OMRON

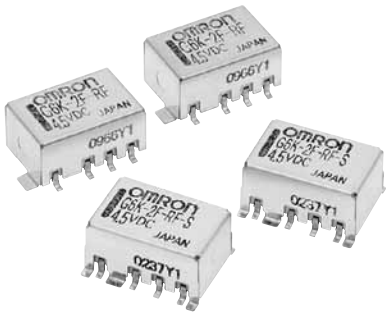
Surface-mounting High-frequency Relay

G6K(U)-2F-RF(-S)

Surface-mounting, 1-GHz-Band, Miniature, DPDT, High-frequency Relay

- Superior high-frequency characteristics (at 1 GHz), such as an isolation of 20 dB min. between contacts of the same polarity or 30 dB min. between contacts of different polarity with an insertion loss of 0.2 dB max.
- Miniaturized to 10.3 × 6.9 × 5.4 mm (L × W × H).
- Rated power consumption of 100 mW with high sensitivity.
- Single-side stable and single-winding latching models available.
- Models with a smaller footprint (G6K(U)-2F-RF-S) are available to help save space.

RoHS Compliant



Ordering Information

■ Model Number Legend:

G6K□-□□-□-□
1 2 3 4 5

1. **Relay Function**
   None: Single-side stable
   U: Single-winding latching
2. **Contact Form**
   2: DPDT
3. **Terminal Shape**
   F: Surface-mounting terminals
4. **Special Function**
   RF: High-frequency compatible
5. **Ground Terminal Shape**
   None: Standard
   S: Small footprint

■ List of Models

Standard Models with Surface-mounting Terminals

Classification	Structure	Contact form	Rated coil voltage	Model	Minimum quantity packaged (See note.)
Single-side stable	Plastic sealed	DPDT	3, 4.5, 5, 12, and 24 VDC	G6K-2F-RF(-S)	300 Units/tray
Single-winding latching			3, 4.5, 5, 12, and 24 VDC	G6KU-2F-RF(-S)	300 Units/reel

Note: When ordering Relays in tape packing, add "-TR03" or "-TR09" to the end of the model number. If "-TR" is not added, the Relays will be provided in tray packing.
Relays per reel: 300 for "-TR03"
900 for "-TR09"
This specification, however, is not part of the relay model number, so it is not marked on the relay case.

Application Examples

- Measurement equipment
- Communications equipment
- Broadcasting and audio-visual equipment
- Medical equipment

Specifications

■ Contact Ratings

Load	Resistive load
Rated load	125 VAC, 0.3 A 30 VDC, 1 A 1 GHz, 1 W (See note.)
Rated carry current	1 A
Max. switching voltage	125 VAC or 60 VDC
Max. switching current	1 A

Note: This value is for a V.SWR of 1.2 max. at the load.

■ High-frequency Characteristics (See note 3.)

Item	Frequency	1 GHz
Isolation	**Between contacts of the same polarity**	20 dB min.
	Between contacts of different polarity	30 dB min.
Insertion loss		0.2 dB max.
V.SWR		1.2 max.
Maximum carry power		3 W (See note 4.)
Maximum switching power		1 W (See note 4.)

Note: **1.** The impedance of the measurement system is 50 Ω.

2. The above values are initial values.

3. Contact your OMRON representative if the Relay will be used in applications that require high repeatability with high-frequency characteristics in microload regions.

4. These values are for a V.SWR of 1.2 max. at the load.

■ Coil Ratings

Single-side Stable Models

G6K-2F-RF(-S)

Rated voltage (VDC)	3	4.5	5	12	24
Rated current (mA)	33.0	23.2	21.1	9.1	4.6
Coil resistance (Ω)	91	194	237	1,315	5,220
Must operate voltage (V)	80% max. of rated voltage				
Must release voltage (V)	10% min. of rated voltage				
Maximum voltage (V)	150% of rated voltage				
Power consumption (mW)	Approx. 100 mW				

Single-winding Latching Models

G6KU-2F-RF(-S)

Rated voltage (VDC)	3	4.5	5	12	24
Rated current (mA)	33.0	23.2	21.1	9.1	4.6
Coil resistance (Ω)	91	194	237	1,315	5,220
Must operate voltage (V)	75% max. of rated voltage				
Must release voltage (V)	75% max. of rated voltage				
Maximum voltage (V)	150% of rated voltage				
Power consumption (mW)	Approx. 100 mW				

Note: **1.** The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±10%.

