

# Solid State Relay

# G3NA

A Wide Range of Models with 5- to 40-A Output Currents and Up to 480-VAC/200-VDC Output Voltages

- All models feature the same compact dimensions to provide a uniform mounting pitch
- Built-in MOV effectively absorbs external surges
- Operation indicator (red LED) enables monitoring operation
- Protective cover for greater safety
- Standard models approved by UL/CSA
- AC and DC input versions available



## Ordering Information

To Order: Select the part number and add the desired rated input voltage, (e.g., G3NA-240B-100 to 120 VAC).

Isolation	Zero cross function	Indicator	Rated output load (Applicable output load)	Rated input voltage	Part number
Phototriac	Yes	Yes	5 A at 24 to 240 VAC* (19 to 264 VAC)	5 to 24 VDC	<b>G3NA-205B</b>
Photocoupler				100 to 120 VAC	
	200 to 240 VAC				
Photocoupler	Yes	Yes	10 A at 24 to 240 VAC* (19 to 264 VAC)	5 to 24 VDC	<b>G3NA-210B</b>
				100 to 120 VAC	
				200 to 240 VAC	
Photocoupler	Yes	Yes	10 A at 200 to 480 VAC* (180 to 528 VAC)	5 to 24 VDC	<b>G3NA-410B</b>
	—			100 to 240 VAC	
Phototriac	Yes	Yes	10 A at 5 to 200 VDC* (4 to 220 VDC)	5 to 24 VDC	<b>G3NA-D210B</b>
				100 to 240 VAC	
Phototriac	Yes	Yes	20 A at 24 to 240 VAC* (19 to 264 VAC)	5 to 24 VDC	<b>G3NA-220B</b>
				100 to 120 VAC	
				200 to 240 VAC	
Photocoupler	Yes	Yes	20 A at 200 to 480 VAC* (180 to 528 VAC)	5 to 24 VDC	<b>G3NA-420B</b>
100 to 240 VAC					
Photocoupler	Yes	Yes	25 A at 24 to 240 VAC* (19 to 264 VAC)	5 to 24 VDC	<b>G3NA-225B</b>
				100 to 120 VAC	
				200 to 240 VAC	
Photocoupler	Yes	Yes	25 A at 200 to 480 VAC* (180 to 528 VAC)	5 to 24 VDC	<b>G3NA-425B</b>
				100 to 240 VAC	
Phototriac	Yes	Yes	40 A at 24 to 240 VAC* (19 to 264 VAC)	5 to 24 VDC	<b>G3NA-240B</b>
				100 to 120 VAC	
				200 to 240 VAC	
Photocoupler	Yes	Yes	40 A at 200 to 480 VAC* (180 to 528 VAC)	5 to 24 VDC	<b>G3NA-440B</b>
				100 to 240 VAC	

\* Loss time increases under 75 VAC.

NOTE: When ordering a TÜV-approved model, add "-UTU" to the model number as shown below:  
Example: G3NA-210B-UTU

## ■ ACCESSORIES

### Heat Sinks

Types	Applicable solid-state relays	Part number
Standard mount	G3NA-205B, G3NA-210B, G3NA-D210B, G3NA-220B, G3NA-410B, G3NA-420B	<b>Y92B-A100</b>
	G3NA-225B, G3NA-240B, G3NA-425B, G3NA-440B	<b>Y92B-A150N</b>
	G3NA-440B	<b>Y92B-A250</b>
Track mount	G3NA-205B, G3NA-210B, G3NA-D210B, G3NA-410B	<b>Y92B-N50</b>
	G3NA-220B, G3NA-420B	<b>Y92B-N100</b>
	G3NA-225B, G3NA-240B, G3NA-425B, G3NA-440B	<b>Y92B-N150</b>

### Mounting Track and Accessories

Description	Part number
Mounting bracket for G3NA-240B. Changes pitch to 56 mm (2.21 in.) from 47.5 mm (1.73 in.), the same pitch as G3N-240B.	<b>R99-11</b>
DIN Rail Track, 50 cm (1.64 feet) length; use with Y92B-N□□□ heat sinks	<b>PFP-50M</b>
DIN Rail Track, 1 m (3.28 feet) length; use with Y92B-N□□□ heat sinks	<b>PFP-100M</b>
Spacer	<b>PFP-S</b>
End cap	<b>PFP-M</b>

