Solid State Relays

G3NE

CSM_G3NE_DS_E_4_1

Compact, Low-cost, SSR Switching 5 to 20 A

- Wide load voltage range: 75 to 264 VAC. Both 100-V and 200-V loads can be handled with the same model.
- Dedicated, compact aluminum PCB and power elements used.
- Built-in varistor effectively absorbs external surges.
- Quick-connect #110 input terminals and #250 output connections. (#187 input terminals and #250 output connections are available.)
- "-US" models certified by UL, CSA, and IEC/EN (TÜV).

⚠ Refer to *Safety Precautions for All Solid State Relays*.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Model Number Structure

■ Model Number Legend

G3NE-□□□□-□-□
1 2 3 4 5 6 7

1. **Basic Model Name**
   G3NE: Solid State Relay
2. **Rated Load Power Supply Voltage**
   2: 200 VAC
3. **Rated Load Current**
   05: 5 A
   10: 10 A
   20: 20 A
4. **Terminal Type**
   T: Quick-connect terminals
5. **Zero Cross Function**
   Blank: Equipped with zero cross function
   L: Not equipped with zero cross function
6. **Special Specifications**
   Blank: Standard models
   2: #187 input terminals
7. **Certification**
   US: Certified by UL, CSA, and TÜV

Ordering Information

■ List of Models

Isolation	Zero cross function	Indicator	Rated output load	Rated input voltage (See note 1, 2.)	Model
Phototriac	Yes	No	5 A at 100 to 240 VAC	5VDC	G3NE-205T-US DC5 G3NE-205T-2-US DC5
				12VDC	G3NE-205T-US DC12 G3NE-205T-2-US DC12
				24VDC	G3NE-205T-US DC24 G3NE-205T-2-US DC24
			10 A at 100 to 240 VAC	5VDC	G3NE-210T-US DC5 G3NE-210T-2-US DC5
				12VDC	G3NE-210T-US DC12 G3NE-210T-2-US DC12
				24VDC	G3NE-210T-US DC24 G3NE-210T-2-US DC24
			20 A at 100 to 240 VAC	5VDC	G3NE-220T-US DC5 G3NE-220T-2-US DC5
				12VDC	G3NE-220T-US DC12 G3NE-220T-2-US DC12
				24VDC	G3NE-220T-US DC24 G3NE-220T-2-US DC24
	No		5 A at 100 to 240 VAC	5VDC	G3NE-205TL-US DC5 G3NE-205TL-2-US DC5
				12VDC	G3NE-205TL-US DC12 G3NE-205TL-2-US DC12
				24VDC	G3NE-205TL-US DC24 G3NE-205TL-2-US DC24
			10 A at 100 to 240 VAC	5VDC	G3NE-210TL-US DC5 G3NE-210TL-2-US DC5
				12VDC	G3NE-210TL-US DC12 G3NE-210TL-2-US DC12
				24VDC	G3NE-210TL-US DC24 G3NE-210TL-2-US DC24
			20 A at 100 to 240 VAC	5VDC	G3NE-220TL-US DC5 G3NE-220TL-2-US DC5
				12VDC	G3NE-220TL-US DC12 G3NE-220TL-2-US DC12
				24VDC	G3NE-220TL-US DC24 G3NE-220TL-2-US DC24

Note: 1. The rated input voltage depends on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in *Engineering Data* on page 4.
2. When ordering, specify the input voltage.
3. Refer to *List of Certified Models* for a list of products that comply with safety standards. When ordering a UL, CSA, and EN(TÜV) certified model, add "-US" to the model number.

■ Accessories (Order Separately)

One-touch Mounting Plates

Model	Applicable SSR
R99-12 FOR G3NA	G3NE

Heat Sinks

The following heat sinks are thin and can be DIN-track mounted.
See *Dimensions* for details.

Model	Applicable SSR
Y92B-N50	G3NE-205T(L)(-2)-US/-210T(L)(-2)-US
Y92B-N100	G3NE-220T(L)(-2)-US

Specifications

■ Ratings (at an Ambient Temperature of 25°C)

Input

Rated voltage	Operating voltage	Voltage level		Input impedance	
		Must operate	Must release	With zero cross function	Without zero cross function
5 VDC	4 to 6 VDC	4 VDC max.	1 VDC min.	250 Ω±20%	300 Ω±20%
12 VDC	9.6 to 14.4 VDC	9.6 VDC max.		600 Ω±20%	800 Ω±20%
24 VDC	19.2 to 28.8 VDC	19.2 VDC max.		1.6 kΩ±20%	

Note: Each model has 5-VDC, 12-VDC, and 24-VDC input versions.

