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
- UL and CSA recognized*

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 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.

Opto 22 Power Series SSR

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 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 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.

Part Numbers

Part	Description	Part	Description
120A10	120 VAC, 10 Amp, AC Control	480D10-12	480 VAC, 10 Amp, DC Control, Transient Proof
120A25	120 VAC, 25 Amp, AC Control	480D15-12	480 VAC, 15 Amp, DC Control, Transient Proof
240A10	240 VAC, 10 Amp, AC Control	480D25-12	480 VAC, 25 Amp, DC Control, Transient Proof
240A25	240 VAC, 25 Amp, AC Control	480D45-12	480 VAC, 45 Amp, DC Control, Transient Proof
240A45	240 VAC, 45 Amp, AC Control	575D15-12	575 VAC, 15 Amp, DC Control, Transient Proof
120D3	120 VAC, 3 Amp, DC Control	575D45-12	575 VAC, 45 Amp, DC Control, Transient Proof
120D10	120 VAC, 10 Amp, DC Control	575Di45-12	575 VAC, 45 Amp, DC Control, Transient Proof, with LED Indicators
120D25	120 VAC, 25 Amp, DC Control	Z120D10	Z Model, 120 VAC, 10 Amp, DC Control
120D45	120 VAC, 45 Amp, DC Control	Z240D10	Z Model, 240 VAC, 10 Amp, DC Control
240D3	240 VAC, 3 Amp, DC Control	MP120D2 or P120D2	120 VAC, 2 Amp, DC Control. P model is low profile.
240D10	240 VAC, 10 Amp, DC Control	MP120D4 or P120D4	120 VAC, 4 Amp, DC Control. P model is low profile.
240Di10	240 VAC, 10 Amp, DC Control, with LED Indicators	MP240D2 or P240D2	240 VAC, 2 Amp, DC. P model is low profile.
240D25	240 VAC, 25 Amp, DC Control	MP240D4 or P240D4	240 VAC, 4 Amp, DC. P model is low profile.
240Di25	240 VAC, 25 Amp, DC Control, with LED Indicators	MP380D4	380 VAC, 4 Amp, DC
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		

*UL recognition is pending for Power Series SSRs with LED indicators. Contact Opto 22 Product Support for current UL information.

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.

DC Series

The DC Series delivers isolated DC control to large OEM customers worldwide.

AC Series

The AC Series offers the ultimate in solid state reliability. All AC Power Series relays feature a built-in snubber and zero voltage turn on. 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.

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.

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.

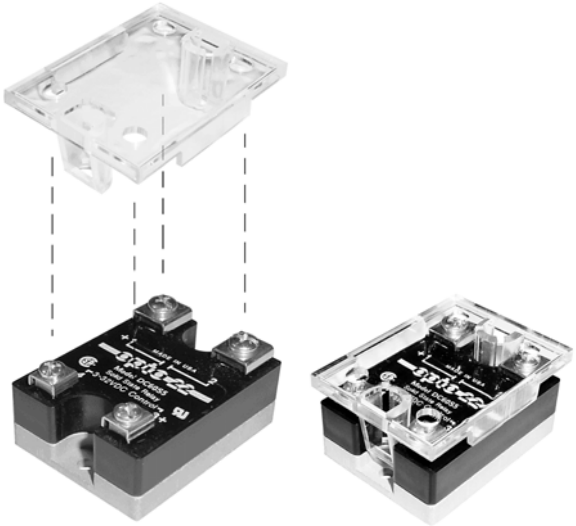
Specifications (all Power Series models)

- 4,000 V optical isolation, input to output
- Zero voltage turn-on
- Turn-on time: 0.5 cycle maximum
- Turn-off time: 0.5 cycle maximum
- 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

See Opto 22 form #986 for torque specifications.

Safety Cover for Power Series SSRs

A plastic safety cover (Opto 22 part number SAFETY COVER) is optionally available for Opto 22 Power Series SSRs. The safety cover reduces the chance of accidental contact with relay terminals, while providing access holes for test instrumentation.



An optional plastic safety cover can be installed on a Power Series SSR.

