

AC POWER SERIES SPECIFICATIONS

Opto 22 provides a full range of Power Series relays with a wide variety of voltage (120–575) and current options (3–45 amps). All Power Series relays feature 4,000 volts of optical isolation and have a high PRV rating. Operating temperature is –40 °C to 100 °C. (Ambient temperature will affect the current rating.)

120/240/380 Volt

NOTE: Model numbers ending in -17 are replacement parts only. Their specifications are identical to the same model number without the -17. For example, 240D10-17 is identical to 240D10.

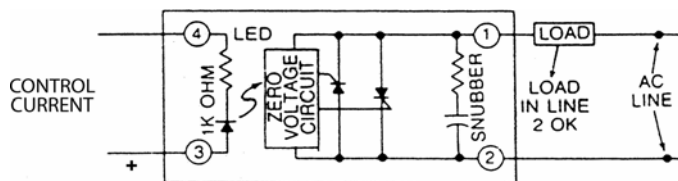
Model Number	Nominal AC Line Voltage	Nominal Current Rating (Amps)	1 cycle Surge (Amps) Peak	Nominal Signal Input Resistance (Ohms)	Signal Pick-up Voltage	Signal Drop-out Voltage	Peak Repetitive Voltage Maximum	Maximum Output Voltage Drop	Off-State Leakage (mA) Maximum**	Operating Voltage Range (Volts AC)	I ² t Rating t=8.3 (ms)	Isolation Voltage	θ _{jc} *** (°C/Watt)	Dissipation (Watts/Amp)
120D3	120	3*	85	1000	3VDC (32V allowed)	1 VDC	600	1.6 volts	2.5mA	12–140	30	4,000V _{RMS}	11	1.7
120D10	120	10*	110	1000	3VDC (32V allowed)	1 VDC	600	1.6 volts	7 mA	12–140	50	4,000V _{RMS}	1.3	1.6
120D25	120	25*	250	1000	3VDC (32V allowed)	1 VDC	600	1.6 volts	7 mA	12–140	250	4,000V _{RMS}	1.2	1.3
120D45	120	45*	650	1000	3VDC (32V allowed)	1 VDC	600	1.6 volts	7 mA	12–140	1750	4,000V _{RMS}	0.67	0.9
240D3	240	3*	85	1000	3VDC (32V allowed)	1 VDC	600	1.6 volts	5 mA	24–280	30	4,000V _{RMS}	11	1.7
240D10	240	10*	110	1000	3VDC (32V allowed)	1 VDC	600	1.6 volts	14 mA	24–280	50	4,000V _{RMS}	1.3	1.6
240Di10	240	10*	110	730	3VDC (32V allowed)	1 VDC	600	1.6 volts	14 mA	24–280	50	4,000V _{RMS}	1.3	1.6
240D25	240	25*	250	1000	3VDC (32V allowed)	1 VDC	600	1.6 volts	14 mA	24–280	250	4,000V _{RMS}	1.2	1.3
240Di25	240	25*	250	730	3VDC (32V allowed)	1 VDC	600	1.6 volts	14 mA	12–280	250	4,000V _{RMS}	1.2	1.3
240D45	240	45*	650	1000	3VDC (32V allowed)	1 VDC	600	1.6 volts	14 mA	24–280	1750	4,000V _{RMS}	0.67	0.9
240Di45	240	45*	650	730	3VDC (32V allowed)	1 VDC	600	1.6 volts	14 mA	24–280	1750	4,000V _{RMS}	0.67	0.9
380D25	380	25*	250	1000	3VDC (32V allowed)	1 VDC	800	1.6 volts	12 mA	24–420	250	4,000V _{RMS}	1.2	1.3
380D45	380	45*	650	1000	3VDC (32V allowed)	1 VDC	800	1.6 volts	12 mA	24–420	1750	4,000V _{RMS}	0.67	0.9
120A10	120	10*	110	33K	85VAC (280V allowed)	10 VAC	600	1.6 volts	7 mA	12–140	50	4,000V _{RMS}	1.3	1.6
120A25	120	25*	250	33K	85VAC (280V allowed)	10 VAC	600	1.6 volts	7 mA	12–140	250	4,000V _{RMS}	1.2	1.3
240A10	240	10*	110	33K	85VAC (280V allowed)	10 VAC	600	1.6 volts	14 mA	24–280	50	4,000V _{RMS}	1.3	1.6
240A25	240	25*	250	33K	85VAC (280V allowed)	10 VAC	600	1.6 volts	14 mA	24–280	250	4,000V _{RMS}	1.2	1.3
240A45	240	45*	650	33K	85VAC (280V allowed)	10 VAC	600	1.6 volts	14 mA	24–280	1750	4,000V _{RMS}	0.67	0.9

