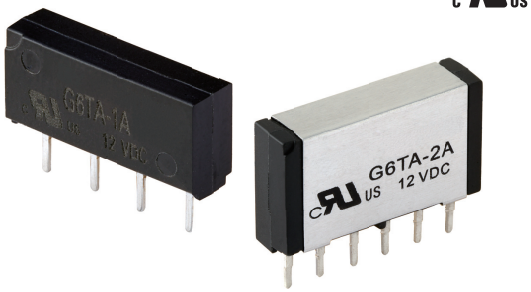
# G6TA

## Reed Relay

## Compact Reed Relay for Signal Circuits

- Compact reed relays with SPST and DPST contacts.
  G6TA-1A(SPST) L: 15.3 x W: 3.8 x H:7.0 mm
  G6TA-2A(DPST) L: 15.3 x W: 3.8 x H:8.9 mm
- SIP (Single Inline Package) Reed relay as an industry-standard product
- Long Electrical life 500,000,000 ops. at 1 VDC, 10 mA
- UL safety standards available

⚠ **Refer to the *Precautions* on page 6.**




## Parts Number Structure

**G6TA - □□ - □□**

**(1)** **(2)**

**(1)Number of poles/Contact Form**
1A: 1-pole/SPST-NO(1a)
2A: 2-pole/DPST-NO(2a)

**(2)Internal Structure**
None: Standard type
MS: Magnetic Shield type
*2-pole model is only magnetic shield type as standard.

## Application Examples

- Power and Energy Equipment, PV inverter
- BA equipment, Security equipment
- Measurement equipment
- ATE (Automated Test Equipment)
- Factory Automation Equipment

## Standard Specifications

**Protective structure:**
G6TA-1A/G6TA-1A-MS: Fully sealed
G6TA-2A : Flux Protection

## Ordering Information

| Model | Relay Function | Terminal shapes | Rated coil voltage (V) | Minimum packing unit |
|---|---|---|---|---|
| SPST-NO(1a) | **G6TA-1A**<br>**G6TA-1A-MS** | PCB terminal | 5 VDC | 30 Relays / tube |
| | | | 12 VDC | |
| DPST-NO(2a) | **G6TA-2A** | | 5 VDC | |
| | | | 12 VDC | |

**Note:** When ordering, add the rated coil voltage to the model number.
Example: G6TA-1A-MS DC12
└── Rated coil voltage

However, the notation of the coil voltage on the product case as well as on the packing will be marked as □□ VDC.

## Ratings

### ●Coil Ratings

| Model | Rated voltage | Rated current (mA) | Coil resistance (Ω) | Must-operate voltage | Must-release voltage | Max. Voltage (V) | Power consumption |
|---|---|---|---|---|---|---|---|
| | | | | % of rated voltage | | | |
| **G6TA-1A**<br>**G6TA-1A-MS** | 5 VDC | 10 | 506 | 80% max | 8% min. | 150% | approx. 50 mW |
| | 12 VDC | 12 | 1,012 | | | | approx. 140 mW |
| **G6TA-2A** | 5 VDC | 13 | 380 | | | | approx. 70 mW |
| | 12 VDC | 16 | 760 | | | | approx. 190 mW |

**Note: 1.** The rated current and coil resistance are measured at a coil temperature of 23°C with a tolerance of ±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.** Apply only the rated voltage to coils.

### ●Contact Ratings

| Type \ Model | G6TA-1A<br>G6TA-1A-MS | G6TA-2A |
|---|---|---|
| **Contact Rating** | 10 W | |
| **Load** | Resistive load | |
| **Rated load** | 1 VDC 10 mA | |
| **Max. Carry Current** | 1.5 A | 1.2 A |
| **Max.switching voltage** | 200 VDC | |
| **Max.switching current** | 0.5 A | |