## Specifications

### ■ INPUT RATINGS

(Ambient temperature: 25°C [77°F])

Type	Rated voltage	Operating voltage range	Impedance	Voltage Level	
				Must operate voltage	Must release voltage
G3NA-2□□B	5 to 24 VDC	4 to 32 VDC	7 mA max. (see note 2)	4 VDC max.	1 VDC min.
	100 to 120 VAC	75 to 132 VAC	36 kΩ ±20%	75 VAC, max. (see note 3)	20 VAC min. (see note 3)
	200 to 240 VAC	150 to 264 VAC	72 kΩ ±20%	150 VAC max. (see note 3)	40 VAC min. (see note 3)
G3NA-4□□B	5 to 24 VDC	4 to 32 VDC	5 mA max. (see note 2)	4 VDC max.	1 VDC min.
	100 to 240 VAC	75 to 132 VAC	72 kΩ ±20%	75 VAC max.	20 VAC min.
G3NA-D210B	5 to 24 VDC	4 to 32 VDC	5 mA max. (see note 2)	4 VDC max.	1 VDC min.
	100 to 240 VAC	75 to 132 VAC	72 kΩ ±20%	75 VAC max.	20 VAC min.

Note: 1. The input impedance is measured at the maximum value of the rated supply voltage (for example, with the model rated at 100 to 120 VAC, the input impedance is measured at 120 VAC).

2. With constant current input circuit system.
3. Refer to the "Characteristic Data" for further details.

### ■ OUTPUT RATINGS

Type	Applicable load				
	Rated load voltage	Load voltage range	Load current		Surge current
			With heat sink*	Without heat sink	
G3NA-205B	24 to 240 VAC	19 to 264 VAC	0.1 to 5 A	0.1 to 3 A	60 A (60 Hz, 1 cycle)
G3NA-210B	24 to 240 VAC	19 to 264 VAC	0.1 to 10 A	0.1 to 4 A	150 A (60 Hz, 1 cycle)
G3NA-410B	200 to 480 VAC	180 to 528 VAC	0.2 to 10 A	0.2 to 4 A	150 A (60 Hz, 1 cycle)
G3NA-220B	24 to 240 VAC	19 to 264 VAC	0.1 to 20 A	0.1 to 4 A	220 A (60 Hz, 1 cycle)
G3NA-420B	200 to 480 VAC	180 to 528 VAC	0.2 to 20 A	0.2 to 4 A	220 A (60 Hz, 1 cycle)
G3NA-225B	24 to 240 VAC	19 to 264 VAC	0.1 to 25 A	0.1 to 4 A	220 A (60 Hz, 1 cycle)
G3NA-425B	200 to 480 VAC	180 to 528 VAC	0.1 to 25 A	0.1 to 4 A	220 A (60 Hz, 1 cycle)
G3NA-240B	24 to 240 VAC	19 to 264 VAC	0.1 to 40 A	0.1 to 6 A	440 A (60 Hz, 1 cycle)
G3NA-440B	200 to 480 VAC	180 to 528 VAC	0.2 to 40 A	0.2 to 6 A	440 A (60 Hz, 1 cycle)
G3NA-D210B	5 to 200 VDC	4 to 220 VDC	0.1 to 10 A	0.1 to 4 A	20 A (10 ms)

\*When the appropriate size OMRON heat sink is used.

