

Solid-State Relays

Features

- Rugged, epoxy encapsulation construction
- 4,000 volts of optical isolation
- Subjected to full load test and six times the rated current surge before and after encapsulation
- Unique heat-spreader technology
- Guaranteed for life

Overview

In 1974, Opto 22 introduced the first liquid epoxy-filled line of power solid-state relays (SSR). This innovation in SSR design greatly improved the reliability and reduced the cost of manufacturing. At that time, we also incorporated into our manufacturing process 100% testing under full load conditions of every relay we produced.

By 1978, Opto 22 had gained such a reputation for reliability that we were recognized as the world's leading manufacturer of solid-state relays. Through continuous manufacturing

Part Numbers

Part	Description
AC Switching	
120A10	120 VAC, 10 Amp, AC Control
120A25	120 VAC, 25 Amp, AC Control
240A10	240 VAC, 10 Amp, AC Control
240A25	240 VAC, 25 Amp, AC Control
240A45	240 VAC, 45 Amp, AC Control
120D3	120 VAC, 3 Amp, DC Control
120D10	120 VAC, 10 Amp, DC Control
120D25	120 VAC, 25 Amp, DC Control
120D45	120 VAC, 45 Amp, DC Control
240D3	240 VAC, 3 Amp, DC Control
240D10	240 VAC, 10 Amp, DC Control
240Di10	240 VAC, 10 Amp, DC Control, with LED Indicators
240D25	240 VAC, 25 Amp, DC Control
240Di25	240 VAC, 25 Amp, DC Control, with LED Indicators
240D30-HS	240 VAC, 30 Amp, DC Control, with integrated heatsink
240D45	240 VAC, 45 Amp, DC Control
240Di45	240 VAC, 45 Amp, DC Control, with LED Indicators
380D25	380 VAC, 25 Amp, DC Control
380D45	380 VAC, 45 Amp, DC Control
480D10-12	480 VAC, 10 Amp, DC Control, Transient Proof
480D15-12	480 VAC, 15 Amp, DC Control, Transient Proof
480D25-12	480 VAC, 25 Amp, DC Control, Transient Proof
480D25-HS	480 VAC, 25 Amp, DC Control, Transient Proof, with integrated heatsink
480D45-12	480 VAC, 45 Amp, DC Control, Transient Proof



Opto 22 Power Series SSR

improvements and the same 100% testing policy established over 30 years ago, Opto 22 is still recognized today for the very high quality and reliability of all our solid-state relays.

Description

Opto 22 offers a complete line of SSRs, from the rugged 120/240/380-volt AC Series to the small footprint MP Series, designed for mounting on printed circuit boards. All Opto 22 SSRs feature 4,000 volts of optical isolation, and most are UL and CSA recognized. The innovative use of room-temperature liquid epoxy encapsulation, coupled with Opto 22's unique heat-spreader technology, are key to mass producing the world's most reliable solid state relays.

Every Opto 22 solid state relay is subjected to full load test and six times the rated current surge both before and after

Part	Description
AC Switching	
575D15-12	575 VAC, 15 Amp, DC Control, Transient Proof
575D45-12	575 VAC, 45 Amp, DC Control, Transient Proof
575D30-HS	575 VAC, 30 Amp, DC Control, Transient Proof, with integrated heatsink
575Di45-12	575 VAC, 45 Amp, DC Control, Transient Proof, with LED Indicators
MP120D2 or P120D2	120 VAC, 2 Amp, DC Control. P model is low profile.
MP120D4 or P120D4	120 VAC, 4 Amp, DC Control. P model is low profile.
MP240D2 or P240D2	240 VAC, 2 Amp, DC. P model is low profile.
MP240D4 or P240D4	240 VAC, 4 Amp, DC. P model is low profile.
MP380D4	380 VAC, 4 Amp, DC
Z120D10	Z Model, 120 VAC, 10 Amp, DC Control
Z240D10	Z Model, 240 VAC, 10 Amp, DC Control

DC Switching	
DC60P or DC60MP	60 VDC, 3 Amp, DC Control. P model is low profile.
DC200P or DC200MP	200 VDC, 1 Amp, DC Control. P model is low profile.
DC60S-3	60 VDC, 3 Amp, DC Control
DC60S-5	60 VDC, 5 Amp, DC Control

Accessories	
SAFETY COVER	Power Series SSR safety cover
SSR-HS	Power Series SSR heatsink
SSR-THERMOPAD	Thermal conductive pad (pack of 10)

encapsulation. This double testing of every part before it leaves the factory means you can rely on Opto 22 solid state relays. All Opto 22 SSRs are guaranteed for life.

Accessories for the Power-Series SSRs include a safety cover, heatsink, and a matching thermal conductive pad. See [page 3](#).

Power Series SSRs



Opto 22 provides a full range of Power Series relays with a wide variety of voltage (120–575 volts) and current options (3–45 amps). All Power Series relays feature 4,000 volts of optical isolation and have a high PRV rating. Some Power Series relays include built-in LEDs to indicate operation. See [page 4](#).

DC Series

The DC Series delivers isolated DC control to large OEM customers worldwide. All DC control SSRs are LS TTL compatible.

AC Series

The AC Series offers the ultimate in solid state reliability. All AC Power Series relays feature a built-in snubber as well as zero-voltage turn-on and zero-current turn-off. Transient-proof models offer self protection for noisy electrical environments.

Z Series SSRs



The Z Series employs a unique heat transfer system that makes it possible for Opto 22 to deliver a low-cost, 10-amp, solid state relay in an all-plastic case. The push-on, tool-free quick-connect terminals make the Z Series ideal for high-volume OEM applications. Operating temperature: –40 °C to 100 °C. See [page 7](#).

Printed Circuit Series SSRs



Opto 22's Printed Circuit Series allows OEMs to easily deploy solid state relays on printed circuit boards. Two unique packages are available, both of which will switch loads up to four amps. Operating temperature: –40 °C to 100 °C. See [page 9](#).

Solid-State Relays

MP Series

The MP Series packaging is designed with a minimum footprint to allow maximum relay density on the printed circuit board.

P Series

The P Series power relays provide low-profile [0.5 in. (12.7 mm)] center mounting on printed circuit boards.

HS Series SSRs



The HS Series features an integrated heatsink, which makes them so *cool*. These relays have less thermal resistance inside, so heat dissipates more easily than in a standard SSR mounted to the same heatsink. With the heatsink built-in, you don't have to select one from a catalog, and installation is much easier. Includes a DIN-rail adapter. See [page 13](#).

Specifications (all Power Series models)

- 4,000 V optical isolation, input to output
- Zero voltage turn-on
- Zero-current turn-off
- Turn-on time: 0.5 cycle maximum
- Turn-off time: 0.5 cycle maximum
- Operating temperature: –40 °C to 100 °C
- Operating frequency: 25 to 65 Hz (operates at 400 Hz with six times off-state leakage)
- Coupling capacitance, input to output: 8 pF maximum
- Hermetically sealed
- DV/DT Off-state: 200 volts per microsecond
- DV/DT commutating: snubbed for rated current at 0.5 power factor
- UL recognized
- CSA certified
- CE component
- Torque specs for screws (this spec is both the recommended torque and the maximum torque you should use):
Control terminals, 10 in-lb (1.13 N-m)
Field terminals, 18 in-lb (2.03 N-m)