TYPES

1. Standard PC board terminal

Contact arrangement	Nominal coil voltage	Single side stable	1 coil latching	2 coil latching (L2)	2 coil latching (LT)
		Part No.	Part No.	Part No.	Part No.
2 Form C	1.5V DC	TX2-1.5V	TX2-L-1.5V	TX2-L2-1.5V	TX2-LT-1.5V
	3V DC	TX2-3V	TX2-L-3V	TX2-L2-3V	TX2-LT-3V
	4.5V DC	TX2-4.5V	TX2-L-4.5V	TX2-L2-4.5V	TX2-LT-4.5V
	5V DC	TX2-5V	TX2-L-5V	TX2-L2-5V	TX2-LT-5V
	6V DC	TX2-6V	TX2-L-6V	TX2-L2-6V	TX2-LT-6V
	9V DC	TX2-9V	TX2-L-9V	TX2-L2-9V	TX2-LT-9V
	12V DC	TX2-12V	TX2-L-12V	TX2-L2-12V	TX2-LT-12V
	24V DC	TX2-24V	TX2-L-24V	TX2-L2-24V	TX2-LT-24V
	48V DC	TX2-48V	—	—	—

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	2 coil latching (L2)	2 coil latching (LT)
		Part No.	Part No.	Part No.	Part No.
2c	1.5V DC	TX2S❑-1.5V	TX2S❑-L-1.5V	TX2S❑-L2-1.5V	TX2S❑-LT-1.5V
	3V DC	TX2S❑-3V	TX2S❑-L-3V	TX2S❑-L2-3V	TX2S❑-LT-3V
	4.5V DC	TX2S❑-4.5V	TX2S❑-L-4.5V	TX2S❑-L2-4.5V	TX2S❑-LT-4.5V
	5V DC	TX2S❑-5V	TX2S❑-L-5V	TX2S❑-L2-5V	TX2S❑-LT-5V
	6V DC	TX2S❑-6V	TX2S❑-L-6V	TX2S❑-L2-6V	TX2S❑-LT-6V
	9V DC	TX2S❑-9V	TX2S❑-L-9V	TX2S❑-L2-9V	TX2S❑-LT-9V
	12V DC	TX2S❑-12V	TX2S❑-L-12V	TX2S❑-L2-12V	TX2S❑-LT-12V
	24V DC	TX2S❑-24V	TX2S❑-L-24V	TX2S❑-L2-24V	TX2S❑-LT-24V
	48V DC	TX2S❑-48V	—	—	—

❑: For each surface-mounted terminal identification, input the following letter. SA type: A, SS type: S
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	2 coil latching (L2)	2 coil latching (LT)
		Part No.	Part No.	Part No.	Part No.
2 Form C	1.5V DC	TX2S❑-1.5V-Z	TX2S❑-L-1.5V-Z	TX2S❑-L2-1.5V-Z	TX2S❑-LT-1.5V-Z
	3V DC	TX2S❑-3V-Z	TX2S❑-L-3V-Z	TX2S❑-L2-3V-Z	TX2S❑-LT-3V-Z
	4.5V DC	TX2S❑-4.5V-Z	TX2S❑-L-4.5V-Z	TX2S❑-L2-4.5V-Z	TX2S❑-LT-4.5V-Z
	5V DC	TX2S❑-5V-Z	TX2S❑-L-5V-Z	TX2S❑-L2-5V-Z	TX2S❑-LT-5V-Z
	6V DC	TX2S❑-6V-Z	TX2S❑-L-6V-Z	TX2S❑-L2-6V-Z	TX2S❑-LT-6V-Z
	9V DC	TX2S❑-9V-Z	TX2S❑-L-9V-Z	TX2S❑-L2-9V-Z	TX2S❑-LT-9V-Z
	12V DC	TX2S❑-12V-Z	TX2S❑-L-12V-Z	TX2S❑-L2-12V-Z	TX2S❑-LT-12V-Z
	24V DC	TX2S❑-24V-Z	TX2S❑-L-24V-Z	TX2S❑-L2-24V-Z	TX2S❑-LT-24V-Z
	48V DC	TX2S❑-48V-Z	—	—	—

❑: For each surface-mounted terminal identification, input the following letter. SA type: A, SS type: S
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 1/2/3/4-pin side) is also available.
2. Please add “-1” to the end of the part number for AgPd contacts (low level load).