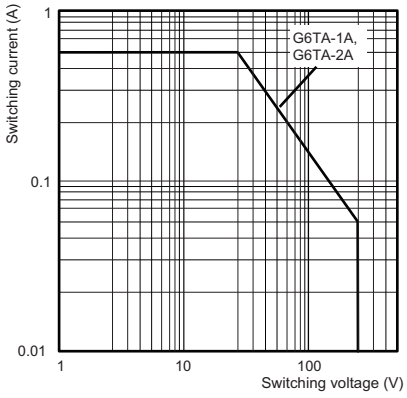
# Characteristics

| Type \ Model | | G6TA-1A<br>G6TA-1A-MS | G6TA-2A |
|---|---|---|---|
| Contact resistance *1 | | 125 mΩ max | 140 mΩ max |
| Operate time *2 | | 0.4 ms | 0.6 ms |
| Release time *2 | | 0.2 ms | 0.4 ms |
| Insulation resistance | | Typ. $10^{12}$Ω | |
| Dielectric strength | Between coil and contacts | 1,500 VDC | |
| | Between contacts of the same polarity | 200 VDC | |
| Vibration resistance | | 20 G<br>10 to 55 to 10 HZ double amplitude 1.52 mm | |
| Shock resistance | | 50 G (11 ms 1/2 Sin Wave) | |
| Capacitance | across open contacts | Typ. 0.6 pF | Typ. 1.0 pF |
| | open contact to coil | Typ. 1.4 pF | Typ. 2.0 pF |
| Endurance | Electrical | 500,000,000 operations (10 mA at 1 VDC)<br>at 540,000 operations/hour | |
| Ambient operating temperature | | -20 °C to +85 °C | |
| Ambient operating humidity | | 40% RH to 65% RH | |
| Weight | | Approx. 0.9 g | Approx. 1.3 g |

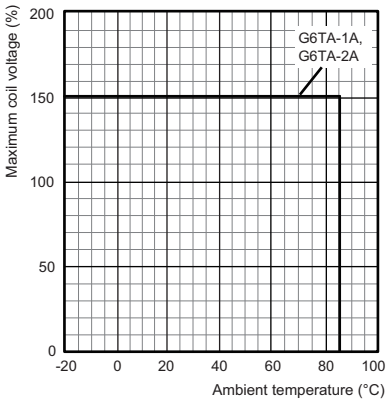
**Note:** Values in the above table are initial values.
*1. The contact resistance is measured with 10 mA applied at 5 VDC using a fall-of-potential method.
*2. Measurement conditions: At rated operating voltage, including contact bounce.

