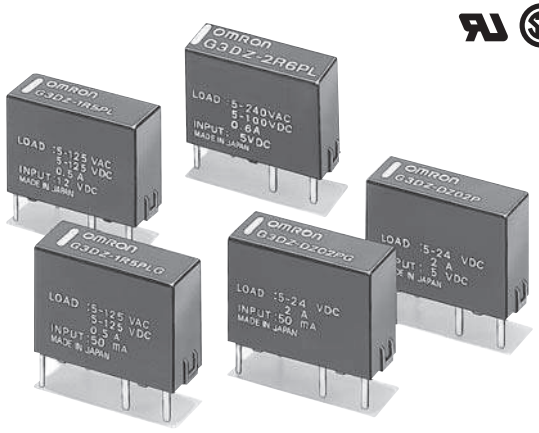
G3DZ
Solid State Relays

SSR Identical to the G6D in Size with AC/DC dual-use type and DC-only Type Available for the Whole Product Line



- 10-μA current leakage max. between open output terminals.
- 2,500-VAC dielectric strength ensured between input and output terminals.
- With or without input resistor incorporated models available.
- Incorporated with overvoltage absorption circuit (models with AC/DC output only).
- Full-wave rectified and half-wave rectified AC current switchable (excluding G3DZ-DZ02P(G)).
- Standard models are available with UL and CSA certification.

RoHS Compliant

⚠ Refer to "Solid State Relays Common Precautions".

■Model Number Legend

G3DZ-□□□□□□
1 2 3 4 5

1. Rated Load Power Supply Voltage
1 : 125 VAC
2 : 240 VAC
DZ : 24 VDC

2. Rated Load Current
R5 : 0.5 A
R6 : 0.6 A
02 : 2 A

3. Terminal Type
P: PCB terminals

4. Zero Cross Function (For AC/DC dual-use type only)
L: Not equipped with zero cross function

5. Input Resistance
None: With input resistance
G : Without input resistance

■List of Models

• With Input Resistance

Isolation	Zero cross function	Indicator	Rated output load	Rated input voltage	Model	Minimum packing unit
Photo-voltage coupler	No	No	0.6 A 5 to 240 VAC 5 to 100 VDC	5 VDC	**G3DZ-2R6PL**	25 pcs
				12 VDC		
				24 VDC		
			0.5 A 5 to 100 VAC 5 to 100 VDC	5 VDC	**G3DZ-1R5PL**	
				12 VDC		
				24 VDC		
			2.0 A 5 to 24 VDC	5 VDC	**G3DZ-DZ02P**	
				12 VDC		
				24 VDC		

• Without Input Resistance

Isolation	Zero cross function	Indicator	Rated output load	Max. input current	Model	Minimum packing unit
Photo-voltage coupler	No	No	0.5 A 3 to 125 VAC 3 to 125 VDC	50 mA (DC input)	**G3DZ-1R5PLG**	25 pcs
			2.0 A 3 to 26.4 VDC		**G3DZ-DZ02PG**	

• Connecting Socket

Applicable Relay	Model
G3DZ-□	**P6D-04P**

■Ratings

• With Input Resistance

Item / Model	Input					Output			
	Rated voltage	Operating voltage	Impedance	Voltage level		Rated load voltage	Load voltage range	Load current *	Inrush current
				Must operate voltage	Must release voltage				
G3DZ-2R6PL	5 VDC	4 to 6 VDC	830 Ω ±20%	4 VDC max.	1 VDC min.	5 to 240 VAC 5 to 100 VDC	3 to 264 VAC 3 to 125 VDC	AC: 100 μ to 0.6 A DC: 10 μ to 0.6 A	6 A (10 ms)
	12 VDC	9.6 to 14.4 VDC	2 kΩ ±20%	9.6 VDC max.					
	24 VDC	19.2 to 28.8 VDC	4 kΩ ±20%	19.2 VDC max.					
G3DZ-1R5PL	5 VDC	4 to 6 VDC	750 Ω ±20%	4 VDC max.		5 to 100 VAC 5 to 100 VDC	3 to 125 VAC 3 to 125 VDC	AC: 100 μ to 0.5 A DC: 10 μ to 0.5 A	5 A (10 ms)
	12 VDC	9.6 to 14.4 VDC	2 kΩ ±20%	9.6 VDC max.					
	24 VDC	19.2 to 28.8 VDC	4 kΩ ±20%	19.2 VDC max.					
G3DZ-DZ02P	5 VDC	4 to 6 VDC	750 Ω ±20%	4 VDC max.		5 to 24 VDC	3 to 26.4 VDC	DC: 10 μ to 2.0 A	20 A (10 ms)
	12 VDC	9.6 to 14.4 VDC	2 kΩ ±20%	9.6 VDC max.					
	24 VDC	19.2 to 28.8 VDC	4 kΩ ±20%	19.2 VDC max.					

