

Signal Relays

Catalogue
2020



INDEX

SELECTION GUIDE FOR SIGNAL RELAYS(2A less)

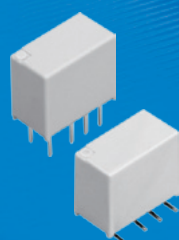
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Wide variety of signal relays leading on the global market with high



Communication Network Equipment

Signal Relays



GN

- Bottom surface area
5.7 × 10.6 mm
- Compact slim body
- High sensitivity
100 mW type

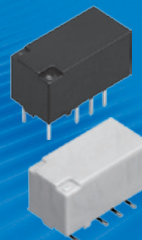
P.8



GQ

- Low profile : 5.2 mm
- Compact flat body
- High sensitivity
100 mW type

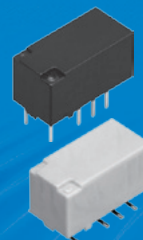
P.10



TX

- High contact
capacity
- High breakdown
voltage

P.12



TX-
TH

- Controlled 7.5 A
inrush current
possible

P.14

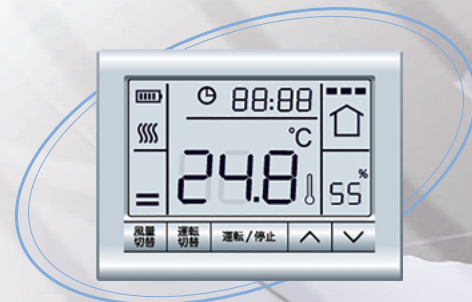


TX-S

- High sensitivity
50 mW type

P.16

OA Equipment / Thermostat

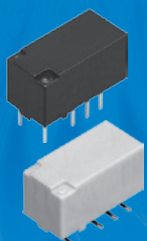


performance and quality

Signal Relays



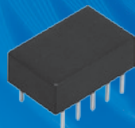
Security



TX-D

·Surge Breakdown
voltage 6,000 V

P.18



TQ

·Low profile : 5 mm

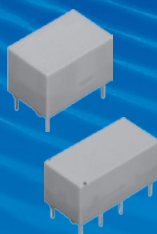
P.20



TQ-SMD

·Low profile : 5.6 mm

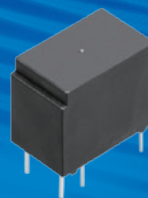
P.22



DS

·High switching
capacity : 2A
1 and 2 - pole

P.24

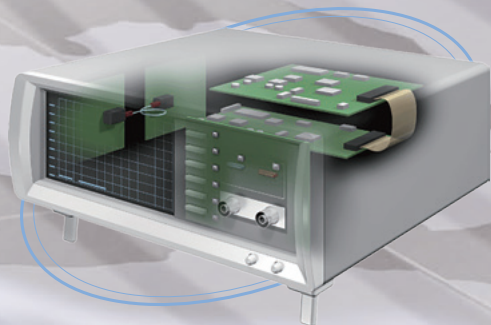


HY

·Non-polarized
1 Form C relay that
realizes nominal
operating power of
150 mW

P.25

Precision / Industrial Equipment

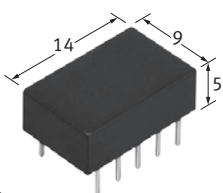
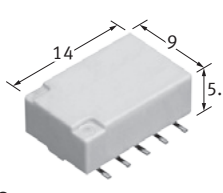
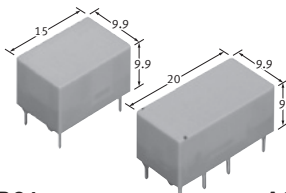
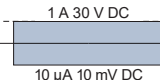
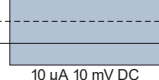
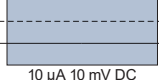
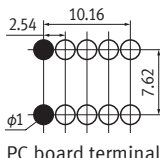
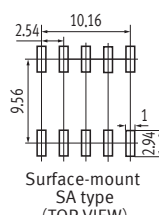
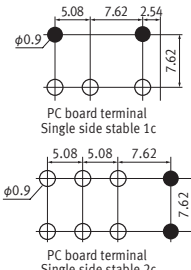


