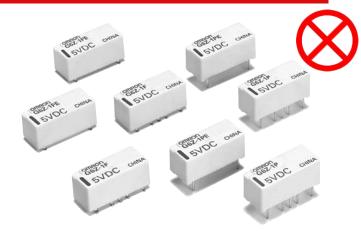
Surface-mounting High-frequency Relay

## Surface-mounting, 3-GHz-Band, Miniature, SPDT, High-frequency Relay

- · Superior high-frequency characteristics, such as an isolation of 30 dB min., insertion loss of 0.5 dB max., and V.SWR of 1.5 max.
- Surface-mounting terminals and superior high frequency characteristics combined using semi triplate strip transmission
- Miniature dimensions of 20 × 8.6 × 8.9 mm (L × W × H).
- Choose from a lineup that includes single-winding latching models (200 mW), double-winding latching models (360 mW), and models with a reverse contact arrangement.
- Series includes models with an E-shape terminal structure (same as existing models), and models with a Y-shape terminal structure, allowing greater freedom with PCB design.
- Models with 75- $\Omega$  impedance and models with 50- $\Omega$  impedance are available.

**RoHS Compliant** 



## **■**Model Number Legend

#### **G6Z**□-□□□-□□ 1 2 3 4 5 6

#### 1. Relay Function

None: Single-side stable Single-winding latching Double-winding K: latching

#### 2. Contact Form

SPDT (1c)

#### 3. Terminal Shape

Surface-mounting terminals P: PCB terminals

## 4. Terminal arrangement

None: Y-shape terminal structure

E-shape terminal structure

#### 5. Characteristic Impedance

None: 75  $\Omega$ 50 O

#### 6. Contact Arrangement

None: Standard contact arrangement R: Reverse contact arrangement

## ■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 Measuring equipment, test

 Industrial equipment: equipment, and multiplex transmission devices

## **■**Ordering Information

#### Standard Models with PCB Terminals

| Relay Function     | Enclosure rating | Contact form | Terminal arrangement | Characteristic impedance | Model      | Rated coil voltage       | Minmum packing unit |          |                          |  |
|--------------------|------------------|--------------|----------------------|--------------------------|------------|--------------------------|---------------------|----------|--------------------------|--|
|                    |                  |              | E abana              | 75 Ω                     | G6Z-1PE    | 3, 4.5, 5, 9, 12, 24 VDC |                     |          |                          |  |
| Singleside stable  |                  |              | E-shape -            | 50 Ω                     | G6Z-1PE-A  | 3, 4.5, 5, 9, 12, 24 VDC |                     |          |                          |  |
| Sirigleside stable |                  |              | Y-shape              | 75 Ω                     | G6Z-1P     | 3, 4.5, 5, 9, 12, 24 VDC | 1                   |          |                          |  |
|                    |                  |              |                      |                          |            | r-snape                  | 50 Ω                | G6Z-1P-A | 3, 4.5, 5, 9, 12, 24 VDC |  |
|                    |                  | SPDT         | E-shape              | 75 Ω                     | G6ZU-1PE   |                          | 25 pcs/tube         |          |                          |  |
| Singlewinding      | Fully sealed     |              |                      | 50 Ω                     | G6ZU-1PE-A | 3, 4.5, 5, 9, 12, 24 VDC |                     |          |                          |  |
| latching           | Fully Sealed     | (1c)         | Y-shape              | 75 Ω                     | G6ZU-1P    |                          |                     |          |                          |  |
|                    |                  |              | r-snape              | 50 Ω                     | G6ZU-1P-A  |                          |                     |          |                          |  |
|                    |                  |              | E-shape              | 75 Ω                     | G6ZK-1PE   |                          |                     |          |                          |  |
| Doublewinding      |                  |              |                      | 50 Ω                     | G6ZK-1PE-A | 2 45 5 0 12 24 VDC       |                     |          |                          |  |
| latching           |                  |              | Vahana               | 75 Ω                     | G6ZK-1P    | 3, 4.5, 5, 9, 12, 24 VDC |                     |          |                          |  |
|                    |                  |              | Y-shape              | 50 Ω                     | G6ZK-1P-A  |                          |                     |          |                          |  |

Note. Please add the coil rated voltage (V) to the model number when ordering.

Example: G67-1PF DC3

In addition, the delivered product and its package will be marked with voltage specification as "UDVDC".

