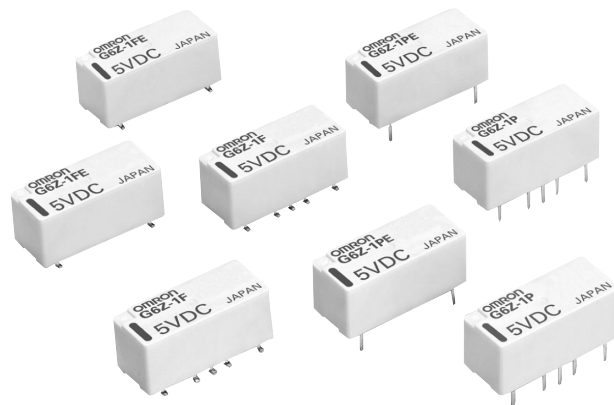


High-frequency Relay G6Z

Miniature 2.6-GHz-Band, SPDT, High-frequency Relay

- Superior high-frequency characteristics include an isolation of 30 dB min., 60-65 dB isolation at 900 MHz, insertion loss of 0.5 dB max., and V.SWR of 1.5 max. at 2.6 GHz.
- Triplate micro stripline technology assures superior high-frequency characteristics.
- Miniature dimensions of 20 × 8.6 × 8.9 mm (L × W × H).
- Available models include single-coil latching (200 mW), dual coil latching (360 mW), and models with reverse contact arrangement.
- Series includes versions with an E-shape terminal structure, and models with a Y-shape terminal structure, allowing greater freedom with PCB design.
- Models with 75-Ω impedance and models with 50-Ω impedance are also available.
- Surface mount relays available in tube packaging or tape-and-reel packaging.



Ordering Information

■ Model Number Legend:

G6Z-□-□□□-□□-DC□

1
2
3
4
5
6
7

1. Relay Function

- None: Non-latching
- U: Single coil latching
- K: Dual coil latching

2. Contact Form

- 1: SPDT

3. Terminal Shape

- F: Surface mount terminals
- P: PCB through-hole terminals

4. Terminal Structure

- None: Y-shape terminal
- E: E-shape terminal

5. Characteristic Impedance

- None: 75 Ω
- A: 50 Ω

6. Contact Arrangement

- None: Standard contact arrangement
- R: Reverse contact arrangement

7. Rated Coil Voltage

- 3, 4.5, 5, 9, 12, 24

■ Standard Models with PCB Through-hole Terminals

Classification	Structure	Contact form	Terminal arrangement	Characteristic impedance	Rated coil voltage	Model
Non-latching	Fully sealed	SPDT	E-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6Z-1PE
				50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6Z-1PE-A
			Y-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6Z-1P
				50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6Z-1P-A
Single coil latching			E-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZU-1PE
				50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZU-1PE-A
			Y-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZU-1P
				50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZU-1P-A
Dual coil latching	E-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZK-1PE		
		50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZK-1PE-A		
	Y-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZK-1P		
		50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZK-1P-A		

■ Standard Models with Surface-mounting Terminals

Classification	Structure	Contact form	Terminal arrangement	Characteristic impedance	Rated coil voltage	Model
Non-latching	Fully sealed	SPDT	E-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6Z-1FE
				50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6Z-1FE-A
			Y-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6Z-1F
				50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6Z-1F-A
Single coil latching			E-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZU-1FE
				50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZU-1FE-A
			Y-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZU-1F
				50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZU-1F-A
Dual coil latching	E-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZK-1FE		
		50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZK-1FE-A		
	Y-shape	75 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZK-1F		
		50 Ω	3, 4.5, 5, 9, 12, and 24 VDC	G6ZK-1F-A		

Note: When ordering tape and reel packaging (surface-mount models), add “-TR” to the model number, (example: G6Z-1FE“TR”-DC12) “-TR” does not appear on the relay itself.

Application Examples

These Relays can be used for switching signals in media equipment.