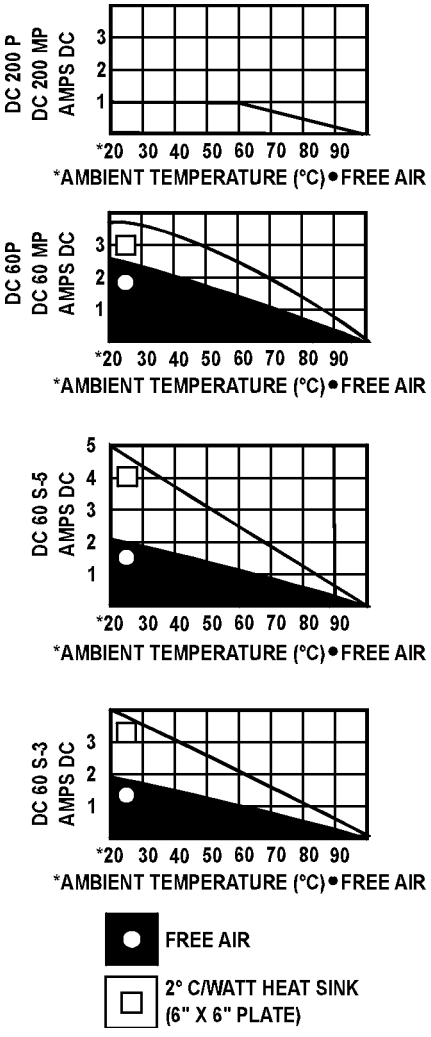
***UL recognition is pending for Power Series SSRs with LED indicators. Contact Opto 22 Product Support for current UL information.**

DC Switching Series Specifications

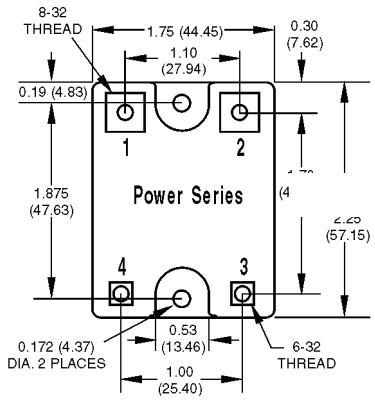
	DC60P or DC60MP	DC200P or DC200MP	DC60S-3	DC60S-5
Operating Voltage Range	5-60 VDC	5-200 VDC	5-60 VDC	5-60 VDC
Forward Voltage Drop	1.5 volts	1.5 volts at 1 amp	1.5 volts at 3 amps	1.5 volts at 5 amps
Nominal Current Rating	3 amps	1 amp	3 amps	5 amps
Off-State Blocking	60 VDC	250 VDC	60 VDC	60 VDC
Signal Pickup Voltage	3 VDC 32 Volts* allowed	3 VDC 32 Volts* allowed	3 VDC 32 Volts allowed	3 VDC 32 Volts allowed
Signal Dropout Voltage	1 VDC	1 VDC	1 VDC	1 VDC
Signal Input Impedance	1,000 ohms	1,000 ohms	1,000 ohms	1,000 ohms
1 Second Surge	5 amps	2 amps	5 amps	10 amps
Operating Temp. Range	-40° C to 100° C	-40° C to 100° C	-40° C to 100° C	-40° C to 100° C
Isolation Voltage	4,000 Vrms	4,000 Vrms	4,000 Vrms	4,000 Vrms
Off-state Leakage	1 mA maximum	1 mA maximum	1 mA maximum	1 mA maximum
Package Type	P/MP series	P/MP series	Power series	Power series
Turn-On Time	100 µsec	100 µsec	100 µsec	100 µsec
Turn-Off Time	750 µsec	750 µsec	750 µsec	750 µsec

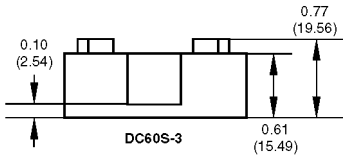
Note: *MP series maximum allowed control signal 24 VDC.

Thermal Ratings

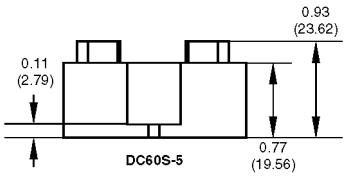


Dimensional Drawings





Side view: Part numbers DC60S3, 120D3, and 240D3 only



Side view: All other part numbers