## Standard Models with Surface-mounting Terminals

| Relay Function    | Enclosure rating | Contact<br>form | Terminal arrangement | Characteristic impedance | Model      | Rated coil voltage             | Minmum<br>packing unit | Minimum<br>ordering unit<br>(Tape packing) |            |                  |             |              |
|-------------------|------------------|-----------------|----------------------|--------------------------|------------|--------------------------------|------------------------|--|------------|------------------|-------------|--------------|
|                   |                  |                 | E-shape              | 75 Ω                     | G6Z-1FE    |                                |                        |  |            |                  |             |              |
| Singleside stable |                  |                 | L-Shape              | 50 Ω                     | G6Z-1FE-A  | 3, 4.5, 5, 9, 12<br>and 24 VDC |                        |  |            |                  |             |              |
| Singleside stable |                  |                 | Y-shape              | 75 Ω                     | G6Z-1F     |                                |                        |  |            |                  |             |              |
|                   |                  |                 | 1-Snape              | 50 Ω                     | G6Z-1F-A   |                                |                        |  |            |                  |             |              |
|                   |                  |                 | E-shape              | 75 Ω                     | G6ZU-1FE   |                                |                        |  |            |                  |             |              |
| Singlewinding     | Fully sealed     | SPDT            | SPDT                 | SPDT                     | SPDT       | SPDT                           |                        | 50 Ω                                       | G6ZU-1FE-A | 3, 4.5, 5, 9, 12 | 25 pcs/tube | 300 pcs/reel |
| latching          | Fully Sealed     | (1c)            | Y-shape              | 75 Ω                     | G6ZU-1F    | and 24 VDC                     | (300 pcs/<br>reel)     | 300 pcs/reel                               |            |                  |             |              |
|                   |                  |                 | 1-Snape              | 50 Ω                     | G6ZU-1F-A  |                                |                        |  |            |                  |             |              |
|                   |                  |                 | Гороло               | 75 Ω                     | G6ZK-1FE   | 3, 4.5, 5, 9, 12<br>and 24 VDC |                        |  |            |                  |             |              |
| Doublewinding     |                  |                 | E-shape              | 50 Ω                     | G6ZK-1FE-A |                                |                        |  |            |                  |             |              |
| latching          |                  |                 | Vahana               | 75 Ω                     | G6ZK-1F    |                                |                        |  |            |                  |             |              |
|                   |                  |                 | Y-shape 50 Ω         |                          | G6ZK-1F-A  |                                |                        |  |            |                  |             |              |

Note 1. Please add the coil rated voltage (V) to the model number when ordering. Example: G6Z-1PE DC3

In addition, the delivered product and its package will be marked with voltage specification as "DDVDC".

Note 2. When ordering Relays in tape packing (surface mounting terminal models), add "-TR" to the end of the model number.

This specification, however, is not part of the relay model number, so it is not marked on the relay case. (If "-TR" is not added to the end of the model number, the Relays will be provided in tube packing.)

Note 3. Consult your OMRON representative for reverse contact models.

### **■**Ratings

#### ●Coil: Single-side Stable Models (G6E-2P(E), G6Z-1F(E))

|               | Rated current (mA) | Coil resistance (Ω) | Must operate voltage (V) | (V)                | Maximum voltage<br>(V) | Power consumption (mW) |  |
|---------------|--------------------|---------------------|--------------------------|--------------------|------------------------|------------------------|--|
| Raged voltage |                    |                     |                          | % of rated voltage |                        |                        |  |
| 3 VDC         | 66.7               | 45                  |                          |                    |                        |                        |  |
| 4.5 VDC       | 44.4               | 101                 | 75% max.                 | 10% min.           | 150%                   | Approx. 200            |  |
| 5 VDC         | 40.0               | 125                 |                          |                    |                        |                        |  |
| 9 VDC         | 22.2               | 405                 | 75 /6 IIIax.             |                    |                        | Арргох. 200            |  |
| 12 VDC        | 16.7               | 720                 |                          |                    |                        |                        |  |
| 24 VDC        | 8.3                | 2,880               |                          |                    |                        |                        |  |

#### ●Coil: Single-winding Latching Models (G6ZU-1P(E), G6ZU-1F(E))

|               | Rated current (mA) | Coil resistance (Ω) | Must set voltage<br>(V) | Must reset voltage (V) | Maximum voltage (V) | Power consumption (mW) |
|---------------|--------------------|---------------------|-------------------------|------------------------|---------------------|------------------------|
| Raged voltage | (IIIA)             | (22)                |                         | (,                     |                     |                        |
| 3 VDC         | 66.7               | 45                  |                         |                        |                     |                        |
| 4.5 VDC       | 44.4               | 101                 |                         | 75% max. 75% max.      | 150%                | Approx. 200            |
| 5 VDC         | 40.0               | 125                 | 750/ may                |                        |                     |                        |
| 9 VDC         | 22.2               | 405                 | 75/6 IIIax.             |                        |                     |                        |
| 12 VDC        | 16.7               | 720                 |                         |                        |                     |                        |
| 24 VDC        | 8.3                | 2,880               |                         |                        |                     |                        |

#### ●Coil: Double-winding Latching Models (G6ZK-1P(E), G6ZK-1F(E))

|               | Rated current (mA) | Coil resistance (Ω) | Must set voltage<br>(V) | Must reset voltage (V) | Maximum voltage (V) | Power consumption (mW) |
|---------------|--------------------|---------------------|-------------------------|------------------------|---------------------|------------------------|
| Raged voltage | (IIIA)             | (52)                |                         | (11144)                |                     |                        |
| 3 VDC         | 120                | 25                  |                         |                        |                     |                        |
| 4.5 VDC       | 80                 | 56                  | 750/                    | 75% max.               | 150%                | Approx. 360            |
| 5 VDC         | 72                 | 69                  |                         |                        |                     |                        |
| 9 VDC         | 40                 | 225                 | 75% max.                |                        |                     |                        |
| 12 VDC        | 30                 | 400                 |                         |                        |                     |                        |
| 24 VDC        | 15                 | 1,600               |                         |                        |                     |                        |

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

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

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

Note 4. The voltage measurements for operate/release and set/reset are the values obtained for instantaneous changes in the voltage (rectangular wave).

