

Description

Legacy Solid-State Relays

6000

SPST-NO, 10–75 A

DPST-NO, 10–25 A



6000 Series Relays

Description

The 6000 Series solid-state relays offer an energy-efficient current switching alternative to standard electromechanical relays. Advantages include longer life cycles, less energy consumption, and reduced maintenance costs.

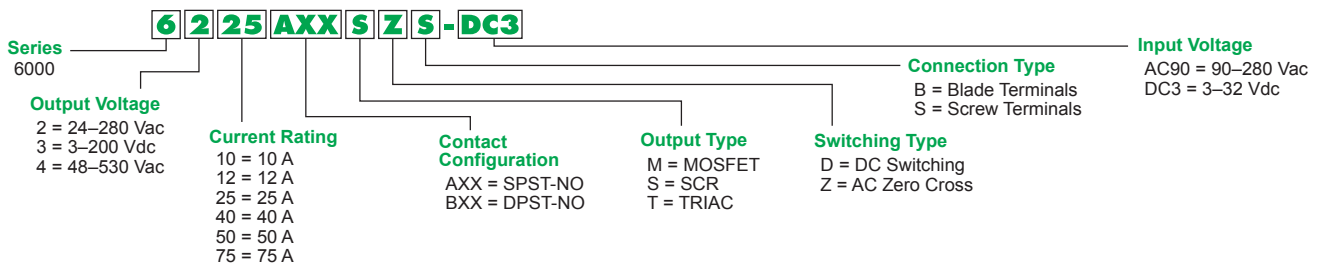
Feature	Benefit
Solid-state circuitry	Involves no moving parts
Optically coupled circuit	Provides isolation between input and output circuits
Internal snubber	Helps protect the relay's internal circuit from high voltage transients
Finger protected terminals	Help prevent an operator from touching live circuits

Switching Type	Switching Device (1)	Input Voltage Range	Output Voltage Range	Contact Configuration	Rated Output Current (A)	Standard Part Number
DC Switching	MOSFET	3.5–32 Vdc	3–200 Vdc	SPST-NO	12	6312AXXMDS-DC3
					25	6325AXXMDS-DC3
					40	6340AXXMDS-DC3
AC Zero Cross	SCR	3–32 Vdc	24–280 Vac	SPST-NO	10	6210AXXSZS-DC3
					25	6225AXXSZS-DC3
					40	6240AXXSZS-DC3
			48–480 Vac	SPST-NO	50	6250AXXSZS-DC3
					75	6275AXXSZS-DC3
					25	6425AXXSZS-DC3
	90–280 Vac	24–280 Vac	SPST-NO	40	6440AXXSZS-DC3	
				50	6450AXXSZS-DC3	
				75	6475AXXSZS-DC3	
		48–480 Vac	SPST-NO	10	6210AXXSZS-AC90	
				25	6225AXXSZS-AC90	
				40	6240AXXSZS-AC90	
TRIAK (2)	3–32 Vdc	24–280 Vac	DPST-NO	10	6210BXXTZB-DC3	
				25	6425AXXTZB-DC3	
				25	6425BXXTZB-DC3	
		48–480 Vac	DPST-NO	10	6210AXXSZS-AC90	
				25	6425AXXSZS-AC90	
				40	6440AXXSZS-AC90	

(1) See page 28 for definitions of the different switching devices.

(2) Blade terminals.

Part Number Explanation



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Specifications (UL 508)

