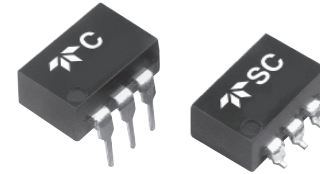


| Part Number | Description |
|-------------|--|
| C63-10 | 1A, 60 Vdc short-circuit protected solid-state relay for through-hole mounting |
| SC63-10 | 1A, 60 Vdc short-circuit protected solid-state relay for surface mount |



ELECTRICAL SPECIFICATIONS

(–40°C to +85°C ambient temperature unless otherwise specified)

INPUT (CONTROL) SPECIFICATIONS

| | Min | Max | Units |
|-----------------------|-----|-----|-------|
| Input Current | 8 | 20 | mA |
| Input Voltage @ 10 mA | 2 | 3 | Vdc |
| Must Turn-On | 8 | | mA |
| Must Turn-Off Current | | 100 | µA |
| Must Turn-Off Voltage | | 0.8 | Vdc |
| Reverse Polarity | –6 | | Vdc |

OUTPUT (LOAD) SPECIFICATIONS

| | Min | Max | Units |
|--------------------------------------|----------------|------|-------|
| Load Voltage Range | 0 | 60 | Vdc |
| Output Current Rating (See Figure 4) | | 1.0 | A |
| Leakage Current at Rated Voltage | | 10 | µA |
| Transient Blocking Voltage @25°C | | 100 | Vdc |
| Output Capacitance @25Vdc (25°C) | | 600 | pF |
| Output Voltage Drop @1A | | 0.55 | Vdc |
| On Resistance | | 0.55 | Ohm |
| Turn-On Time | | 2.0 | ms |
| Turn-Off Time | | 1.0 | ms |
| Trip Overload | (See Figure 7) | | A |

FEATURES/BENEFITS

- Short-circuit protected: Prevents damage to system components, assemblies and system wiring
- Optical isolation: Isolates control circuits from load transients and eliminates ground loops and signal ground noise
- Low off-state leakage
- Switches high currents: To 1.0 Amp
- High noise immunity: Control signals isolated from switching noise
- High dielectric strength: For safety and for protection of control and signal level circuits

DESCRIPTION

The C63-10 solid-state relay utilizes a power FET switch that is protected against short circuits and overload currents. The short-circuit protection feature provides protection when a short or overload occurs while the relay is on as well as when the relay is switched into an overload. In either case, the relay will sense the overload condition and then block it indefinitely until the overload is removed and the unit is reset by cycling the input control. Using the C63-10 to switch power sources and loads prevents damage to system assemblies and system wiring. The power FET output offers low “ON” resistance and can switch loads in either the high or the low side of the power line. The C63-10 is packaged in a 6-pin DIP package.

GENERAL SPECIFICATIONS

(+25°C ambient temperature unless otherwise specified)

ENVIRONMENTAL SPECIFICATION

| | Min | Max | Units |
|----------------------------------|-------------------------|------|-------|
| Operating Temperature | - 40 | +85 | °C |
| Storage Temperature | - 40 | +100 | °C |
| Junction Temperature @ 1A | | +125 | °C |
| Thermal Resistance θ_{JA} | | 125 | °C/W |
| Dielectric Strength | 1000 | | Vac |
| Insulation Resistance | | | |
| (@500 Vdc) | 10^9 | | Ohm |
| Input to Output Capacitance | | 5 | pF |
| Resistance to | | | |
| Soldering Heat | MIL STD 202, method 210 | | |
| Solderability | MIL STD 202, method 208 | | |
| Thermal Shock | MIL STD 202, method 107 | | |