# Engineering Data

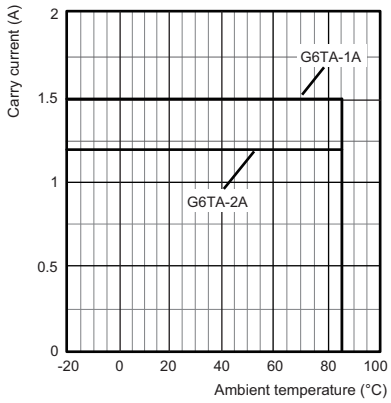
**●Maximum Switching Capacity**



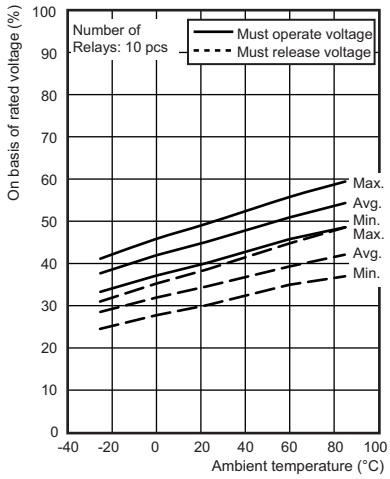

**●Ambient Temperature vs. Maximum Coil Voltage**



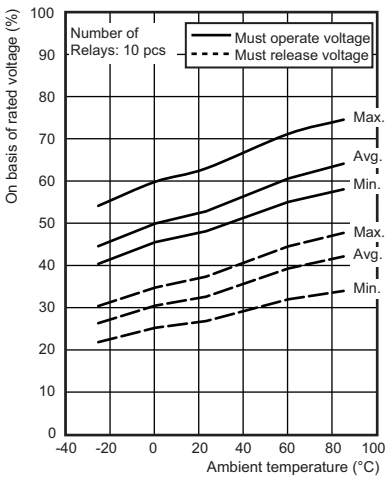

**●Ambient Temperature vs. Carry Current**



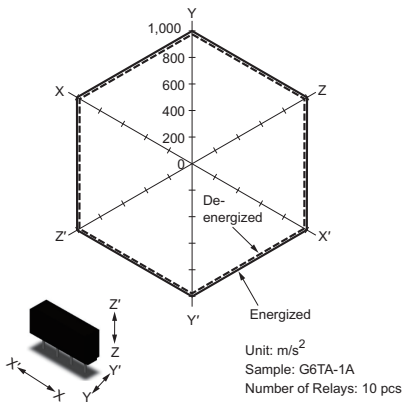

**●Ambient Temperature vs. Must Operate or Must Release Voltage G6TA-1A(-MS)**




**●Ambient Temperature vs. Must Operate or Must Release Voltage G6TA-2A**




**●Shock Malfunction**



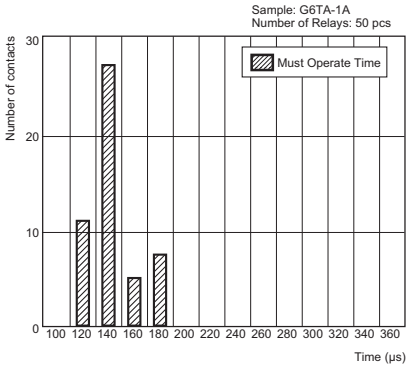

Unit: m/s$^2$
Sample: G6TA-1A
Number of Relays: 10 pcs

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

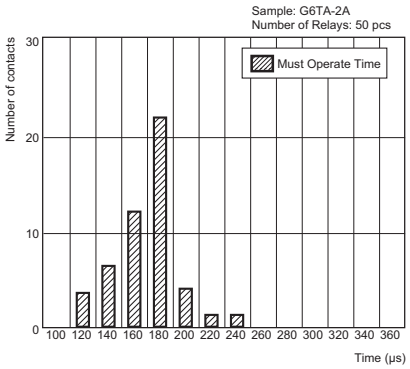
# Engineering Data

## ●Must Operate Time Distribution

### G6TA-1A

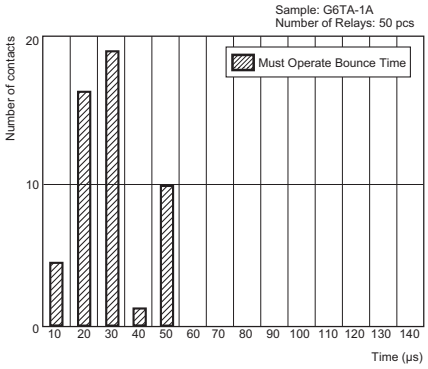



### G6TA-2A

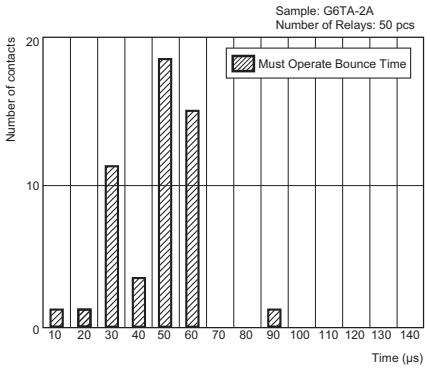