#### Product information of the existing product may be different from this version.

#### Contacts

| Item Los               | ad Resistive load                                       |
|------------------------|---|
| Rated load             | 10 mA at 30 VAC<br>10 mA at 30 VDC<br>10 W at 900 MHz * |
| Rated carry current    | 0.5 A   |
| Max. switching voltage | 30 VAC, 30 VDC  |
| Max. switching current | 0.5 A   |

This value is for an impedance of  $50\Omega$  or  $75\Omega$  with a V.SWR of 1.2 max.

#### ● High-frequency Characteristics \*1

| Frequency                      |      | 900MHz       |                            |             |              | 2.6GHz       |         |         |         |
|--------------------------------|------|--------------|----------------------------|-------------|--------------|--------------|---------|---------|---------|
|                                |      | TH           |                            | SMD         |              | TH           |         | SMD     |         |
| Item                           |      | E-shape      | Y-shape                    | E-shape     | Y-shape      | E-shape      | Y-shape | E-shape | Y-shape |
| Isolation                      | 75 Ω | 65 dB min.   |                            | 60dB min.   |              | 35 dB        | 45 dB   | 30 dB   | 40 dB   |
| Isolation                      | 50 Ω | 60 dB mi     | n.                         | OUGH IIIII. |              | min.         | min.    | min.    | min.    |
| Insertion loss                 | 75 Ω | 0.2 dB m     | 0.2 dB max.<br>0.1 dB max. |             | 0.5 dB max.  |              |         |         |         |
| (not including substrate loss) | 50 Ω | 0.1 dB m     |                            |             |              | 0.3 dB max.  |         |         |         |
| V.SWR                          | 75 Ω | 1.2 dB m     | ax.                        |             |              | 1.5 dB max.  |         |         |         |
| v.ovn                          | 50 Ω | 1.1 dB m     | ax.                        |             |              | 1.3 dB max.  |         |         |         |
| Return loss                    | 75 Ω | 20.8 dB min. |                            |             |              | 14.0 dB min. |         |         |         |
| 116101111055                   | 50 Ω | 26.4 dB min. |                            |             | 17.7 dB min. |              |         |         |         |
| Maximum carry power            |      | 10W *2       |                            |             |              |              |         |         |         |

Note. The above values are initial values.

#### **■**Characteristics

|                     | Relay Function                        | Single-side stable models  | Single-winding latching models | Double-winding latching models |  |  |  |  |
|---------------------|---------------------------------------|--|--------------------------------|--------------------------------|--|--|--|--|
|                     | Model                                 | G6Z-1P(E), G6Z-1F(E)   | G6ZU-1P(E), G6ZU-1F(E)         | G6ZK-1P(E), G6ZK-1F(E)         |  |  |  |  |
| Contact res         | istance *1                            | 100 m $\Omega$ max.  |                                |                                |  |  |  |  |
| Operating (         | set) time                             | 10 ms max.   |                                |                                |  |  |  |  |
| Release (re         | set) time                             | 10 ms max.   |                                |                                |  |  |  |  |
| Minimum se          | et/reset pulse time                   | -  | 12 ms                          |                                |  |  |  |  |
| Insulation r        | esistance *2                          | 100 M $\Omega$ min. (at 500 VDC)   | •                              |                                |  |  |  |  |
|                     | Between Coil and contacts             | 1,000 VAC, 50/60 Hz for 1 min  |                                |                                |  |  |  |  |
| Dielectric strength | Between ground and coil/contacts      | 500 VAC, 50/60 Hz for 1 min  |                                |                                |  |  |  |  |
|                     | Between Contacts of the same polarity | 500 VAC, 50/60 Hz for 1 min  |                                |                                |  |  |  |  |
| Vibration           | Destruction                           | 10 to 55 to 10 Hz, 0.75 mm single amplitude (1.5 mm double amplitude)  |                                |                                |  |  |  |  |
| resistance          | Malfunction                           | 10 to 55 to 10 Hz, 0.75 mm single amplit   | ude (1.5 mm double amplitude)  |                                |  |  |  |  |
| Shock               | Destruction                           | 1,000 m/s <sup>2</sup>   |                                |                                |  |  |  |  |
| resistance          | Malfunction                           | 500 m/s <sup>2</sup>   |                                |                                |  |  |  |  |
|                     | Mechanical                            | 1,000,000 operations min. (at 36,000 operations/hour)  |                                |                                |  |  |  |  |
| Durability          | 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 op          | erating temperature                   | -40°C to 70°C (with no icing or condensation)  |                                |                                |  |  |  |  |
| Ambient op          | erating humidity                      | 5% to 85% RH   |                                |                                |  |  |  |  |
| Weight              |                                       | Approx. 2.8 g  |                                |                                |  |  |  |  |

Note. The above values are initial values.