- **Wire communications:**

Cable TV (STB and broadcasting infrastructure), cable modems, and VRS (video response systems)

- **Wireless communications:**

Transceivers, ham radios, car telephones, ETC, ITS, high-level TV, satellite broadcasting, text multiplex broadcasting, pay TV, mobile phone stations, TV broadcasting facilities, and community antenna systems

- **Public equipment:**

TVs, TV games, satellite radio units, car navigation systems

- **Industrial equipment:**

Measuring equipment, test equipment, and multiplex transmission devices

Specifications

■ Contact Ratings

Load type	Resistive load
Rated load	10 mA at 30 VAC; 10 mA at 30 VDC; 10 W at 900 MHz (See note)
Rated carry current	0.5 A
Max. switching voltage	30 VAC, 30 VDC
Max. switching current	0.5 A

Note: This value is for an impedance of 50 Ω or 75 Ω with a V.SWR of 1.2 max.

■ High-frequency Characteristics

Frequency		900 MHz				2.6 GHz			
		Through hole		Surface mount		Through hole		Surface mount	
Terminal type		Through hole		Surface mount		Through hole		Surface mount	
Terminal structure		E-shape	Y-shape	E-shape	Y-shape	E-shape	Y-shape	E-shape	Y-shape
Isolation	75 Ω	65 dB min.		60 dB min.		35 dB min.	45 dB min.	30 dB min.	40 dB min.
	50 Ω	60 dB min.							
Insertion loss (not including substrate loss)	75 Ω	0.2 dB max.				0.5 dB max.			
	50 Ω	0.1 dB max.				0.3 dB max.			
V.SWR	75 Ω	1.2 max.				1.5 max.			
	50 Ω	1.1 max.				1.3 max.			
Return loss	75 Ω	20.8 dB max.				14.0 dB max.			
	50 Ω	26.4 dB max.				17.7 dB max.			
Maximum carry power		10 W (See note 2)							
Maximum switching power		10 W (See note 2)							

Note: 1. The above values are initial values.

2. These values are for an impedance of 50 Ω or 75 Ω with a V.SWR of 1.2 max.

■ Coil Ratings

The operating characteristics are measured at a coil temperature of 23° C.

Non-latching, Standard and Reverse-contact Models

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω ±10%)	Must operate voltage (VDC)	Must dropout voltage (VDC)	Maximum voltage (VDC) at 70° C max.	Power consumption (mW)
3	66.7	45	2.25	0.3	4.5	Approx. 200
4.5	44.4	101.3	3.375	0.45	6.75	
5	40.0	125	3.75	0.5	7.5	
9	22.2	405	6.75	0.9	13.5	
12	16.7	720.4	9	1.2	18	
24	8.3	2880.1	18	2.4	36	

Single Coil Latching Models G6ZU-1P(E), G6ZU-1F(E)

Rated voltage (VDC)	Rated current (mA)	Coil resistance (Ω ±10%)	Must set voltage (VDC)	Must reset voltage (VDC)	Maximum voltage (VDC) at 70° C max.	Power consumption (mW)
3	66.7	45	2.25	2.25	150% of rated voltage	Approx. 200
4.5	44.4	101.3	3.375	3.375		
5	40.0	125	3.75	03.75		
9	22.2	405	6.75	6.75		
12	16.7	720.4	9	9		
24	8.3	2880.1	18	18		

Characteristics

Item	Non-latching models		Single coil latching models	Dual coil latching models
	G6Z-1P(E), G6Z-1F(E)		G6ZU-1P(E), G6ZU-1F(E)	G6ZK-1P(E), G6ZK-1F(E)
Contact resistance (See note 2)	100 mΩ max.			
Operating (set) time (See note 3)	10 ms max. (approx. 3.5 ms)		10 ms max. (approx. 2.5 ms)	
Release (reset) time (See note 3)	10 ms max. (approx 2.5 ms)			
Set/reset time	---		12 ms	
Insulation resistance (See note 4)	100 MΩ min. (at 500 VDC)			
Dielectric strength	Coil and contacts	1,000 VAC, 50/60 Hz for 1 min.		
	Coil and ground, contacts and ground	500 VAC, 50/60 Hz for 1 min.		
	Contacts of same polarity	500 VAC, 50/60 Hz for 1 min.		
Vibration resistance	Mechanical durability	10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)		
	Malfunction durability	10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude)		
Shock resistance	Mechanical durability	1,000 m/s ²		
	Malfunction durability	500 m/s ²		
Service life	Mechanical	1,000,000 operations min. (at 36,000 operations/hour)		
	Electrical	300,000 operations min. (30 VAC, 10 mA/30 VDC, 10 mA), 100,000 operations min. (900 MHz, 10 W) at a switching frequency of 1,800 operations/hour		
Ambient temperature	Operating: -40° C to 70° C (-40° F to 158° F) (with no icing or condensation)			
Ambient humidity	Operating: 5% to 85% RH			
Weight	Approx. 2.8 g			

