TYPES

1. Standard (B.B.M.) type

1) Standard PC board terminal

Contact arrangement	Nominal coil voltage	Single side stable	1 coil latching
		Part No.	Part No.
2 Form C	3 V DC	TXD2-3V	TXD2-L-3V
	4.5 V DC	TXD2-4.5V	TXD2-L-4.5V
	5 V DC	TXD2-5V	TXD2-L-5V
	6 V DC	TXD2-6V	TXD2-L-6V
	9 V DC	TXD2-9V	TXD2-L-9V
	12 V DC	TXD2-12V	TXD2-L-12V
	24 V DC	TXD2-24V	TXD2-L-24V

Standard packing: Tube: 40 pcs.; Case: 1,000 pcs.
Note: Please add “-1” to the end of the part number for AgPd contacts (low level load).

2) Surface-mount terminal

(1) Tube packing

Contact arrangement	Nominal coil voltage	Single side stable	1 coil latching
		Part No.	Part No.
2 Form C	3 V DC	TXD2SA-3V	TXD2SA-L-3V
	4.5 V DC	TXD2SA-4.5V	TXD2SA-L-4.5V
	5 V DC	TXD2SA-5V	TXD2SA-L-5V
	6 V DC	TXD2SA-6V	TXD2SA-L-6V
	9 V DC	TXD2SA-9V	TXD2SA-L-9V
	12 V DC	TXD2SA-12V	TXD2SA-L-12V
	24 V DC	TXD2SA-24V	TXD2SA-L-24V

Standard packing: Tube: 40 pcs.; Case: 1,000 pcs.
Note: Please add “-1” to the end of the part number for AgPd contacts (low level load).

(2) Tape and reel packing

Contact arrangement	Nominal coil voltage	Single side stable	1 coil latching
		Part No.	Part No.
2 Form C	3 V DC	TXD2SA-3V-Z	TXD2SA-L-3V-Z
	4.5 V DC	TXD2SA-4.5V-Z	TXD2SA-L-4.5V-Z
	5 V DC	TXD2SA-5V-Z	TXD2SA-L-5V-Z
	6 V DC	TXD2SA-6V-Z	TXD2SA-L-6V-Z
	9 V DC	TXD2SA-9V-Z	TXD2SA-L-9V-Z
	12 V DC	TXD2SA-12V-Z	TXD2SA-L-12V-Z
	24 V DC	TXD2SA-24V-Z	TXD2SA-L-24V-Z

Standard packing: Tape and reel: 500 pcs.; Case: 1,000 pcs.
Notes: 1. Tape and reel packing symbol “-Z” is not marked on the relay. “X” type tape and reel packing (picked from 1/3/4/5-pin side) is also available.
2. Tape and reel packing symbol “-Y” is not marked on the relay. “W” type tape and reel packing (picked from 1/3/4/5-pin side) is also available.
3. Please add “-1” to the part number for AgPd contacts (low level load).(Ex. TXD2SA-3V-1-Z)

2. M.B.B type

1) Standard PC board terminal

Contact arrangement	Nominal coil voltage	Single side stable
		Part No.
2 Form C	3 V DC	TXD2-2M-3V
	4.5 V DC	TXD2-2M-4.5V
	5 V DC	TXD2-2M-5V
	6 V DC	TXD2-2M-6V
	9 V DC	TXD2-2M-9V
	12 V DC	TXD2-2M-12V
	24 V DC	TXD2-2M-24V

Standard packing: Tube: 40 pcs.; Case: 1,000 pcs.

2) Surface-mount terminal

(1) Tube packing

Contact arrangement	Nominal coil voltage	Single side stable
		Part No.
2 Form C	3 V DC	TXD2SA-2M-3V
	4.5 V DC	TXD2SA-2M-4.5V
	5 V DC	TXD2SA-2M-5V
	6 V DC	TXD2SA-2M-6V
	9 V DC	TXD2SA-2M-9V
	12 V DC	TXD2SA-2M-12V
	24 V DC	TXD2SA-2M-24V

Standard packing: Tube: 40 pcs.; Case: 1,000 pcs.

(2) Tape and reel packing

Contact arrangement	Nominal coil voltage	Single side stable
		Part No.
2 Form C	3 V DC	TXD2SA-2M-3V-Z
	4.5 V DC	TXD2SA-2M-4.5V-Z
	5 V DC	TXD2SA-2M-5V-Z
	6 V DC	TXD2SA-2M-6V-Z
	9 V DC	TXD2SA-2M-9V-Z
	12 V DC	TXD2SA-2M-12V-Z
	24 V DC	TXD2SA-2M-24V-Z

Standard packing: Tape and reel: 500 pcs.; Case: 1,000 pcs.

Notes: 1. Types designed to withstand strong vibration caused, for example, by the use of terminal cutters, can also be ordered. However, please contact us if you need parts for use in low level load. (Ex. TXD2SA-2M-3V-1-Z)

2. Tape and reel packing symbol "-Z" is not marked on the relay. "X" type tape and reel packing (picked from 1/3/4/5-pin side) is also available.