## ■ CHARACTERISTICS

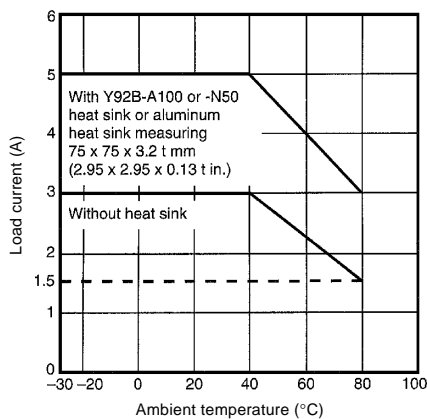
Type		G3NA-205B, -210B, -220B, -225B	G3NA-240B	G3NA-410B, -420B, -425B, -440B	G3NA-D210B
Operate time	DC input	1/2 of load power source cycle + 1 ms max.			1 ms max.
	AC input	1 1/2 of load power source cycle + 1 ms max.			30 ms max.
Release time	DC input	1/2 of load power source cycle + 1 ms max.			5 ms max.
	AC input	1 1/2 of load power source cycle + 1 ms max.			30 ms max.
Output ON voltage drop		1.6 V (RMS) max.	1.6 V (RMS) max.	1.8 V (RMS max.)	1.5 V max.
Leakage current		5 mA max. at 100 VAC		10 mA max. at 200 VAC	5 mA max. at 200 VDC
		10 mA max. at 200 VAC		20 mA max. at 400 VAC	
Insulation resistance		100 MΩ min at 500 VDC			
Dielectric strength		2,500 VAC, 50/60 Hz for 1 minute			
Vibration	Malfunction	10 to 55 Hz, 1.5 mm double amplitude			
Shock	Malfunction	1,000 m/s <sup>2</sup> (approx. 100G)			
Ambient temperature	Operating	-30° to 80°C (-22° to 176°F) with no icing			
	Storage	-30° to 100°C (-22° to 212°F) with no icing			
Humidity		45% to 85% RH			
Weight		Approx. 60 g (2.1 oz.)	Approx. 70 g (2.5 oz.)	Approx. 80 g (2.8 oz.)	Approx. 70 g (2.5 oz.)

Note: Data shown are of initial value.

