Bulletin 700-SE

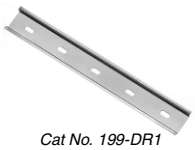
- 20 A (resistive) Max. Continuous Load (Output) Current with Heat Sink
- 264V AC Max. Load Voltage Range
- 5,12, or 24V DC Control/Input Voltage
- Built-in Varistor Helps Absorb Most Electrical Surges
- Low Profile (Flat Pack) Design
- Quick-Connect #110 Input and #250 Output Terminals

Table Of Contents

Product Selection 42
Accessories 43
Specifications 44
Approximate Dimensions 46

	Input-to-Output Isolation Method	Zero Cross Function	LED Indicator	Rated Output (Load) Max. Current and Voltage Range ❶	Rated Input Control Voltage	Cat. No.	Factory-stocked Item (single pack)
	Phototriac	Yes	No	5 A at 100…240V AC	5V DC	700-SE05GZZ05	✔
					12V DC	700-SE05GZZ12	✔
					24V DC	700-SE05GZZ24	✔
				10 A at 100…240V AC	5V DC	700-SE10GZZ05	✔
					12V DC	700-SE10GZZ12	✔
					24V DC	700-SE10GZZ24	✔
				20 A at 100…240V AC	5V DC	700-SE20GZZ05	✔
					12V DC	700-SE20GZZ12	✔
					24V DC	700-SE20GZZ24	✔
		No		5 A at 100…240V AC	5V DC	700-SE05GNZ05	✔
					12V DC	700-SE05GNZ12	✔
					24V DC	700-SE05GNZ24	✔
				10 A at 100…240V AC	5V DC	700-SE10GNZ05	✔
					12V DC	700-SE10GNZ12	✔
					24V DC	700-SE10GNZ24	✔
				20 A at 100…240V AC	5V DC	700-SE20GNZ05	✔
					12V DC	700-SE20GNZ12	✔
					24V DC	700-SE20GNZ24	✔

❶ Maximum load current when mounted on a heat sink.

	Description	Pkg. Quantity	Cat. No.	Factory-stocked Item
 *Cat No. 700-S10*	**Heat Sink — Panel or DIN Rail Mount ❶**	1	700-S10	✔
 *Cat No. 700-S20*	**Heat Sink — Panel or DIN Rail Mount ❶**	1	700-S20	✔
 *Cat No. 199-DR1*	**DIN Rail Mounting Pack** Standard 35 x 7.5 mm DIN Rail, 1 meter long, 10 rails per package. Order must be for 10 rails or multiples of 10.	10	199-DR1	✔

❶ Refer to "Load Current Vs. Ambient Temperature Characteristics" page 45 for information about how to select the correct size of heat sink for your application (cat. no. 700-S10, 700-S20).

Control/Input Ratings ❶						
Cat. No.	Rated Control Voltage	Operating Control Voltage Range	Input Impedance		Control Voltage Levels	
			With Zero Cross Function	Without Zero Cross Function	Pick-up Voltage	Drop-out Voltage
700-SE_ _ _Z05	5V DC	4…6V DC	250 Ω ± 20%	300 Ω ± 20%	4V DC max.	1V DC min.
700-SE_ _ _Z12	12V DC	9.6…14.4V DC	600 Ω ± 20%	800 Ω ± 20%	9.6V DC max.	
700-SE_ _ _Z24	24V DC	19.2…28.8V DC	1.6k Ω ± 20%		19.2V DC max.	

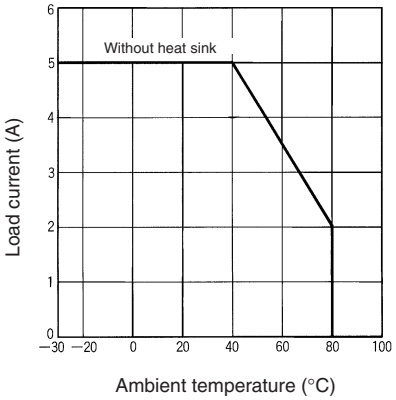
Load/Output Ratings							
Cat. No.	Applicable Load						
	Rated Load Voltage	Load Voltage Range	Continuous Load Current (Resistive)				Max. Inrush Current ❸
			With Heat Sink ❷		Without Heat Sink ❷		
			Min.	Max.	Min.	Max.	
700-SE05…	100…240V AC	75…264V AC	0.1 A	5 A	0.1 A	5 A	60 A (@50/60 Hz, 1 cycle)
700-SE10…			0.1 A	10 A	0.1 A	5 A	150 A (@50/60 Hz, 1 cycle)
700-SE20…			0.1 A	20 A	0.1 A	5 A	220 A (@50/60 Hz, 1 cycle)