RATING

1.Coil data

- Operating characteristics such as 'Operate voltage' and 'Release voltage' are influenced by mounting conditions, ambient temperature, etc.
  Therefore, please use the relay within ± 5% of rated coil voltage.
- 'Initial' means the condition of products at the time of delivery.

[Standard (B.B.M.) type]

1) Single side stable

Nominal coil voltage	Pick-up voltage (at 20°C 68°F)	Drop-out voltage (at 20°C 68°F)	Nominal operating current [±10%] (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Nominal operating power	Max. applied voltage (at 20°C 68°F)
3 V DC	75%V or less of nominal voltage* (Initial)	10%V or more of nominal voltage* (Initial)	66.7 mA	45 Ω	200 mW	120%V of nominal voltage
4.5 V DC			44.4 mA	101 Ω		
5 V DC			40.0 mA	125 Ω		
6 V DC			33.3 mA	180 Ω		
9 V DC			22.2 mA	405 Ω		
12 V DC			16.7 mA	720 Ω		
24 V DC			9.6 mA	2,504 Ω	230 mW	

2) 1 coil latching

Nominal coil voltage	Set voltage (at 20°C 68°F)	Reset voltage (at 20°C 68°F)	Nominal operating current [±10%] (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Nominal operating power	Max. applied voltage (at 20°C 68°F)
3 V DC	75%V or less of nominal voltage* (Initial)	75%V or less of nominal voltage* (Initial)	50.0 mA	60 Ω	150 mW	120%V of nominal voltage
4.5 V DC			33.3 mA	135 Ω		
5 V DC			30.0 mA	166 Ω		
6 V DC			25.0 mA	240 Ω		
9 V DC			16.7 mA	540 Ω		
12 V DC			12.5 mA	960 Ω		
24 V DC			7.1 mA	3,388 Ω	170 mW	

[M.B.B. type]

Nominal coil voltage	Pick-up voltage (at 20°C 68°F)	Drop-out voltage (at 20°C 68°F)	Nominal operating current [±10%] (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Nominal operating power	Max. applied voltage (at 20°C 68°F)
3 V DC	75%V or less of nominal voltage* (Initial)	10%V or more of nominal voltage* (Initial)	83.3 mA	36 Ω	250 mW	120%V of nominal voltage
4.5 V DC			55.6 mA	81 Ω		
5 V DC			50.0 mA	100 Ω		
6 V DC			41.7 mA	144 Ω		
9 V DC			27.8 mA	324 Ω		
12 V DC			20.8 mA	576 Ω		
24 V DC			11.3 mA	2,133 Ω	270 mW	

*Pulse drive (JIS C 5442-1986)