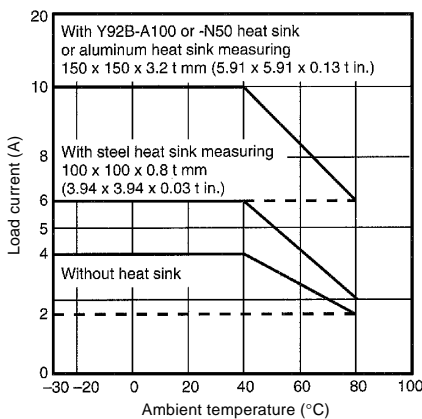
## ■ CHARACTERISTIC DATA

### Load Current vs. Ambient Temperature Characteristics

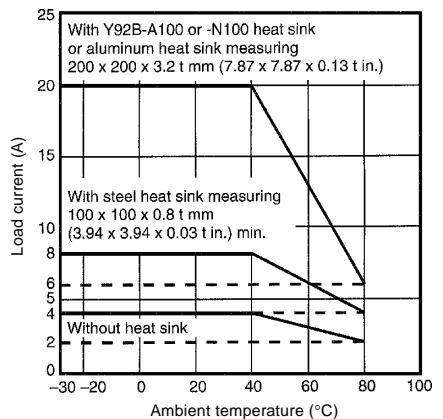
**G3NA-205B**



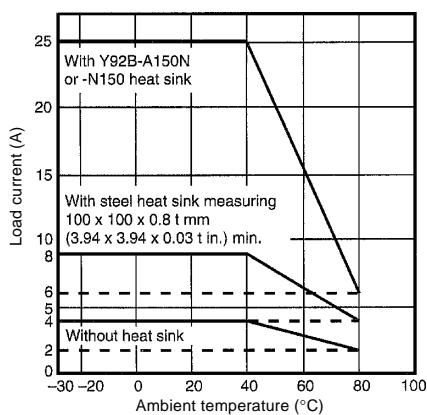
**G3NA-210B  
G3NA-410B**



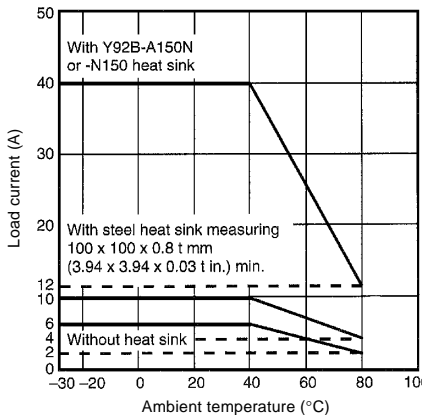
**G3NA-220B  
G3NA-420B**



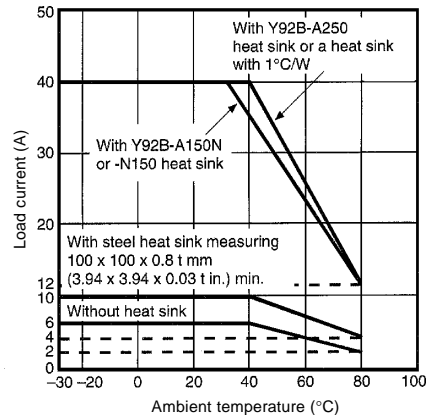
**G3NA-225B  
G3NA-425B**



**G3NA-240B**



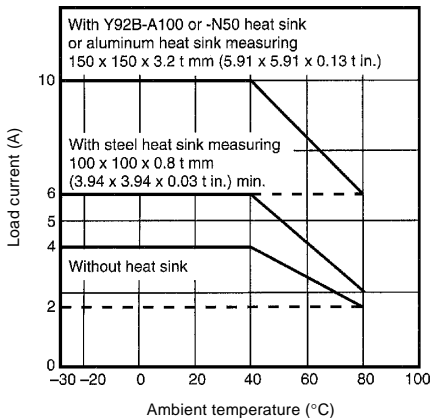
**G3NA-440B**



■ CHARACTERISTIC DATA (continued)

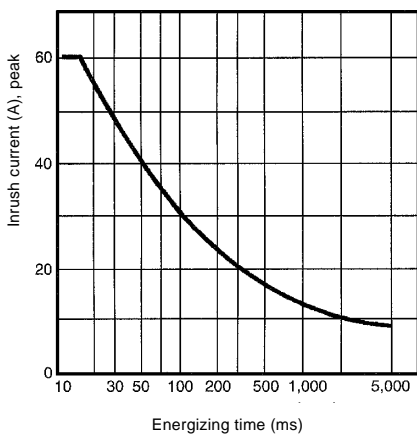
Load Current vs. Ambient Temperature Characteristics

G3NA-D210B

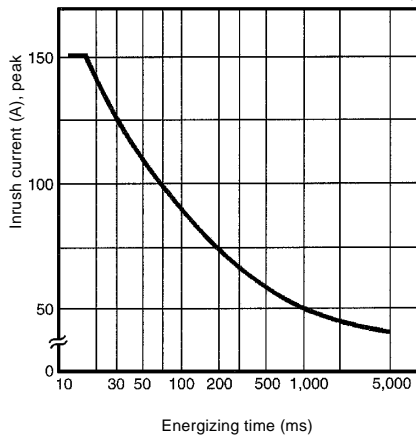


Surge Current Resistivity

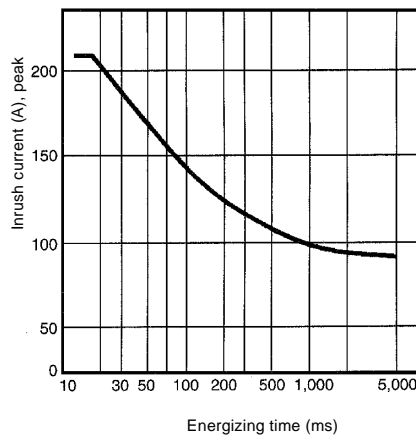
G3NA-205B



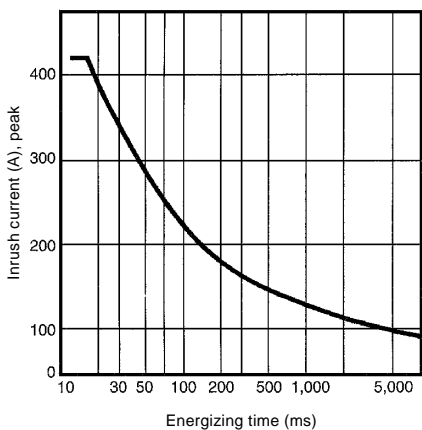
G3NA-210B  
G3NA-410B



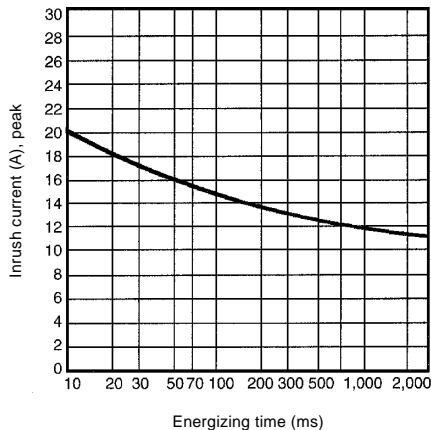
G3NA-220B, G3NA-225B,  
G3NA-420B, G3NA-425B



