

PCB Relay

G5Y-1

High-frequency, Single-pole PCB Relay

- Threshold of malfunction by shock: 500 m/s² (50G) min. (mean value, 1,000 m/s² or greater).
- Max. height is 9 mm.
- High frequency isolation: 60 dB min. at 900 Hz (actual value 68 dB).
- Video applications: CATV, VTRs, TVs, BS tuners, TV games.
- Communications applications: Car telephones, marine mobile telephone systems, emergency traffic for disaster protection, PCM switch transceivers, optical transmission devices.
- Measurement applications: Measuring instrument for above apparatus.



Ordering Information

Classification	Contact form	Enclosure rating	Model
General-purpose	SPDT	Plastic-sealed	G5Y-1
High-sensitivity			G5Y-1-H

Note: When ordering, add the rated coil voltage to the model number.

Example: G5Y-1 12 VDC
└─── Rated coil voltage

Model Number Legend:

G5Y - - VDC
1 2 3

1. **Contact Form**
1: SPDT
2. **Classification**
None: General-purpose (300 mW)
H: High-sensitivity (200 mW)

3. **Rated Coil Voltage**
5, 12, 24 VDC

Specifications

■ Coil Ratings

Item		General-purpose			High-sensitivity		
Rated voltage		5 VDC	12 VDC	24 VDC	5 VDC	12 VDC	24 VDC
Rated current		60.2 mA	25 mA	12.5 mA	40 mA	16.7 mA	8.3 mA
Coil resistance		83 Ω	480 Ω	1,920 Ω	125 Ω	720 Ω	2,880 Ω
Coil inductance (H) (ref. value)	Armature OFF	0.27	1.7	6.7	0.42	2.55	10.5
	Armature ON	0.32	1.9	7.6	0.50	2.95	12.5
Must operate voltage		75% max. of rated voltage					
Must release voltage		10% min. of rated voltage					
Max. voltage		130% of rated voltage at 70°C					
Power consumption		Approx. 300 mW			Approx. 200 mW		

ote: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of $\pm 10\%$.

2. Operating characteristics are measured at a coil temperature of 23°C.

■ Contact Ratings

Load	Resistive load ($\cos\phi = 1$)
Rated load	0.01 A at 24 VAC; 0.01 A at 24 VDC; 900 MHz, 1 W (VSWR: 1.2 max.)
Contact material	Au-plated
Rated carry current	0.5 A
Max. switching voltage	30 VAC, 30 VDC
Max. switching current	0.5 A
Max. switching capacity	10 VA, 10 W
Min. permissible load	0.01 mA at 10 mVDC

High-frequency Characteristics

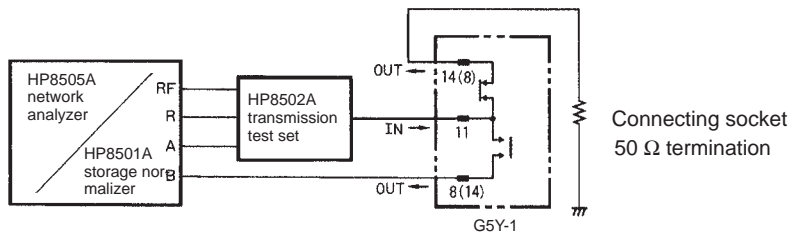
Item	250 MHz	900 MHz
Isolation	80 dB min.	60 dB min.
Insertion loss	0.5 dB max.	0.5 dB max.
VSWR	1.5 max.	1.8 max.
Switching power	10 W	
Carry power	10 W (VSWR ≤ 1.2)	

Note: Line impedance (Z_0) of the measuring instrument is 50 Ω .

■ Characteristics

Contact resistance	100 m Ω max. (mean value: approx. 30 m Ω)
Operate time	10 ms max. (mean value: approx. 5 ms)
Release time	5 ms max. (mean value: approx. 1 ms)
Max. operating frequency	Mechanical: 1,800 operations/hr Electrical: 1,800 operations/hr (under rated load)
Insulation resistance	100 M Ω min. (at 500 VDC)
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between coil and contacts 500 VAC, 50/60 Hz for 1 min between contacts of same polarity 500 VAC, 50/60 Hz for 1 min between contacts, coil, and ground
Vibration resistance	Destruction: 10 to 55 Hz, 1.5-mm double amplitude Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Destruction: 1,000 m/s ² (approx. 100G) Malfunction: 500 m/s ² (approx. 50G)
Life expectancy	Mechanical: 1,000,000 operations min. (at 1,800 operations/hr) Electrical: 300,000 operations min. (under rated load at 1,800 operations/hr)
Ambient temperature	Operating: -30°C to 70°C (with no icing) Storage: -30°C to 70°C (with no icing)
Ambient humidity	35% to 85%
Weight	Approx. 6 g

Engineering Data



When a signal is applied from the transfer contacts to the NO contacts or from the transfer contacts to the NC contacts of the sample, the following characteristics are measured at contacts unrelated to the measurement terminated at 50 Ω.

