminals for Surface Mount      |

Add suffix 01 to denote 60Sn/40Pb Pre-Tinned Leads

**ELECTRICAL SPECIFICATIONS**

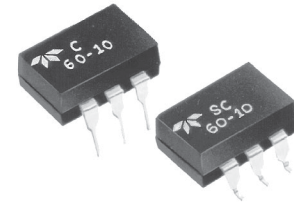
(25°C UNLESS OTHERWISE SPECIFIED)

**INPUT (CONTROL) SPECIFICATIONS (See Note 1)**

| Parameter  | Min | Max | Units |
|--|-----|-----|-------|
| Input Voltage Drop (See Figure 1)                        | 1.1 | 1.5 | Vdc   |
| Input Current (See Figure 1 and Notes 1, 7)              |     | 50  | mA    |
| Input Current (Guaranteed On), (See Figure 4 and Note 7) | 10  |     | mA    |
| Input Current (Guaranteed Off)                           |     | 100 | µA    |
| Reverse Voltage Protection                               |     | -6  | Vdc   |

**OUTPUT (LOAD) SPECIFICATIONS (See Figure 2 And Note 2)**

| Parameter  | Part Number    | DC              |     | Bi-Directional  |     | Units |
|--|----------------|-----------------|-----|-----------------|-----|-------|
|  |                | Min             | Max | Min             | Max |       |
| Output Voltage Rating                            | C60-10         | 60              |     | ±60             |     | Vdc   |
|  | C60-20         | 100             |     | ±100            |     | Vdc   |
|  | C60-30         | 200             |     | ±200            |     | Vdc   |
|  | C60-40         | 400             |     | ±400            |     | Vdc   |
| Output Current Rating                            | C60-10         | 2.5             |     | ±1.25           |     | Adc   |
|  | C60-20         | 1.5             |     | ±0.75           |     | Adc   |
|  | C60-30         | 1.0             |     | ±0.50           |     | Adc   |
|  | C60-40         | 0.5             |     | ±0.25           |     | Adc   |
| On Resistance<br>(See Note 6)                    | C60-10         | 0.07            |     | 0.28            |     | Ohm   |
|  | C60-20         | 0.2             |     | 0.7             |     | Ohm   |
|  | C60-30         | 0.45            |     | 1.8             |     | Ohm   |
|  | C60-40         | 1.0             |     | 4.0             |     | Ohm   |
| Leakage Current at Rated Voltage                 |                | 2.0             |     | 1.0             |     | µAdc  |
| Turn-On Time @ 10mA<br>(See Figure 4 and Note 7) | C60-10         | 4.0             |     | 4.0             |     | ms    |
|  | C60-20,-30,-40 | 3.0             |     | 3.0             |     | ms    |
| Turn-Off Time                                    | C60-10         | 4.0             |     | 4.0             |     | ms    |
|  | C60-20,-30,-40 | 3.0             |     | 3.0             |     | ms    |
| Output Capacitance                               | C60-10         | 1000            |     | 500             |     | pf    |
|  | C60-20         | 500             |     | 250             |     | pf    |
|  | C60-30         | 400             |     | 200             |     | pf    |
|  | C60-40         | 400             |     | 200             |     | pf    |
| Isolation (Input to Output)                      |                | 10 <sup>9</sup> |     | 10 <sup>9</sup> |     | Ohms  |
| Dielectric Strength                              |                | 1500            |     | 1500            |     | Vrms  |
| Capacitance (Input to Output)                    |                | 3.0             |     | 3.0             |     | pF    |
| Junction Temperature (T <sub>j</sub> )           |                | 125             |     | 125             |     | °C    |
| Junction to Case Thermal Resistance              |                |                 |     | 25              |     | °C    |
| Case to Ambient Thermal Resistance               |                |                 |     | 75              |     | °C/W  |