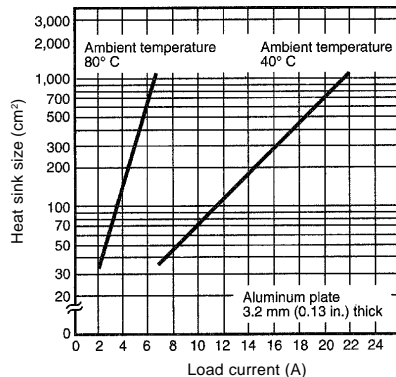
G3NA-240B  
G3NA-440B



G3NA-D210B



**Heat Sink Size vs. Load Current**  
G3NA-220B



Note: The heat sink size refers to the combined area of the sides of the heat sink that radiate heat. For example, when a current of 18 A is allowed to flow through the SSR at 40°C, the graph shows that the heat sink size is about 450 cm<sup>2</sup>. Therefore, if the heat sink is square, one side of the heat sink must be 15 cm (15<sup>2</sup> x 2 = 450) or longer.

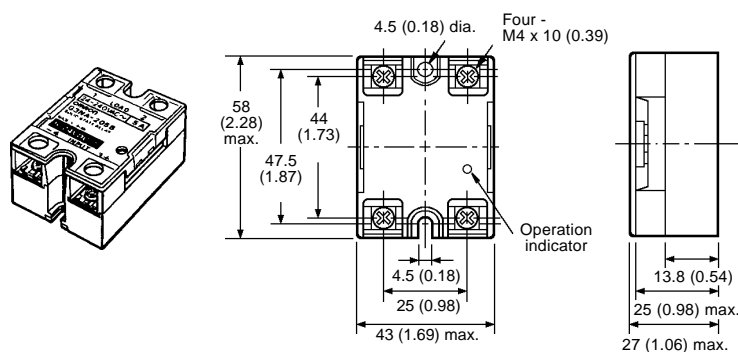
## Dimensions

In the case of surface mounting, a 30% derating of load current is required.

Unit: mm (inch)

### ■ SOLID-STATE RELAYS

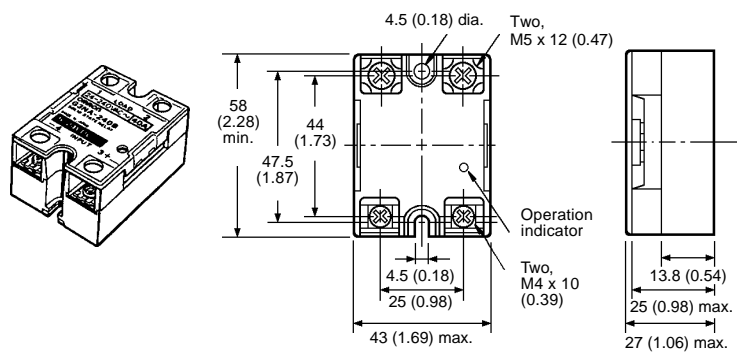
G3NA-205B, G3NA-210B, G3NA-220B,  
G3NA-225B, G3NA-410B,  
G3NA-420B, G3NA-425B



