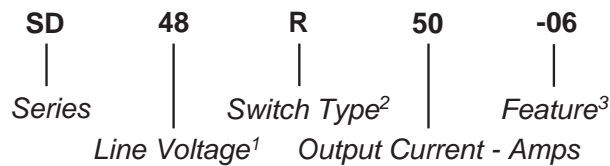


Part Number	Description
SD24R50-06	12-280 Vac
SD24R50	12-280 Vac
SD24D50-06	12-280 Vac
SD48D40-06	24-500 Vac
SD48D50A	24-600 Vac
SD48D50A2	24-600 Vac

**Part Number Explanation**



**NOTES**

- 1) Line Voltage (nominal): 24 = 240 Vac; 48 = 480 Vac
- 2) Switch Type: R = Random turn-on; D = Zero-cross turn-on;
- 3) Features: -06 = Faston terminals  
 A = Common control adapter  
 A2 = Individual control adapter

**INPUT (CONTROL) SPECIFICATION**

	Min	Max	Units
<b>Control Range</b>			
SD24	4	30	Vdc
SD48D40-06	5	30	Vdc
SD48D50XX	10	30	Vdc
<b>Input Current Range</b>			
All relays (See Fig. 3)	3		mA
<b>Must Turn-Off Voltage</b>			
All relays		1	Vdc
<b>Input Resistance (Typical)</b>			
SD24R50-06		1000	Ohms
SD48D40-06		1000	Ohms
SD48D50A		1400	Ohms
SD48D50A2		1800	Ohms
<b>Reverse Voltage Protection</b>			
All relays		30	V



**FEATURES/BENEFITS**

- Designed for all types of loads
- Dual output (two relays in one package)
- Faston terminals
- Connector for common or individual control
- Tight zero-cross window for low EMI
- High immunity to surges

**DESCRIPTION**

The Series SD dual-phase relays are designed for all types of loads. The design incorporates two relays in a single package. The relays utilize optical isolation to protect the control from load transients. High-current models are excellent for motor and phase angle control. The 50A 600 Vac models are available with common control connector or individual control connector.

**APPLICATIONS**

- Motor control
- Heating control
- Uninterruptible power supplies
- Light dimmers
- Industrial and process control
- On/Off controls of AC equipment

**APPROVALS**

All models are UL recognized.  
 UL File Number: E128555.

**BLOCK DIAGRAM**

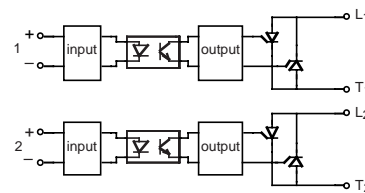


Figure 1a — All SD relays except SD48D40-06

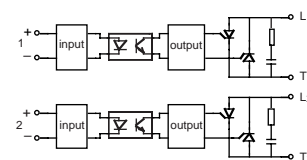


Figure 1b — SD48D40-06

**MECHANICAL SPECIFICATION**

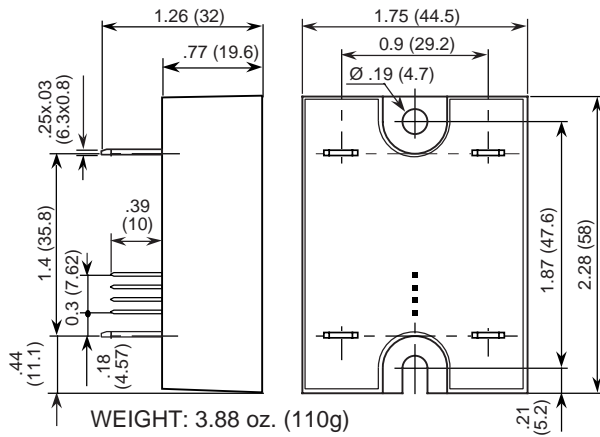


Figure 2a — SD24R50-06 and SD24D50-06; dimensions in inches (mm)

