

ELECTRICAL SPECIFICATIONS
(25°C UNLESS OTHERWISE SPECIFIED)

INPUT (CONTROL) SPECIFICATIONS

| Parameter | Min | Max | Units |
|---|-----|-----|-------|
| Control Voltage Range (See Figures 1, 2 and Note 1) | 3.8 | 32 | Vdc |
| Input Current @ 5 V (See Figures 1 and 2) | | 12 | mAdc |
| Must Turn-On Voltage | 3.8 | | Vdc |
| Must Turn-Off Voltage (Guaranteed Off) | | 1.5 | Vdc |
| Reverse Voltage Protection | | -32 | Vdc |

OUTPUT (LOAD) SPECIFICATIONS

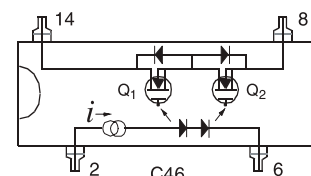
| Parameter | DC | | Bi-directional | | Units |
|---|---------------|-----------------|----------------|-----------------|-------|
| | Min | Max | Min | Max | |
| Output Voltage Rating | C47F-10 | 50 | C46F-10 | ±50 | Vdc |
| | C47F-20 | 90 | C46F-20 | ±90 | Vdc |
| | C47F-30 | 180 | C46F-30 | ±180 | Vdc |
| | C47F-40 | 360 | C46F-40 | ±360 | Vdc |
| Output Current Rating (See Figure 3) | C47F-10 | 1.75 | C46F-10 | 1.0 | Adc |
| | C47F-20 | 1.0 | C46F-20 | 0.75 | Adc |
| | C47F-30 | 0.6 | C46F-30 | 0.4 | Adc |
| | C47F-40 | 0.4 | C46F-40 | 0.25 | Adc |
| On Resistance (See Note 3) | C47F-10 | 0.15 | C46F-10 | 0.3 | Ohms |
| | C47F-20 | 0.35 | C46F-20 | 0.7 | Ohms |
| | C47F-30 | 1.0 | C46F-30 | 2.0 | Ohms |
| | C47F-40 | 2.0 | C46F-40 | 4.0 | Ohms |
| Leakage Current at Rated Voltage | | 1.0 | | 1.0 | mAdc |
| Surge Rating (% of Rated) <1 sec | | 200 | | 200 | % |
| Turn-On Time | C47F-10 | 3 | C46F-10,30,40 | 3 | ms |
| | C47F-20,30,40 | 1.5 | C46F-10 | 5 | ms |
| Turn-Off Time | | 1.0 | | 1.0 | ms |
| | C47F-10 | 700 | C46F-10 | 700 | pf |
| Output Capacitance (Typical) | C47F-20 | 350 | C46F-20 | 350 | pf |
| | C47F-30 | 300 | C46F-30 | 300 | pf |
| | C47F-40 | 250 | C46F-40 | 250 | pf |
| | | | | | |
| Insulation Resistance | | 10 ⁹ | | 10 ⁹ | Ohms |
| Dielectric Strength (Input to Output) | | 1500 | | 1500 | Vac |
| Capacitance (Input to Output) | | 10 | | 10 | pF |

FEATURES/BENEFITS

- Power FET Output with Very Low On Resistance: Virtually no offset with low leakage and voltage drop.
- Switches High Voltages and Currents: Voltages to 360 Vdc. Current to 1.75 Adc. DC, Bi-directional or AC models
- Optical Isolation: Isolates control elements from load transients. Eliminates ground loops and signal ground noise.
- Floating Output: Allows for high and low side switching.
- High Noise Immunity: Control circuit can not be triggered by output switching noise.
- 14-pin DIP package

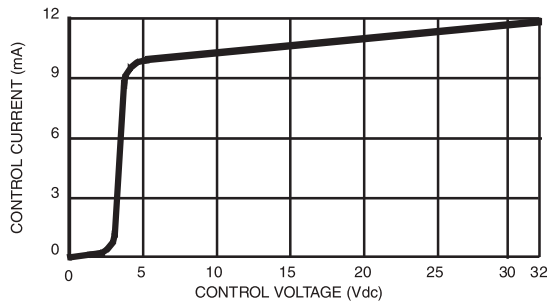
DESCRIPTION

These miniature solid-state relays utilize a photovoltaic generator driving high performance power FET chips to provide low output on-resistance and high output switching capability. The series includes DC switching versions with output current ratings up to 1.75 amp, and bi-directional versions to switch AC or DC up to 1.0 amp. Output voltage ratings of both types range from 50 to 360 volts. The virtual elimination of offset voltage makes them ideal for low level switching applications as well. Input and output are optically isolated to protect input logic circuits from output voltage transients.

