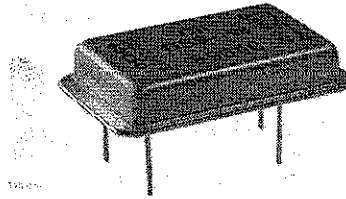




AC solid state relay for loads up to 1A @ 250Vrms (2A with heatsink)

Product Facts

- Qualified to Mil-R-28750C (Mil p/n M28750/9-001Y).
- Optically coupled all solid state relay.
- TTL compatible input.
- Zero voltage turn-on for low EMI.
- Hermetically sealed low profile metal DIP package.



This PC board mountable solid state relay is designed for low power AC load switching up to 1 amp at 250Vrms (2 amps with heatsink). The circuit employs back-to-back photo SCRs with zero

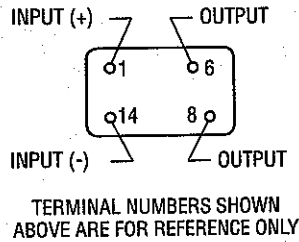
voltage turn-on for reliable switching of resistive or reactive loads. TTL compatible input circuitry is optically isolated to 1,500Vrms from the AC load circuit. The relay is offered in two versions: the

MIL qualified JDS9-1Y with "Y" level screening per Mil-R-28750C and the DS9-1W tested per Tyco Electronics specifications for CII relays, equivalent to former "W" level screening.

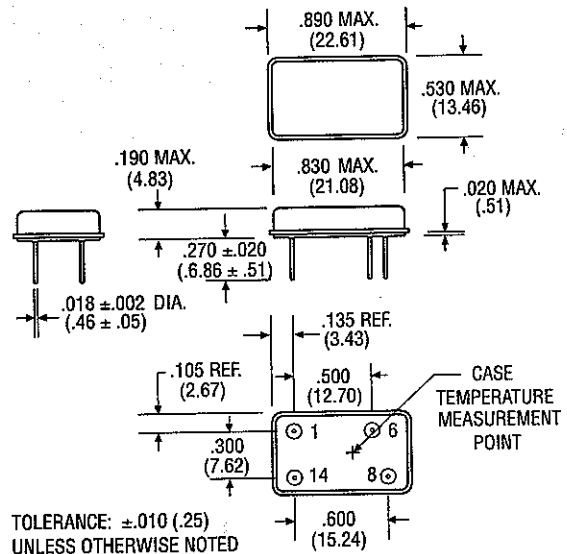
CII Part Number	Military Part Number	Screening Level
JDS9-1Y	M28750/9-001Y	Y
DS9-1W	N/A	W

Circuit Diagram

Terminal View



Outline Drawing





AC solid state relay for loads up to 1A @ 250Vrms (2A with heatsink) (Continued)

Environmental Characteristics

Ambient Temperature Range:

Operating: -55°C to +110°C.
Storage: -55°C to +125°C.

Vibration Resistance:

20 G's, 10-2,000 Hz.

Shock Resistance:

1,500 G's, 0.5 ms pulse.

Acceleration Resistance (Y axis):

5,000 G's.

Mechanical Characteristics

Weight (typical):

.176 oz. (5 grams)

Materials:

Header: Kovar
Pins: Kovar, gold plated
Cover: Nickel.

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

Input

Input supply voltage range (Vcc)	3.8 - 32 Vdc
Input current (max.) @ 5Vdc	15mA _{dc}
Must turn-on voltage	3.8Vdc
Must turn-off voltage	1.5Vdc
Reverse voltage protection	-32Vdc

I/O

Dielectric strength (min.)	1,500V rms/60 Hz.
Insulation resistance (min.) @ 500VDC	10 ⁹ ohms
Capacitance (max.)	10pF

Output

Output current rating (max.)	2A rms (Fig. 2, Note 1)
Surge current, 16ms @ 25°C (max.)	8A pk (Fig. 1, Note 3)
Continuous load voltage (max.)	250V rms
Transient blocking voltage (max.)	500V pk
Frequency range	40 - 440 Hz.
Output voltage drop (max.) @ 1A load current	1.5V rms
Off-state leakage current (max.) @ 250V rms/400 Hz.	1mA rms
Turn-on time (max.)	1/2 cycle
Turn-off time (max.)	1 cycle
Off-state dv/dt (min.), with snubber	200V /μs (Note 2)
Zero voltage turn-on window, initial (max.)	10V
Waveform distortion (max.)	4V rms
Output chip junction temperature (max.)	130°C
Thermal resistance (max.), junction to ambient	65°C/W
Thermal resistance (max.), junction to case	15°C/W

Notes

1. Operation at elevated load currents up to 2 amps is dependent on use of suitable heatsink to maintain case temperature per Fig. 2.
2. Recommended output snubber: R = 100 ohms (1/2 W), C = .01μF (600V).
3. Heating of output chip during and after a surge may cause loss of output blocking capability until junction temperature falls below maximum rating.

Figure 1 - Peak Surge Current vs. Surge Current Duration

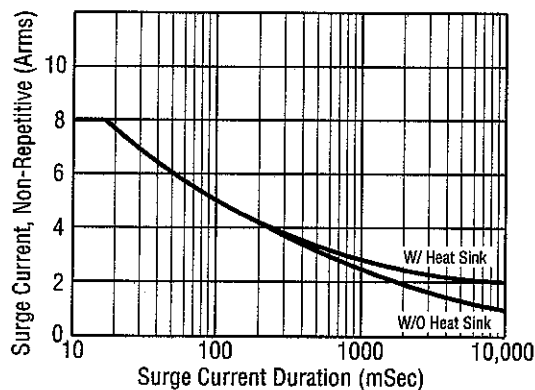
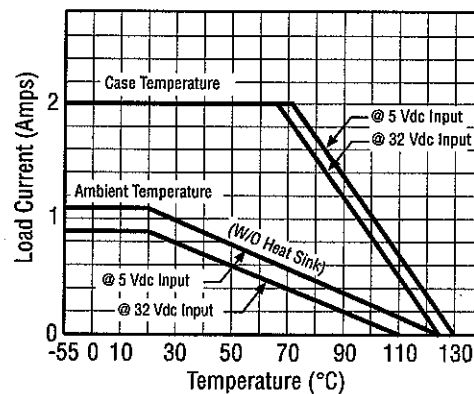


Figure 2 - Load Current vs. Temperature



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