Signal Relays (2A or less) selector chart

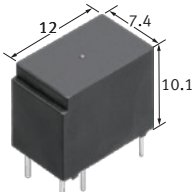
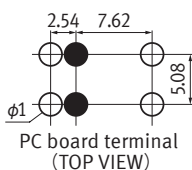
Category		Signal Relays (2A or less)		
Product name		GN	GQ	TX
Type of relay (Height includes standoff unit = mm)				
Initial of part number		P.8 AGN2	P.10 AGQ2	P.12 ATX2
Features		<ul style="list-style-type: none"> • High sensitivity 100 mW type • 2 Form C and 1A Compact , Slim body type relays 	<ul style="list-style-type: none"> • High sensitivity 100 mW type • 2 Form C and 1A Compact flat body type relays 	<ul style="list-style-type: none"> • 2, 000 V AC breakdown voltage, • 2 Form C and 2A relays
Contact data	Contact arrangement	2 Form C	2 Form C	2 Form C
	Contact shape	Crossbar Twin	Crossbar Twin	Crossbar Twin
	Contact material	Stationary : AgPd + Au clad Movable : AgPd	Stationary : AgPd + Au clad Movable : AgPd	Standard : Ag + Au clad
	Contact rating (resistive)	4 A 3 A 2 A 1 A	2 A 30 V DC	2 A 30 V DC
	Min. switching load (reference value)	1 A 30 V DC 10 µA 10 mV DC	10 µA 10 mV DC	10 µA 10 mV DC
Latching types availability		•	•	•
Coil data	Nominal coil voltage	1.5, 3, 4.5, 6, 9, 12, 24 V DC	1.5, 3, 4.5, 6, 9, 12, 24 V DC	1.5, 3, 4.5, 5, 6, 9, 12, 24, 48 V DC (48 V ; Only single side stable type)
	Rated operating power	Single side stable : 140 mW (1.5 to 12 V DC), 230 mW (24 V DC) Latching type & High sensitivity : 100 mW (1.5 to 12 V DC), 120 mW (24 V DC)	Single side stable : 140 mW (1.5 to 12 V DC), 230 mW (24 V DC) Latching type & High sensitivity : 100 mW (1.5 to 12 V DC), 120 mW (24 V DC)	Single side stable : 140 mW (1.5 to 12 V DC), 270 mW (48 V DC) Latching type : 200 mW (1.5 to 12 V DC)
	Operate [Set] voltage (initial)	Max. 75% V , Max. 80% V (High sensitivity)	Max. 75% V , Max. 80% V (High sensitivity)	Max. 75% V
	Release [Reset] voltage (initial)	Min. 10% V [Max. 75% V]	Min. 10% V [Max. 75% V]	Min. 10% V [Max. 75% V]
Time characteristics (initial)	Operate [Set] time (initial)	Max. 4 ms	Max. 4 ms	Max. 4 ms
	Release [Reset] time (initial)	Max. 4 ms	Max. 4 ms	Max. 4 ms
Expected life	Mechanical life	Min. 5 × 10 ⁷	Min. 5 × 10 ⁷	Min. 10 ⁸
Dielectric strength (initial)	Between open contacts	750 V AC for 1 minute	750 V AC for 1 minute	1,000 V AC for 1 minute
	Between contact and coil	1,500 V AC for 1 minute	1,500 V AC for 1 minute	2,000 V AC for 1 minute
	Between contact sets	1,000 V AC for 1 minute	1,000 V AC for 1 minute	1,000 V AC for 1 minute
Surge withstand voltage (initial)	Between open contacts	1,500 V 10 × 160 µs (FCC Part 68)	1,500 V 10 × 160 µs (FCC Part 68)	1,500 V 10 × 160 µs (FCC Part 68)
	Between contact and coil	2,500 V 2 × 10 µs	2,500 V 2 × 10 µs	2,500 V 2 × 10 µs
Ambient temperature		−40 to + 85°C / −40 to + 70°C (High sensitivity)	−40 to + 85°C / −40 to + 70°C (High sensitivity)	−40 to +85°C (1.5 to 24 V DC) / −40 to + 70°C (48 V DC)
Protective construction	Dust cover	—	—	—
	Flux-resistant	—	—	—
	Sealed	•	•	•
PC board pattern (BOTTOM VIEW) • indicates input terminal				
Safety standards		UL/C-UL, BSI	UL/C-UL, BSI	UL/C-UL, BSI
Unit weight (Approx.)		1 g	1 g	2 g
Option		—	—	—
Remarks		—	—	—