**Terminal arrangement/  
Internal connections**  
(Top view)

**Mounting holes**  
(Bottom view)

G3NA-240B, G3NA-440B



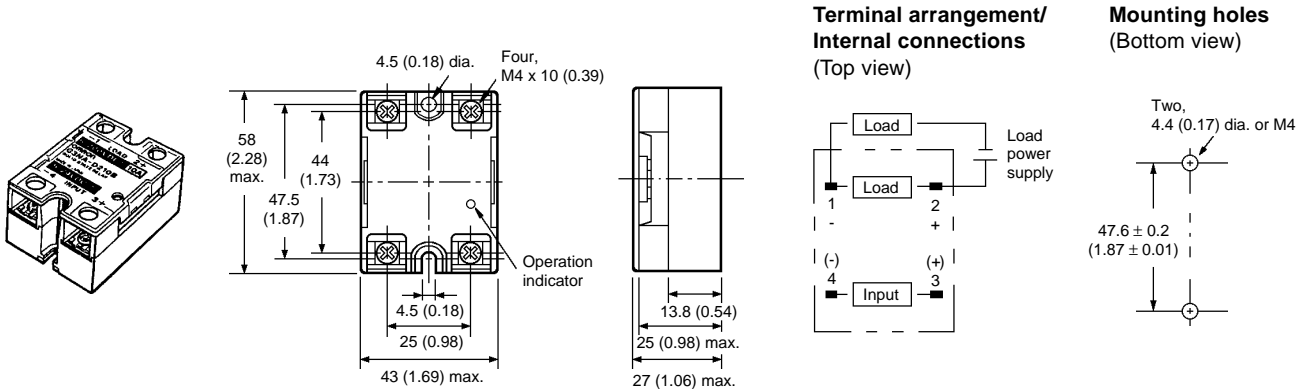
**Terminal arrangement/  
Internal connections**  
(Top view)

**Mounting holes**  
(Bottom view)

Unit: mm (inch)

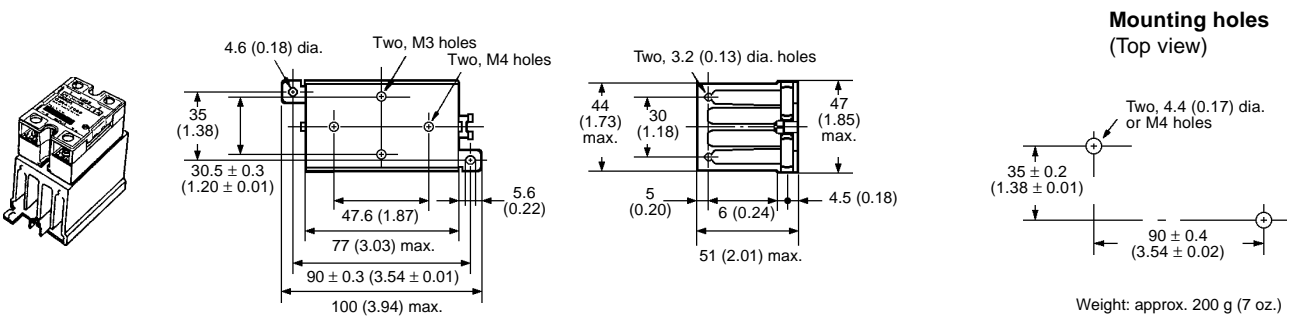
■ SOLID-STATE RELAYS (continued)