Notes: * Ambient temperature will affect the current rating. For details, see the Thermal Ratings chart.

** Operating Frequency: 25 to 65 Hz (operates at 400 Hz with 6 times the offstate leakage)

*** θ_{jc} = Thermal resistance from internal junction to base. Maximum internal junction temperature is 110 °C.

Connection Diagram, DC Power Series



Control Current varies with control voltage. For details, see "Control Current Calculation" on page 17.

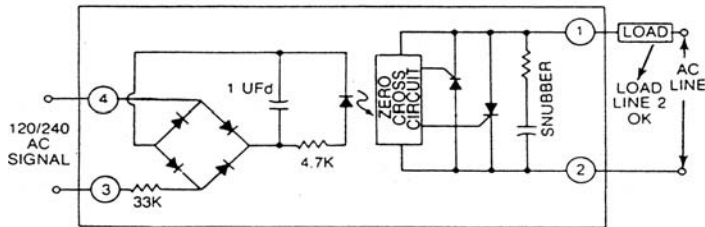
120/240 Volt (cont.)

Surge Current Data

Time (Seconds)	Time* (Cycles)	3-Amp Peak Amps	10-Amp Peak Amps	25-Amp Peak Amps	45-Amp Peak Amps
0.017	1	85	110	250	650
0.050	3	66	85	175	420
0.100	6	53	70	140	320
0.200	12	45	60	112	245
0.500	30	37	50	80	175
1	60	31	40	67	134
2	120	28	33	53	119
3	180	27	32	49	98
4	240	26	31	47	95
5	300	25	30	45	91
10	600	24	28	42	84

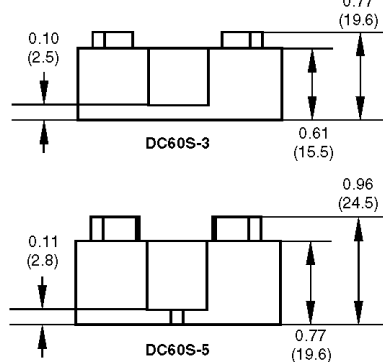
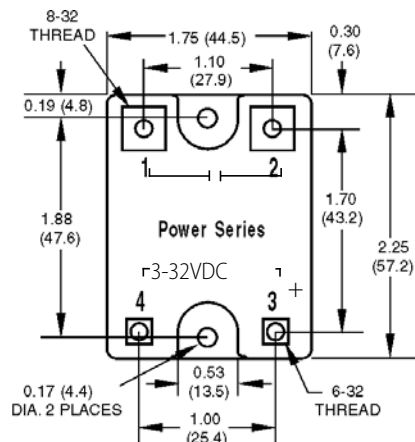
Note: *60 Hz.

Connection Diagram, AC Power Series



Dimensional Drawings

NOTE: All dimensions are nominal. We do not recommend mounting the terminal side of the SSR to a flat PCB (printed circuit board) or other flat surface, because there may be some variation in terminal height from one terminal to another and from one SSR to another.