Category		Signal Relays (2A or less)					
Product name		TX-TH		TX-S		TX-D	
Type of relay (Height includes standoff unit = mm)							
Initial of part number		P.14 ATX2		P.16 ATXS2		P.18 ATXD2	
Features		• Controlled 7.5 A inrush current possible • 2 Form C Compact body type relays		• High sensitivity 50 mW type • 2 Form C and 1A Compact body type relays		• 6000 V Surge breakdown voltage type • 2 Form A (D) , 2A and High breakdown voltage type relays	
Contact data	Contact arrangement	2 Form C		2 Form C		2 Form C	2 Form D (MBB contact)
	Contact shape	Crossbar Twin		Crossbar Twin		Crossbar Twin	
	Contact material	Ag + Au plating		Standard : Ag + Au clad		Standard : Ag + Au clad	
	Contact rating (resistive)	4 A 3 A 2 A 1 A 2 A 30 V DC		1 A 30 V DC		2 A 30 V DC	
	Min. switching load (reference value)	10 μ A 10 mV DC		10 μ A 10 mV DC		10 μ A 10 mV DC	
Latching types availability		●		●		●	
Coil data	Nominal coil voltage	1.5, 2.4, 3, 4.5, 5, 6, 9, 12, 24, 48 V DC (48 V ; Only single side stable type, 2.4 V ; Only latching type)		1.5, 3, 4.5, 6, 9, 12, 24 V DC		1.5, 3, 4.5, 6, 9, 12, 24 V DC	
	Rated operating power	Single side stable : 140 mW (1.5 to 24 V DC), 270 mW (48 V DC) Latching type : 140 mW (1.5 to 24 V DC)		Single side stable : 50 mW (1.5 to 12V DC), 70 mW (24 V DC) Latching type : 70 mW (1.5 to 12V DC), 150 mW (24 V DC)		2 Form C Single side stable : 200 mW (1.5 to 12 V DC), 230 mW (24V DC) 2 Form C Latching type : 150 mW (1.5 to 12 V DC), 170 mW (24 V DC)	
	Operate [Set] voltage (initial)	Max. 75% V		Max. 80% V		Max. 75% V	
	Release [Reset] voltage (initial)	Min. 10% V [Max. 75% V]		Min. 10% V [Max. 80% V]		Min. 10% V [Max. 75% V]	
Time characteristics (initial)	Operate [Set] time (initial)	Max. 4 ms		Max. 5 ms		Max. 4 ms	
	Release [Reset] time (initial)	Max. 4 ms		Max. 5 ms		Max. 4 ms	
Expected life	Mechanical life	Min. 10 ⁸		Min. 5 × 10 ⁷		Min. 10 ⁸	Min. 10 ⁷
Dielectric strength (initial)	Between open contacts	1,000 V AC for 1 minute		750 V AC for 1 minute		1,000 V AC for 1 minute	500 V AC for 1 minute
	Between contact and coil	2,000 V AC for 1 minute		1,800 V AC for 1 minute		3,000 V AC for 1 minute	
	Between contact sets	1,000 V AC for 1 minute		1,000 V AC for 1 minute		1,000 V AC for 1 minute	
Surge withstand voltage (initial)	Between open contacts	1,500 V 10 × 160 μ s (FCC Part 68)		1,500 V 10 × 160 μ s (FCC Part 68)		1,500 V 10 × 160 μ s (FCC Part68)	—
	Between contact and coil	2,500 V 2 × 10 μ s		2,500 V 2 × 10 μ s		6,000 V 1.2 × 50 μ s	
Ambient temperature		−40 to + 85°C (1.5 to 24 V DC) / −40 to + 70°C (48 V DC)		−40 to + 70°C		−40 to + 85°C	
Protective construction	Dust cover	—		—		—	
	Flux-resistant	—		—		—	
	Sealed	●		●		●	
PC board pattern (BOTTOM VIEW) ● indicates input terminal							
Safety standards		UL/C-UL, BSI		UL/C-UL, BSI		UL/C-UL, BSI	
Unit weight (Approx.)		2 g		2 g		2 g	
Option		—		—		—	
Remarks		—		—		MBB contact	