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

<sup>\*2.</sup> These values are for an impedance of 50  $\Omega$  or 75  $\Omega$  with a V.SWR of 1.2 max.

<sup>\*1.</sup> The contact resistance was measured with 10 mA at 1 VDC with a voltage drop method.

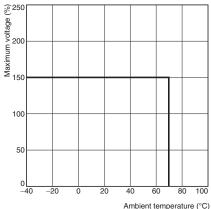
<sup>\*2.</sup> The insulation resistance was measured with a 500 VDC megohmmeter applied to the same parts as those used for checkingthe dielectric strength.

G 6 Z

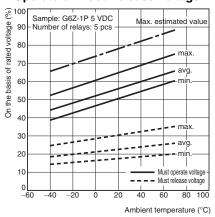
# Product information of the existing product may be different from this version.

## ■Engineering Data

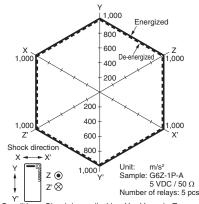
#### ■ Ambient Temperature vs. Maximum Voltage



#### Ambient Temperature vs. Must Operate or Must Release Voltage

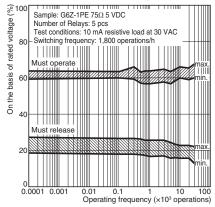


#### Shock Malfunction

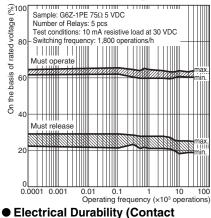


Conditions: Shock is applied in ±X, ±Y, and ±Z directions three times each with and without energizing the Relays to check for contact malfunctions.

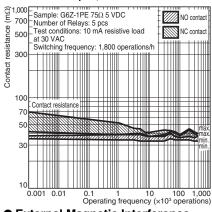
#### Electrical Durability (with Must Operate and Must Release Voltage) \*1, \*2



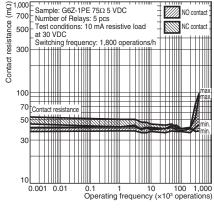
#### Electrical Durability (with Must Operate and Must Release Voltage)



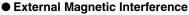
### Electrical Durability (Contact Resistance) \*1, \*2

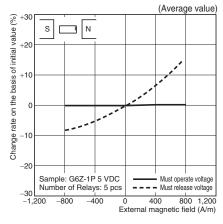


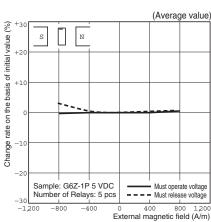
Resistance) \*1, \*2

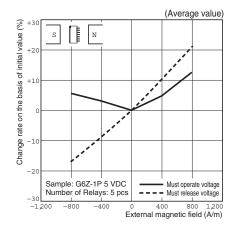


- The tests were conducted at an ambient
- temperature of 23°C. The contact resistance data are periodically measured reference values and are not values from each monitoring operation. Contact resistance values will vary according to the switching frequency and operating environment, so be sure to check operation under the actual operating conditions before



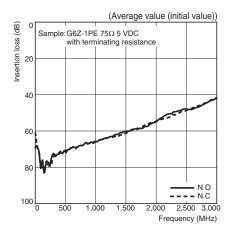




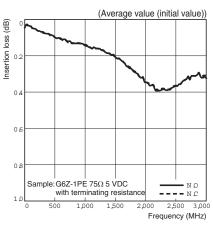


Product information of the existing product may be different from this version.

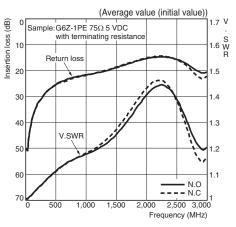
#### High-frequency Characteristics at 75Ω (Isolation) \*1, \*2



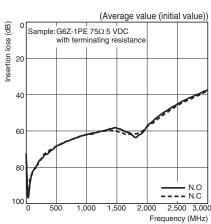
 High-frequency Characteristics at 75Ω (Insertion Loss) \*1, \*2



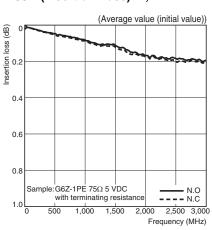
 High-frequency Characteristics at 75Ω (Return Loss, V.SWR) \*1, \*2



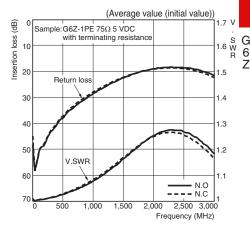
#### High-frequency Characteristics at 50Ω (Isolation) \*1, \*2