* The applicable output load current varies depending on the ambient temperature. Refer to reference data the "Load Current vs. Ambient Temperature" rating characteristic for details.

• Without Input Resistance

Item		Symbol	G3DZ-1R5PLG	G3DZ-DZ02PG
Input	Max. input current	I_{IN}	50 mA max.	
	Rated current		6.25 mA (recommendation value)	
	Must operate current	I_{OP}	4 mA max.	
	Must release current	I_{RE}	0.6 mA max.	
	Input release voltage	V_R	3 V	
	Foward voltage	V_F	1.4 V (TYP)	
Output	Load voltage range		3 to 125 VAC 3 to 125 VDC	3 to 26.4 VDC
	Load current		100 μ to 0.5 A	100 μ to 2.0 A
	Inrush current		5 A (10 ms)	20 A (10 ms)

■Characteristics (at 25°C)

Item / Model	G3DZ-2R6PL	G3DZ-1R5PL	G3DZ-1R5PLG	G3DZ-DZ02P	G3DZ-DZ02PG
Operate time *	6 ms max.				
Release time *	10 ms max.				
Output ON-resistance *	2.4 Ω max.	3.0 Ω max.		0.15 Ω max.	
Leakage current at OFF state	10 μA max. (at 125 VDC) 100 μA max. (at 200 VAC)	10 μA max. (at 125 VDC) 50 μA max. (at 100 VAC)		10 μA max. (at 26.4 VDC)	
Insulation resistance	100 MΩ min. (at 500 VDC)				
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min between input and output				
Vibration resistance	10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)				
Shock resistance	1,000 m/s²				
Storage temperature	–30°C to 100°C (with no icing or condensation)				
Ambient operating temperature	–30°C to 85°C (with no icing or condensation)				
Ambient operating humidity	45% to 85%RH				
Weight	Approx. 3.1 g	Approx. 2.8 g	Approx. 2.4 g	Approx. 2.6 g	Approx. 2.4 g

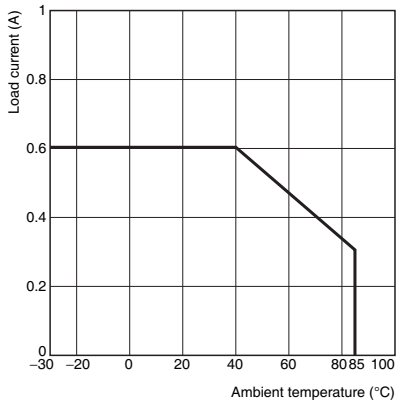
* Measurement conditions:For G3DZ-2R6PL/-1R5PL/-DZ02P, the values are under the measurement conditions whereby rated voltages are applied to the input
For G3DZ-1R5PLG/-DZ02PG, the values are measured with 6.25 mA current applied to the input.

■Engineering Data

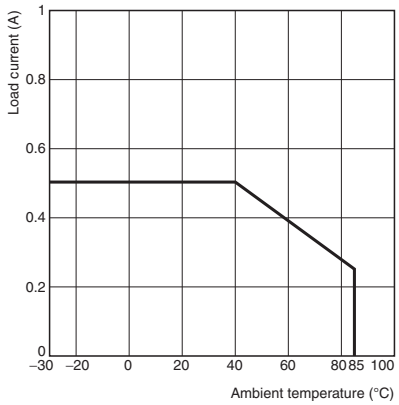
Note: The following data is for ambient temperature at 25°C.