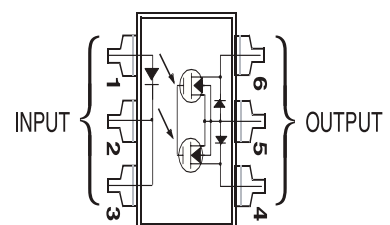
**FEATURES/BENEFITS**

- Power FET Output with Very Low On Resistance: Virtually no offset with very low leakage and voltage drop.
- Optical Isolation: Isolates control elements from load transients. Eliminates ground loops and signal ground noise.
- Three Terminal Output: Output FETs can be paralleled externally to change current load rating.
- Floating Output: Allows for high and low side switching.
- Switches High Voltages and Currents: Voltages to 400 Vdc. Current to 2.5 Adc. Bi-directional, DC or AC.
- High Noise Immunity: Control circuit cannot be triggered by output switching noise.
- 6-Pin Mini-DIP Package: Standard or surface mount available.

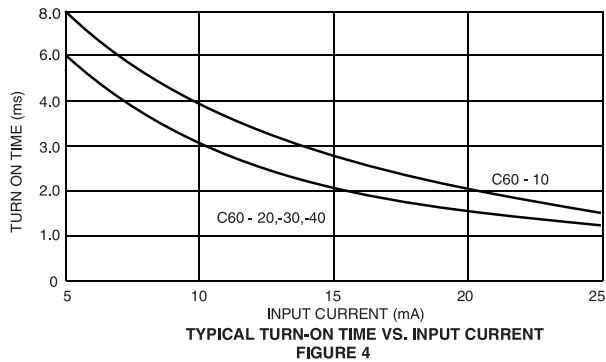
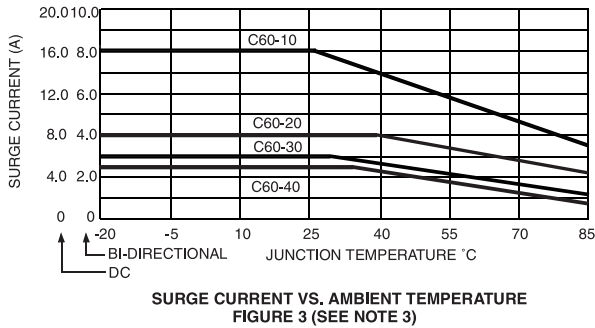
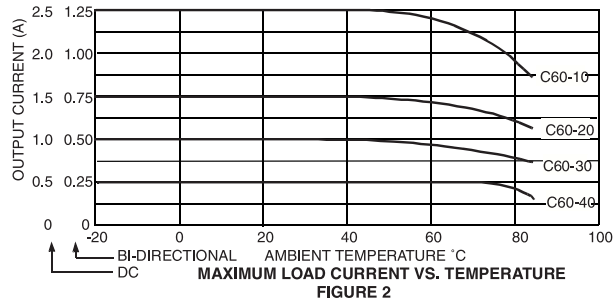
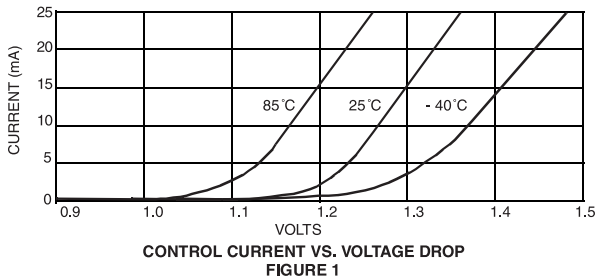
**DESCRIPTION**

The Series C60 solid-state relay is an advanced design capable of switching very heavy loads in a physically small 6-pin mini DIP package. These relays have a power FET output that ensures low On resistance, no offset voltage and low leakage current. They are versatile and can be used to switch AC, Bi-directional or DC loads. Optical isolation ensures complete protection of signal lines, power and ground bus and control circuits from switching noise and EMI.