Note: 1. The above values are initial values.

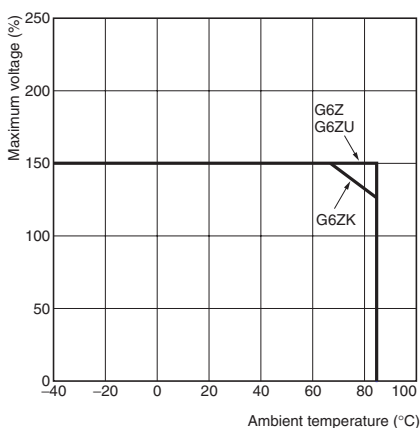
2. The contact resistance was measured with 10 mA at 1 VDC with a voltage drop method.

3. Values in parentheses are actual values.

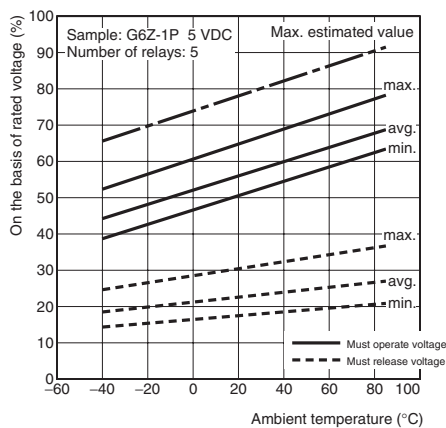
4. The insulation resistance was measured with a 500-VDC megohmmeter applied to the same parts as those used for checking the dielectric strength.

Engineering Data

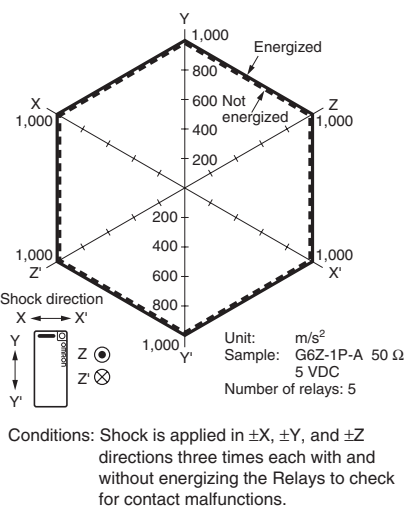
Ambient Temperature vs. Maximum Voltage



Ambient Temperature vs. Must Operate or Must Release Voltage



Shock Malfunction

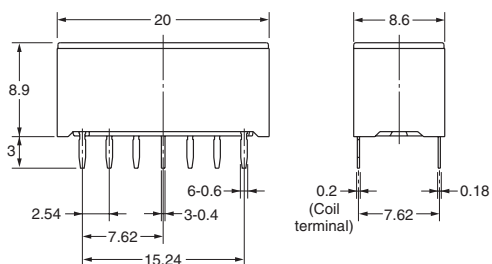
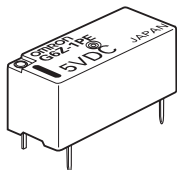