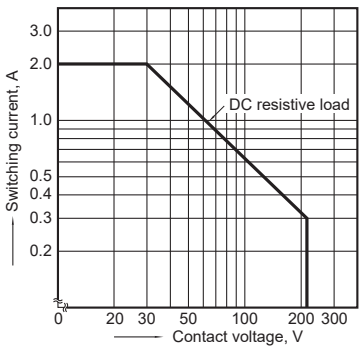
2. Specifications

Characteristics	Item		Specifications	
Contact	Arrangement		2 Form C	2 Form D (M.B.B.type)
	Contact resistance (Initial)		Max. 100 mΩ (By voltage drop 6 V DC 1A)	
	Contact material		Standard contact: Ag+Au clad, AgPd contact (low level load): AgPd+Au clad (stationary), AgPd (movable)	
Rating	Nominal switching capacity		Standard contact: 2 A 30 V DC, AgPd contact: 1 A 30 V DC (resistive load)	1 A 30 V DC (resistive load)
	Max. switching power		Standard contact: 60 W (DC), AgPd contact: 30 W (DC) (resistive load)	30 W (DC) (resistive load)
	Max. switching voltage		220 V DC	110 V DC
	Max. switching current		Standard contact: 2 A, AgPd contact: 1 A	1 A
	Min. switching capacity (Reference value)*1		10μA 10mV DC	
	Nominal operating power	Single side stable	200mW (3 to 12 V DC), 230mW (24 V DC)	250mW (1.5 to 12 V DC), 270mW (24 V DC)
		1 coil latching	150mW (3 to 12 V DC), 170mW (24 V DC)	—
Electrical characteristics	Insulation resistance (Initial)		Min. 1,000MΩ (at 500V DC) Measurement at same location as “Initial breakdown voltage” section.	
	Breakdown voltage (Initial)	Between open contacts	1,000 Vrms for 1min. (Detection current: 10mA)	500 Vrms for 1min. (Detection current: 10mA)
		Between contact and coil	3,000 Vrms for 1min. (Detection current: 10mA)	3,000 Vrms for 1min. (Detection current: 10mA)
		Between contact sets	1,000 Vrms for 1min. (Detection current: 10mA)	
	Surge breakdown voltage (Initial)	Between open contacts	1,500 V (10×160μs) (FCC Part 68)	—
		Between contacts and coil*1	6,000 V, 1.2 × 50μs	
	Temperature rise (at 20°C 68°F)		Max. 50°C 122°F (By resistive method, nominal coil voltage applied to the coil; contact carrying current: 2A [1A: M.B.B.].)	
	Operate time [Set time] (at 20°C 68°F)		Max. 4 ms [Max. 4 ms] (Nominal coil voltage applied to the coil, excluding contact bounce time.)	
	Release time [Reset time] (at 20°C 68°F)		Max. 4 ms [Max. 4 ms] (Nominal coil voltage applied to the coil, excluding contact bounce time.) (without diode)	
Mechanical characteristics	Shock resistance	Functional	Min. 750 m/s² (Half-wave pulse of sine wave: 6 ms; detection time: 10μs.)	Min. 500 m/s² (Half-wave pulse of sine wave: 11 ms; detection time: 10μs.)
		Destructive	Min. 1,000 m/s² {100G} (Half-wave pulse of sine wave: 6 ms.)	
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 3.3 mm (Detection time: 10μs.)	
		Destructive	10 to 55 Hz at double amplitude of 5 mm	
Expected life	Mechanical		Min. 10^8 (at 180 cpm)	Min. 10^7 (at 180 cpm)
	Electrical (Standard contact)		Min. 10^5 (2 A 30 V DC resistive), Min. 5×10^5 (1 A 30 V DC resistive) (at 20 cpm)	Min. 10^5 (1 A 30 V DC resistive) (at 20 cpm)
Conditions	Conditions for operation, transport and storage*2		Ambient temperature: –40°C to +85°C –40°F to +185°F; Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)	
	Max. operating speed (at rated load)		20 cpm	
Unit weight			Approx. 2 g .071 oz	

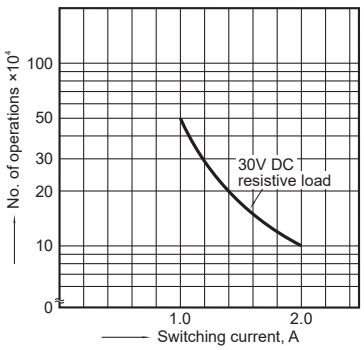
Notes: *1 This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load. AgPd contact type is available for low level load switching (10V DC, 10mA max. level).
*2 The upper operation ambient temperature limit is the maximum temperature that can satisfy the coil temperature rise value. Refer to “AMBIENT ENVIRONMENT” in GENERAL APPLICATION GUIDELINES.

REFERENCE DATA

1.Maximum switching capacity

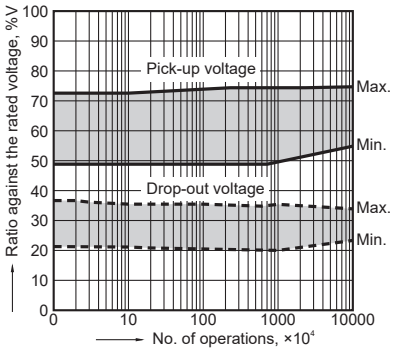


2. Life curve



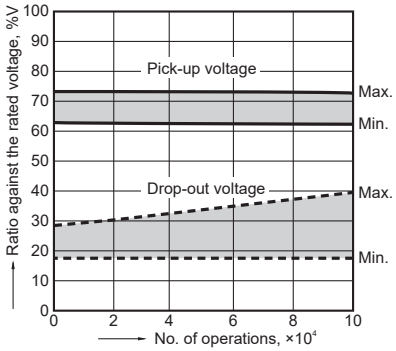
3. Mechanical life

Tested sample: TXD2-5V, 10 pcs.
Operating speed: 180 cpm

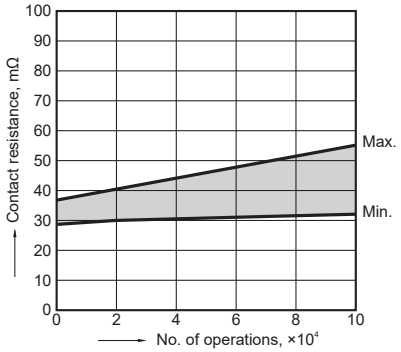


4. Electrical life (2A 30V DC resistive load)

Tested sample: TXD2-5V, 6 pcs.
Operating speed: 20 cpm
Change of pick-up and drop-out voltage

