# 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.





Refer to "Solid State Relays Common Precautions".

### **■**Model Number Legend

G3DZ-\( \bigcup \bigcu

1. Rated Load Power Supply Voltage

 Supply Voltage
 R5: 0.5 A

 1: 125 VAC
 R6: 0.6 A

 2: 240 VAC
 02: 2 A

DZ: 24 VDC

### 2. Rated Load Current 3. Terminal Type

P: PCB terminals

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			0.6 A	5 VDC		25 pcs
			5 to 240 VAC	12 VDC	G3DZ-2R6PL	
			5 to 100 VDC	24 VDC		
			0.5 A	5 VDC		
	No	No	5 to 100 VAC	12 VDC	G3DZ-1R5PL	
			5 to 100 VDC	24 VDC		
				5 VDC		
			2.0 A 5 to 24 VDC	12 VDC	G3DZ-DZ02P	
			3 10 24 VDC	24 VDC		

### • Without Input Resistance

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

### Connecting Socket

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Applicable Relay	Model
G3DZ-□	P6D-04P



### **■**Ratings

### • With Input Resistance

Item	Input				Output				
	Rated			Voltage level		Rated load	Load voltage		
Model	voltage	Operating voltage	Impedance	Must operate voltage	Must release voltage	voltage	range	Load current *	Inrush current
	5 VDC 4 to 6 VDC 830 Ω ±20% 4 VDC max.								
G3DZ-2R6PL	12 VDC	9.6 to 14.4 VDC	2 kΩ ±20%	9.6 VDC max.	1 VDC min.		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)
	24 VDC	19.2 to 28.8 VDC	4 kΩ ±20%	19.2 VDC max.					
	5 VDC 4 to 6 V	4 to 6 VDC	750 Ω ±20%	4 VDC max.			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)
G3DZ-1R5PL	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.					
	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)
G3DZ-DZ02P	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.					

<sup>\*</sup> 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 Symbo		mbol	G3DZ-1R5PLG	G3DZ-DZ02PG		
	Max. input current	lin	50 mA max.			
	Rated current	IIN	6.25 mA (recommendation value)			
	Must operate current		4 mA max.			
Input	Must release current	ĪRE	0.6 mA max.			
	Input release voltage		3 V			
	Foward voltage V <sub>F</sub>		1.4 V (TYP)			
	Load voltage range		3 to 125 VAC 3 to 125 VDC	3 to 26.4 VDC		
Output	Load current		100 μ to 0.5 A	100 μ to 2.0 A		
	Inrush current		5 A (10 ms)	20 A (10 ms)		

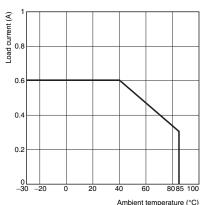
### ■Characteristics (at 25°C)

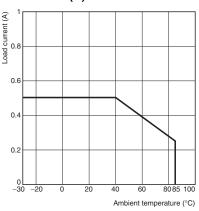
Item Model	G3DZ-2R6PL	G3DZ-1R5PL	G3DZ-1R5PLG	G3DZ-DZ02P	G3DZ-DZ02PG		
Operate time *	6 ms max.						
Release time *	10 ms max.						
Output ON-resistance *	2.4 Ω max.	2.4 $\Omega$ max. 0.15 $\Omega$ max.					
Leakage current at OFF state	10 μA max. (at 125 VDC) 100 μA max. (at 200 VAC)	10 μA max. (at 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		

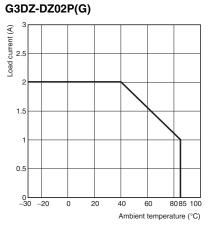
<sup>\*</sup> Measurement conditions:For G3DZ-2R6PL/-1R5PL/-DZ02P, the values are under the measurement conditions whereby rated voltages are applied to the input For G3DZ-1R5PLG/-DZ02PG, the values are measured with 6.25 mA current applied to the input.