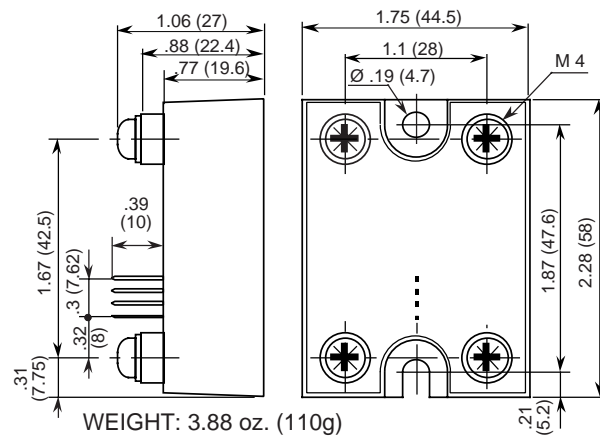


Figure 2b — SD24R50; dimensions in inches (mm)

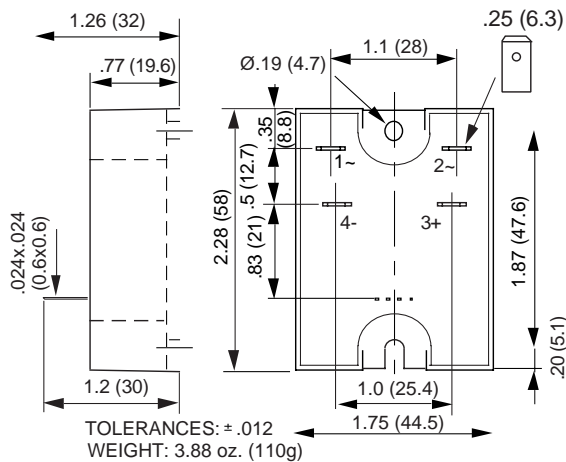


Figure 2c — SD48D40-06; dimensions in inches (mm)

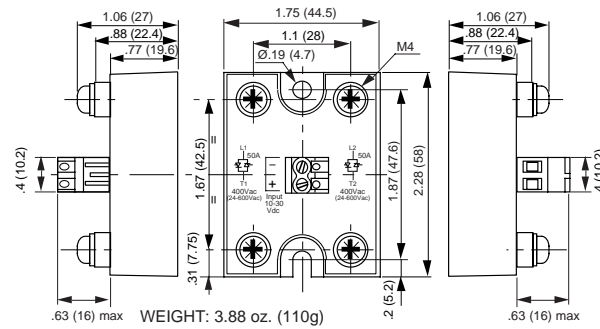


Figure 2d — SD48D50A; dimensions in inches (mm)

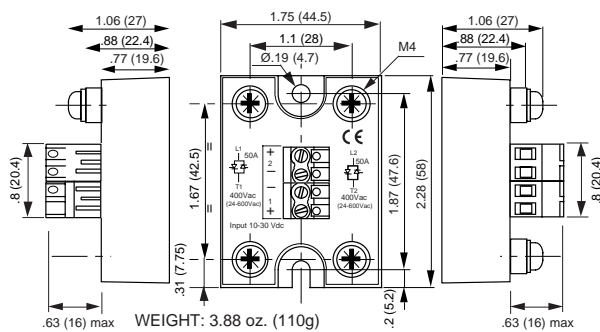


Figure 2e — SD48D50A2; dimensions in inches (mm)

**TYPICAL APPLICATION**

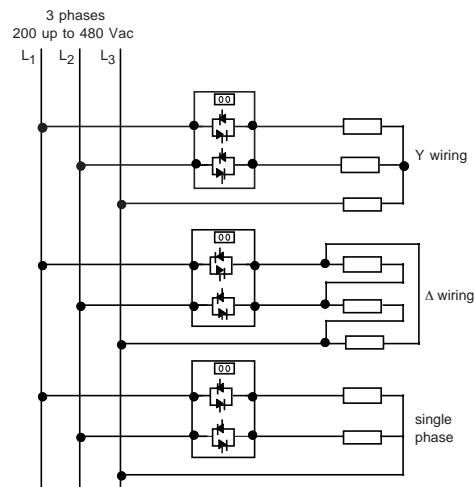


Figure 3 — SD48D50A

**OUTPUT (LOAD) SPECIFICATION**

	Input Type	Min	Max	Units
Operating Range				
SD24	R/D	12	280	Vrms
SD48D40-06		24	510	Vrms
SD48D50XX		24	600	Vrms