Dimensions

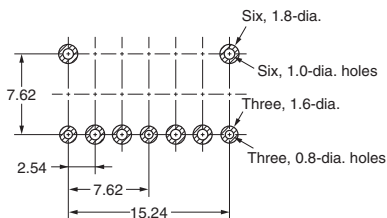
Unit: mm

■ PCB Through-hole Terminal Types

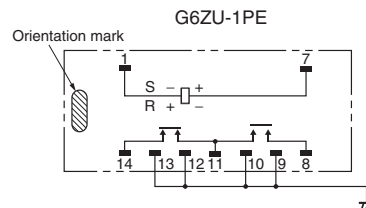
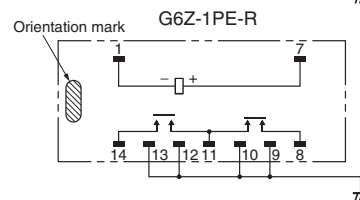
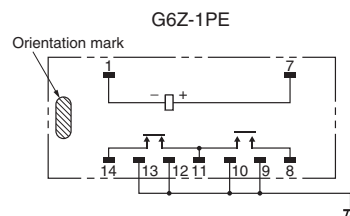
G6Z-1PE
G6Z-1PE-R
G6ZU-1PE



Mounting Dimensions (Bottom View)
Tolerance: ± 0.1 mm

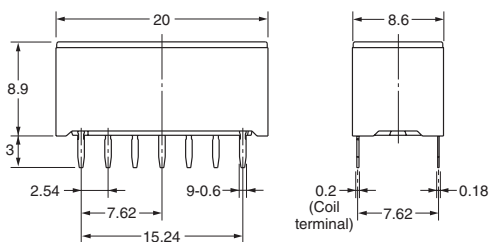
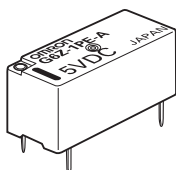


Terminal Arrangement/Internal Connections (Bottom View)

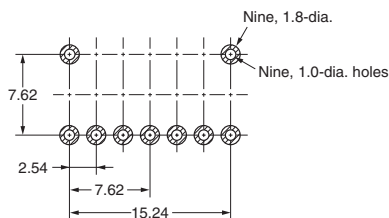


Note: Each value has a tolerance of ± 0.3 mm.

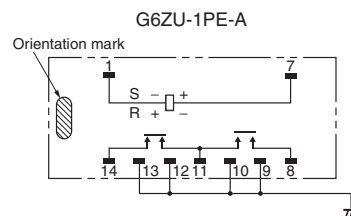
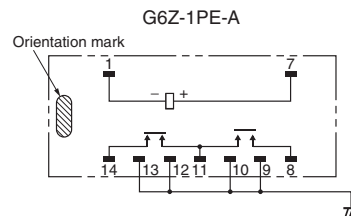
G6Z-1PE-A
G6ZU-1PE-A



Mounting Dimensions (Bottom View)
Tolerance: ± 0.1 mm

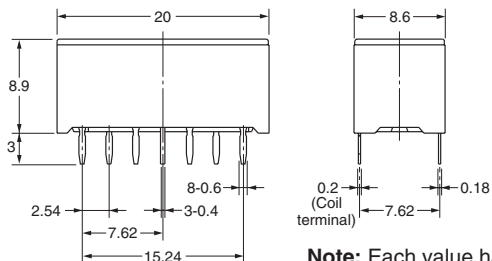
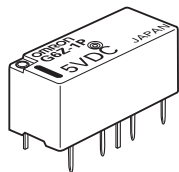


Terminal Arrangement/Internal Connections (Bottom View)



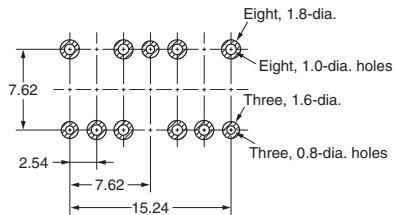
Note: Each value has a tolerance of ± 0.3 mm.

**G6Z-1P
G6ZU-1P**

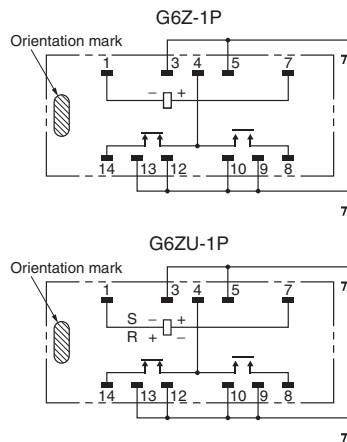


Note: Each value has a tolerance of ± 0.3 mm.