## ●Must Operate Bounce Time Distribution

### G6TA-1A

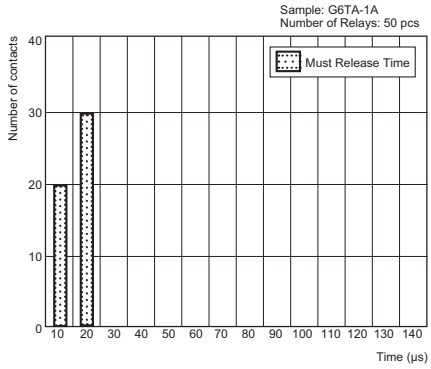



### G6TA-2A

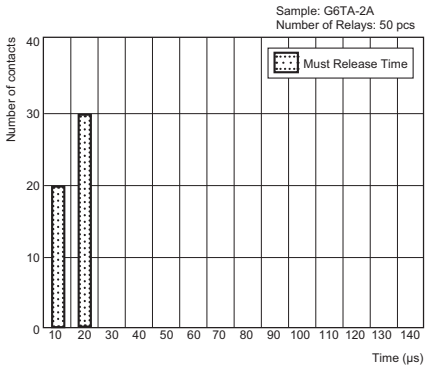



## ●Must Release Time Distribution

### G6TA-1A

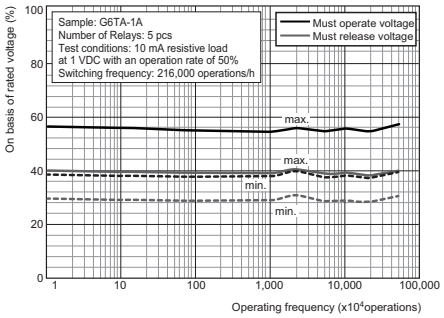



### G6TA-2A

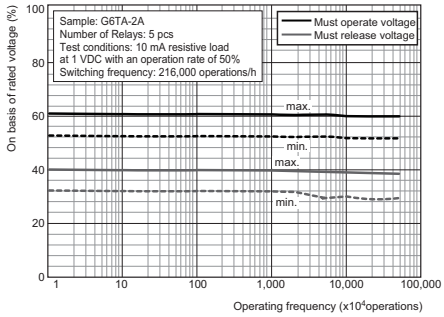



## ●Electrical Durability (with Must Operate and Must Release Voltage)

### G6TA-1A

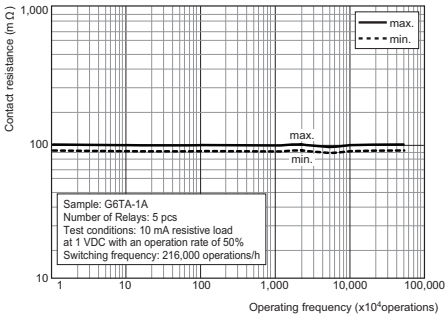



### G6TA-2A

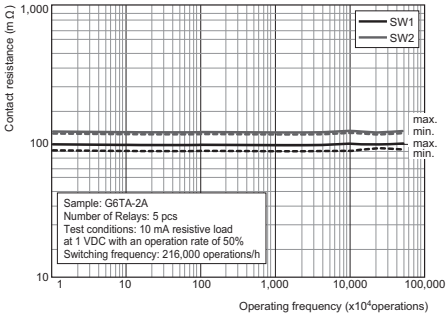



## ●Electrical Durability (Contact Resistance)

### G6TA-1A

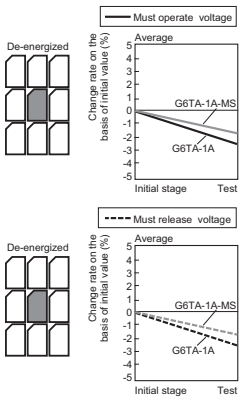



### G6TA-2A



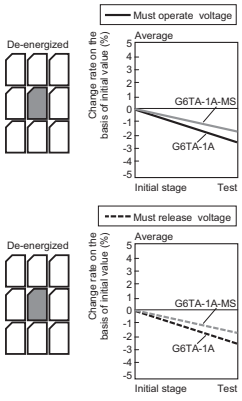

## ●Mutual Magnetic Interference (De-energized)

### G6TA-1A v.s. G6TA-1A-MS




## ●Mutual Magnetic Interference (Energized)

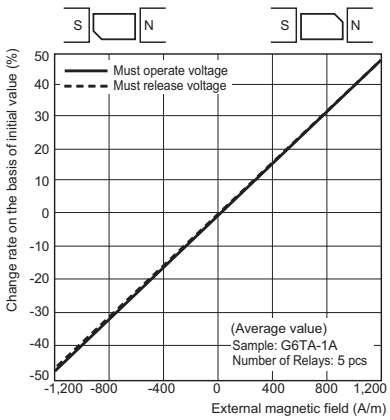
