



**Bulletin 700-SF**

- 3 A (resistive) Max. Continuous Load (Output) Current
- 264V AC or 52.8V DC Max. Load Voltage Range
- 4...24V DC Control/Input Voltage
- Photocoupler or Phototriac Isolation Option Between Control and Output Voltage
- LED Indicator for Input/Logic ON/OFF Status Monitoring
- 700-HN116 Socket Compatible


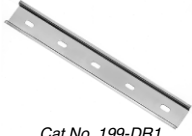
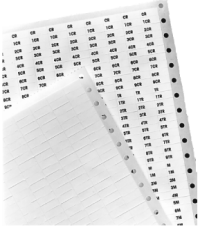
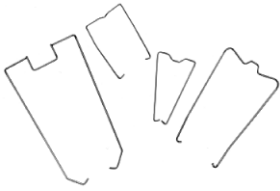
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	Input-to-Output Isolation Method	Zero Cross Function	LED Indicator	Rated Output (Load) Max. Current and Voltage Range	Rated Input Control Voltage	Cat. No.	Factory-stocked Item (Single Pack)
	Photocoupler	Yes		3 A at 100...240V AC	5...24V DC	700-SFZY3Z25	✓
	Phototriac	No			24V DC	700-SFTY3Z24	✓
	Photocoupler	N/A	Yes	3 A at 4...48V DC	4...24V DC	700-SFNY3Z25	✓

**Bulletin 700-SF**  
**Solid-State Relays**

**Accessories**

	Description	Pkg. Qty.	Cat. No.	Factory-stocked Item
 <p>Cat. No 700-HN116</p>	<p><b>Screw Terminal Socket — Panel or DIN Rail Mounting</b>            8-blade miniature socket for use with DPDT HF relays. Order must be for 10 sockets or multiples of 10.</p>	10	700-HN116	✓
 <p>Cat No. 199-DR1</p>	<p><b>DIN Rail Mounting Pack</b>            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.</p>	10	199-DR1	✓
	<p><b>Pre-printed identification tags</b> — contains 10 sheets of pre-printed and blank tags. Each sheet contains 13 sets of the markings CR...9CR, TR...9TR, M...9M, F, R, 1S, and 117 blank tags. Tags are peel-off with sticky backing for easy placement on relays.</p>	10	700-N40	✓
	<p><b>Blank identification tags</b> — contains 10 sheets of blank identification tags for customer specialized printing. Each sheet contains 546 blank tags. Tags are peel-off with sticky backing for easy placement on relays.</p>	10	700-N41	✓
 <p>Sample Retainer Clips</p>	<p><b>Retainer Clip for Cat. No. 700-HN103 and -HN128 Sockets with 700-SF Relays and Cat. No. 700-HN116 Sockets</b>            Secures relay in socket. Order must be for 10 clips or multiples of 10.</p>	10	700-HN114B <sup>❶</sup>	✓

❶ Bulletin 700-SF must use 700-HN114 series B retainer clip.

Control/Input Ratings					
Cat. No.	Rated Control Voltage	Operating Control Voltage Range	Impedance	Control Voltage Levels	
				Pick-up Voltage	Drop-out Voltage
700-SFZY3Z25	5...24V DC	4...28V DC	15 mA max. ❶	4V DC max.	1V DC min.
700-SFTY3Z24	24V DC	19.2...28.8V DC	2 k $\Omega$ $\pm$ 20%	19.2V DC max.	1V DC min.
700-SFNY3Z25	5...24V DC	4...28V DC	1.5 k $\Omega$ + 20%/-10% ❷	4V DC max.	1V DC min.
Load/Output Ratings					
Cat. No.	Applicable Load				
	Rated Load Voltage	Load Voltage Range	Continuous Load Current (Resistive)		Max. Inrush Current ❸
—	—	—	Min.	Max. ❹	—
700-SFZY3Z25	100...240V AC	75...264V AC	0.1 A	3 A	45 A @ 50/60 Hz, 1 cycle
700-SFTY3Z24			0.1 A	3 A	
700-SFNY3Z25	4...48V DC	3...52.8V DC	0.1 A	3 A	18 A (10 ms)
Characteristics					
Cat. No.	700-SFZY3Z25		700-SFTY32...		700-SFNY3Z25
Load Switching Method/Device	Triac		Transistor		
Pick-up time	1/2 cycle of load power source + 1 ms max.		1 ms max.		0.5 ms max.
Drop-out time	1/2 of output switching element cycle of load power source + 1 ms max.				2 ms max.
Output ON voltage drop	1.6V (RMS) max.				1.5V max.
Output Leakage current	5 mA max. (at 100V AC); 10 mA max. (at 200V AC)		2.5 mA max. (at 100V AC); 5 mA max. (at 200V AC)		5 mA max. (at 50V DC)
Output $V_{DRM}$ $V_{CEO}$ (V)	600		600		80
Output $di/dt$ (A/ $\mu$ S)	50		50		—
Output $dv/dt$ (V/ $\mu$ S)	250		250		—
Output $I^2t$ (A <sup>2</sup> S)	18		18		—
Output $T_j$ ( $^{\circ}$ C) (max.)	125		125		150
Insulation resistance	100 M $\Omega$ min. (at 500V DC)				
Dielectric strength	1,500V 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/s <sup>2</sup> (100 G)				
Ambient temperature	Operating: -30...80 $^{\circ}$ C (-22...176 $^{\circ}$ F) with no icing or condensation Storage: -30...100 $^{\circ}$ C (-22...212 $^{\circ}$ F) with no icing or condensation				
Ambient humidity	45...85% (no condensation)				
Standards	UL508, CSA C22.2, CE				
Weight	Approx. 50 g				