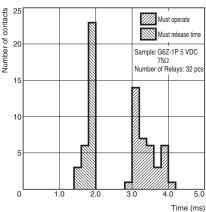
 High-frequency Characteristics at 50Ω (Insertion Loss) \*1, \*2



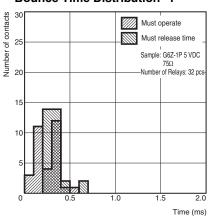
 High-frequency Characteristics at 50Ω (Return Loss, V.SWR) \*1, \*2



#### Must Operate and Must Release Time Distribution \*1



#### Must Operate and Must Release Bounce Time Distribution \*1



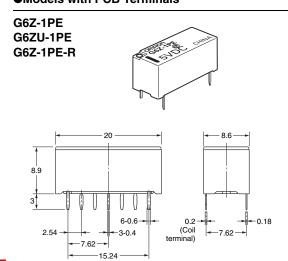
- \*1. The tests were conducted at an ambient temperature of 23°C.
- \*2. High-frequency characteristics depend on the PCB to which the Relay is mounted.

  Always check these characteristics, including endurance, in the actual machine before use.

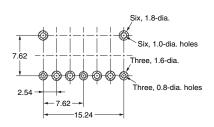
**■**Dimensions

(Unit: mm)

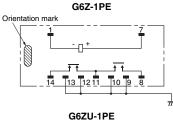
#### Models with PCB Terminals

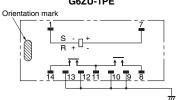


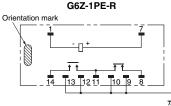
#### PCB Mounting Holes (Bottom View) Tolerance: ±0.1 mm



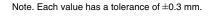
#### Terminal Arrangement/Internal Connections (Bottom View)



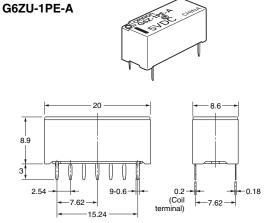




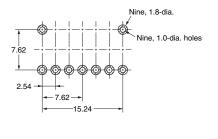
Note: Check carefully the coil polarity of the Relay.



# G6Z-1PE-A

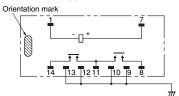


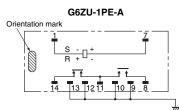
PCB Mounting Holes (Bottom View) Tolerance: ±0.1 mm



## Terminal Arrangement/Internal Connections

(Bottom View) G6Z-1PE-A





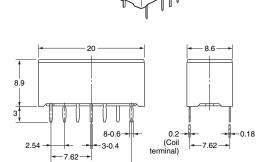
Note: Check carefully the coil polarity of the Relay."

Note. Each value has a tolerance of  $\pm 0.3$  mm.

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

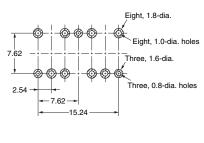
#### G6Z-1P G6ZU-1P

G 6 Z

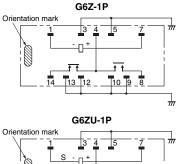


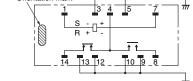
15.24

#### PCB Mounting Holes (Bottom View) Tolerance: ±0.1 mm

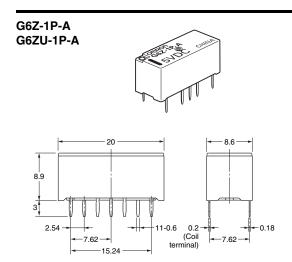


#### **Terminal Arrangement/Internal Connections** (Bottom View)

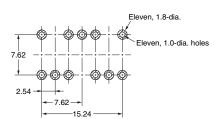




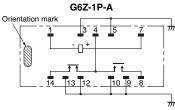
Note: Check carefully the coil polarity of the Relay."

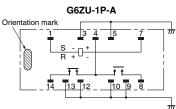


#### PCB Mounting Holes (Bottom View) Tolerance: ±0.1 mm



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

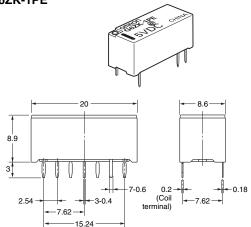




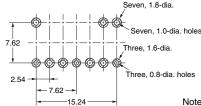
Note. Each value has a tolerance of  $\pm 0.3$  mm.

Note:Check carefully the coil polarity of the Relay.

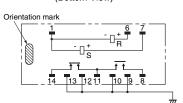




#### PCB Mounting Holes (Bottom View) Tolerance: ±0.1 mm



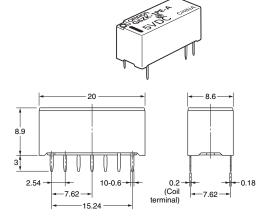
#### **Terminal Arrangement/Internal Connections** (Bottom View)



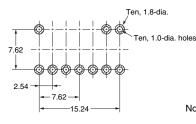
Note: Check carefully the coil polarity of the Relay.