### G6TA-1A v.s. G6TA-1A-MS



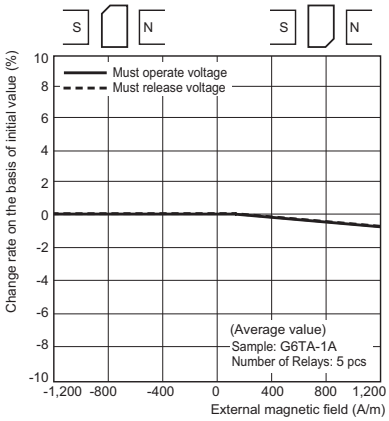
# Engineering Data

●External Magnetic Interference

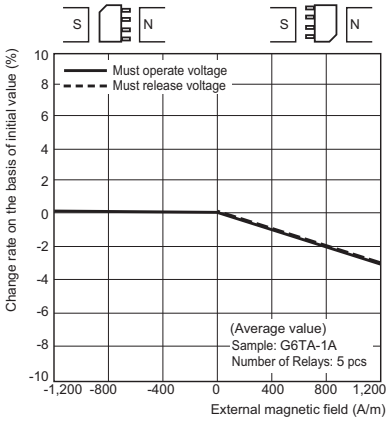
**G6TA-1A**



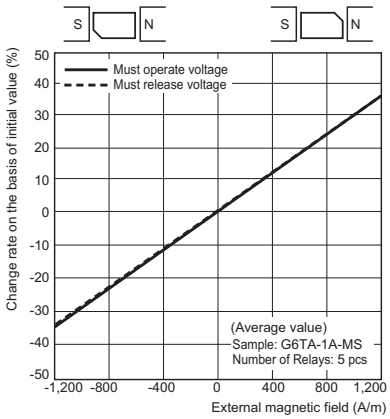

**G6TA-1A**



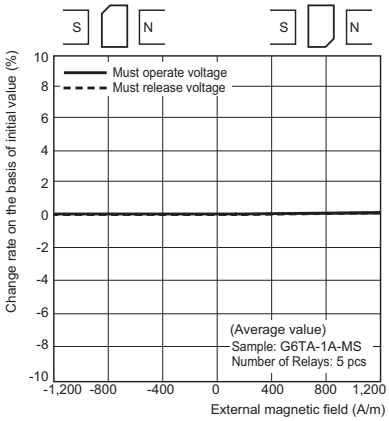

**G6TA-1A**



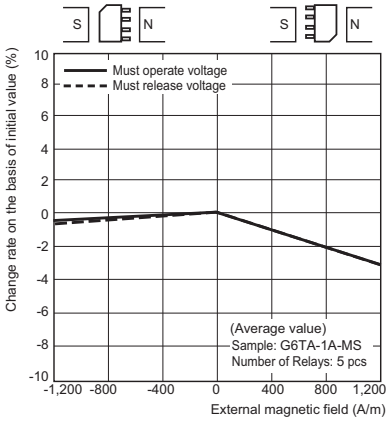

**G6TA-1A-MS**



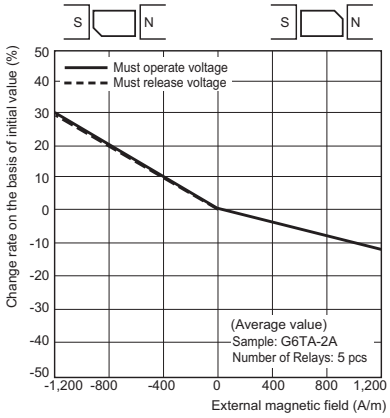

**G6TA-1A-MS**



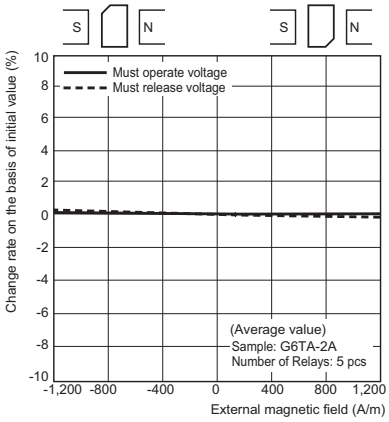

**G6TA-1A-MS**



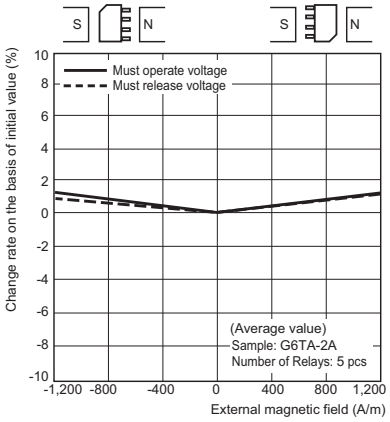

**G6TA-2A**




**G6TA-2A**




**G6TA-2A**

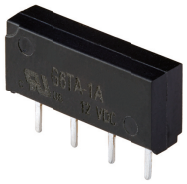


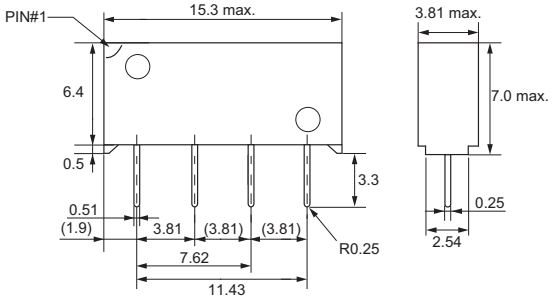
# Dimensions

CAD Data marked products, 2D drawings and 3D CAD models are available.
For CAD information, please visit our website, which is noted on the last page.

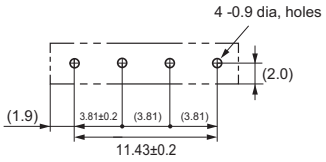
(Unit: mm)