• Load Current vs. Ambient Temperature Characteristics

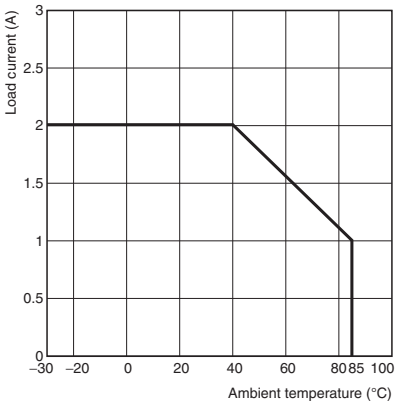
G3DZ-2R6PL



G3DZ-1R5PL(G)

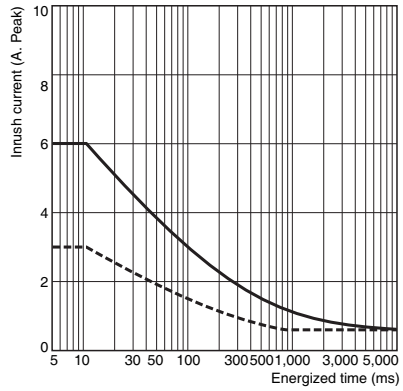


G3DZ-DZ02P(G)

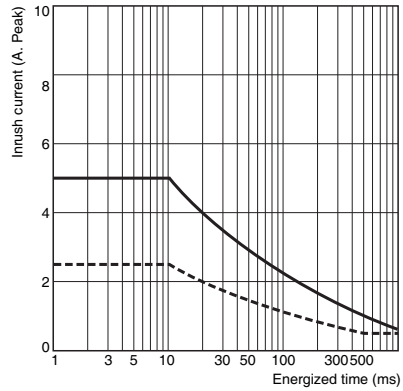


• Inrush Current Resistivity Non-repetiijve (Keep the inrush current to half the rated value if it occurs repetiijvely.)

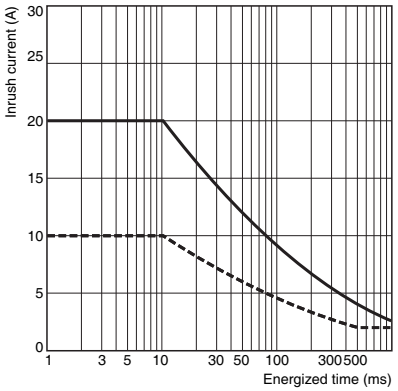
G3DZ-2R6PL



G3DZ-1R5PL(G)

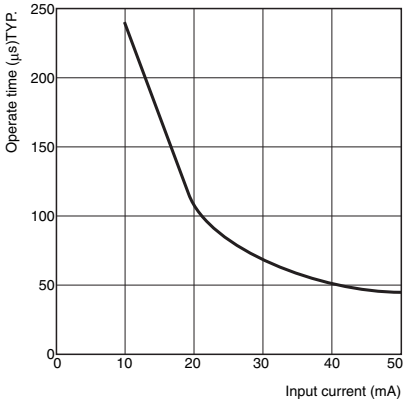


G3DZ-DZ02P(G)

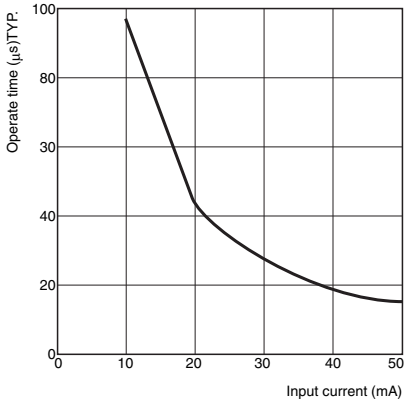


• Input Current vs. Operate Time Characteristics

G3DZ-1R5PLG

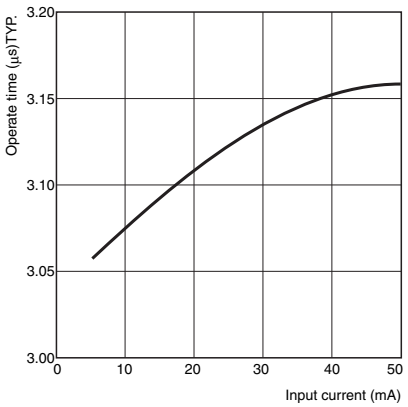


G3DZ-DZ02PG

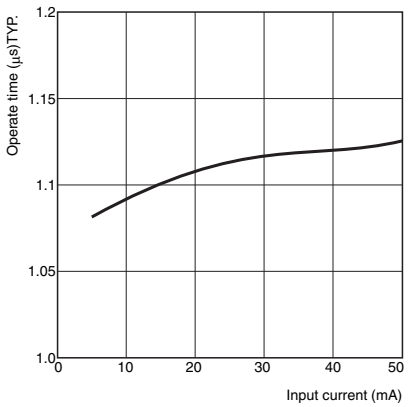


• Input Current vs. Release Time Characteristics

G3DZ-1R5PLG



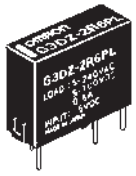
G3DZ-DZ02PG



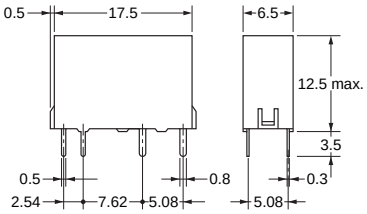
■Dimensions

(Unit: mm)