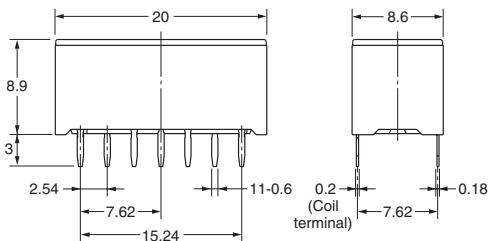
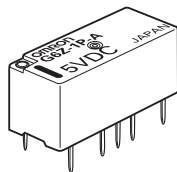
Mounting Dimensions (Bottom View)
Tolerance: ± 0.1 mm



Terminal Arrangement/Internal Connections (Bottom View)

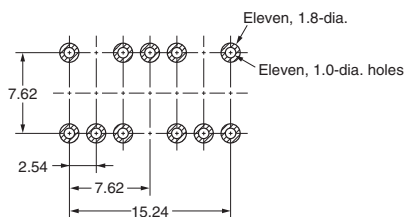


**G6Z-1P-A
G6ZU-1P-A**

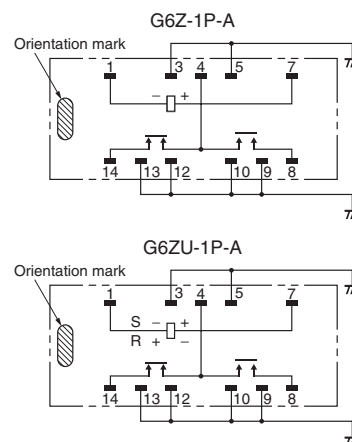


Note: Each value has a tolerance of ± 0.3 mm.

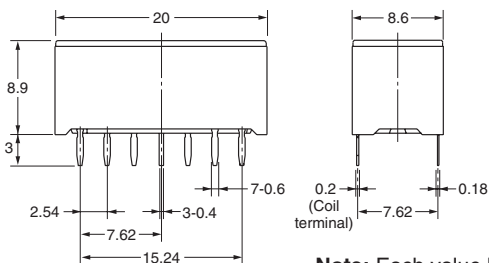
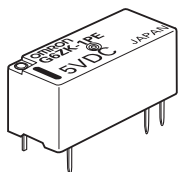
Mounting Dimensions (Bottom View)
Tolerance: ± 0.1 mm



Terminal Arrangement/Internal Connections (Bottom View)

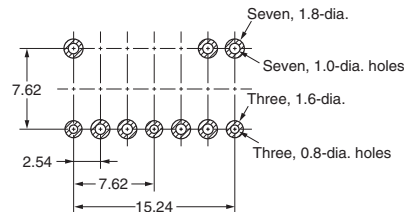


G6ZK-1PE

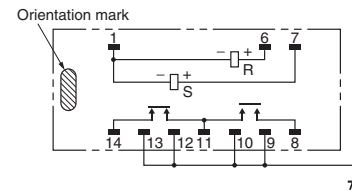


Note: Each value has a tolerance of ± 0.3 mm.

Mounting Dimensions (Bottom View)
Tolerance: ± 0.1 mm

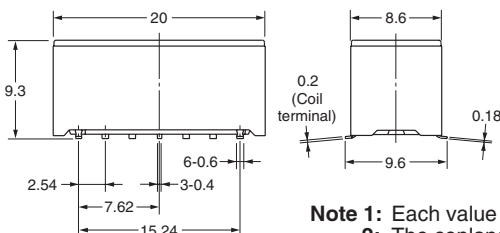
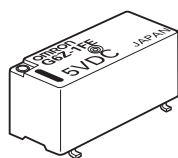


Terminal Arrangement/Internal Connections (Bottom View)

