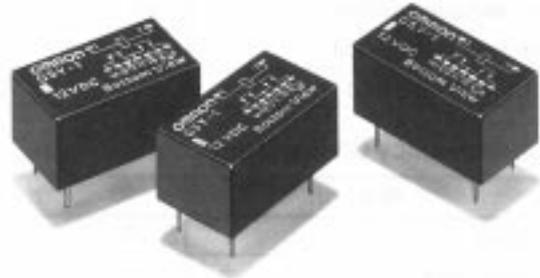


### High-frequency, Single-pole PCB Relay

- Threshold of malfunction by shock: 500 m/s<sup>2</sup> (50G) min. (mean value, 1,000 m/s<sup>2</sup> 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			
	5 VDC	12 VDC	24 VDC	5 VDC	12 VDC	24 VDC	
<b>Rated voltage</b>	5 VDC	12 VDC	24 VDC	5 VDC	12 VDC	24 VDC	
<b>Rated current</b>	60.2 mA	25 mA	12.5 mA	40 mA	16.7 mA	8.3 mA	
<b>Coil resistance</b>	83 Ω	480 Ω	1,920 Ω	125 Ω	720 Ω	2,880 Ω	
<b>Coil inductance (H) (ref. value)</b>	<b>Armature OFF</b>	0.27	1.7	6.7	0.42	2.55	10.5
	<b>Armature ON</b>	0.32	1.9	7.6	0.50	2.95	12.5
<b>Must operate voltage</b>	75% max. of rated voltage						
<b>Must release voltage</b>	10% min. of rated voltage						
<b>Max. voltage</b>	130% of rated voltage at 70°C						
<b>Power consumption</b>	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 ±10%.

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

## ■ Contact Ratings

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

## High-frequency Characteristics

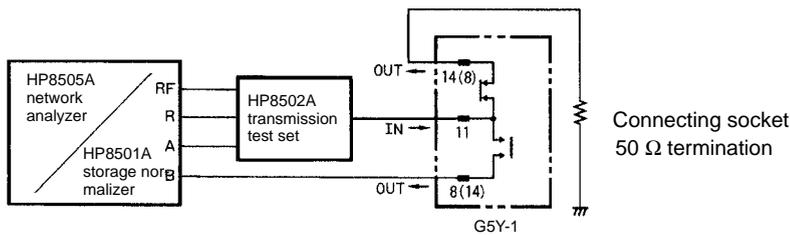
Item	250 MHz	900 MHz
<b>Isolation</b>	80 dB min.	60 dB min.
<b>Insertion loss</b>	0.5 dB max.	0.5 dB max.
<b>VSWR</b>	1.5 max.	1.8 max.
<b>Switching power</b>	10 W	
<b>Carry power</b>	10 W (VSWR $\leq$ 1.2)	

**Note:** Line impedance ( $Z_0$ ) of the measuring instrument is 50  $\Omega$ .

## ■ Characteristics

<b>Contact resistance</b>	100 m $\Omega$ max. (mean value: approx. 30 m $\Omega$ )
<b>Operate time</b>	10 ms max. (mean value: approx. 5 ms)
<b>Release time</b>	5 ms max. (mean value: approx. 1 ms)
<b>Max. operating frequency</b>	Mechanical: 1,800 operations/hr Electrical: 1,800 operations/hr (under rated load)
<b>Insulation resistance</b>	100 M $\Omega$ min. (at 500 VDC)
<b>Dielectric strength</b>	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
<b>Vibration resistance</b>	Destruction: 10 to 55 Hz, 1.5-mm double amplitude Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
<b>Shock resistance</b>	Destruction: 1,000 m/s <sup>2</sup> (approx. 100G) Malfunction: 500 m/s <sup>2</sup> (approx. 50G)
<b>Life expectancy</b>	Mechanical: 1,000,000 operations min. (at 1,800 operations/hr) Electrical: 300,000 operations min. (under rated load at 1,800 operations/hr)
<b>Ambient temperature</b>	Operating: -30°C to 70°C (with no icing) Storage: -30°C to 70°C (with no icing)
<b>Ambient humidity</b>	35% to 85%
<b>Weight</b>	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.