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

3. The maximum voltage is the highest voltage that can be imposed on the Relay coil instantaneously.

■ Characteristics

Item		Single-side stable models	Single-winding latching models
		G6K-2F-RF(-S)	G6KU-2F-RF(-S)
Contact resistance (See note 2.)		100 mΩ max.	
Operating (set) time (See note 3.)		3 ms max. (approx. 1.4 ms)	3 ms max. (approx. 1.2 ms)
Release (reset) time (See note 3.)		3 ms max. (approx. 1.3 ms)	3 ms max. (approx. 1.2 ms)
Minimum set/reset pulse time		---	10 ms
Insulation resistance (See note 4.)		1,000 MΩ min. (at 500 VDC)	
Dielectric strength	**Between coil and contacts**	750 VAC, 50/60 Hz for 1 min	
	Between contacts of different polarity	750 VAC, 50/60 Hz for 1 min	
	Between contacts of the same polarity	750 VAC, 50/60 Hz for 1 min	
	Between ground and coil/contacts	500 VAC, 50/60 Hz for 1 min	
Vibration resistance		Destruction: 10 to 55 to 10 Hz, 2.5-mm single amplitude (5-mm double amplitude) and 55 to 500 to 55 Hz, 300 m/s^2 Malfunction: 10 to 55 to 10 Hz, 1.65-mm single amplitude (3.3-mm double amplitude) and 55 to 500 to 55 Hz, 200 m/s^2	
Shock resistance		Destruction: 1,000 m/s^2 Malfunction: 750 m/s^2	
Endurance		Mechanical: 50,000,000 operations min. (at a switching frequency of 36,000 operations/hour) Electrical: 100,000 operations min. (at a switching frequency of 1,800 operations/hour)	
Ambient temperature		Operating: −40°C to 70°C (with no icing or condensation)	
Ambient humidity		Operating: 5% to 85%	
Weight		Approx. 0.95 g	

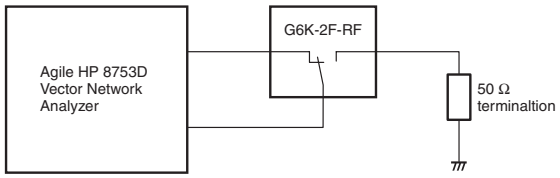
Note: **1.** The above values are initial values.

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

3. Values in parentheses are actual values.

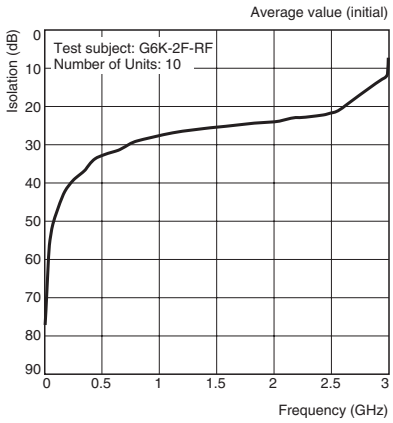
4. The insulation resistance was measured with a 500-VDC megohmmeter applied to the same parts as those used for checking the dielectric strength.

Engineering Data

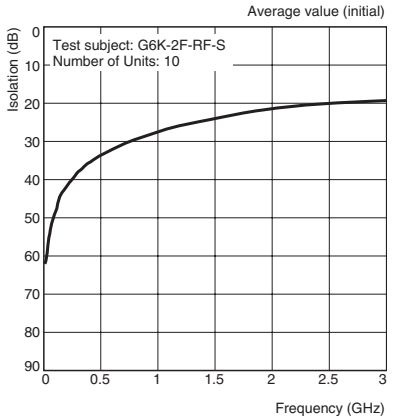


High-frequency Characteristics (Isolation)