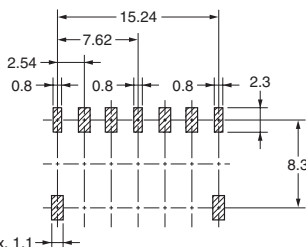


Surface Mount Terminal Types

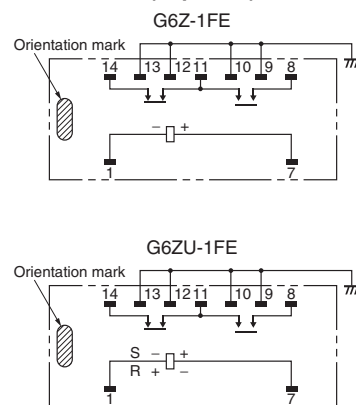
G6Z-1FE
G6ZU-1FE



Mounting Dimensions (Top View)
Tolerance: ± 0.1 mm

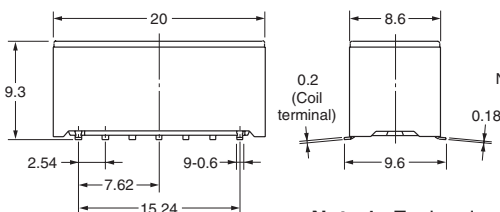
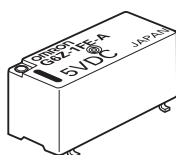


Terminal Arrangement/Internal Connections (Top View)

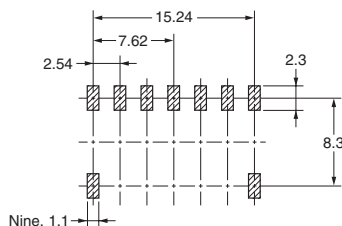


Note 1: Each value has a tolerance of ± 0.3 mm.
2: The coplanarity of the terminals is 0.1 mm max.

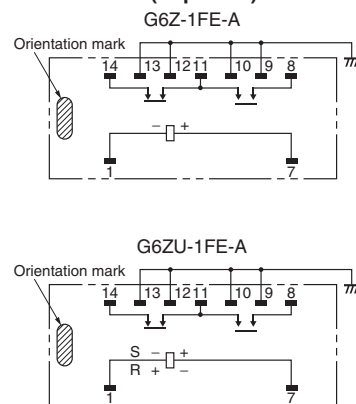
G6Z-1FE-A
G6ZU-1FE-A



Mounting Dimensions (Top View)
Tolerance: ± 0.1 mm

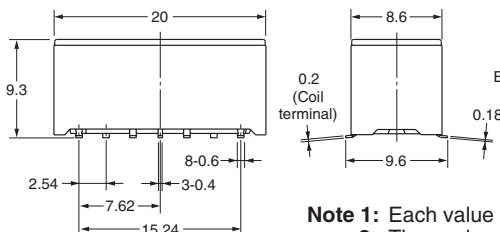
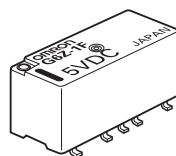


Terminal Arrangement/Internal Connections (Top View)

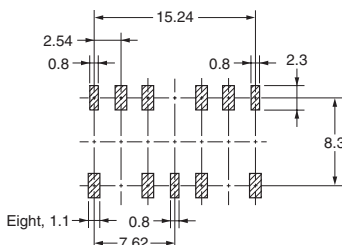


Note 1: Each value has a tolerance of ± 0.3 mm.
2: The coplanarity of the terminals is 0.1 mm max.

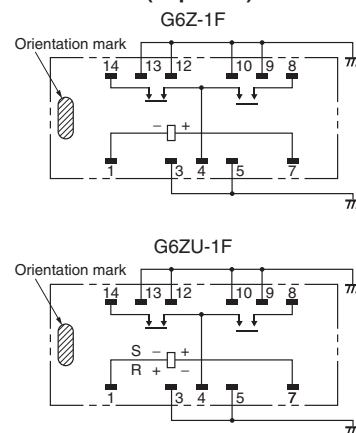
G6Z-1F
G6ZU-1F



Mounting Dimensions (Top View)
Tolerance: ± 0.1 mm

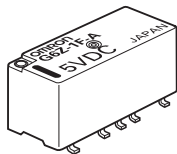


Terminal Arrangement/Internal Connections (Top View)