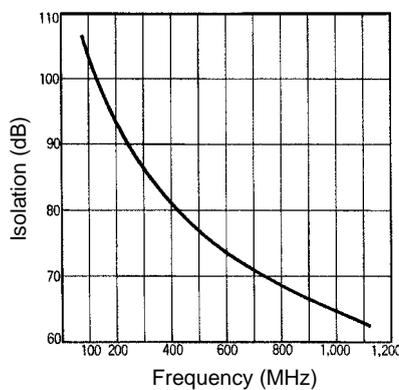
1. Isolation characteristics
2. Insertion loss characteristics
3. Return loss

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

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

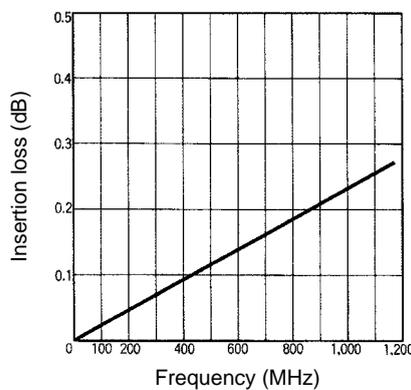
### Isolation Characteristics

Frequency vs. Isolation



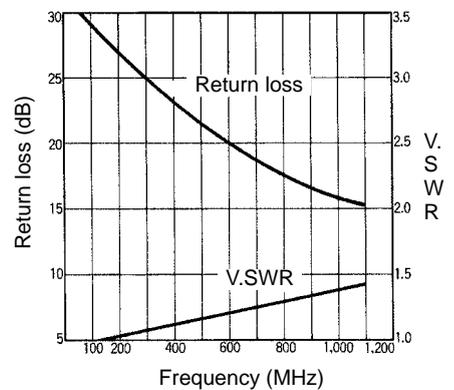
### Insertion Loss Characteristics

Frequency vs. Insertion Loss



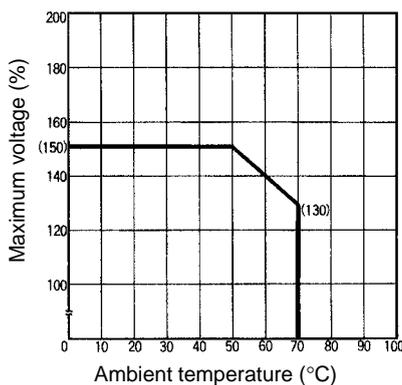
### V.SWR Characteristics

Frequency vs. Return Loss and VSWR



**Note:** VSWR stands for voltage standing wave ratio.

### Ambient Temperature vs. Maximum Voltage

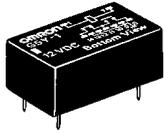


**Note:** The maximum voltage refers to the maximum value in a varying range of operating power voltage, not a continuous voltage.

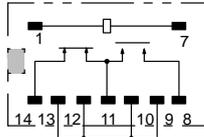
# Dimensions

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

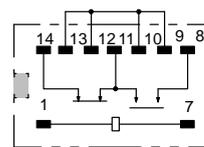
2. Orientation marks are indicated as follows:  



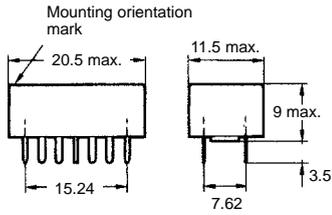
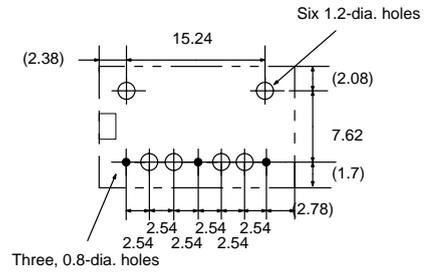
**Terminal Arrangement/  
Internal Connections  
(Bottom View)**



**(Top View)**



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



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