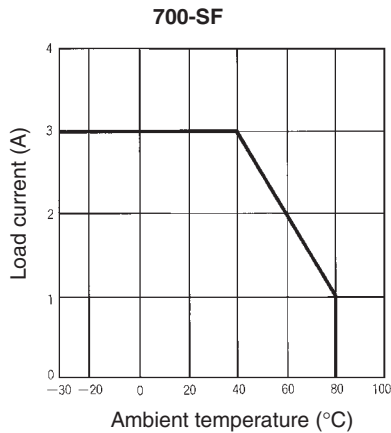
- ❶ With constant current input circuit system, SSR impedance varies with a change in input voltage.
- ❷ Input impedance reaches its maximum at the operating voltage.
- ❸ If the SSR operation is continuous ON/OFF, this value should be reduced by 50%. Refer to the "Inrush Current Resistivity" graphs on page 50 for more details.
- ❹ Refer to "Load Current vs. Ambient Temperature Characteristics" on page 50 for additional load current details.

# Bulletin 700-SF Solid-State Relays

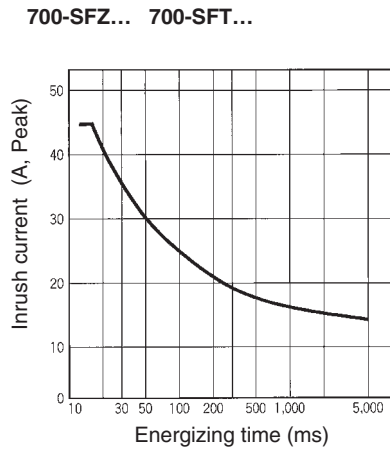
## Specifications, Continued/Approximate Dimensions

Note: These data are non-repetitive. Keep the inrush current to half the rated value if it occurs repetitively. 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.

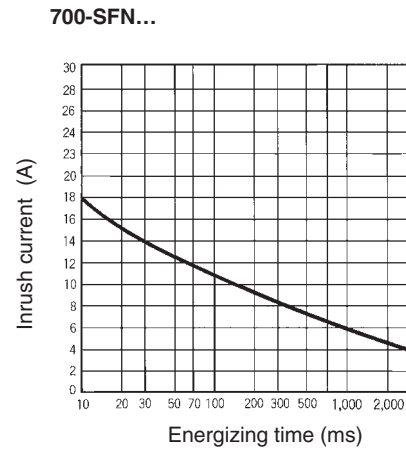
### Load Current vs. Ambient Temperature Characteristics



### Inrush Current Resistivity ①



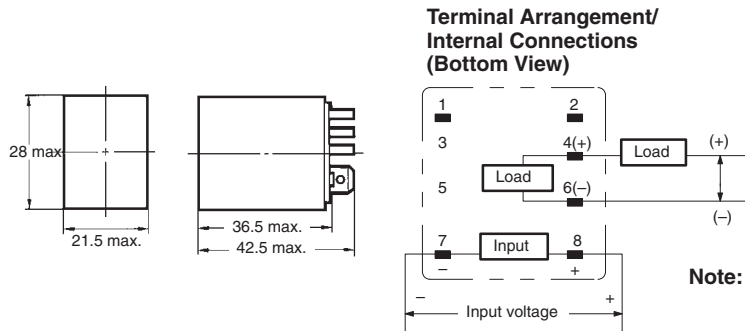
### Inrush Current Resistivity ①



① 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.

### Approximate Dimensions

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



Note: The 700-SF is compatible with the 700-HN116 socket.

### Basic Application Considerations of Bulletin 700-SF

#### High Density Mounting of Multiple SSRs

If multiple SSRs are mounted side by side be aware that the outer case wall of the SSR acts as a radiator. The SSR case serves to dissipate heat. Install the relays so that they are adequately ventilated. If poor ventilation is unavoidable, reduce the load current by half.

#### Connection

For DC load switching, the 700-SF SSR will operate properly if the load is connected to either the positive or negative load terminals.

#### Protective Component To Extend SSR Life

When controlling AC inductive loads, connect an inrush/surge absorbing device (varistor) across the SSR load terminals. If the SSR has built-in surge suppression (Bulletins 700-SE and 700-SH) and additional surge suppression is required, connect the varistor across the terminals of the load device. Select a varistor that meets the conditions of the load voltage outlined in the table below.

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	

Note: For additional details applying solid-state relays, refer to pub. number 700-AT001A-EN-E, Solid-State Relay Application Guide. Document available at <http://www.theautomationbookstore.com>.