G6K-2F-RF

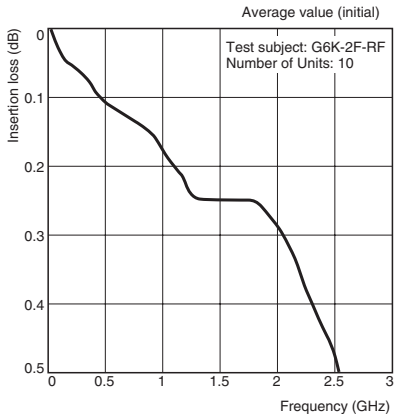


G6K-2F-RF-S

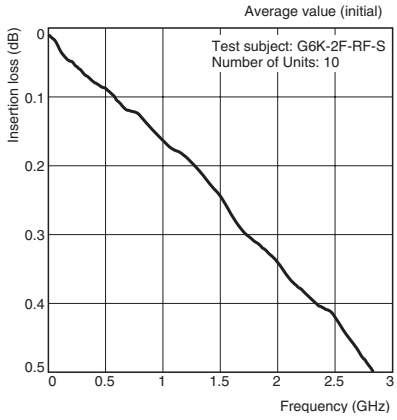


High-frequency Characteristics (Insertion Loss)

G6K-2F-RF

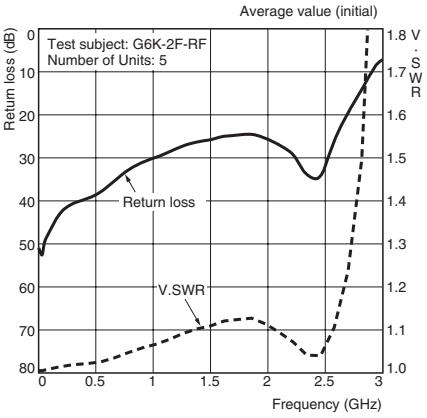


G6K-2F-RF-S

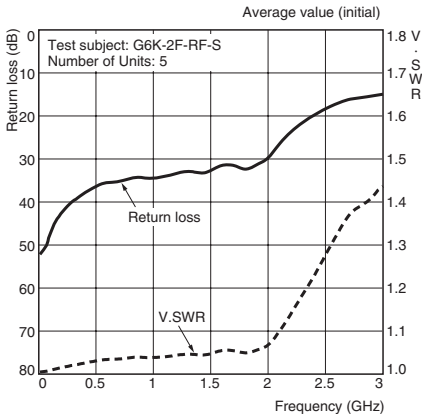


High-frequency Characteristics (Return Loss, V.SWR)

G6K-2F-RF



G6K-2F-RF-S



Note: **1.** Refer to the G6K specifications for basic specifications not shown above.

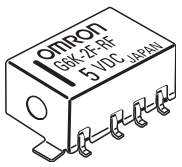
2. Ambient temperature condition: 23°C

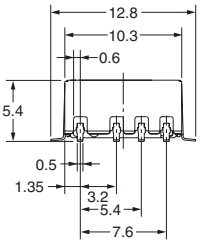
3. The high-frequency characteristics depend on the mounting board. Be sure to check operation including durability in actual equipment before use.

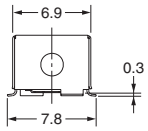
Dimensions

Note: All units are in millimeters unless otherwise indicated.

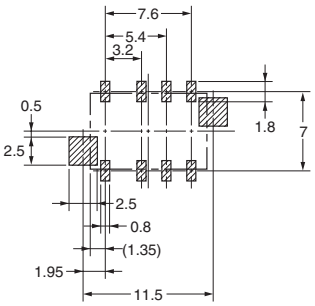
G6K-2F-RF
G6KU-2F-RF



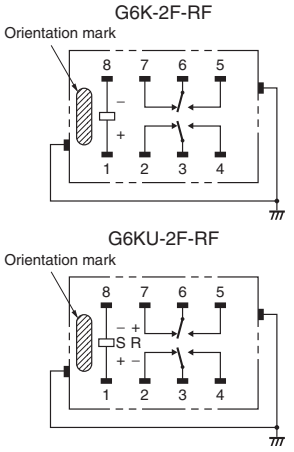




Mounting Dimensions (Top View)
Tolerance: ±0.1 mm

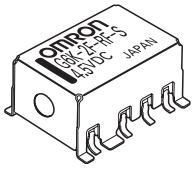


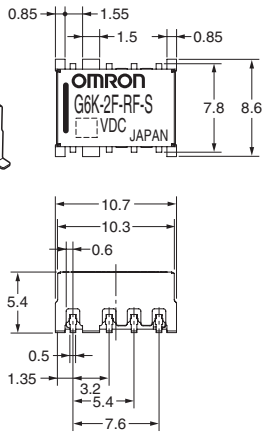
Terminal Arrangement/Internal Connections (Top View)

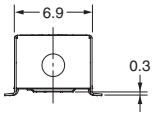


Note: **1.** Each value has a tolerance of ±0.3 mm.
2. The coplanarity of the terminals is 0.15 mm max.