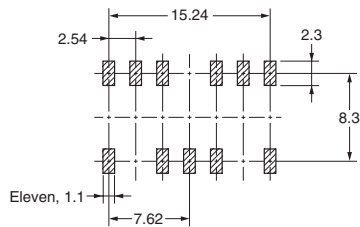
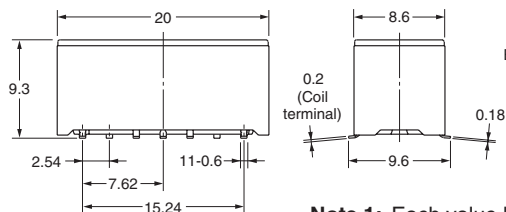
Note 1: Each value has a tolerance of ± 0.3 mm.
2: The coplanarity of the terminals is 0.1 mm max.

**G6Z-1F-A
G6ZU-1F-A**



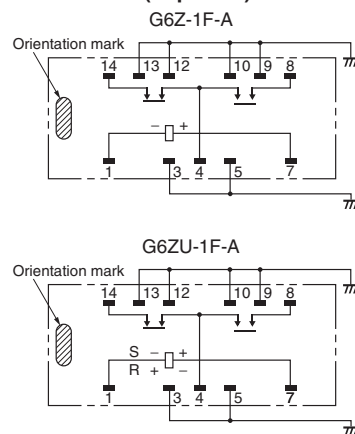
Mounting Dimensions (Top View)

Tolerance: ± 0.1 mm

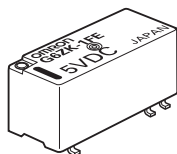


Note 1: Each value has a tolerance of ± 0.3 mm.
Note 2: The coplanarity of the terminals is 0.1 mm max.

Terminal Arrangement/Internal Connections (Top View)

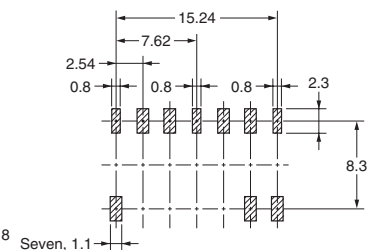
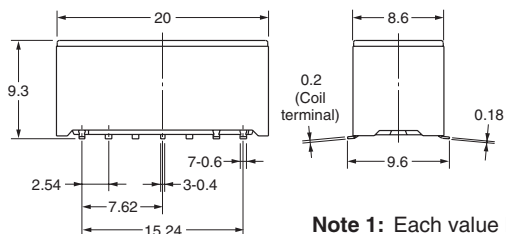


G6ZK-1FE



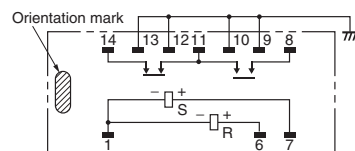
Mounting Dimensions (Top View)

Tolerance: ± 0.1 mm

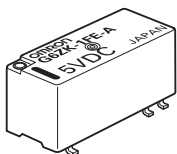


Note 1: Each value has a tolerance of ± 0.3 mm.
Note 2: The coplanarity of the terminals is 0.1 mm max.

Terminal Arrangement/Internal Connections (Top View)

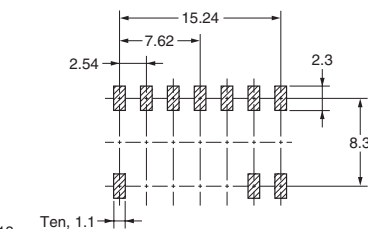
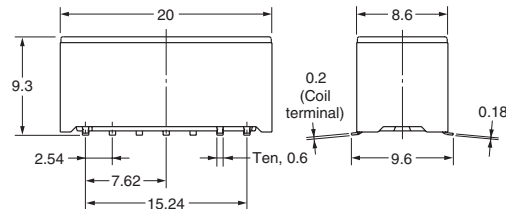


G6ZK-1FE-A



Mounting Dimensions (Top View)

Tolerance: ± 0.1 mm



Note 1: Each value has a tolerance of ± 0.3 mm.
Note 2: The coplanarity of the terminals is 0.1 mm max.

Terminal Arrangement/Internal Connections (Top View)