RATING

1. Coil data

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)
1.5V DC	75%V or less of nominal voltage* (Initial)	10%V or more of nominal voltage* (Initial)	93.8mA	16Ω	140mW	150%V of nominal voltage
3V DC			46.7mA	64.3Ω		
4.5V DC			31mA	145Ω		
5V DC			28.1mA	178Ω		
6V DC			23.3mA	257Ω		
9V DC			15.5mA	579Ω		
12V DC			11.7mA	1,028Ω		
24V DC			5.8mA	4,114Ω		
48V DC			5.6mA	8,533Ω	270mW	120%V of nominal voltage

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)
1.5V DC	75%V or less of nominal voltage* (Initial)	75%V or less of nominal voltage* (Initial)	66.7mA	22.5Ω	100mW	150%V of nominal voltage
3V DC			33.3mA	90Ω		
4.5V DC			22.2mA	202.5Ω		
5V DC			20mA	250Ω		
6V DC			16.7mA	360Ω		
9V DC			11.1mA	810Ω		
12V DC			8.3mA	1,440Ω		
24V DC			4.2mA	5,760Ω		

3) 2 coil latching (L2, LT)

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
			Set coil	Reset coil	Set coil	Reset coil	Set coil	Reset coil	
1.5V DC	75%V or less of nominal voltage* (Initial)	75%V or less of nominal voltage* (Initial)	133.9mA	133.9mA	11.2Ω	11.2Ω	200mW	200mW	150%V of nominal voltage
3V DC			66.7mA	66.7mA	45Ω	45Ω			
4.5V DC			44.5mA	44.5mA	101.2Ω	101.2Ω			
5V DC			40mA	40mA	125Ω	125Ω			
6V DC			33.3mA	33.3mA	180Ω	180Ω			
9V DC			22.2mA	22.2mA	405Ω	405Ω			
12V DC			16.7mA	16.7mA	720Ω	720Ω			
24V DC			8.3mA	8.3mA	2,880Ω	2,880Ω			

*Pulse drive (JIS C 5442-1986)

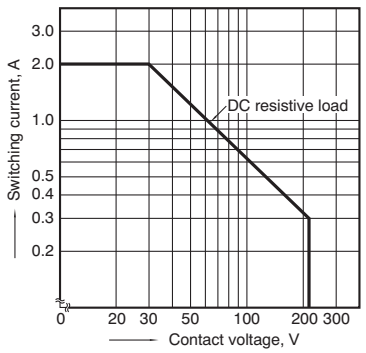
2. Specifications

Characteristics	Item		Specifications
Contact	Arrangement		2 Form C
	Initial contact resistance, max.		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)
	Max. switching power		Standard contact: 60 W (DC), AgPd contact: 30 W (DC) (resistive load)
	Max. switching voltage		220V DC
	Max. switching current		Standard contact: 2 A, AgPd contact: 1 A
	Min. switching capacity (Reference value)[1*]		10μA 10mV DC
	Nominal operating power	Single side stable	140 mW (1.5 to 24 V DC), 270 mW (48 V DC)
		1 coil latching	100 mW (1.5 to 24 V DC)
		2 coil latching	200 mW (1.5 to 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)
		Between contact and coil	2,000 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	2,500 V (2×10μs) (Telcordia)
	Temperature rise (at 20°C 68°F)		Max. 50°C (By resistive method, nominal coil voltage applied to the coil; contact carrying current: 2A.)
	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.)
		Destructive	Min. 1,000 m/s² (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 times/min.)
	Electrical		Min. 10^5 (2 A 30 V DC resistive), 5×10^5 (1 A 30 V DC resistive) (at 20 times/min.)
Conditions	Conditions for operation, transport and storage[2*]		Ambient temperature: –40°C to +85°C (up to 24 V coil) –40°F to +185°F (up to 24 V coil) [–40°C to +70°C (48 V coil) –40°F to +158°F (48 V coil)]; Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)
	Max. operating speed (at rated load)		20 times/min.
Unit weight			Approx. 2 g .071 oz