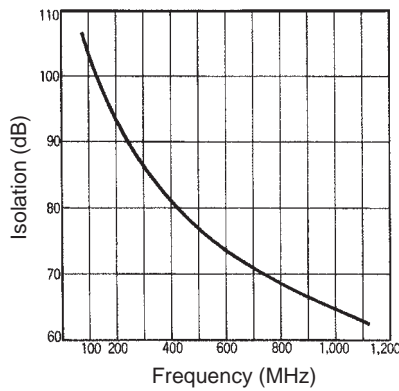
1. Isolation characteristics
2. Insertion loss characteristics
3. Return loss

Note: Conversion formulas between return loss and VSWR. (x: return loss)

$$VSWR = \frac{1 + \frac{x}{20}}{1 - \frac{x}{20}}$$

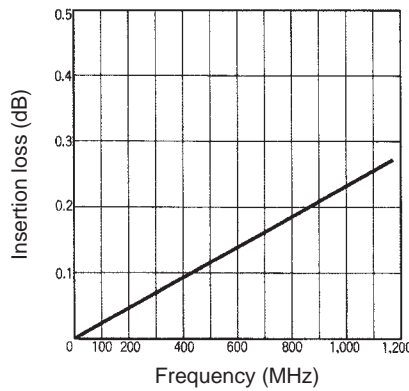
Isolation Characteristics

Frequency vs. Isolation



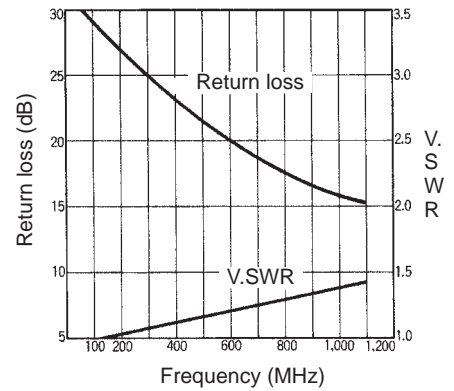
Insertion Loss Characteristics

Frequency vs. Insertion Loss



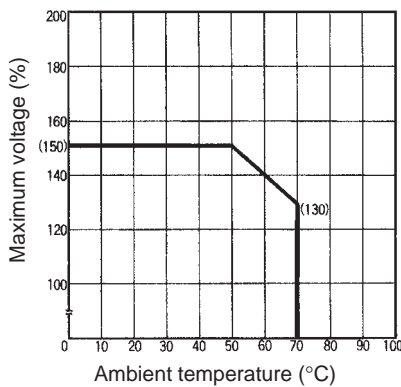
V.SWR Characteristics

Frequency vs. Return Loss and VSWR



Note: VSWR stands for voltage standing wave ratio.

Ambient Temperature vs. Maximum Voltage

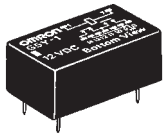


Note: The maximum voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

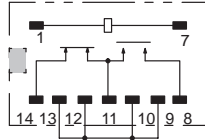
Dimensions

Note: 1. All units are in millimeters unless otherwise indicated.

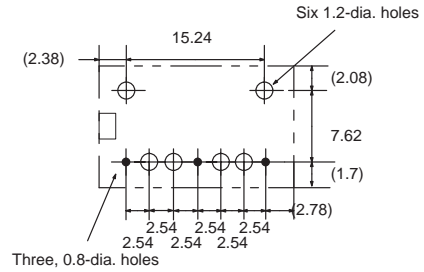
2. Orientation marks are indicated as follows:  



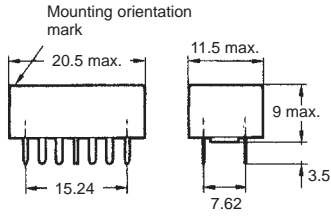
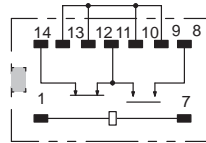
**Terminal Arrangement/
Internal Connections
(Bottom View)**



**Mounting Holes
(Bottom View)**
Tolerance: ± 0.1



(Top View)



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