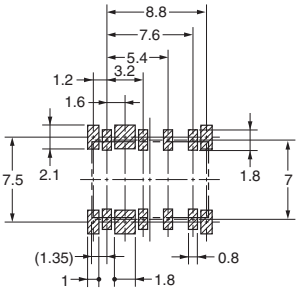
G6K-2F-RF-S
G6KU-2F-RF-S



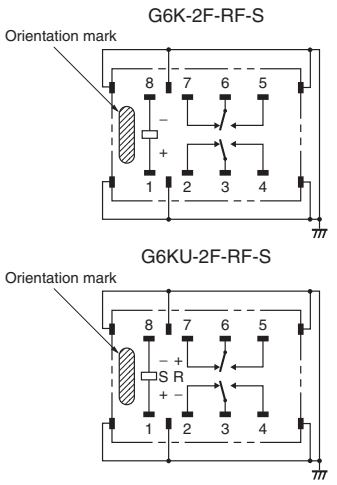




Mounting Dimensions (Top View)
Tolerance: ±0.1 mm



Terminal Arrangement/Internal Connections (Top View)

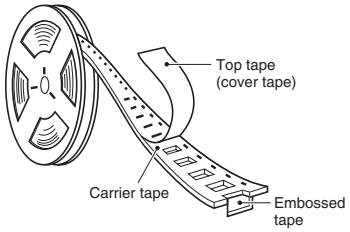


Note: **1.** Each value has a tolerance of ±0.3 mm.
2. The coplanarity of the terminals is 0.15 mm max.

Tape Packing Specifications (Surface-mounting Terminal Relays)

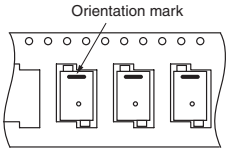
- Add "-TR03" or "-TR09" to the end of the model number to order Relays in tape packing. If "-TR" is not added, the Relays will be provided in tray packing.
  Relays per reel: 300 for "-TR03"
  900 for "-TR09"

1. Direction of Relay Insertion

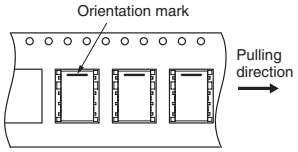


Pulling Direction

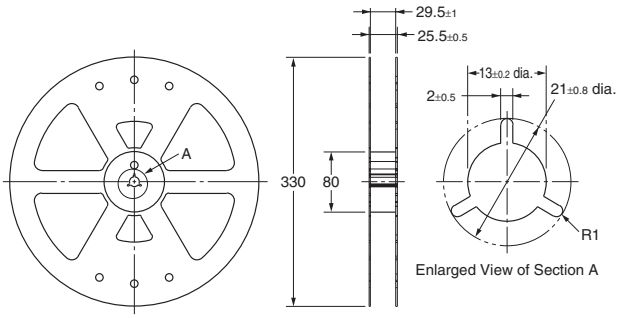
G6K(U)-2F-RF



G6K(U)-2F-RF-S

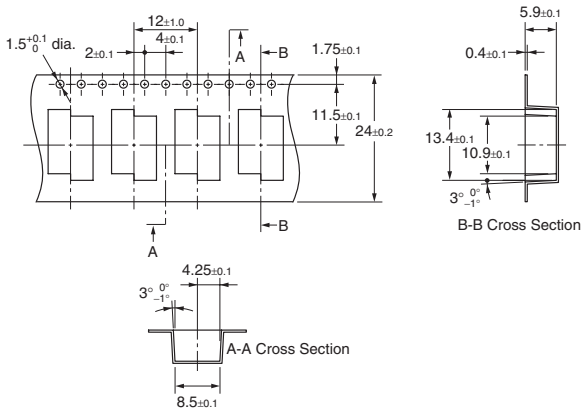


2. Reel Dimensions



3. Carrier Tape Dimensions

G6K(U)-2F-RF



G6K(U)-2F-RF-S