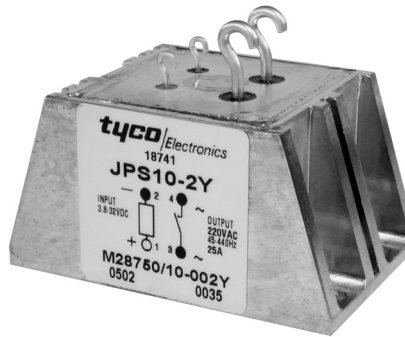


## JPS10 Series High Performance Solid State Relays For AC Loads up to 25A @ 250Vrms

### Product Facts

- Qualified to MIL-PRF-28750D (Mil Part Numbers M28750/10-001Y and M28750/10-002Y)
- Optically coupled all solid state relay
- TTL compatible input
- Zero voltage turn-on for low EMI
- Custom power package



The JPS10 series solid state relay is designed for AC power switching up to 25 amps at 250Vrms. The circuit employs back-to-back photo SCRs with zero voltage turn-on for reliable

switching of resistive or reactive loads. TTL compatible input circuitry is optically isolated to 1,500Vrms from the AC load circuit. The relay is offered in two versions: the JPS10-1Y with a maximum

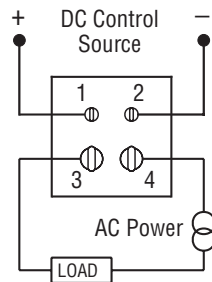
zero voltage turn-on window of 15 volts (preferred version for resistive loads), and the JPS10-2Y with a maximum window of 40 volts (preferred version for reactive loads).

10 Kilovac Solid State Relays

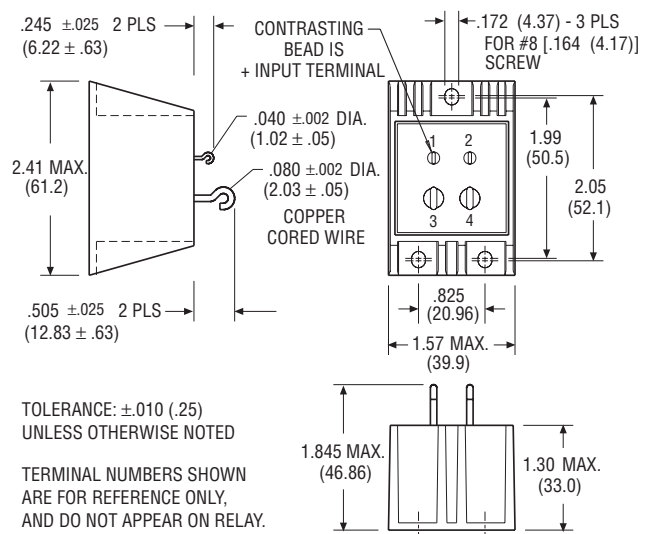
Kilovac Part Number	Military Part Number	Zero Crossing Window
JPS10-1Y	M28750/10-001Y	15 V pk max.
JPS10-2Y	M28750/10-002Y	40 V pk max.

### Circuit Diagram

#### Terminal View



### Outline Drawing



## JPS10 Series High Performance Solid State Relays For AC Loads up to 25A @ 250Vrms (Continued)

### Environmental Characteristics

**Ambient Temperature Range** —  
Operating — -55°C to +110°C  
Storage — -55°C to +125°C

**Vibration Resistance** —  
30 G's, 10-3,000 Hz

**Shock Resistance** —  
1,500 G's, 0.5 ms pulse

**Constant Acceleration Resistance (Y1 axis)** —  
5,000 G's

### Mechanical Characteristics

**Weight (max.)** —  
6 oz. (170 grams)

**Materials** —  
Case — Aluminum, hot tin dipped  
Terminals — Copper cored wire, gold plated

### Electrical Specifications (-55°C to +105°C unless otherwise specified)

Input	
Input supply voltage range (Vcc)	4 - 32 Vdc
Input current (max.)	16mAdc
Must turn-on voltage	4Vdc
Must turn-off voltage	1Vdc
Reverse voltage protection	-32Vdc
I/O	
Dielectric strength (min.)	1,500Vrms/60 Hz.
Insulation resistance (min.) @ 500Vdc	10 <sup>9</sup> ohms
Capacitance (max.)	20pF
Output	
Output current rating (max.)	25Arms (Fig. 2, Note 1)
Surge current (max.)	80A pk (Fig. 1, Note 2)
Continuous load voltage (max.)	250Vrms
Transient blocking voltage (max.)	500V pk
Frequency range	45 - 440 Hz.
Output voltage drop (max.) @ 25A load current	1.5Vrms
Off-state leakage current (max.) @ 220Vrms/400 Hz.	10mArms
Turn-on time (max.)	1/2 cycle
Turn-off time (max.)	1 cycle
Off-state dv/dt (min.), with snubber	100V/μs (Note 3)
Zero voltage turn-on window (max.), JPS10-1Y	15V pk
Zero voltage turn-on window (max.), JPS10-2Y	40V pk
Waveform distortion (max.)	4Vrms
Output chip junction temperature (max.)	125°C (Note 4)
Thermal resistance (max.), junction to ambient	6.8°C/W
Thermal resistance (max.), junction to case	1.2°C/W

### Notes

1. Operation at elevated load currents up to 25 amps is dependent on the use of suitable heatsink to maintain case temperature per Fig. 2.
2. Heating of output chips during and after a surge may cause loss of output blocking capability until junction temperature falls below maximum rating.
3. Internal snubber network is provided across output chips.
4. Case temperature measurement point is center of mounting surface.

Figure 1 - Peak Surge Current vs. Surge Current Duration

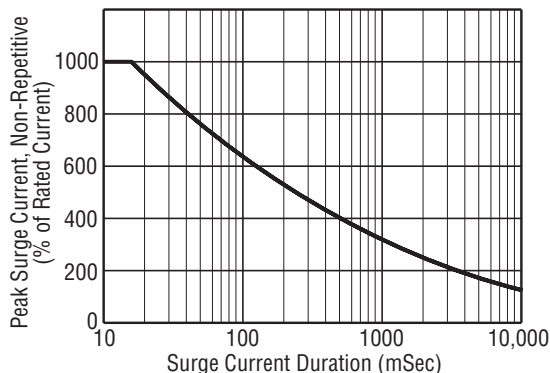


Figure 2 - Load Current vs. Temperature