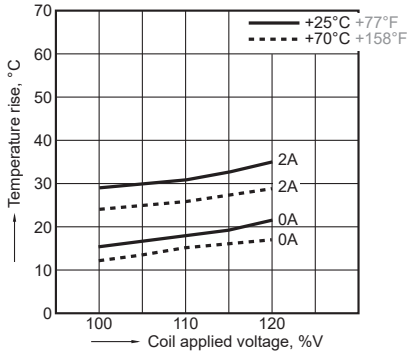


Change of contact resistance



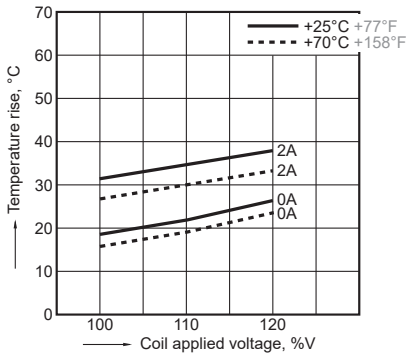
5-(1). Coil temperature rise

Tested sample: TXD2-5V, 6 pcs.
Measured portion: Inside the coil
Ambient temperature: 25°C 77°F, 70°C 158°F



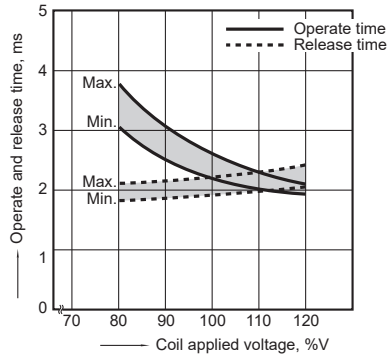
5-(2). Coil temperature rise

Tested sample: TXD2-24V, 6 pcs.
Measured portion: Inside the coil
Ambient temperature: 25°C 77°F, 70°C 158°F



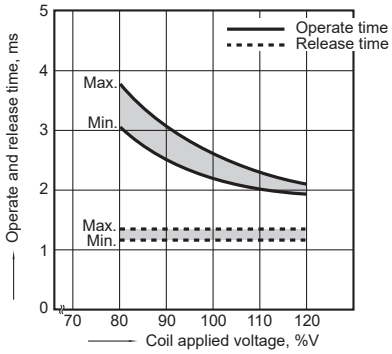
6-(1). Operate/release time characteristics (with diode)

Tested sample: TXD2-5V, 10 pcs.



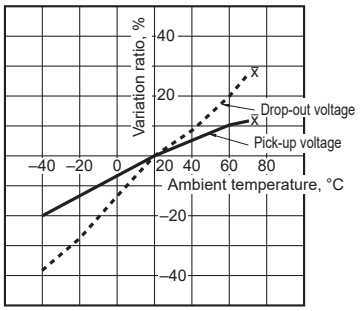
6-(2). Operate/release time characteristics (without diode)

Tested sample: TXD2-5V, 10 pcs.



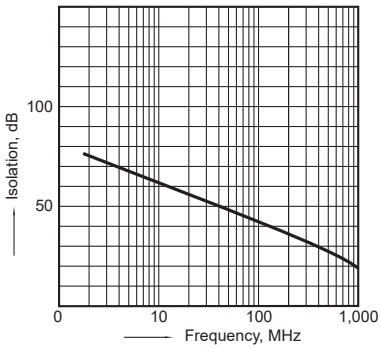
7. Ambient temperature characteristics

Tested sample: TXD2-5V, 5 pcs.



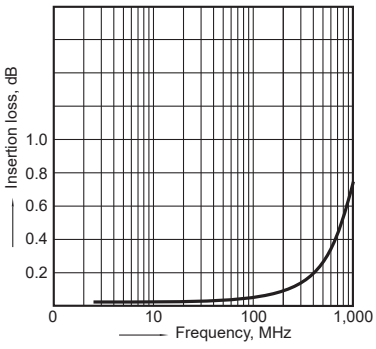
8. High frequency characteristics (Isolation)

Tested sample: TXD2-12V, 2 pcs.



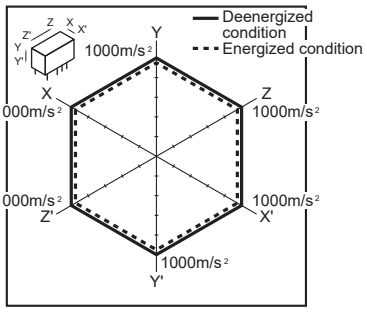
9. High-frequency characteristics (Insertion loss)

Tested sample: TXD2-12V, 2 pcs.



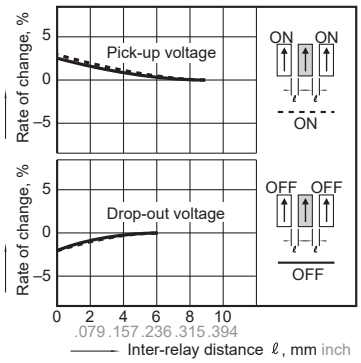
10. Malfunctional shock (single side stable)

Tested sample: TXD2-5V, 6 pcs



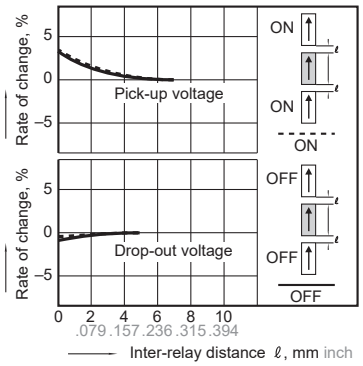
11-(1). Influence of adjacent mounting

Tested sample: TXD2-12V, 6 pcs.