Output

Model	Applicable load				
	Rated load voltage	Load voltage range	Load current (See note 1.)		Inrush current
			With heat sink	Without heat sink	
G3NE-205T(L)(-2)-US	100 to 240 VAC	75 to 264 VAC	0.1 to 5 A at 40°C	0.1 to 5 A at 40°C	60 A (60 Hz, 1 cycle)
G3NE-210T(L)(-2)-US			0.1 to 10 A at 40°C (See note 2.)	0.1 to 5 A at 40°C	150 A (60 Hz, 1 cycle)
G3NE-220T(L)(-2)-US			0.1 to 20 A at 40°C (See note 2.)	0.1 to 5 A at 40°C	220 A (60 Hz, 1 cycle)

Note: 1. The load current varies depending on the ambient temperature. Refer to *Load Current vs. Ambient Temperature* under *Engineering Data* for details on page 4.

2. These values apply when using a dedicated heat sink or a radiation plate of specified size.

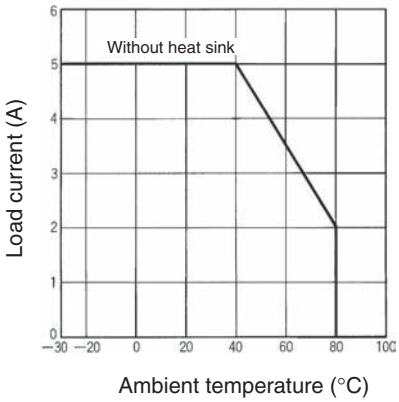
■ Characteristics

Item	G3NE-2□□T(-2)-US	G3NE-2□□TL(-2)-US
Operate time	1/2 of load power source cycle + 1 ms max.	1 ms max.
Release time	1/2 of load power source cycle + 1 ms max.	
Output ON voltage drop	1.6 V (RMS) max.	
Leakage current	2 mA max. (at 100 VAC) 5 mA max. (at 200 VAC)	
Insulation resistance	100 MΩ min. (at 500 VDC)	
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min	
Vibration resistance	Destruction: 10 to 55 to 10 Hz, 0.75-mm single amplitude	
Shock resistance	Destruction: 1,000 m/s^2	
Ambient temperature	Operating: –30°C to 80°C (with no icing or condensation) Storage: –30°C to 100°C (with no icing or condensation)	
Ambient humidity	Operating: 45% to 85%	
Certified standards	UL508 File No.E64562/CSA C22.2 (No.0, No.14) File No. LR35535 TÜV R9051064 (VDE0435) (EN60950)	
EMC	Emission: EN55011 Group 1 Class B Immunity: EN61000-6-2	
Weight	Approx. 37 g	

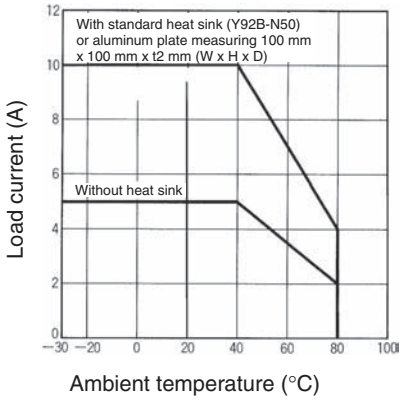
Engineering Data

Load Current vs. Ambient Temperature

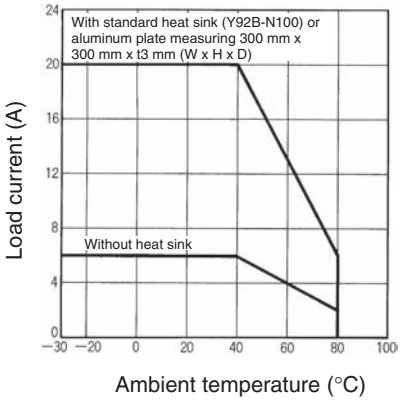
G3NE-205T(L)(-2)-US



G3NE-210T(L)(-2)-US



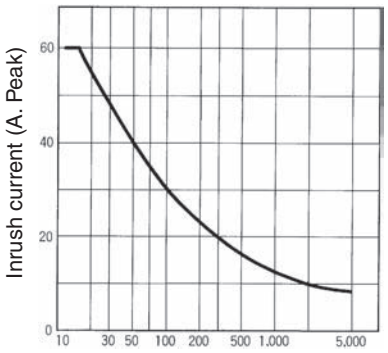
G3NE-220T(L)(-2)-US



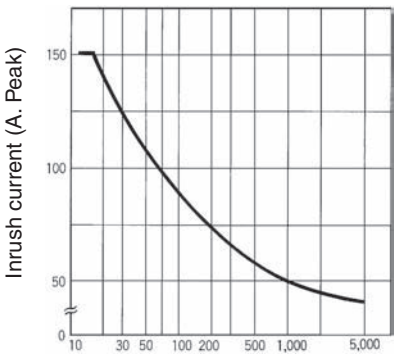
One Cycle Surge Current: Non-repetitive

Note: Keep the inrush current to half the rated value if it occurs repetitively.