## G6TA-1A
## G6TA-1A-MS

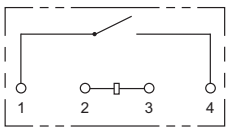





**Mounting Dimensions (BOTTOM VIEW)**




**Terminal Arrangement/ Internal Connections**

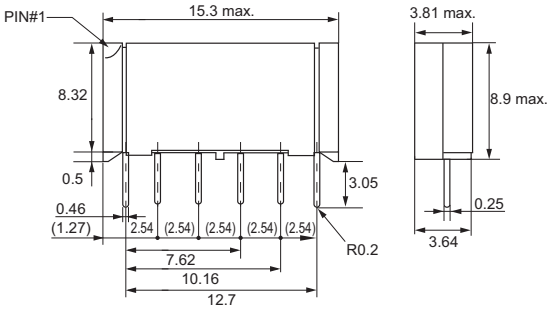



Each value has a tolerance of ±0.2 mm

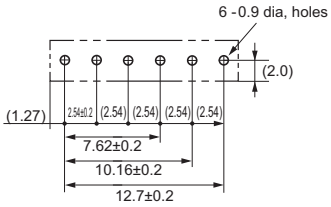
CAD Data

## G6TA-2A

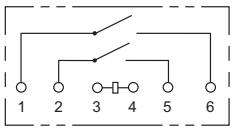



**Mounting Dimensions (BOTTOM VIEW)**




**Terminal Arrangement/ Internal Connections (BOTTOM VIEW)**




Each value has a tolerance of ±0.2 mm

CAD Data

# Approved Standards

**UL/C-UL Recognized (File No. E555633)**

| Model | Coil | Contact ratings | Operations |
|---|---|---|---|
| **G6TA-1A**<br>**G6TA-1A-MS** | 5 or 12 VDC | 200 VDC 0.05 A (10 W) Resistive<br>20 VDC 0.5 A (10 W) Resistive | 6,000 |
| **G6TA-2A** | 5 or 12 VDC | 200 VDC 0.05 A (10 W) Resistive<br>20 VDC 0.5 A(10 W) Resistive | 6,000 |