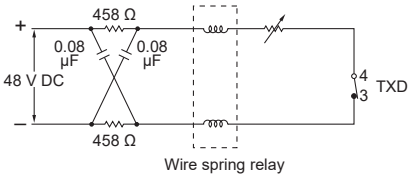
11-(2). Influence of adjacent mounting

Tested sample: TXD2-12V, 6 pcs.

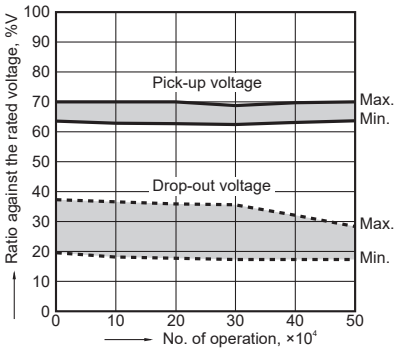


12. Actual load test (35 mA 48 V DC wire spring relay load)

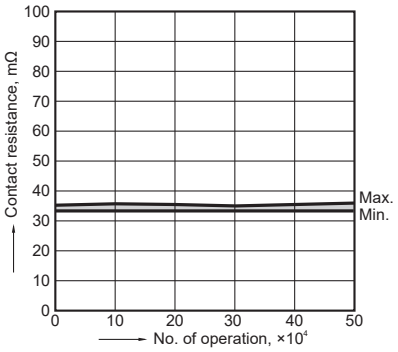
Tested sample: TXD2-5V, 6 pcs.



Change of pick-up and drop-out voltage



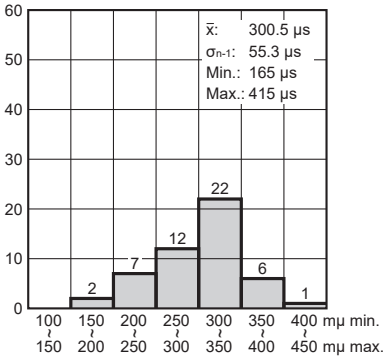
Change of contact resistance



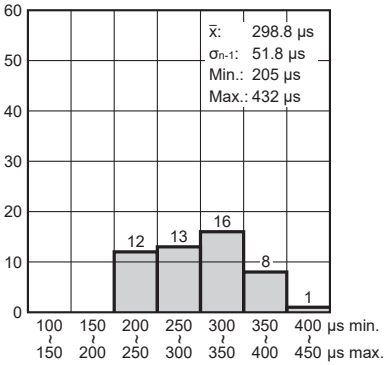
13-(1). Distribution of M.B.B. time

Tested sample: TXD2-2M-5V, 50 pcs.

Terminal No. 3-4-5: ON



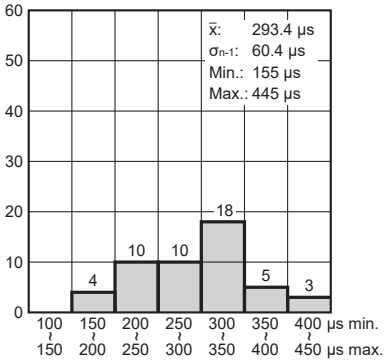
Terminal No. 3-4-5: OFF



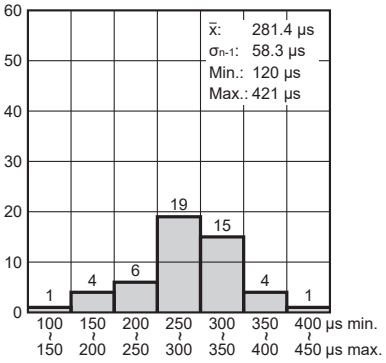
13-(2). Distribution of M.B.B. time

Tested sample: TXD2-2M-5V, 50 pcs.

Terminal No. 8-9-10: ON

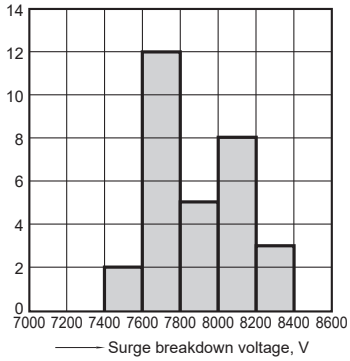


Terminal No. 8-9-10: OFF



14. Surge breakdown voltage test

Tested sample: TXD2-3V, 30 pcs.