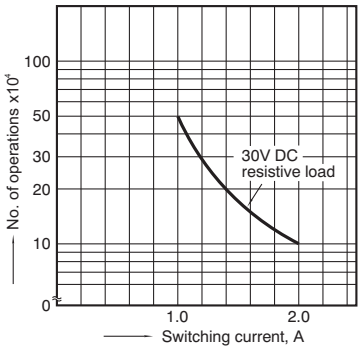
1* This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load. (AgPd contact type is available for low level load switching [10V DC, 10mA max. level].)
2* Refer to “6. Usage, Storage and Transport Conditions“ in AMBIENT ENVIRONMENT section in Relay Technical Information.

REFERENCE DATA

1. Maximum switching capacity

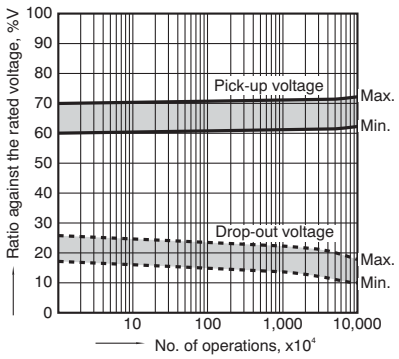


2. Life curve



3. Mechanical life

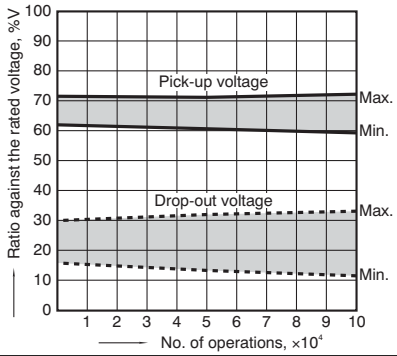
Tested sample: TX2-5V, 10 pcs.
Operating speed: 180 times/min.



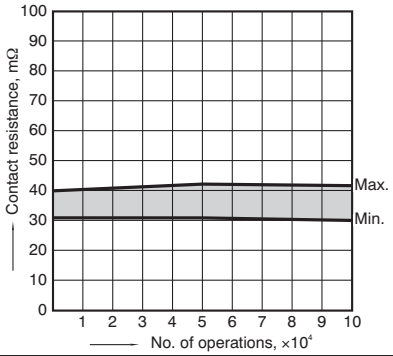
4. Electrical life (2A 30V DC resistive load)

Tested sample: TX2-5V, 6 pcs.
Operating speed: 20 times/min.

Change of pick-up and drop-out voltage

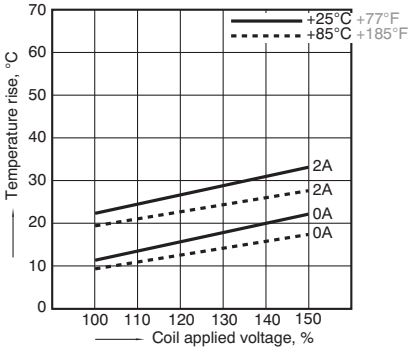


Change of contact resistance



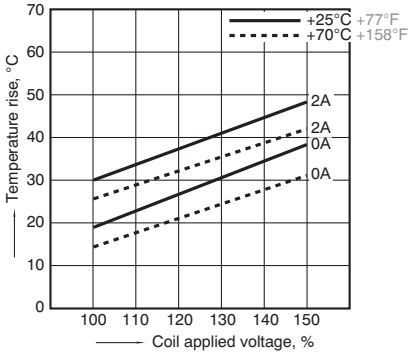
5-(1). Coil temperature rise

Tested sample: TX2-5V, 6 pcs.
Point measured: Inside the coil
Ambient temperature: 25°C 77°F, 85°C 185°F