### ■Engineering Data Note: The following data is for ambient temperature at 25°C.

### Load Current vs. Ambient Temperature Characteristics G3DZ-2R6PL G3DZ-1R5PL(G)

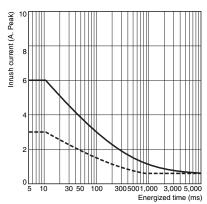


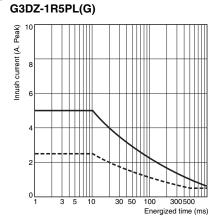


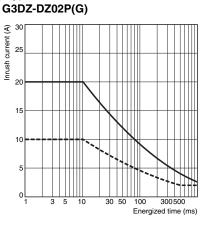


• Inrush Current Resistivity Non-repetiijve (Keep the inrush current to half the rated value if it occurs repetiijvely.)

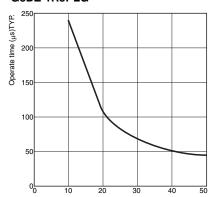
G3DZ-2R6PL

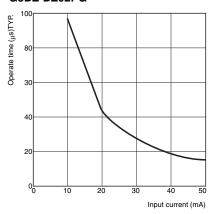






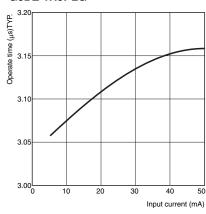
• Input Current vs. Operate Time Characteristics G3DZ-1R5PLG G3DZ-DZ02PG

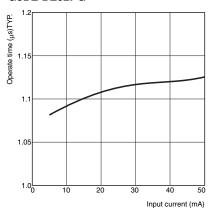




• Input Current vs. Release Time Characteristics G3DZ-1R5PLG G3DZ-DZ02PG

Input current (mA)





(Unit: mm)

**■**Dimensions

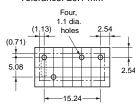
G3DZ-2R6PL G3DZ-1R5PL(G) G3DZ-DZ02P(G)

G30r Agent 1000 Cate

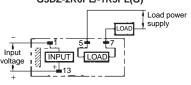
The above diagram is a G3DZ-2R6PL Relay.

# 0.5 + 17.5 + 6.5 + 12.5 max. 0.5 + 0.8 + 0.3

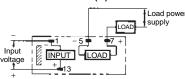
### Mounting Holes (BOTTOM VIEW) Tolerance: ±0.1 mm



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



G3DZ-DZ02P(G)

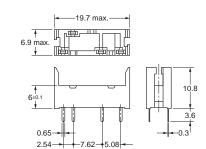


Note: Orientation marks are indicated as follows: [7] 
The load can be connected to either the positive or negative side.

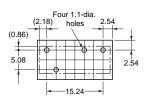
■Socket Use the socket P6D-04P.

### P6D-04P

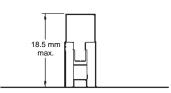




### Mounting Holes (BOTTOM VIEW) Tolerance: ±0.1 mm



### Socket Mounting Hight



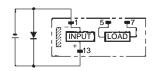
## ■Safety Precautions

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

### **Precautions for Correct Use**

### • Reversed Surge Voltage

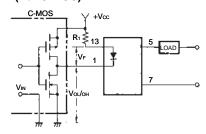
 If any reversed surge voltage is imposed on the input terminals, insert a diode in parallel to the input terminals. Do not impose a reversed voltage value of 3 V or more.



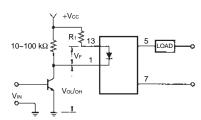
### • Terminals

 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

$$R_1 = \frac{V_{CC} - V_{OL} - V_F (ON)}{4 \sim 50 \text{ mA}}$$

### • 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.

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<u>G3DZ-4B DC24</u> <u>G3DZ-F4B DC12</u> <u>G3DZ-F4B DC24</u> <u>G3DZ-2R6PL DC12</u> <u>G3DZ-2R6PL DC24</u> <u>G3DZ-2R6PL DC24</u> <u>G3DZ-2R6PL DC24</u> <u>G3DZ-2R6PL DC24</u>