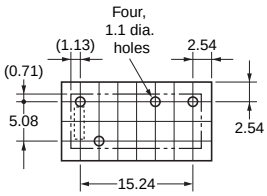
G3DZ-2R6PL
G3DZ-1R5PL(G)
G3DZ-DZ02P(G)



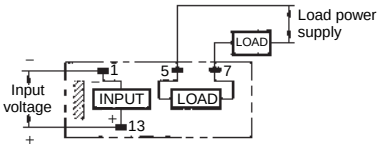
The above diagram is a G3DZ-2R6PL Relay.



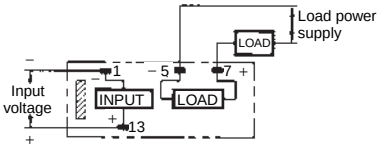
Mounting Holes
(BOTTOM VIEW)
Tolerance: ±0.1 mm



Terminal Arrangement/ Internal Connections
(BOTTOM VIEW)
G3DZ-2R6PL/-1R5PL(G)



G3DZ-DZ02P(G)

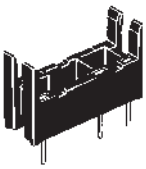


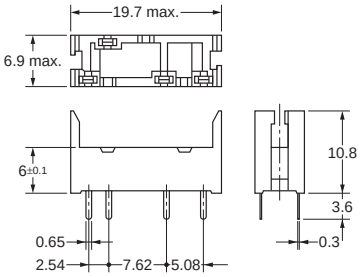
Note: Orientation marks are indicated as follows:
The load can be connected to either the positive or negative side.

■Socket

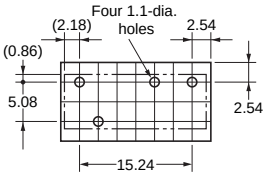
Use the socket P6D-04P.

P6D-04P

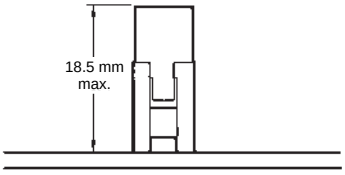




Mounting Holes
(BOTTOM VIEW)
Tolerance: ±0.1 mm



Socket Mounting Hight



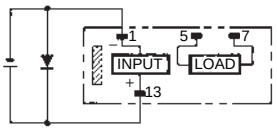
■Safety Precautions

- **Please refer to "Solid State Relays Common Precautions" for correct use.**

Precautions for Correct Use

- **Reversed Surge Voltage**

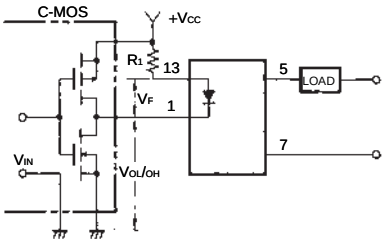
・If any reversed surge voltage is imposed on the input terminals, insert a diode in parallel to the input terminals. Do not impose a reversed voltage value of 3 V or more.



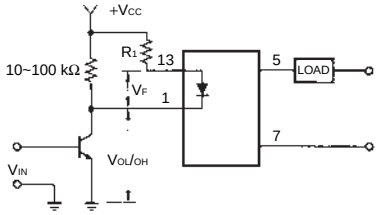
- **Terminals**

・Since terminals are made of materials with high heat conduction, complete soldering (automatic or manual) with 10 seconds at a temperature of 260°C. When fitting with a Socket, match properly and push straight down vertically.

- **Representative Example of Relay Driver Circuit**
(For C-MOS)



(For transistors)



- **Calculation of Input Resistance**

$$R_1 = \frac{V_{CC} - V_{OL} - V_F\,(ON)}{4\sim50\ mA}$$

- **SSR Mounting**

・Do not wash or solder the PCB while the SSR is mounted in the Socket.

• Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
• Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

Note: Do not use this document to operate the Unit.

OMRON Corporation
Electronic and Mechanical Components Company
Contact: www.omron.com/ecb
Cat. No. K089-E1-07
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