Characteristics			
Item		700-SE_ _ _Z…	700-SE_ _ _N…
Load Switching Method/Device		Triac	
Pick-up time		1/2 of load power source cycle + 1 ms max.	1 ms max.
Drop-out time		1/2 of load power source cycle + 1 ms max.	
Output ON voltage drop		1.6 V (RMS) max.	
Output Leakage current		5 mA max. (at 100V AC) 10 mA max. (at 200V AC)	
Output V_{DRM} V_{CEO} (V)		600	600
Output di/dt (A/uS)		SE05GZ=100 SE10GZ & SE20 GZ =50	SE05GN=100 SE10 GN & SE20GN =50
Output dv/dt (V/uS)		SE05GZ=200, SE10GZ=500, SE20GZ=100	SE05GN =200, SE10GN =500, SE20GN =100
Output I^2t (A^2S)		SE05GZ =24.5, SE10GZ =60, SE20GZ =260	SE05GN =24.5, SE10GN =60, SE20GN =260
Output Tj (°C) max.		125	125
Insulation resistance		100 MΩ min. (at 500V DC)	
Dielectric strength		2,000V AC, 50/60 Hz for 1 min.	
Vibration resistance (max.)		10…55 Hz, 1.5 mm double amplitude (10 G)	
Shock resistance (max.)		1,000 m/s² (100 G)	
Ambient temperature		Operating: –30…80°C (–22…176°F) with no icing or condensation Storage: –30…100°C (–22…212°F) with no icing or condensation	
Ambient humidity	Operating	45…85% (no condensation)	
Standards		UL 508, CSA C22.2 , TUV, CE	
Weight		Approx. 37 g	

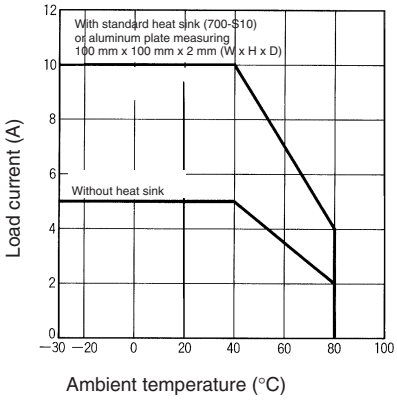
❶ Each 5 A, 10 A, and 20 A model has 5V DC, 12V DC, and 24V DC input versions.
❷ Refer to "Load Current Vs. Ambient Temperature Characteristics" graphs page 45 regarding maximum load current with and without heat sinks.
❸ If the SSR operation is continuous ON/OFF, this value should be reduced by 50%. Refer to the “Inrush Current Resistivity” graphs on page 45 for more details.

Load Current vs. Ambient Temperature Characteristics

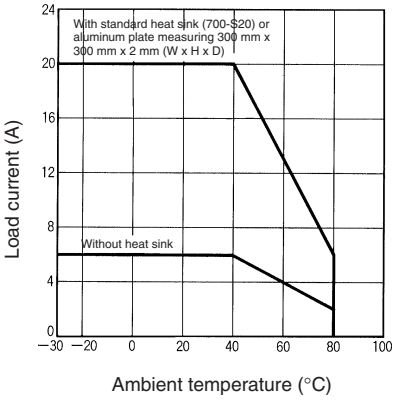
700-SE05…



700-SE10…

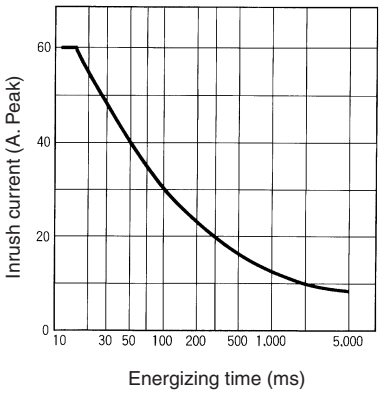


700-SE20…

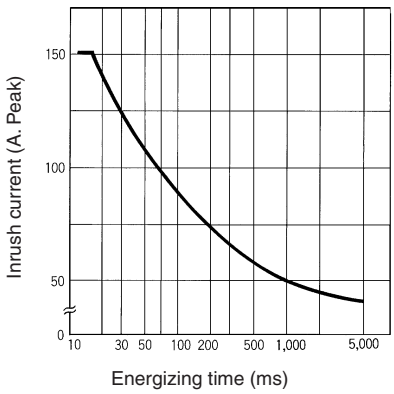


Inrush Current Resistivity❶

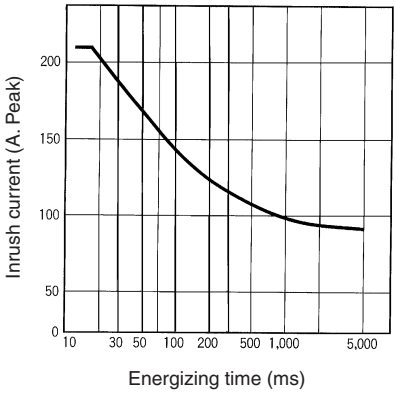
700-SE05...