#### Note. Each value has a tolerance of $\pm 0.3$ mm.

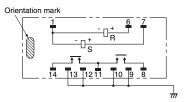
#### G6ZK-1PE-A



#### PCB Mounting Holes (Bottom View) Tolerance: ±0.1 mm

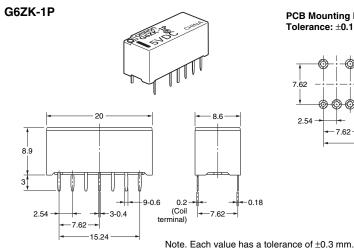


#### **Terminal Arrangement/Internal Connections** (Bottom View)

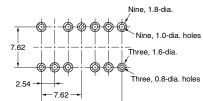


Note: Check carefully the coil polarity of the Relay.

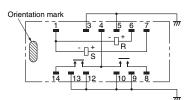
#### Note. Each value has a tolerance of $\pm 0.3$ mm.



#### PCB Mounting Holes (Bottom View) Tolerance: ±0.1 mm



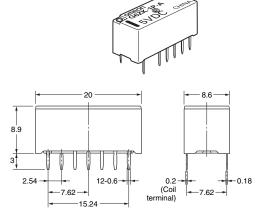
#### **Terminal Arrangement/Internal Connections** (Bottom View)



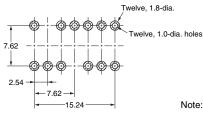
Note: Check carefully the coil polarity of the Relay.

#### G6ZK-1P-A

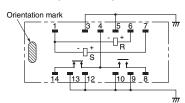
G 6 Z



#### PCB Mounting Holes (Bottom View) Tolerance: $\pm 0.1 \text{ mm}$



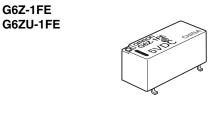
#### **Terminal Arrangement/Internal Connections** (Bottom View)



Note: Check carefully the coil polarity of the Relay.

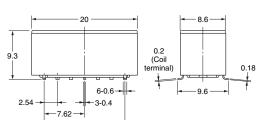
#### Note. Each value has a tolerance of $\pm 0.3$ mm.

#### •Models with Surface-mounting Terminals

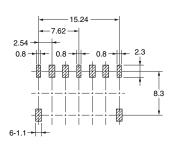


15.24

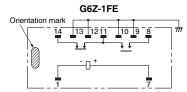


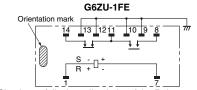


#### Mounting Dimensions (Top View) Tolerance: ±0.1 mm



#### **Terminal Arrangement/Internal Connections** (Top View)





Note: Check carefully the coil polarity of the Relay.

Note 1. Each value has a tolerance of ±0.3 mm.

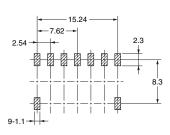
Note 2. The coplanarity of the terminals is 0.1 mm max.

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

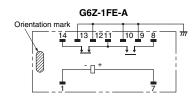
15.24

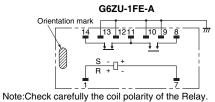
15.24

## Mounting Dimensions (Top View) Tolerance: $\pm 0.1 \text{ mm}$

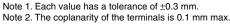


Terminal Arrangement/Internal Connections (Top View)





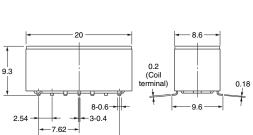
0.3 mm. Note:Check carefully the coi



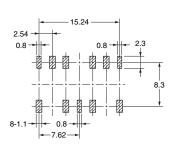
0.18



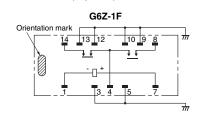


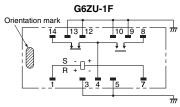


Mounting Dimensions (Top View)
Tolerance: ±0.1 mm



Terminal Arrangement/Internal Connections (Top View)

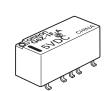


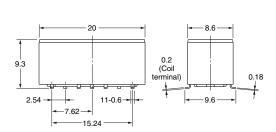


Note:Check carefully the coil polarity of the Relay.

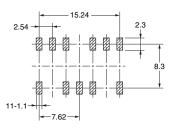
## Note 1. Each value has a tolerance of $\pm 0.3$ mm. Note 2. The coplanarity of the terminals is 0.1 mm max.

#### G6Z-1F-A G6ZU-1F-A



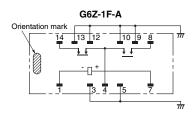


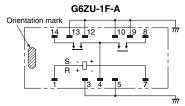
Mounting Dimensions (Top View) Tolerance:  $\pm 0.1$  mm



Note 1. Each value has a tolerance of  $\pm 0.3$  mm. Note 2. The coplanarity of the terminals is 0.1 mm max.