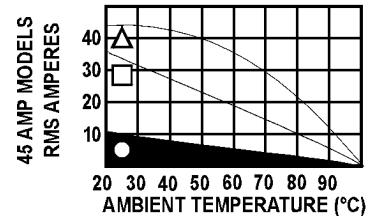
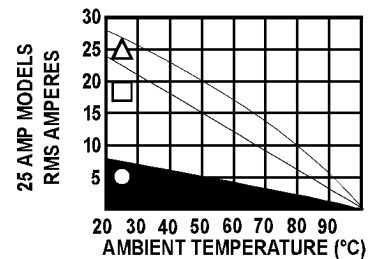
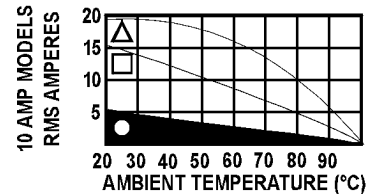
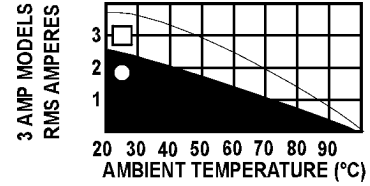


Side view: Part numbers
DC60S3, 120D3, and
240D3 only

Side view: All other
part numbers

Thermal Ratings

Ambient temperature will affect the current rating.



- FREE AIR
- MOUNTED ON A HEATSINK WITH 2 °C/WATT RATING
- MOUNTED ON A HEATSINK WITH 1 °C/WATT RATING

480/575 Volt

Model Number	Nominal AC Line Voltage	Nominal Current Rating (Amps)	1 cycle Surge (Amps) Peak	Nominal Signal Input Resistance (Ohms)	Signal Pick-up Voltage	Signal Drop-out Voltage	Peak Repetitive Voltage Maximum	Maximum Output Voltage Drop	Off-State Leakage (mA) Maximum**	Operating Voltage Range (Volts AC)	I ² t Rating t=8.3 (ms)	Isolation Voltage	θ _{jc} *** (°C/Watt)	Dissipation (Watts/Amp)
480D10-12	480	10*	110	1000	3VDC (32V allowed)	1 VDC	1200	3.2 volts	11 mA	100-530	50	4,000V _{RMS}	1.2	2.5
480D15-12	480	15*	150	1000	3VDC (32V allowed)	1 VDC	1200	3.2 volts	11 mA	100-530	50	4,000V _{RMS}	1.2	2.5
480D25-12	480	25*	250	1000	3VDC (32V allowed)	1 VDC	1000	1.6 volts	11 mA	100-530	250	4,000V _{RMS}	1.3	1.3
480D45-12	480	45*	650	1000	3VDC (32V allowed)	1 VDC	1000	1.6 volts	11 mA	100-530	1750	4,000V _{RMS}	0.67	0.9
575D15-12	575	15*	150	1000	3VDC (32V allowed)	1 VDC	1200	3.2 volts	15 mA	100-600	90	4,000V _{RMS}	1.2	2.5
575D45-12	575	45*	650	1000	3VDC (32V allowed)	1 VDC	1000	1.6 volts	15 mA	100-600	1750	4,000V _{RMS}	0.67	0.9
575DI45-12	575	45*	650	730	3VDC (32V allowed)	1 VDC	1000	1.6 volts	15 mA	100-600	1750	4,000V _{RMS}	0.67	0.9

Notes: * Ambient temperature will affect the current rating. For details, see the Thermal Ratings chart.
 ** Operating Frequency: 25 to 65 Hz (operates at 400 Hz with 6 times the offstate leakage)
 *** θ_{jc} = Thermal resistance from internal junction to base. Maximum internal junction temperature is 110 °C.

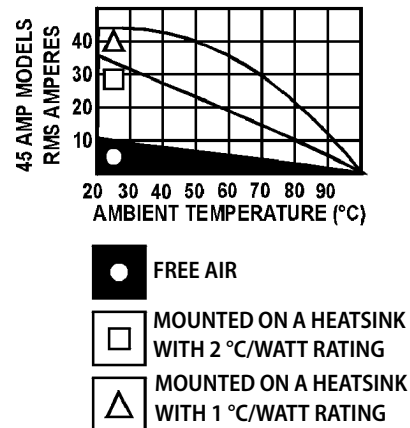
Surge Current Data

Time Second	Time*** (Cycles)	10-Amp Peak Amps	15-Amp Peak Amps	25-Amp Peak Amps	45-Amp Peak Amps
0.017	1	110	150	250	650
0.050	3	85	140	175	420
0.100	6	70	110	140	320
0.200	12	60	90	112	245
0.500	30	50	70	80	175
1	60	40	55	67	134
2	120	33	49	53	119
3	180	32	47	49	98
4	240	31	43	47	95
5	300	30	40	45	91
10	600	28	35	42	84