# Precautions

**●Please refer to "PCB Relays Common Precautions" for correct use.**

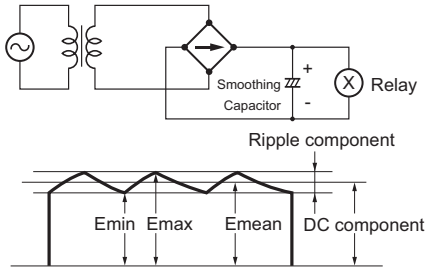
**Precautions for Safe Use**

## ●Vibration and Shock

- Do not subject the reed relay to vibration or shock exceeding the rated values.
  Excessive vibration or shock may damage the internal reed switch, crack the glass envelope, or cause changes in relay characteristics. This may result in malfunction or a reduction in relay performance.
  Handle the relay carefully during transportation, mounting, and operation.

## ●Input Power Supply Ripple

- For the coil drive power supply, use a power supply with a ripple factor of 5% maximum.
  Because reed relays operate at high speed, an increase in the ripple factor may cause unintended contact operation in response to fluctuations in the power supply waveform, resulting in malfunction.
  Be sure to check operation under the actual application conditions.




$$\text{Ripple Percentage\%} = \frac{\text{Emax-Emin}}{\text{Emean}} \times 100\%$$

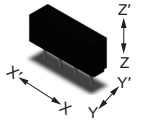
Emax =Maximum Value of Ripple Component
Emin =Minimum Value of Ripple Component
Emean=Mean Value of DC Component

## ●Selection of -MS Models (with Magnetic Shielding)

- As shown in the reference data on page 3, Magnetic Interference (Between Relays, De-energized/Energized), the magnetic shielding incorporated in the -MS models reduces characteristic variation caused by magnetic interference between adjacent relays by several percentage points when relays are mounted in close proximity.Therefore, when minimizing characteristic variation due to magnetic interaction between closely mounted relays is required, the use of -MS models is recommended. In addition, -MS models generate less magnetic flux from the relay itself, thereby reducing the influence on surrounding components.

## ●Influence of External Magnetic Fields

- As shown in the reference data on page 4, Magnetic Interference (External Magnetic Field), the relay is particularly susceptible to magnetic fields in the X–X' direction. Therefore, when the relay is used near sources of magnetic fields, the mounting orientation should be carefully selected.




## ●Load Switching

- When a reed relay is used for hot switching, arcing generated during load switching may cause contact wear and reduce relay life.
  Dry switching minimizes contact wear and provides superior durability because the contacts are hermetically sealed in a glass envelope, helping to maintain stable contact resistance.
  Dry switching is recommended for reed relays whenever possible.
  Be sure to check operation under the actual application conditions.

## ●Thermal Electromotive Force

- Because reed relays contain dissimilar metals in the conductive path, a small thermal electromotive force (thermal EMF) is generated.
  When switching or measuring microvolt-level signals, carefully consider the influence of thermal EMF, as it may affect circuit accuracy.
  Be sure to confirm performance under the actual application conditions.

## ●Effects of Long Wiring

- Long wiring connected to relay contacts forms parasitic capacitance to ground and between conductors.
  Even when the contacts are open, displacement current may flow through the parasitic capacitance, resulting in leakage-current-like behavior or residual voltage. These effects may become significant in high-impedance or low-level signal applications.
  The capacitance associated with long wiring may also generate inrush current during contact switching. Excessive inrush current may cause contact wear and reduce relay life.
  Be sure to check operation under the actual application conditions.

Please check each region's Terms & Conditions by region website.

## Aratas Corporation

### Regional Contact


**Americas**
https://www.aratas.com/us-en/

**Europe**
https://www.aratas.com/eu-en/

**Asia-Pacific**
https://www.aratas.com/sg-en/

**Japan**
https://www.aratas.com/jp-ja/

**China**
https://www.aratas.com.cn/

**Korea**
https://www.aratas.com/kr-en/



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In the interest of product improvement, specifications are subject to change without notice.



**Cat. No. K367-E1-01**
0826 (0826)