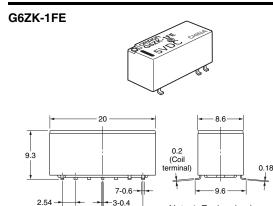
## Terminal Arrangement/Internal Connections (Top View)





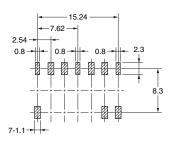
Note: Check carefully the coil polarity of the Relay.

Product information of the existing product may be different from this version.

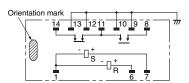


15.24

#### Mounting Dimensions (Top View) Tolerance: ±0.1 mm



#### **Terminal Arrangement/Internal Connections** (Top View)

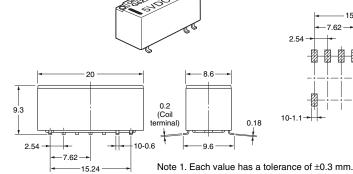


Note: Check carefully the coil polarity of the Relay.

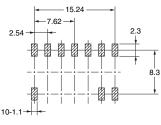
#### Note 1. Each value has a tolerance of ±0.3 mm.

Note 2. The coplanarity of the terminals is 0.1 mm max.

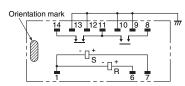
## G6ZK-1FE-A



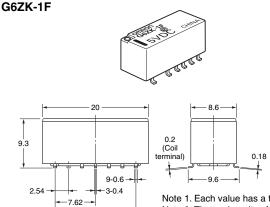
#### Mounting Dimensions (Top View) Tolerance: ±0.1 mm



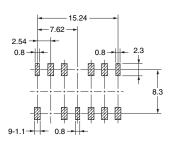
#### Terminal Arrangement/Internal Connections (Top View)



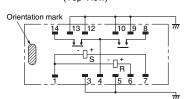
Note: Check carefully the coil polarity of the Relay.



#### Mounting Dimensions (Top View) Tolerance: ±0.1 mm



#### **Terminal Arrangement/Internal Connections** (Top View)



Note: Check carefully the coil polarity of the Relay.

#### Note 1. Each value has a tolerance of $\pm 0.3$ mm.

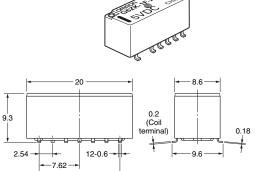
#### Note 2. The coplanarity of the terminals is 0.1 mm max.

Note 2. The coplanarity of the terminals is 0.1 mm max.

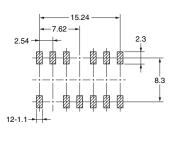
#### G6ZK-1F-A

15.24

15.24



#### Mounting Dimensions (Top View) Tolerance: ±0.1 mm



## **Terminal Arrangement/Internal Connections**

# (Top View)

Note: Check carefully the coil polarity of the Relay.

Note 1. Each value has a tolerance of ±0.3 mm.

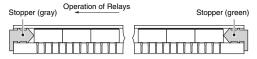
Note 2. The coplanarity of the terminals is 0.1 mm max.

### ■Tube Packing and Tape Packing

#### (1) Tube Packing

 Relays in tube packing are arranged so that the orientation mark of each Relay in on the left side.

Be sure not to make mistakes in Relay orientation when mounting the Relay to the PCB.



Tube length: 530 mm (stopper not included)

No. of Relays per tube: 25 pcs

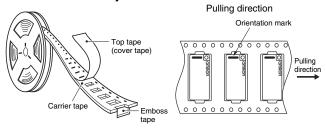
#### (2) Tape Packing (Surface-mounting Terminal Models)

 When ordering Relays in tape packing, add the prefix "-TR" to the model number, otherwise the Relays in tube packing will be provided.

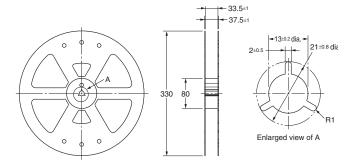
Relays per Reel: 300 pcs

Minimum packing unit: 1 Reel (300 pcs)

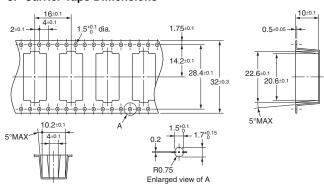
#### 1. Direction of Relay Insertion



#### 2. Reel Dimensions



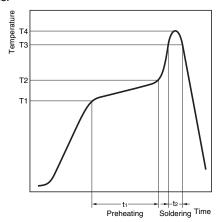
#### 3. Carrier Tape Dimensions



Note. The radius of the unmarked corner is 0.3 mm.

### **■**Recommended Soldering Method

- ●Temperature Conditions for IRS Method
- When using reflow soldering, ensure that the Relay terminals and the top of the case stay below the following curve. Check that these conditions are actually satisfied before soldering the terminals.



| Measured part | Preheating<br>(T1→T2, t1) | Soldering<br>(T3, t2)   | Maximum peak<br>(T4) |
|---------------|---------------------------|-------------------------|----------------------|
| Terminals     | 150→180°C,<br>120 s max.  | 230°C min,<br>30 s max. | 250°C max.           |
| Top of case   | _                         | _                       | 255°C max.           |

 Do not quench the terminals after mounting. Clean the Relay using alcohol or water no hotter than 40°C max.  $\bullet$  The thickness of cream solder to be applied should be between 150 and 200  $\mu m$  on OMRON's recommended PCB pattern.