Part Number	62**AXXSZS-AC90	64**AXXSZS-AC90	62**AXXSZS-DC3	64**AXXSZS-DC3
Input Characteristics				
Control Voltage Range	90–280 Vac (rms)		3–32 Vdc	4–32 Vdc
Maximum Turn-On Voltage	90 Vac (rms)		3 Vdc	4 Vdc
Minimum Turn-Off Voltage	10 Vac (rms)		1 Vdc	
Nominal Input Impedance	60 kΩ		N/A (active current limiter)	
Typical Input Current	2 mA at 120 V (rms); 4 mA at 240 V (rms)		10 mA at 12 Vdc	15 mA DC
Output Characteristics				
Switching Device	SCR			
Switching Type	AC Zero Cross			
Contact Configuration	SPST-NO			
Output Current Range	10–75 A	10–25 A	10–50 A	25–50 A
Output Voltage Range (47–63 Hz)	24–280 Vac (rms)	48–530 Vac (rms)	24–280 Vac (rms)	48–530 Vac (rms)
Transient Overvoltage	600 Vpk	1200 Vpk	600 Vpk	1200 Vpk
Maximum Off-State Leakage Current at Rated Voltage	10 mA (rms)		1 mA (rms)	
Minimum Off-State dv/dt at Maximum Rated Voltage	500 V/us			
Minimum Load Current	40 mA (rms)		150 mA (rms)	
Maximum Surge Current (16.6 ms)	10 A: 120 Apk 25 A: 250 Apk 40/50 A: 625 Apk 75 A: 1000 Apk	10 A: 140 Apk 25 A: 250 Apk	10 A: 120 Apk 25 A: 250 Apk 40/50 A: 625 Apk	25 A: 250 Apk 50 A: 625 Apk
Maximum On-State Voltage Drop at Rated Current	1.6 V (rms)	1.7 V (rms)	1.6 V (rms)	
Maximum I ² T for Fusing (8.3 ms)	10 A: 60 A ² sec 25 A: 260 A ² sec 40/50A: 1620 A ² sec 75A: 4150 A ² sec	10 A: 81 A ² sec 25 A: 260 A ² sec	10 A: 60 A ² sec 25 A: 260 A ² sec 40/50 A: 1620 A ² sec	25 A: 260 A ² sec 50 A: 1620 A ² sec
Minimum Power Factor (with Maximum Load)	0.5			
General Characteristics				
Electrical Life	N/A for solid-state relays			
Maximum Turn-On Time	10 ms		1/2 Cycle	
Maximum Turn-Off Time	40 ms		1/2 Cycle	
Thermal Resistance (Junction–Case)	10 A: 1.48 °C/W; 25 A: 1.02 °C/W; 40/50A: 0.63 °C/W; 75 A: 0.31 °C/W			
Dielectric Strength, Input/Output/Base (50/60 Hz)	4000 Vac (rms)			
Minimum Insulation Resistance (at 500 Vdc)	1E+9 Ω			
Maximum Capacitance (Input/Output)	8 pF			
Ambient Operating Temperature Range	–40 to +80 °C (derating applies)			
Ambient Storage Temperature Range	–40 to +125 °C			
Weight (typical)	86.5 g (3 oz)			
Input Indication	Green LED			
Encapsulation	Thermally conductive epoxy			
Terminals	Screw and saddle clamps furnished, unmounted			
Maximum Torque for Terminal Screws (screws dry without grease)	Input Terminals: 10 lb-in Output Terminals: 20 lb-in			
Safety Cover	Yes			
Wire Clamp Plates	Yes			
Agency Approvals	UL Recognized (File: E258297, CCN: NRNT2, NRNT8), CSA (File: 168986, Class: 3211-07), CE, RoHS			

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Specifications (UL 508)

Part Number	6***XXTZB-DC3	63**AXXMDS-DC3
Input Characteristics		
Control Voltage Range	3–32 Vdc	3.5–32 Vdc
Maximum Turn-On Voltage	3 Vdc	3.5 Vdc
Minimum Turn-Off Voltage	1 Vdc	
Nominal Input Impedance	Active current limiter	1 kΩ
Typical Input Current	25 A: 16 mA 10 A: 2 mA	10 mA
Output Characteristics		
Switching Device	TRIAC	MOSFET
Switching Type	AC Zero Cross	DC Switching
Contact Configuration	SPST-NO, DPST-NO	SPST-NO
Output Current Range	10–25 A	12–40 A
Output Voltage Range	10 A: 24–280 Vac 25 A: 48–480 Vac	3–200 Vdc
Transient Overvoltage	600 Vpk	200 Vpk
Maximum Off-State Leakage Current at Rated Voltage	10 mA	< 1 mA
Minimum Off-State dv/dt at Maximum Rated Voltage	250 V/us	N/A
Minimum Load Current–Maintain	80 mA	N/A
Maximum Surge Current (16.6 ms)	250 A	12 A: 27 A 25 A: 50 A 40 A: 90 A
Maximum On-State Voltage Drop at Rated Current	1.6 Vac (rms)	2.8 Vdc (at 40 A load)
Maximum I ² T for Fusing (8.3 ms)	200 A ² s	N/A
Minimum Power Factor (with Maximum Load)	0.5	0.95
General Characteristics		
Electrical Life	N/A for solid-state relays	
Maximum Turn-On Time	1/2 cycle	300 us
Maximum Turn-Off Time	1/2 cycle	1 ms
Thermal Resistance (Junction–Case)	1.2 °C/W	1.06 °C/W
Dielectric Strength, Input/Output/Base (50/60 Hz)	4000 Vac (rms)	2500 Vac (rms)
Minimum Insulation Resistance (at 500 Vdc)	1E+9 Ω	
Maximum Capacitance (Input/Output)	10 pF	
Ambient Operating Temperature Range	–30 to +80 °C (derating applies)	–40 to +80 °C (derating applies)
Ambient Storage Temperature Range	–40 to +100 °C	
Weight (typical)	100 g (3.52 oz)	110 g (3.88 oz)
Input Indication	Green LED	
Encapsulation	Epoxy	
Terminals	1/4 in (6.35 mm); 3/16 in (4.74 mm)	Input: M3.5 Output: M4 (12 A), M6 (25/40 A)
Maximum Torque for Terminal Screws (screws dry without grease)	Input Terminals: 10 lb-in Output Terminals: 20 lb-in	
Safety Cover	Yes (IP20)	
Wire Clamp Plates	N/A	Yes
Agency Approvals	UL Recognized (File: E258297, CCN: NRNT2, NRNT8), CSA (File: 168986, Class: 3211-07), CE, RoHS	