700-SE10...



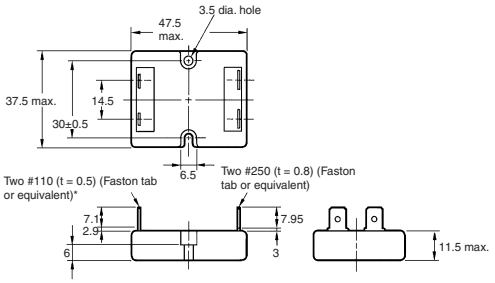
700-SE20...



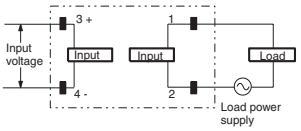
❶ Inrush current resistivity is the ability of an SSR to withstand a large surge current for a short period of time. Surges are considered non-repetitive (max. repeatability once every 2…5 seconds). Keep the inrush current to half the rated value if it occurs repetitively. Exceeding the non-repetitive inrush current will damage the SSR.

Mounting Considerations❶❷❸

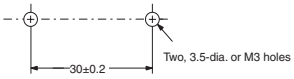
Note: All units are in millimeters unless otherwise indicated. Dimensions are not intended for manufacturing purposes.



Terminal Arrangement/ Internal Connections (Top View)



Mounting Holes

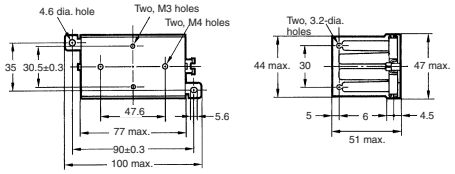


❶ The proper mounting orientation of the heat sink is so the heat fins run perpendicular to the floor (vertical) to maximize ventilation flow. If the fins do not run perpendicular to the floor, a 30% current derating is required.
❷ When attaching a heat sink to Bulletin 700-SE, apply heat conductive grease on the heat sink to maximize heat transfer between the SSR and the heat sink. Recommended types: Silicon based, Toshiba YG6240; Non-silicon based, AOS company type 53300.
❸ Tighten the SSR's panel/heat sink mounting screws to a torque of 0.78…0.98 Nm (6.9…8.7 lb.-in.)

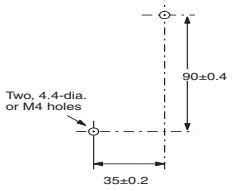
Heat Sinks

Cat. No. 700-S10

Weight: Approx. 200 g

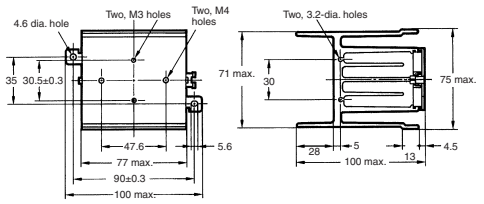


Mounting Holes ❹

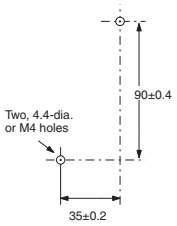


Cat. No. 700-S20

Weight: Approx. 400 g

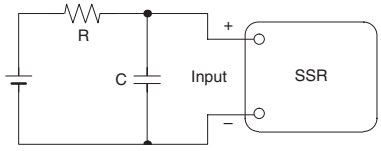


Mounting Holes



❹ Tighten the heat sink's panel mounting screws (M4) to a torque of 0.59…0.98 Nm (5.22…8.67 lb.-in.).

Basic Application Considerations



- Because the operation time of Bulletin 700-SE is extremely short, take measures to suppress noise induced between the **input** terminals. If generation of strong noise is expected, connect an external noise absorber such as an RC circuit.
- Do not apply excessive force to the terminals. Exercise care when pulling or inserting the terminal clips.
- Bulletin 700-SE has a built-in varistor to absorb most inrush/surge currents when operating AC inductive loads If additional suppression is required, connect an external varistor across the load device terminals. Select a varistor that meets the load voltage outlined in the table below.
- For additional details on applying solid-state relays, refer to pub. 700-AT001A-EN-P, "Solid-State Relay Application Guide." Document available at www.theautomationbookstore.com.

Load Voltage	Varistor Voltage	Varistor Surge Resistance
100…120V AC	240…270 V	1000 A min.
200…240V AC	440…470 V	
380…480V AC	820…1000 V	