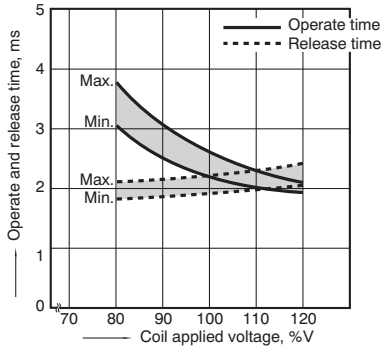
5-(2). Coil temperature rise

Tested sample: TX2-48V, 6 pcs.
Point measured: Inside the coil
Ambient temperature: 25°C 77°F, 70°C 158°F



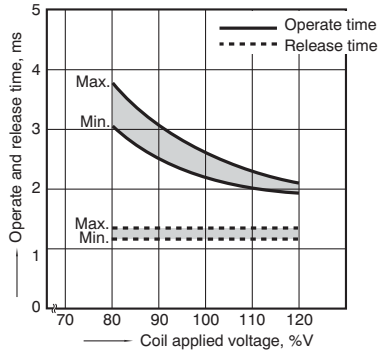
6-(1). Operate and release time (with diode)

Tested sample: TX2-5V, 10 pcs.



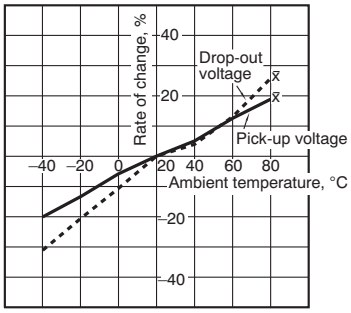
6-(2). Operate and release time (without diode)

Tested sample: TX2-5V, 10 pcs.



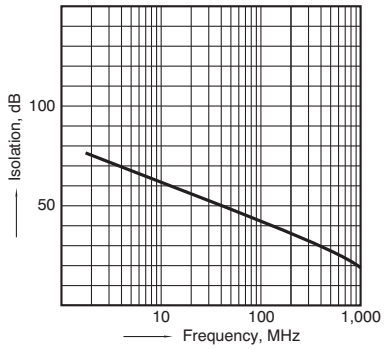
7. Ambient temperature characteristics

Tested sample: TX2-5V, 5 pcs.



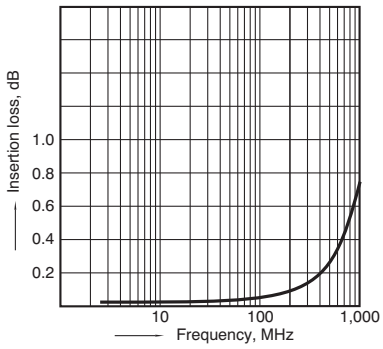
8-(1). High frequency characteristics (Isolation)

Tested sample: TX2-12V, 2 pcs.



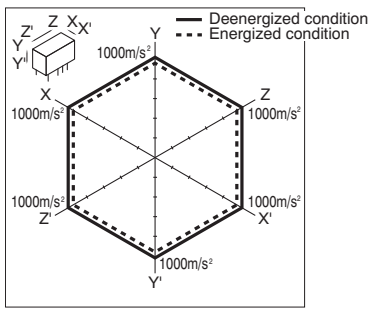
8-(2). High frequency characteristics (Insertion loss)

Tested sample: TX2-12V, 2 pcs.



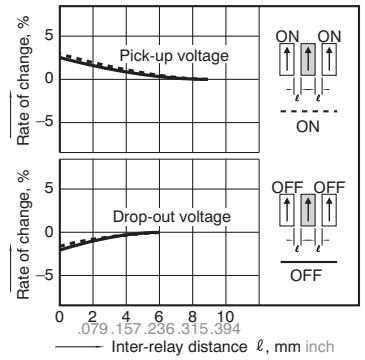
9 Malfunctional shock (single side stable)

Tested sample: TX2-5V, 6 pcs.



