

PS12 Series High Performance Solid State Relays For AC Loads up to 10A @ 250Vrms

Product Facts

- Approved to DSCC drawing 86031
- Optically coupled all solid state relay
- TTL compatible input
- Zero voltage turn-on for low EMI
- Custom power package with screw terminals



The PS12 series solid state relay is designed for AC power switching up to 10 amps at 250Vrms. The circuit employs back-to-back SCRs with zero voltage turn-on for reliable switch-

ing 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 PS12-1Y with "Y" level

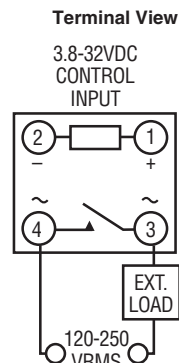
screening per MIL-PRF-28750D, and the PS12-1W screened per Tyco Electronics specifications for KILOVAC relays, equivalent to former "W" level of Mil-R-28750.

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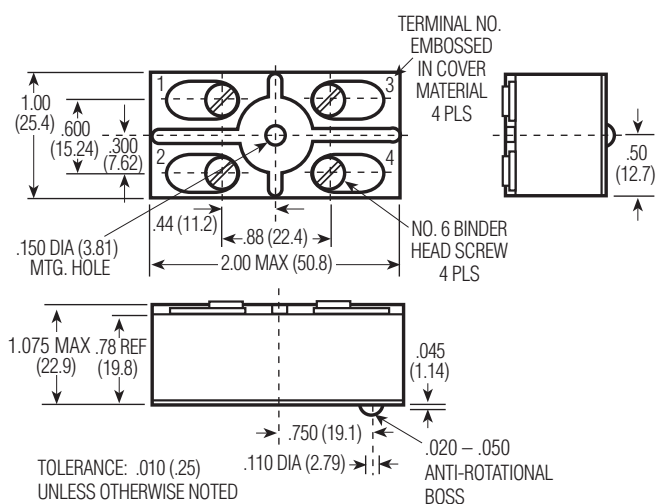
KILOVAC Solid State Relays

KILOVAC Part Number	DSCC Part Number	Screening Level
PS12-1Y	86031-001	Y
PS12-1W	N/A	W

Circuit Diagram



Outline Drawing



PS12 Series High Performance Solid State Relays For AC Loads up to 10A @ 250Vrms (Continued)

Environmental Characteristics

Ambient Temperature Range —

Operating — -55°C to +95°C

Storage — -55°C to +110°C

Vibration Resistance —

30 G's, 78-2,000 Hz

Shock Resistance —

100 G's, 6 ms pulse

Constant Acceleration Resistance —

100 G's

Mechanical Characteristics

Weight (max.) —

3 oz. (85 grams)

Materials —

Case — Plastic, self-extinguishing,
epoxy filled

Terminals — Brass, nickel-plated

Base Plate — Aluminum

NOTE: Do not exceed 80 in-oz when
tightening screws.

Electrical Specifications (-55°C to +95°C unless otherwise specified)

Input

Input supply voltage range (Vcc) 3.8 - 32 Vdc

Input current (max.) @ 5Vdc 16mA_{dc}

Must turn-on voltage 3.8Vdc

Must turn-off voltage 1Vdc

Reverse voltage protection -32Vdc

I/O

Dielectric strength (min.) 1,500V rms/60 Hz.

Insulation resistance (min.) @ 500Vdc 10⁸ ohms

Capacitance (max.) 15pF

Output

Output current rating (max.) 10A rms (Fig. 2, Note 1)

Surge current (max.) 100A pk (Fig. 1, Note 2)

Continuous load voltage (max.) 250V rms

Transient blocking voltage (max.) 460V pk

Frequency range 45 - 440 Hz.

Output voltage drop (max.) @ 25A load current 1.5V rms

Off-state leakage current (max.) @ 220V rms/400 Hz. 9mA rms

Turn-on time (max.) 1/2 cycle

Turn-off time (max.) 1 cycle

Off-state dv/dt (min.), with snubber 200V /μs (Note 3)

Zero voltage turn-on window (max.) ±15V pk

Output chip junction temperature (max.) 125°C (Note 1)

Thermal resistance (max.), junction to ambient 11.5°C/W

Thermal resistance (max.), junction to case 2.0°C/W

Fusing I²T, 1 ms (max.) 150A²s

Load power factor (min.) 0.2

Power dissipation (max.) 1.5W/A

Notes

1. Operation at elevated load currents up to 10 amps is dependent on the use of suitable heatsink to limit junction temperature.
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.

Figure 1 - Peak Surge Current vs. Surge Current Duration

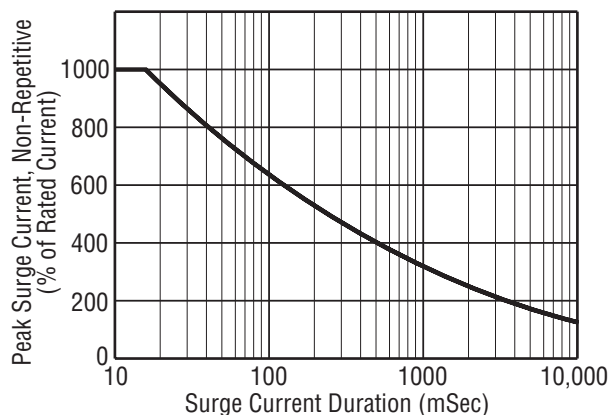
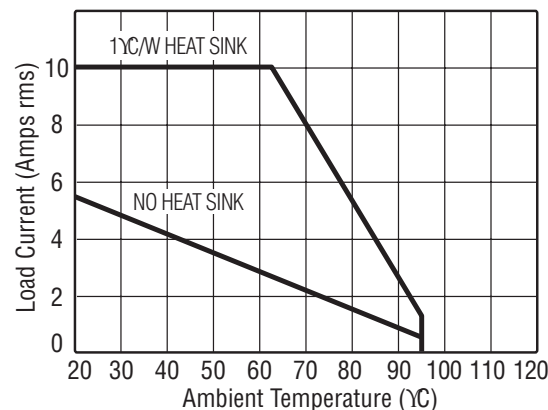


Figure 2 - Load Current vs. Temperature



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