MECHANICAL SPECIFICATION

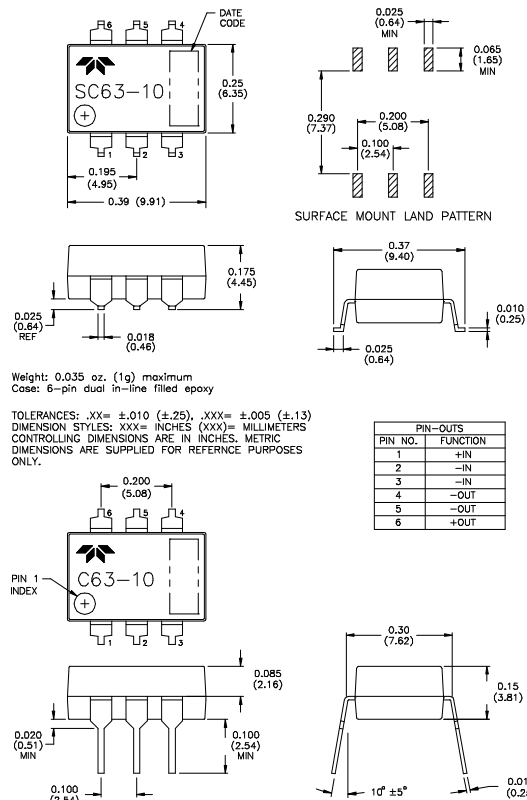


Figure 1

TYPICAL WIRING DIAGRAM

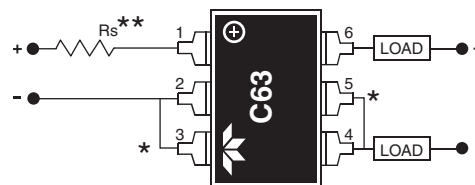


Figure 2

FUNCTIONAL BLOCK DIAGRAM

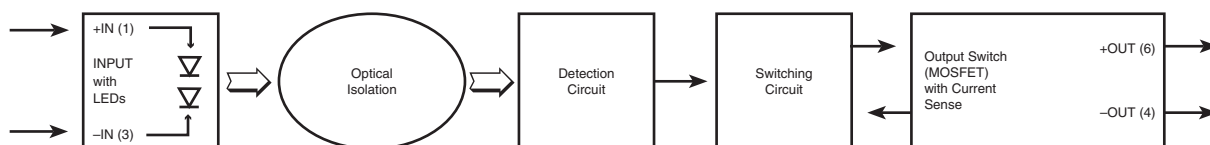


Figure 3

CONTROL CURRENT VS. INPUT VOLTAGE

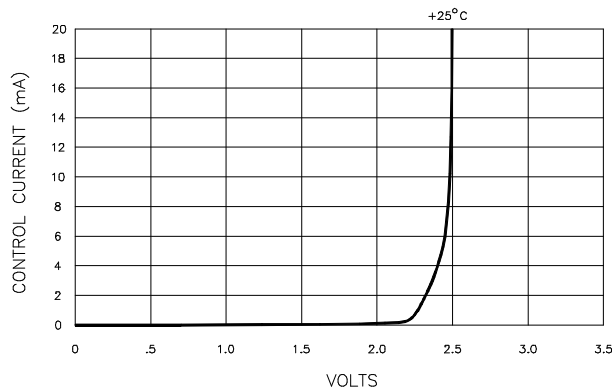


Figure 4

TYPICAL TURN-ON TIME VS. INPUT CURRENT

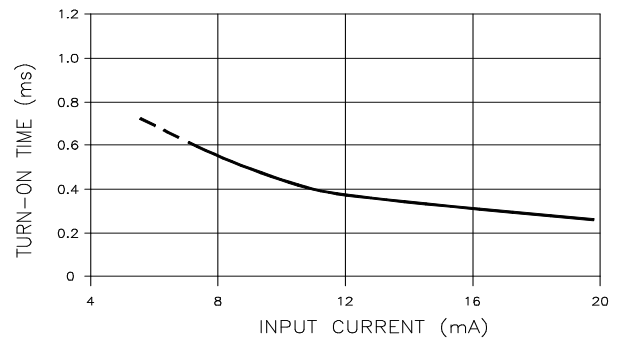


Figure 5

LOAD CURRENT VS. AMBIENT TEMPERATURE

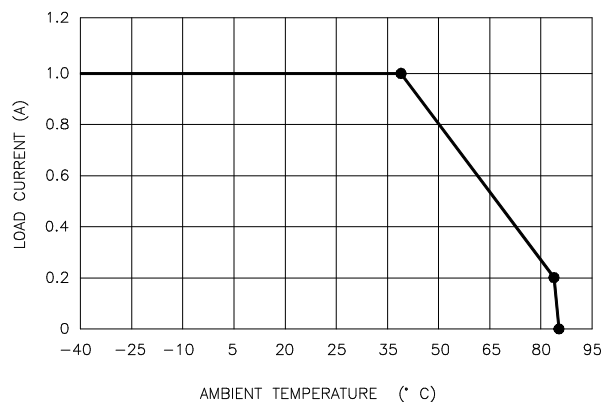


Figure 6

TYPICAL OVERLOAD TRIP CURRENT VS. TIME

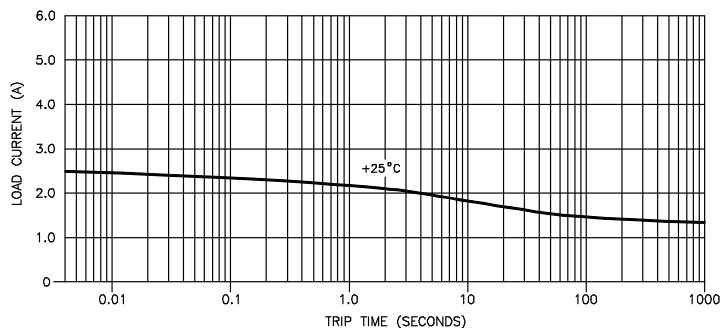


Figure 7

NOTES:

1. The C63-10 relay's input current should be limited to between 8 and 20mA. An external resistor whose value $= (V_{IN} - 2.5 \text{ volts}) \div 0.012 \text{ Amps}$ is a good choice for limiting input current.
2. Relay input transitions should be less than 1.0 millisecond.
3. Loads may be attached to either the positive or negative output terminal.
4. Maximum load current ratings are with the relay in free air and soldered to a printed circuit board.
5. Timing is measured from the input current transition to the 10% or 90% points on the output voltage transition.
6. Overload conditions (including shorted loads) are specified for load supply voltages to 60 Vdc maximum.
7. For through-hole-PCB-solder-attaching C63-10 series relays, the wave-solder or solder pot operations are limited to +260°C maximum for 10 seconds, maximum.
8. For surface-mount-solder-attaching SC63-10 series relays, in IR heating or convection heating systems, the component temperature is limited to +235°C maximum for 10 seconds maximum.