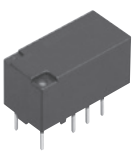


DIMENSIONS (mm inch)

The CAD data of the products with a CAD Data mark can be downloaded from: https://industrial.panasonic.com/ac/e/

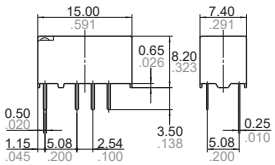
1) Standard PC board terminal

CAD Data



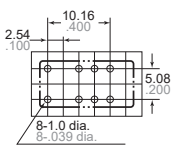
External dimensions

Standard PC board terminal



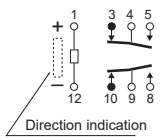
PC board pattern

(Bottom view)

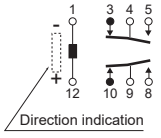


Schematic (Bottom view)

Single side stable



1 coil latching



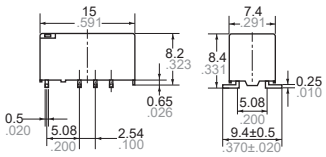
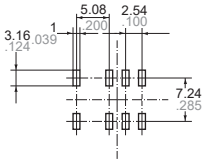
Tolerance: ±0.1 ±.004

(Deenergized condition)

(Reset condition)

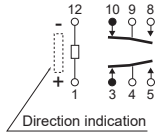
2) Surface-mount terminal

CAD Data

Type	External dimensions (General tolerance: ±0.3 ±.012)	Suggested mounting pad (Top view) (Tolerance: ±0.1 ±.004)
	Single side stable and 1 coil latching	Single side stable and 1 coil latching
SA type		

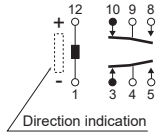
Schematic (Top view)

Single side stable



(Deenergized condition)

1 coil latching



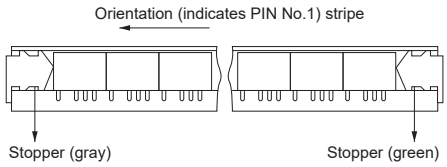
(Reset condition)

NOTES

1. Packing style

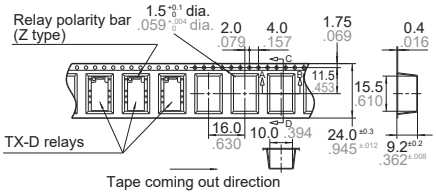
1) Tube packing

The relay is packed in a tube with the relay orientation mark on the left side, as shown in the figure below.



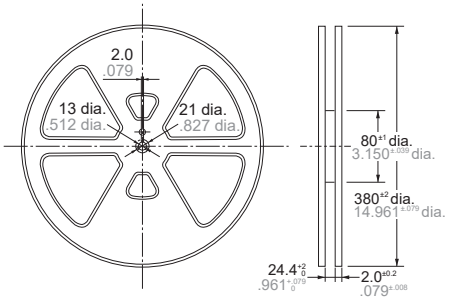
2) Tape and reel packing
(Surface-mount terminal type)
(1) Tape dimensions

mm inch



(2) Dimensions of plastic reel

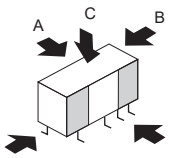
mm inch



3) Ambient temperature when transporting and during storage with the product in its original packaging:
–40 to +70°C –40 to +158°F

2. Automatic insertion

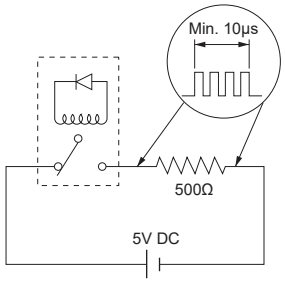
To maintain the internal function of the relay, the chucking pressure should not exceed the values below.



Chucking pressure in the direction A:
4.9 N {500gf} or less
Chucking pressure in the direction B:
9.8 N {1 kgf} or less
Chucking pressure in the direction C:
9.8 N {1 kgf} or less
Please chuck the ▭ portion.
Avoid chucking the center of the relay.
In addition, excessive chucking pressure to the pinpoint of the relay should be avoided

3. M.B.B. type

A small OFF time may be generated by the contact bounce during contact switching. Check the actual circuit carefully.
If the relay is dropped accidentally, check the appearance and characteristics including M.B.B. time before use.



Measuring condition of M.B.B. time

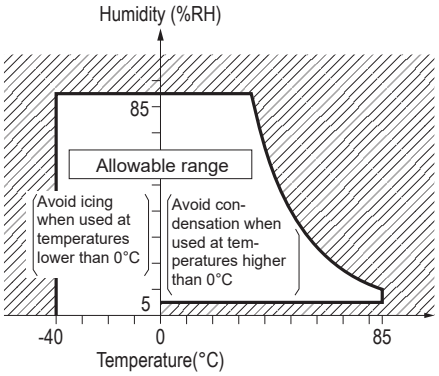
Ambient Environment

Usage, Transport, and Storage Conditions

During usage, storage, or transportation, avoid locations subjected to direct sunlight and maintain normal temperature, humidity and pressure conditions.