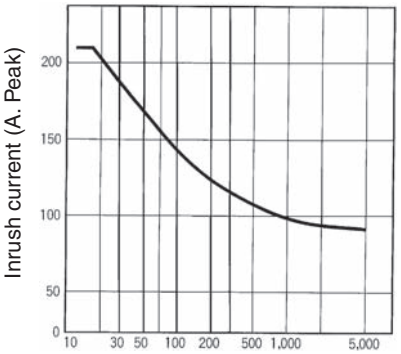
G3NE-205T(L)(-2)-US



G3NE-210T(L)(-2)-US



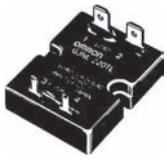
G3NE-220T(L)(-2)-US

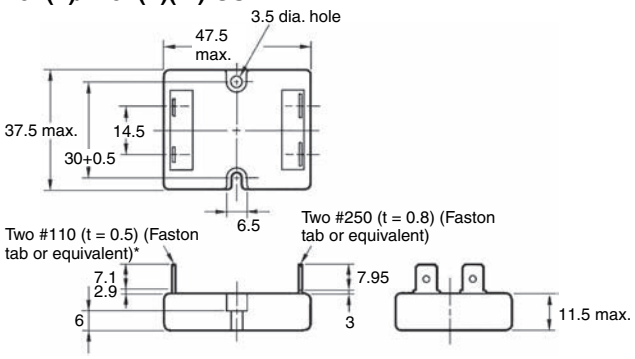


Dimensions

Note: All units are in millimeters unless otherwise indicated.

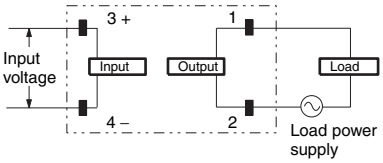
G3NE-205T(L)/210T(L)/220T(L)(-2)-US



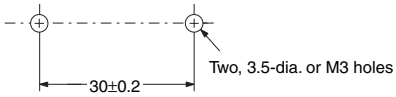


* G3NE-2□□T(L)-2-US: Two, #187 (t=0.5) (Faston tab or equivalent)

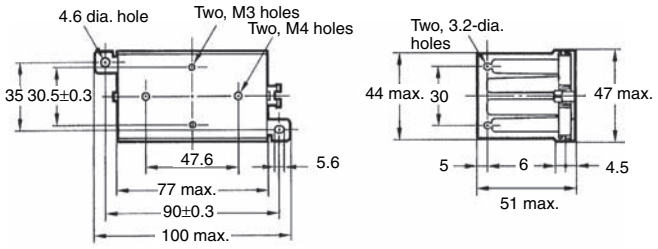
Terminal Arrangement/ Internal Connections (Top View)



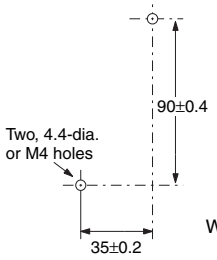
Mounting Holes



Heat Sink Y92B-N50

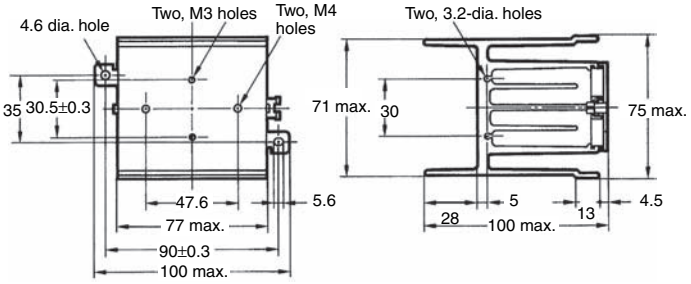


Mounting Holes

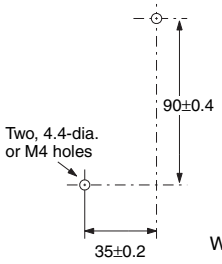


Weight: approx. 200 g

Y92B-N100



Mounting Holes



Weight: approx. 400 g

Safety Precautions

Refer to *Safety Precautions for All Solid State Relays*.

■ Precautions for Correct Use

Please observe the following precautions to prevent failure to operate, malfunction, or undesirable effect on product performance.

Do not apply excessive force to the terminals. Be careful when pulling or inserting the terminal clips for the Quick Connector (QC).

When attaching a heat sink to the G3NE, in order to facilitate heat dissipation, apply heat-conductive grease on the heat sink.

For DIN Track mounting, use a separately sold Heat Sink. Refer to information on the G3NA.
G3NE-210T(L): Y92B-N50
G3NE-220T(L): Y92B-N100

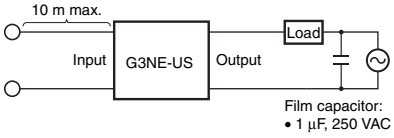
Tighten the mounting screws of the heat sink with a torque of 0.59 to 0.98 N·m.

■ Thermal Resistance Rth (Back of Junction SSR)

Model	Thermal resistance (°C/W)
G3NE-205T (L)	2.72
G3NE-210T (L)	2.12
G3NE-220T (L)	2.22

■ EMC Directive Compliance

The G3NE complies with EMC Directives under the following conditions ("-US" models only).



- Connect a film capacitor to the load power supply.
- The input cable must be less than 10 m.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

In the interest of product improvement, specifications are subject to change without notice.

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