G3NA-D210B

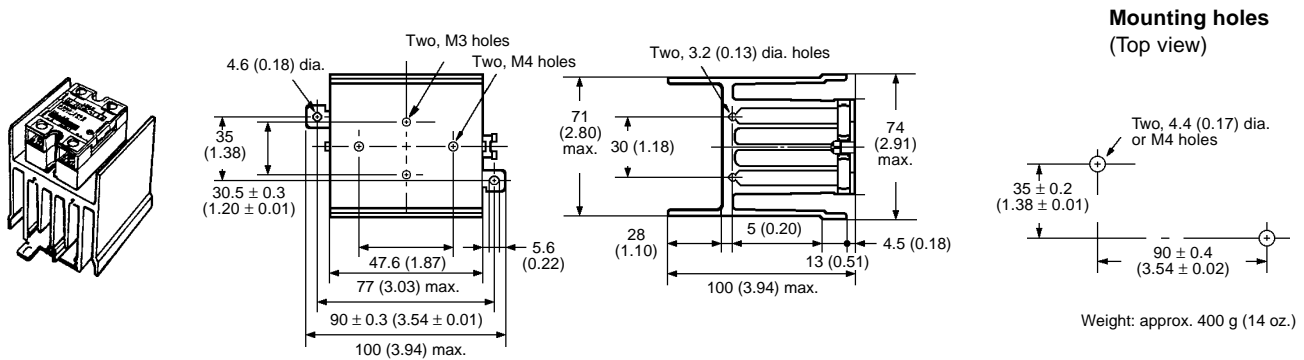


■ HEAT SINKS

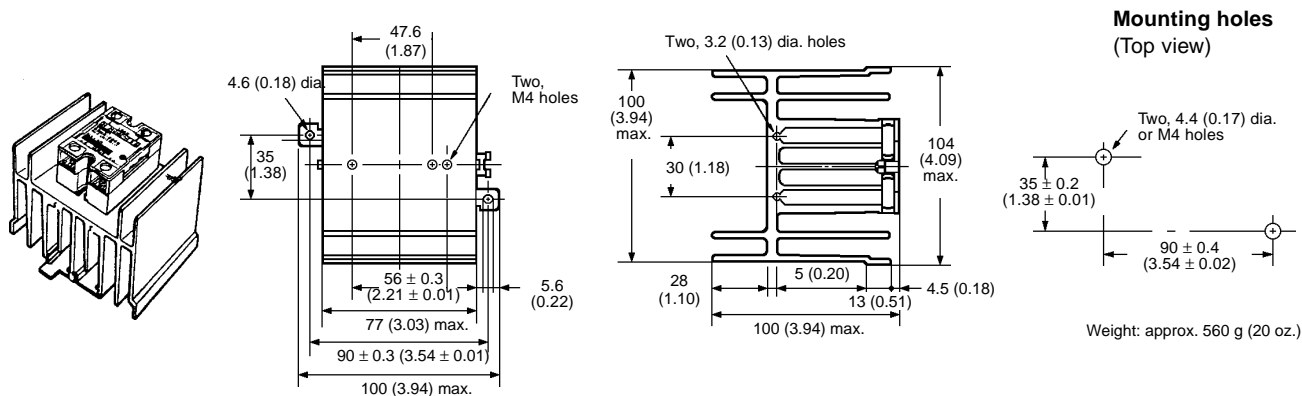
Track Mount Heat Sink – Y92B-N50



Track Mount Heat Sink – Y92B-N100

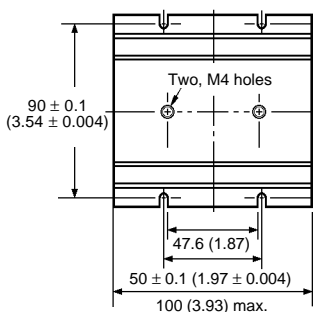


Track Mount Heat Sink – Y92B-N150

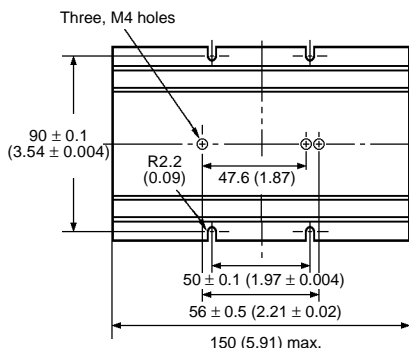


Standard Mount Heat Sinks

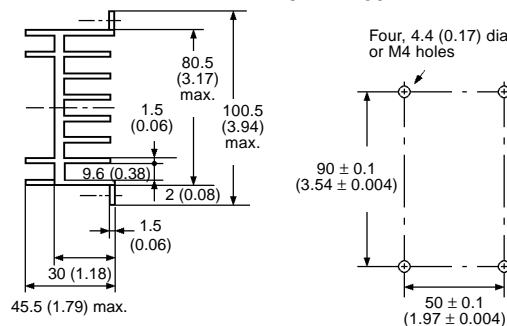
Y92B-A100



Y92B-A150

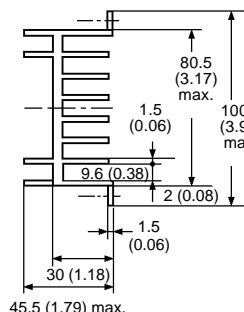
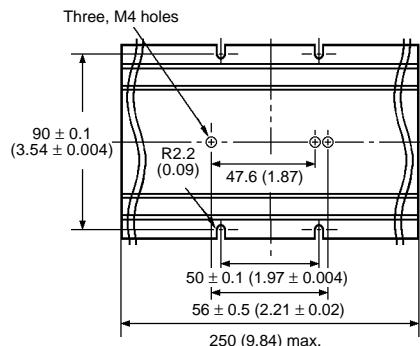