# Correct Soldering Incorrect Soldering Relay Terminal Land PCB Solder Insufficient amount of solder Excessive amount of solder

Check the soldering in the actual mounting conditions before use.

#### ■Precautions

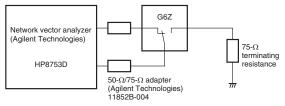
 For general precautions on PCB Relays, refer to the precautions provided in General Information of the Relay Product Data Book.

#### Correct Use

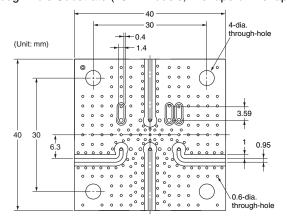
#### High-frequency Characteristics Measurement Method and Measurement Substrate

• High-frequency characteristics for the G6Z are measured in the way shown below. Consult your OMRON representative for details on 50- $\Omega$  models.

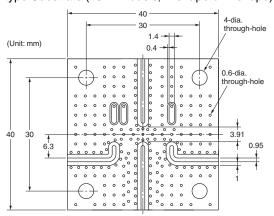
#### Measurement Method for 75- $\Omega$ Models



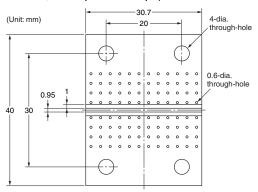
Through-hole Substrate (75-Ω Models, E-shape or Y-shape)



#### SMD-type Substrate (75- $\Omega$ Models, E-shape or Y-shape)



## Substrate for High-frequency Characteristic Compensation (75- $\Omega$ Models, E-shape or Y-shape)



#### **Substrate Types**

Material: FR-4 glass epoxy (glass cloth impregnated with epoxy resin and copper laminated to its outer surface)

Thickness: 1.6 mm

Thickness of copper plating: 18 µm

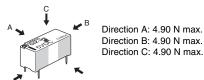
- Note 1. The compensation substrate is used when measuring the Relay's insertion loss. The insertion loss is obtained by subtracting the measured value for the compensation substrate from the measured value with the Relay mounted to the high-frequency measurement substrate.
- Note 2. For convenience, the diagrams of the high-frequency measurement substrates given here apply both to models with an E-shape terminal structure and to models with a Y-shape terminal structure.
- Note 3. Be sure to mount a standoff tightly to the through-hole substrate.
- Note 4. Use measuring devices, connectors, and substrates that are appropriate for  $50\Omega$  and  $75\Omega$  respectively.
- Note 5. Ensure that there is no pattern under the Relay. Otherwise, the impedance may be adversely affected and the Relay may not be able to attain its full characteristics.

#### Handling

- Do not use the Relay if it has been dropped. Dropping the Relay may adversely affect its functionality.
- Protect the Relay from direct sunlight and keep the Relay under normal temperature, humidity, and pressure.
- Use the Relay as soon as possible after opening the moistureproof package. If the Relay is left for a long time after opening the moisture-proof package, the appearance may suffer and seal failure may occur after the solder mounting process. To store the Relay after opening the moisture-proof package, place it into the original package and sealed the package with adhesive tape.
- When washing the product after soldering the Relay to a PCB, use a water-based solvent or alcohol-based solvent, and keep the solvent temperature to less than 40°C. Do not put the relay in a cold cleaning bath immediately after soldering.

#### ◆Claw Securing Force During Automatic Mounting

 During automatic insertion of Relays, be sure to set the securing force of each claw to the following so that the Relay's characteristics will be maintained.



Secure the claws to the shaded area. Do not attach them to the center area or to only part of the Relay.

#### ●Latching Relay Mounting

• Make sure that the vibration or shock that is generated from other devices, such as Relays, on the same panel or substrate and imposed on the Latching Relay does not exceed the rated value, otherwise the set/reset status of the Latching Relay may be changed. The Latching Relay is reset before shipping. If excessive vibration or shock is imposed, however, the Latching Relay may be set accidentally. Be sure to apply a reset signal before use.

#### ●Coating

 Do not use silicone coating to coat the Relay when it is mounted to the PCB. Do not wash the PCB after the Relay is mounted using detergent containing silicone. Otherwise, the detergent may remain on the surface of the Relay.

#### Repeatability

 Contact your OMRON representative if the Relay will be used in an application that requires high repeatability in high-frequencycharacteristics for the microload region. (Such applications include testing and measurement equipment and ATE applications.)

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.

Contact: www.omron.com/ecb

Note: Do not use this document to operate the Unit.

**OMRON Corporation** 

**Electronic and Mechanical Components Company** 

Cat. No. K124-E1-04 0214(0207)(O)

## **Mouser Electronics**

**Authorized Distributor** 

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