Peak Voltage

SD24			600	Vpeak
SD48			1200	Vpeak

Load Current Range (Resistive)

SD48D40-06		.005	40	Arms
All other relays		.005	50	Arms

Maximum Surge Current Rating (Non-Repetitive)

SD48D40-06			350	A
All other relays			550	A

On-State Voltage Drop

All relays output current			1.6	V
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Zero-Cross Window

SD	R		NA	
SD	D/A		±12	Vac

Off-State Leakage Current (60Hz)

SD48D40-06			2.5	mA
All other relays			1	mA

Turn-On Time (60 Hz)

SD24	R		0.1	ms
All other relays			8.3	ms

Turn-Off Time (60 Hz)

All relays			8.3	ms
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Off-State dv/dt

All relays			500	V/μs
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Maximum di/dt (Non-Repetitive)

All relays			50	A/μs
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Operating Frequency Range

All relays		10	440	Hz
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**OUTPUT (LOAD) SPECIFICATION (Continued)**

	Input Type	Min	Max	Units
$I^2t$ for Match Fusing (<8.3ms)				
SD48D40-06			612	A <sup>2</sup> S
All other relays			1500	A <sup>2</sup> S

**CONTROL CHARACTERISTICS**

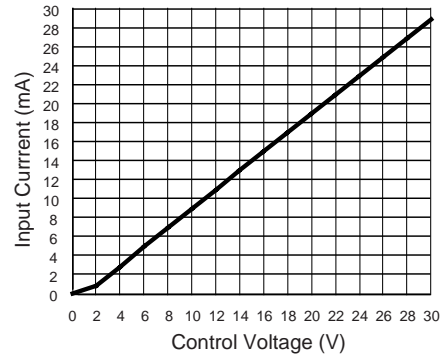


Figure 4a — SD24 and SD48D40-06 relays

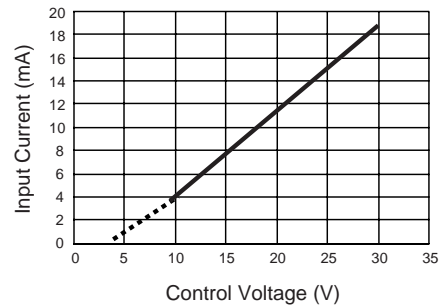


Figure 4b — SD48D50A relay

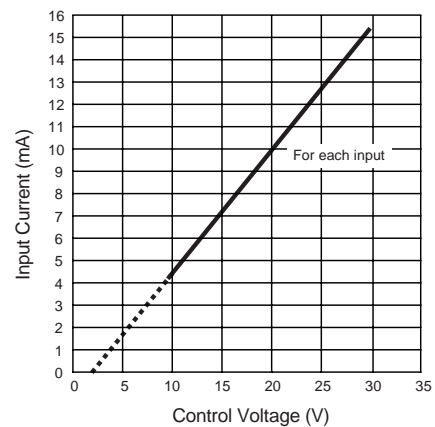


Figure 4c — SD48D50A2 relay

**ENVIRONMENTAL SPECIFICATION**

	Min	Max	Units
Operating Temperature	-40	100	°C
Storage Temperature	-40	100	°C
Input-Output Isolation			
SD48D40-06	4000		Vrms
All other relays	3300		Vrms
Output-Case Isolation			
SD48D40-06	2500		Vrms
All other relays	3300		Vrms
Output to Output			
SD48D50XX	3300		Vrms
All other relays	2500		Vrms
Junction-Case Thermal Resistance			
SD48D40-06		1.1	°C/W
All other relays		0.5	°C/W