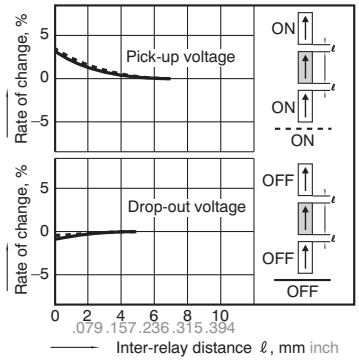
10-(1). Influence of adjacent mounting

Tested sample: TX2-12V, 6 pcs.



10-(2). Influence of adjacent mounting

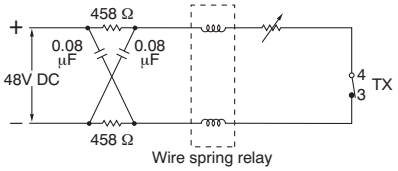
Tested sample: TX2-12V, 6 pcs.



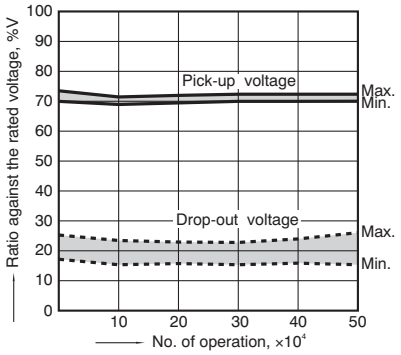
11. Pulse dialing test

Tested sample: TX2-5V, 6 pcs.
(35 mA 48 V DC wire spring relay load)

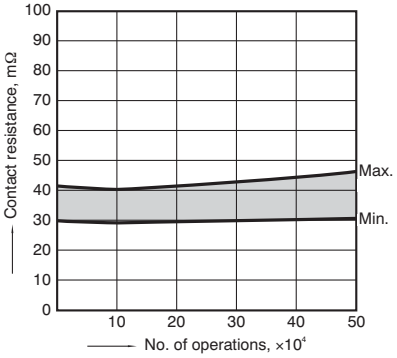
Circuit



Change of pick-up and drop-out voltage



Change of contact resistance



Note: Data of surface-mount type are the same as those of PC board terminal type.

DIMENSIONS (mm inch)

Download CAD Data from our Web site.

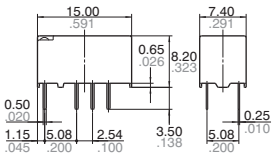
1. Standard PC board terminal

CAD Data

Single side stable and 1 coil latching type

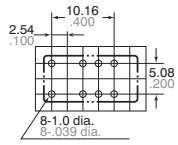
External dimensions

Standard PC board terminal



General tolerance: ±0.3 ±.012

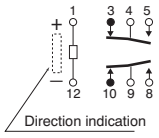
PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

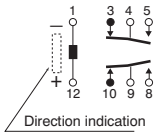
Schematic (Bottom view)

Single side stable



(Deenergized condition)

1 coil latching

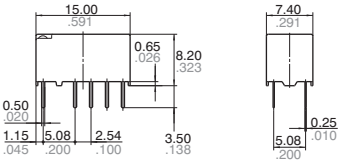


(Reset condition)

2 coil latching type (L2, LT)

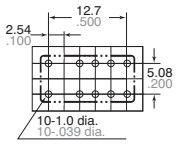
External dimensions

Standard PC board terminal



General tolerance: ±0.3 ±.012

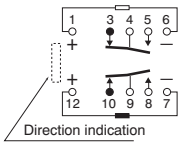
PC board pattern (Bottom view)



Tolerance: ±0.1 ±.004

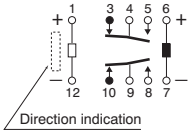
Schematic (Bottom view)