Temperature/Humidity

When transporting or storing relays while they are tube packaged, there are cases the temperature may differ from the allowable range. In this case be sure to check the individual specifications.
Also allowable humidity level is influenced by temperature, please check charts shown below and use relays within mentioned conditions. (Allowable temperature values)



Please refer to **"the latest product specifications"** when designing your product.
• Requests to customers :
https://industrial.panasonic.com/ac/e/salespolicies/

GUIDELINES FOR RELAY USAGE

■ **For cautions for use, please read "GUIDELINES FOR RELAY USAGE".**

https://industrial.panasonic.com/ac/e/control/relay/cautions_use/index.jsp

PRECAUTIONS FOR COIL INPUT

■ Long term current carrying

A circuit that will be carrying a current continuously for long periods without relay switching operation. (circuits for emergency lamps, alarm devices and error inspection that, for example, revert only during malfunction and output warnings with form B contacts)

Continuous,long-term current to the coil will facilitate deterioration of coil insulation and characteristics due to heating of the coil itself. For circuits such as these, please use a magnetic-hold type latching relay. If you need to use a single stable relay, use a sealed type relay that is not easily affected by ambient conditions and make a failsafe circuit design that considers the possibility of contact failure or disconnection.

■ DC Coil operating power

Steady state DC current should be applied to the coil.

The wave form should be rectangular. If it includes ripple, the ripple factor should be less than 5%. However, please check with the actual circuit since the electrical characteristics may vary.

The rated coil voltage should be applied to the coil and the set/reset pulse time of latching type relay differs for each relays, please refer to the relay's individual specifications.

■ Coil connection

When connecting coils of polarized relays, please check coil polarity(+,-) at the internal connection diagram (Schematic).

If any wrong connection is made, it may cause unexpected malfunction, like abnormal heat, fire and so on, and circuit do not work.

Avoid impressing voltages to the set coil and reset coil at the same time.

■ Maximum allowable voltage and temperature rise

Proper usage requires that the rated coil voltage be impressed on the coil.

Note, however, that if a voltage greater than or equal to the maximum continuous voltage is impressed on the coil, the coil may burn or its layers short due to the temperature rise.

Furthermore, do not exceed the usable ambient temperature range listed in the catalog.

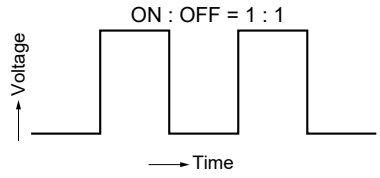
● Temperature rise due to pulse voltage

When a pulse voltage with ON time of less than 2 minutes is used, the coil temperature rise bares no relationship to the ON time.

This varies with the ratio of ON time to OFF time, and compared with continuous current passage, it is rather small.

The various relays are essentially the same in this respect.

Current passage time	%
For continuous passage	Temperature rise value is 100%
ON : OFF = 3 : 1	About 80%
ON : OFF = 1 : 1	About 50%
ON : OFF = 1 : 3	About 35%



● Operate voltage change due to coil temperature rise (hot start)

In DC relays, after continuous passage of current in the coil, if the current is turned OFF, then immediately turned ON again, due to the temperature rise in the coil, the operate voltage will become somewhat higher. Also, it will be the same as using it in a higher temperature atmosphere.

The resistance/temperature relationship for copper wire is about 0.4% for 1°C, and with this ratio the coil resistance increases.

That is, in order to operate of the relay, it is necessary that the voltage be higher than the operate voltage and the operate voltage rises in accordance with the increase in the resistance value.

However, for some polarized relays, this rate of change is considerably smaller.

NOTES

■ Usage, Storage, and Transport Conditions

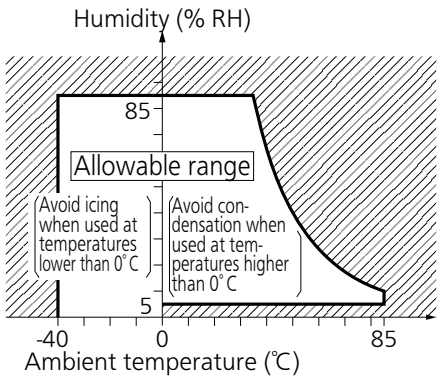
During usage, storage, or transportation, avoid locations subject to direct sunlight and maintain normal temperature, humidity, and pressure conditions.

The allowable specifications for environments suitable for usage, storage, and transportation are given below.

1) Temperature: The allowable temperature range differs for each relay, so refer to the relay's individual specifications. In addition, when transporting or storing relays while they are tube packaged, there are cases when the temperature may differ from the allowable range. In this situation, be sure to consult the individual specifications.

2) Humidity: 5 to 85% RH

The humidity range varies with the temperature.
Use within the range indicated in the graph.
(The allowable temperature depends on the relays.)



3) Pressure: 86 to 106 kPa

● Condensation

Condensation occurs when the ambient temperature drops suddenly from a high temperature and humidity, or the relay and microwave device is suddenly transferred from a low ambient temperature to a high temperature and humidity.

Condensation causes the failures like insulation deterioration, wire disconnection and rust etc.

Panasonic Corporation does not guarantee the failures caused by condensation.

The heat conduction by the equipment may accelerate the cooling of device itself, and the condensation may occur.