**Dimensions,
Wiring Diagram,
Derating Curves**

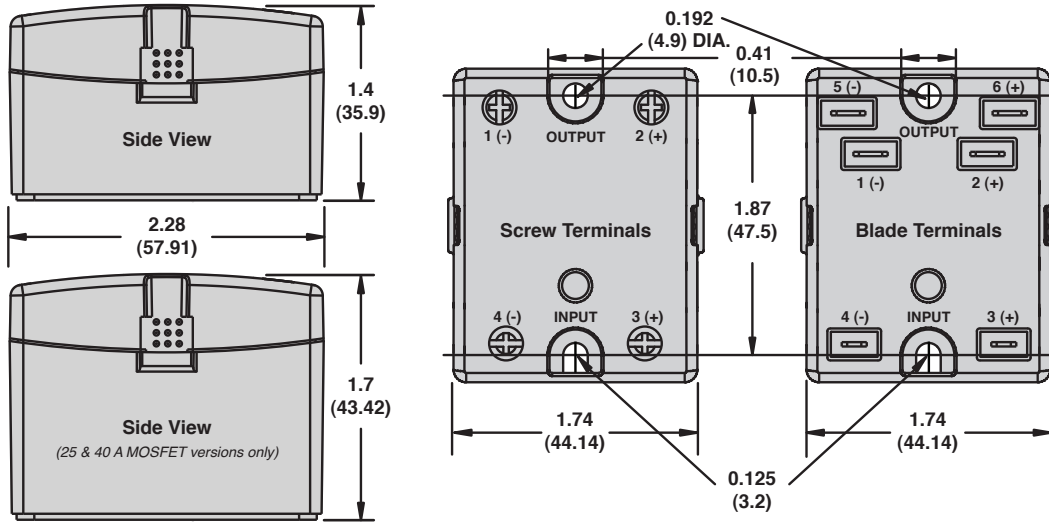
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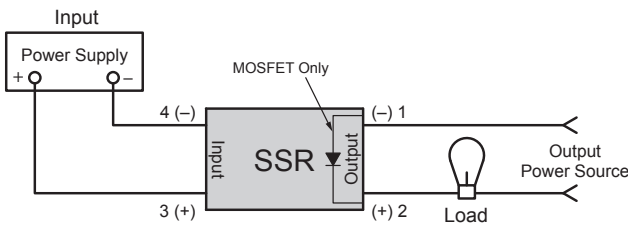
SPST-NO, 10–75 A

DPST-NO, 10–25 A

Dimensions: in. (mm)

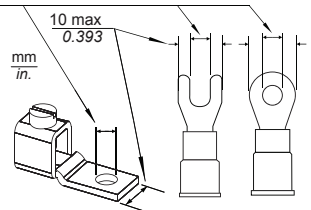


Wiring Diagram



Terminal	Min.	Max.
Input	3.5 (0.138)	5 (0.197)
Output	4.2 (0.163)	6.35 (0.25)

OUTPUT	0–50 A	50–125 A
Cu 75 °C max. ambient 25 °C		



Derating Curves