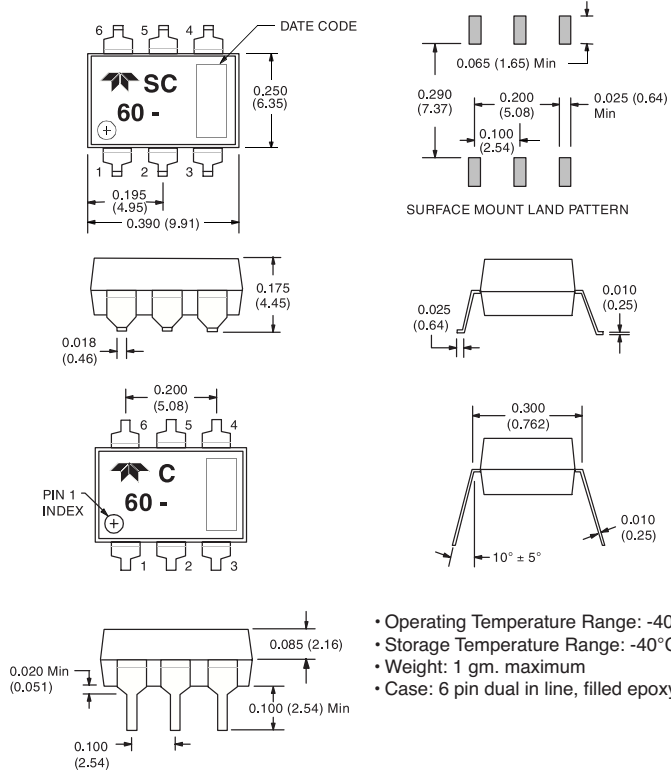
**BLOCK DIAGRAM**



**CHARACTERISTIC CURVES**



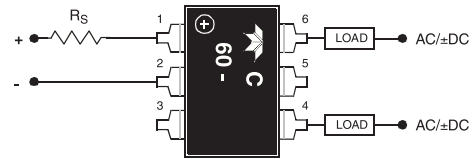
**MECHANICAL SPECIFICATION**



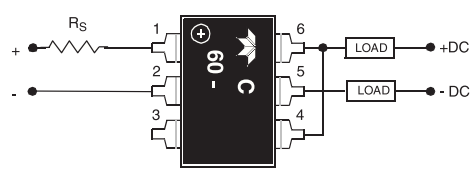
- Operating Temperature Range: -40°C to 85°C
- Storage Temperature Range: -40°C to 100°C
- Weight: 1 gm. maximum
- Case: 6 pin dual in line, filled epoxy

**DIMENSIONS ARE SHOWN IN INCHES (MILLIMETERS)** Tolerances (unless otherwise specified)  
 0.XX = ± 0.010 (± 0.25)  
 0.XXX = ± 0.005 (± 0.13)

**WIRING CONFIGURATIONS**



A) BI-DIRECTIONAL/AC CONFIGURATION (SEE NOTE 4)



B) DC CONFIGURATION (SEE NOTE 4)

- NOTES:**
1. Series resistor is required to limit input current to 50 mA maximum.
  2. The input current is 10 mA for all tests unless otherwise specified.
  3. The surge current is non-repetitive for a maximum duration of 20 ms (See Figure 3).
  4. Loads may be connected to positive or negative referenced power supplies. Inductive loads must be diode suppressed.
  5. Continuous load current is rated under the conditions of still air and mounted on a printed circuit board.
  6. To calculate ON Resistance for a given junction temperature calculate the new  $R_{ON}$  using the equation shown below:  

$$R_{ON} = R_{(25^{\circ}C)} \times e^{0.006(T_J - 25^{\circ}C)}$$
  7. Turn on Time can be controlled with input control current. Calculate a new turn-on time:  

$$t_{ON} = (t_{Specification Limit}) \times (10mA / I_{IN})$$
  8. Load voltage rating should be derated 10% at -40°C