Please conduct product evaluations in the worst condition of the actual usage. (Special attention should be paid when high temperature heating parts are close to the device. Also please consider the condensation may occur inside of the device.)

● Icing

Condensation or other moisture may freeze on relays when the temperature become lower than 0°C.

This icing causes the sticking of movable portion, the operation delay and the contact conduction failure etc.

Panasonic Corporation does not guarantee the failures caused by the icing.

The heat conduction by the equipment may accelerate the cooling of relay itself and the icing may occur.

Please conduct product evaluations in the worst condition of the actual usage.

● Low temperature and low humidity

The plastic becomes brittle if the switch is exposed to a low temperature, low humidity environment for long periods of time.

● High temperature and high humidity

Storage for extended periods of time (including transportation periods) at high temperature or high humidity levels or in atmospheres with organic gases or sulfide gases may cause a sulfide film or oxide film to form on the surfaces of the contacts and/or it may interfere with the functions.

Check out the atmosphere in which the units are to be stored and transported.

● Package

In terms of the packing format used, make every effort to keep the effects of moisture, organic gases and sulfide gases to the absolute minimum.

● Storage requirements

Since the surface-mount terminal type is sensitive to humidity it is packaged with tightly sealed anti-humidity packaging. However, when storing, please be careful of the following.

1) Please use promptly once the anti-humidity pack is opened. (within 72 hours, Max. 30°C / 70% RH).
If left with the pack open, the relay will absorb moisture which will cause thermal stress when reflow mounting and thus cause the case to expand. As a result, the seal may break.

2) If relays will not be used within 72 hours, please store relays in a humidity controlled desiccator or in an anti-humidity bag to which silica gel has been added.

* If the relay is to be soldered after it has been exposed to excessive humidity atmosphere, cracks and leaks can occur.
Be sure to mount the relay under the required mounting conditions.

3) When relays (which is packaged with humidity indicator and silica gel) meeting one of below criteria, please bake (dry) before use.

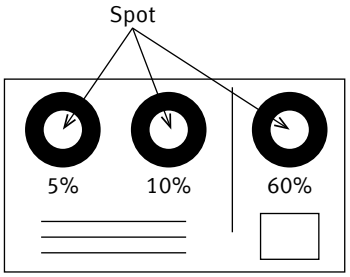
- When the storage conditions specified in 1) are exceeded.
- When humidity indicator is in Ⅲ or Ⅳ status according to judgement standard.

<How to judge>

Please check humidity indicator color and decide if baking is necessary or not.

● : indicate brown, ○ : Other than brown (blueish color)

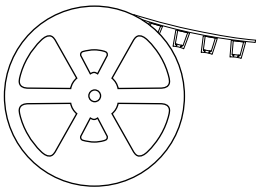
	5%	10%	60%	Bake treatment necessity judgment
Ⅰ	●	●	●	No need to bake
Ⅱ	○	●	●	No need to bake
Ⅲ	○	○	●	Need to bake
Ⅳ	○	○	○	Need to bake



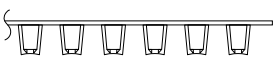
Humidity indicator card

<Baking (Drying) conditions>

- With reel : 45°C, 96 hours or more.



- Without reel (including relay only) : 60°C, 35 hours or more.



4) The following cautionary label is affixed to the anti-humidity pack.

Caution

This vacuum-sealed bag contains

Moisture Sensitive Products

After this bag is opened, the product must be used

within 72 hours

If product is not used within 72 hours, baking is necessary.

For baking conditions please contact us.

● Silicon

When a source of silicone substances (silicone rubber, silicone oil,silicone coating materials and silicone filling materials etc.) is used around the relay, the silicone gas (low molecular siloxane etc.) may be produced

This silicone gas may penetrate into the inside of the relay. When the relay is kept and used in this condition, silicone compound may adhere to the relay contacts which may cause the contact failure.

Do not use any sources of silicone gas around the relay (Including plastic seal types).

● NOx Generation

When relay is used in an atmosphere high in humidity to switch a load which easily produces an arc, the NOx created by the arc and the water absorbed from outside the relay combine to produce nitric acid.

This corrodes the internal metal parts and adversely affects operation.

Avoid use at an ambient humidity of 85% RH or higher (at 20°C).

If use at high humidity is unavoidable, please contact our sales representative.

OTHERS

■Cleaning

1) Although the environmentally sealed type relay (plastic sealed type,etc.) can be cleaned, avoid immersing the relay into cold liquid (such as cleaning solvent) immediately after soldering. Doing so may deteriorate the sealing performance.
2) Surface-mount terminal type relay is sealed type and it can be cleaned by immersion.
   Use pure water or alcohol-based cleaning solvent.
3) Cleaning with the boiling method is recommended (The temperature of cleaning liquid should be 40°C or lower). Avoid ultrasonic cleaning on relays.
   Use of ultrasonic cleaning may cause breaks in the coil or slight sticking of the contacts due to the ultrasonic energy.

Please refer to **"the latest product specifications"** when designing your product.
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