Mounting holes  
Y92B-A100, Y92B-A150N  
Y92B-A250

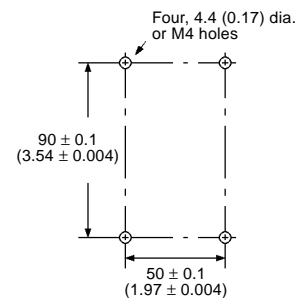


Standard Mount Heat Sinks

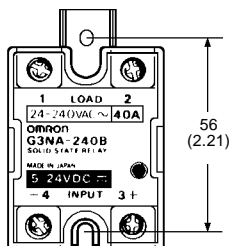
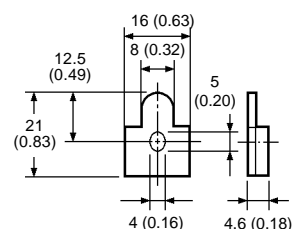
Y92B-A250



Mounting holes



R99-11 Mounting Bracket for G3NA-240B



Note: Use mounting bracket R99-11 to mount the G3NA-240B with a pitch of 56 mm (2.21 in) instead of 47.5 mm (1.87 in) to match the pitch of G3N-240B.

■ APPROVALS

UL (File No. E64562)/CSA (File No. LR35535)

SSR type	Input voltage	Load type	Contact ratings	
			Without heat sink	With heat sink (see note 1)
G3NA-205B	5 to 24 VDC 100 to 120 VAC	General use/Tungsten	3 A, 240 VAC	5 A, 240 VAC
		Motor	2.5 FLA, 15 LRA, 240 VAC	2.5 FLA, 15 LRA, 240 VAC
G3NA-210B	200 to 240 VAC	General use/Tungsten	4 A, 240 VAC	10 A, 240 VAC
		Motor	2.5 FLA, 15 LRA, 240 VAC	5 FLA, 30 LRA, 240 VAC
G3NA-220B		General use/Tungsten	4 A, 240 VAC	20 A, 240 VAC
		Motor	2.5 FLA, 15 LRA, 240 VAC	10 FLA, 60 LRA, 240 VAC
G3NA-225B		General use/Tungsten	4 A, 240 VAC	25 A, 240 VAC
		Motor	2.5 FLA, 15 LRA, 240 VAC	12 FLA, 72 LRA, 240 VAC
G3NA-240B		General use/Tungsten	6 A, 240 VAC	40 A, 240 VAC
		Motor	5 FLA, 30 LRA, 240 VAC	20 FLA, 120 LRA, 240 VAC
G3NA-410B	5 to 24 VDC 100 to 240 VAC	General use/Tungsten	4 A, 480 VAC	10 A, 480 VAC
		Motor	2.5 FLA, 15 LRA, 480 VAC	5 FLA, 30 LRA, 480 VAC
G3NA-420B		General use/Tungsten	4 A, 480 VAC	20 A, 480 VAC
		Motor	2.5 FLA, 15 LRA, 480 VAC	10 FLA, 60 LRA, 480 VAC
G3NA-425B		General use/Tungsten	4 A, 480 VAC	25 A, 480 VAC
		Motor	2.5 FLA, 15 LRA, 480 VAC	12 FLA, 72 LRA, 480 VAC
G3NA-440B		General use/Tungsten	6 A, 480 VAC	40 A, 480 VAC
		Motor	5 FLA, 30 LRA, 480 VAC	20 FLA, 120 LRA, 480 VAC
G3NA-D210B		General use	4 A, 200 VDC	10 A, 200 VDC

- Note: 1. When used with the proper OMRON heat sink part number or an appropriately dimensioned equivalent.  
 2. The rated values approved by each of the safety standards (e.g., UL, CSA, and TUV) may be different from the performance characteristics individually defined in this catalog.  
 3. In the interest of product improvement, specifications are subject to change.

## Precautions

See General Information Section near the front of this catalog for Solid State Precautions.

**NOTE: DIMENSIONS ARE SHOWN IN MILLIMETERS. To convert millimeters to inches divide by 25.4.**



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