2 coil latching (L2)



(Reset condition)

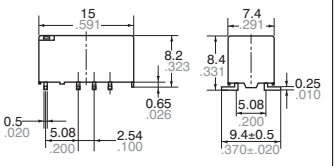
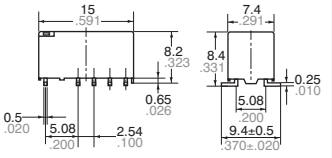
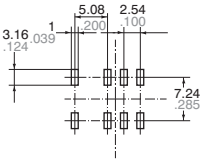
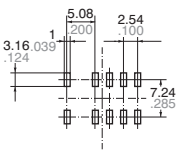
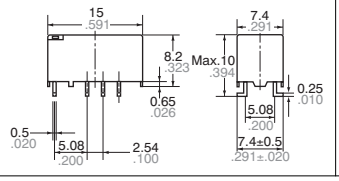
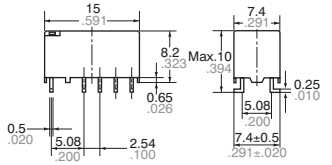
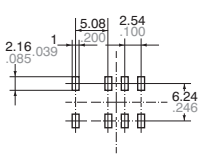
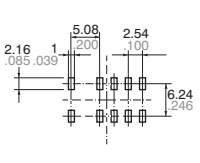
2 coil latching (LT)



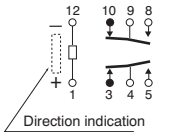
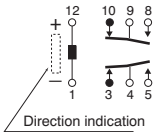
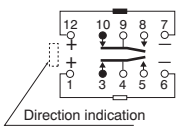
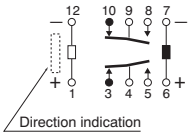
(Reset condition)

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 type	2 coil latching type (L2, LT)	Single side stable and 1 coil latching type	2 coil latching type (L2, LT)
SA type				
SS type				

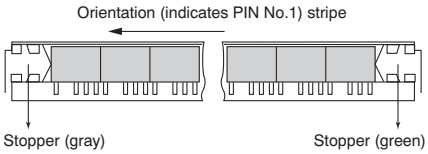
Schematic (Top view)

Single side stable	1 coil latching	2 coil latching (L2)	2 coil latching (LT)
			
(Deenergized condition)	(Reset condition)	(Reset condition)	(Reset condition)

NOTES

1. Packing style

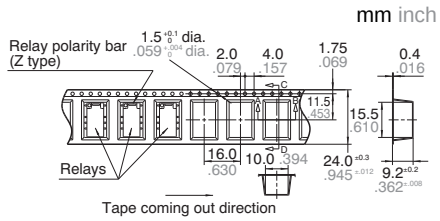
1) The relay is packed in a tube with the relay orientation mark on the left side, as shown in the figure below.



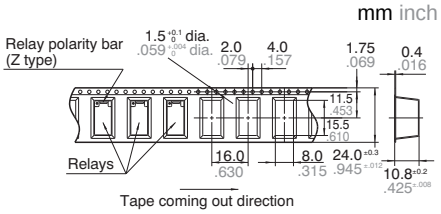
2) Tape and reel packing (surface-mount terminal type)

(1) Tape dimensions

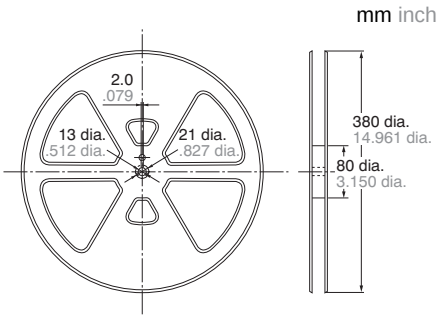
(i) SA type



(ii) SS type



(2) Dimensions of plastic reel



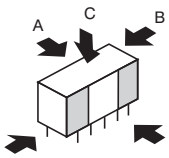
2. Automatic insertion

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.

For Cautions for Use, see Relay Technical Information.