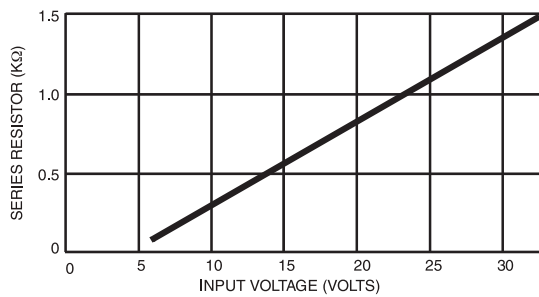


C47 is the same configuration except Q₂ has been replaced with a wire short

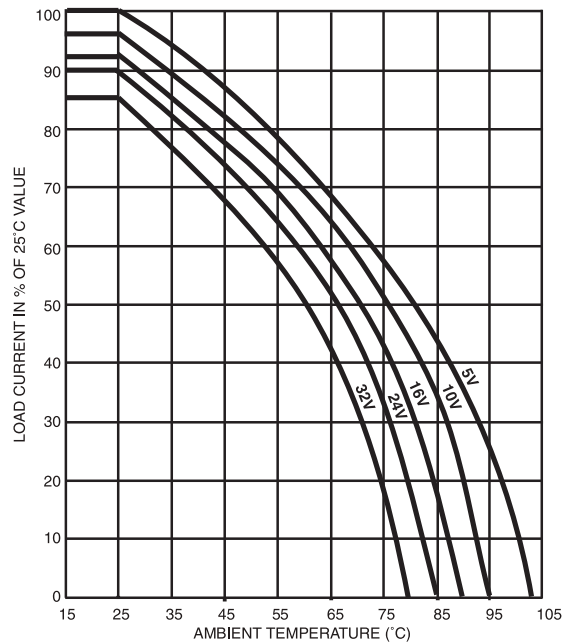
CHARACTERISTIC CURVES



CONTROL CURRENT VS CONTROL VOLTAGE
FIGURE 1

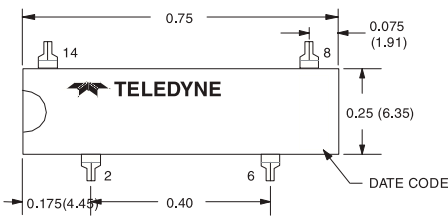
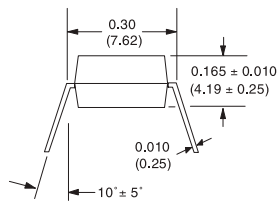
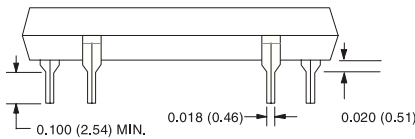


SERIES LIMIT RESISTOR VS INPUT VOLTAGE
FIGURE 2



MAXIMUM LOAD CURRENT VS TEMPERATURE
FIGURE 3

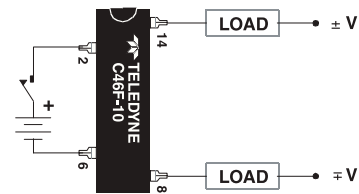
MECHANICAL SPECIFICATION



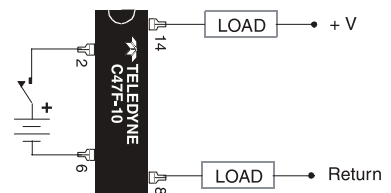
DIMENSIONS ARE SHOWN IN INCHES (MILLIMETERS)
Tolerances ± 0.015 (0.38) unless otherwise specified

- Operating Temperature -40°C to 100°C.
- Storage Temperature -40°C to 100°C.
- Weight: 2.0 grams maximum
- Case: 14 pin Dual-In-Line (TO-116)
- Case Material: Epoxy, self extinguishing

TYPICAL INTERFACE



BI-DIRECTIONAL OR AC MODEL



DC MODELS

Loads may be connected in either output terminal

NOTES:

1. For control voltages above 6 volts a series resistor is required. Use standard value selected from Figure 2.
2. Surge current duty cycle 10% maximum. Surge duration not to exceed 1 second.
3. To calculate output On-Resistance for junction temperatures other than 25°C use the following equation:

$$R_T = R_{25} e^{0.006 \times \Delta T} \text{ where } R_{25} = \text{Resistance at } 25^\circ\text{C}$$

R_T = Resistance at elevated temperature
 ΔT = Elevated temperature - 25°C