**THERMAL CHARACTERISTICS**

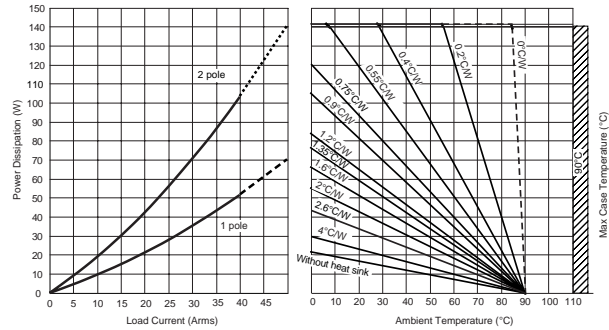


Figure 6a — SD24 relays output current

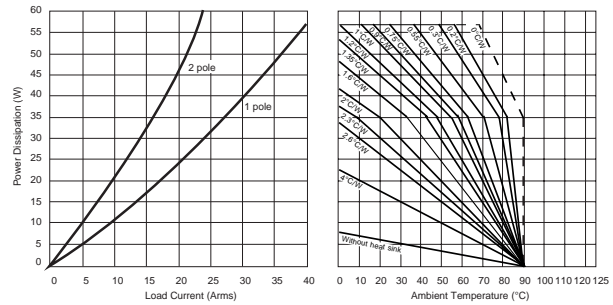


Figure 6b — SD48D40-06 output current

**SURGE CURRENT**

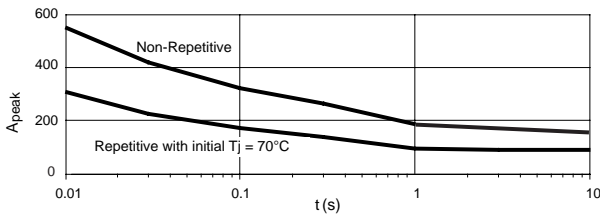


Figure 5a — SD24 50A output current

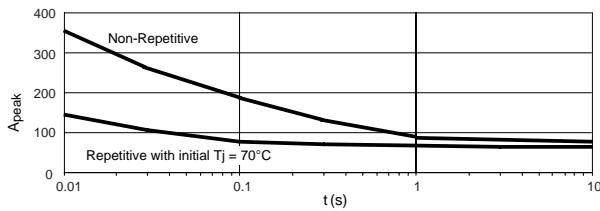


Figure 5b — SD48 40A output current

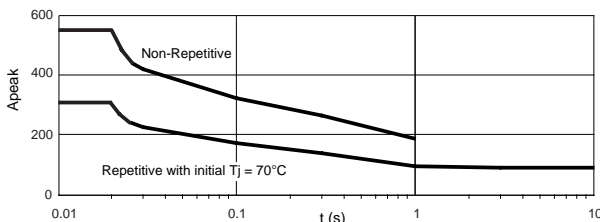


Figure 5c — SD48 50A output current

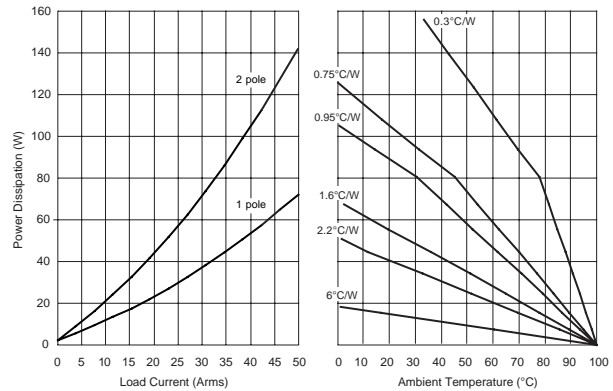


Figure 6c — SD48D50A and SD48D50A2 output current

**NOTES:**

1. Electrical specifications at 25°C unless otherwise specified.
2. For 800Hz applications, contact factory.
3. For additional/custom applications, contact factory.

**OPTIONAL ADD-ONS**

Please order add-ons separately:

- -12 — Thermal pad installed.
- -14 — Plastic touch-proof cover.