Note: ***60 Hz

Thermal Ratings

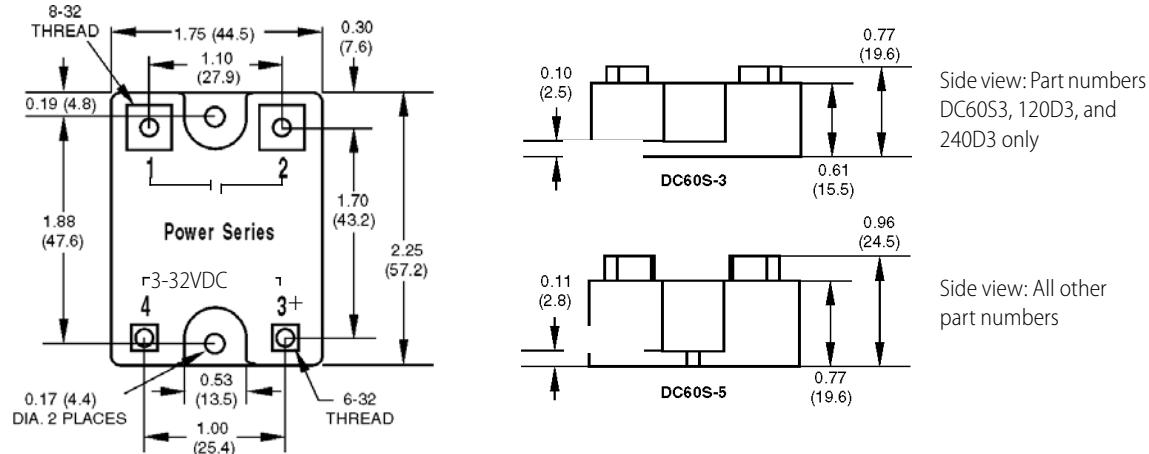
Ambient temperature will affect the current rating.



480/575 Volt (cont)

Dimensional Drawings

NOTE: All dimensions are nominal. We do not recommend mounting the terminal side of the SSR to a flat PCB (printed circuit board) or other flat surface, because there may be some variation in terminal height from one terminal to another and from one SSR to another.



Z SERIES SPECIFICATIONS

AC Power: 120/240 Volt

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 is -40°C to 100°C . (Ambient temperature will affect the current rating.)

	Z120D10	Z240D10
Nominal AC Line Voltage Nominal	120	240
Current Rating (Amps)	10*	10*
1 cycle Surge (Amps) Peak	110	110
Nominal Signal Input Resistance (Ohms)	1000	1000
Signal Pick-up Voltage	3VDC (32V allowed)	3VDC (32V allowed)
Signal Drop-out Voltage	1 VDC	1 VDC
Peak Repetitive Voltage Maximum	600	600
Maximum Output Voltage Drop	1.6 volts	1.6 volts
Off-State Leakage (mA) Maximum**	6 mA	12 mA
Operating Voltage Range (Volts AC)	12–140	24–280
I^2t Rating $t=8.3$ (ms)	50	50
Isolation Voltage	4,000 V_{RMS}	4,000 V_{RMS}
θ_{jc}^{***} ($^{\circ}\text{C}/\text{Watt}$) Dissipation (Watts/Amp)	4	4

Notes: * Ambient temperature will affect the current rating. For details, see the Thermal Ratings chart.
 ** Operating Frequency: 25 to 65 Hz (operates at 400 Hz with 6 times the offstate leakage).
 *** θ_{jc} = Thermal resistance from internal junction to base. Maximum internal junction temperature is 110°C .

NOTE: Part number Z240D10-17 is a replacement part only. Its specifications are identical to Z240D10.