Signal Relays (2A or less) selector chart

Category			Signal Relays (2A or less)					
Product name			TQ*		TQ-SMD	DS		
Type of relay (Height includes standoff unit = mm)								
Initial of part number			P.20	ATQ	P.22	ATQ	P.24	AG2
Features			• 5 mm Low plofile • 2 Form C (D) , 1A type relays		• 5.6 mm Low plofile • 2 Form C 2A Surface-mount type relays		• High sensitivity 200 mW type • 1 Form C / 2 Form C , 2A type relays	
Contact data	Contact arrangement	2 Form C 2 Form D (MBB contact)		2 Form C		1 Form C 2 Form C		
	Contact shape	Crossbar Twin		Crossbar Twin		Twin		
	Contact material	Ag + Au clad		AgNi + Au clad		Ag + Au clad		
	Contact rating (resistive)	4 A 3 A 2 A 1 A		2 A 30 V DC		2 A 30 V DC		
	Min. switching load (reference value)							
			10 μ A 10 mV DC		10 μ A 10 mV DC		10 μ A 10 mV DC	
Latching types availability			●		●		●	
Coil data	Nominal coil voltage	3, 4.5, 5, 6, 9, 12, 24, 48 V DC (48 V ; Only single side stable type)		1.5, 3, 4.5, 5, 6, 9, 12, 24, 48 V DC (48 V ; Only single side stable type)		1.5, 3, 5, 6, 9, 12, 24, 48 V DC (1.5 V ; Only 1 Form C type)		
	Rated operating power	2 Form C Single side stable : 140 mW (3 to 12 V DC) 200 mW (24 V DC) , 300 mW (48 V DC)		Single side stable : 140 mW (1.5 to 12 V DC) 200 mW (24 V DC), 300 mW (48 V DC)		Single side stable : 400 mW (Standard), 200 mW (High sensitivity) Latching type : 360 mW (Standard), 180 mW (High sensitivity)		
	Operate [Set] voltage (initial)	Max. 75% V	Max. 80% V	Max. 75% V		Max. 75% V , Max. 80% V (High sensitivity ; 1 Form C)		
	Release [Reset] voltage (initial)	Min. 10% V [Max. 75% V]	Min. 10% V	Min. 10% V [Max. 75% V]		Min. 10% V [Max. 70% V , Max. 80% V (High sensitivity ; 1 Form C)]		
Time characteristics (initial)	Operate [Set] time (initial)	Max. 3 ms		Max. 4 ms		Max. 10 ms		
	Release [Reset] time (initial)	Max. 3 ms		Max. 4 ms		Max. 5 ms [Max. 10 ms]		
Expected life	Mechanical life	Min. 10 ⁸	Min. 10 ⁷	Min. 10 ⁸		Min. 10 ⁸ (Single side stable), Min. 10 ⁷ (2 coil latching)	Min. 10 ⁸	
Dielectric strength (initial)	Between open contacts	750 V AC for 1 minute	300 V AC for 1 minute	1,000 V AC for 1 minute		1,000 V AC for 1 minute (Standard), 500V AC for 1minute (High sensitivity)	1,000 V AC for 1 minute	
	Between contact and coil	1,000 V AC for 1 minute		1,500 V AC for 1 minute		1,500 V AC for 1 minute (Standard), 1,000 V AC for 1minute (High sensitivity)	1,500V AC for 1 minute	
	Between contact sets	1,000 V AC for 1 minute		1,500 V AC for 1 minute		-		
Surge withstand voltage (initial)	Between open contacts	1,500 V 10 \times 160 μ s (FCC Part68)	-	1,500 V 10 \times 160 μ s (FCC Part 68)		-		
	Between contact and coil	-		2,500 V 2 \times 10 μ s		-		
Ambient temperature			-40 to + 70°C	-40 to + 50°C	-40 to + 85°C (1 A or less for use over 70°C)		-40 to + 70°C	
Protective construction	Dust cover	-		-		-		
	Flux-resistant	-		-		-		
	Sealed	●		●		●		
PC board pattern (BOTTOM VIEW) ● indicates input terminal								
Safety standards			UL/C-UL, CSA		UL/C-UL, CSA		UL, CSA	
Unit weight (Approx.)			1.5 g		2 g		3 g	4 g
Option			-		-		-	
Remarks			MBB contact		-		-	

* Standard PC board terminal and self-clinching terminal.

Category		Signal Relays (2A or less)
Product name		HY
Type of relay (Height includes standoff unit = mm)		
Initial of part number		P25 AHY
Features		<ul style="list-style-type: none"> Non-polarized 1 Form C relay that realizes nominal operating power of 150 mW
Contact data	Contact arrangement	1 Form C
	Contact shape	Twin
	Contact material	Ag + Au clad
	Contact rating (resistive)	<div> <div>4 A</div> <div>3 A</div> <div>2 A</div> <div>1 A</div> </div> <div>1 A 30 V DC</div>
	Min. switching load (reference value)	1 mA 1 V DC
Latching types availability		•
Coil data	Nominal coil voltage	1.5, 3, 4.5, 5, 6, 9, 12, 24 V DC
	Rated operating power	150 mW, 200 mW
	Operate [Set] voltage (initial)	Max. 75% V
	Release [Reset] voltage (initial)	Min. 10% V
Time characteristics (initial)	Operate [Set] time (initial)	Max. 5 ms
	Release [Reset] time (initial)	Max. 4 ms
Expected life	Mechanical life	Min. 10 ⁷
Dielectric strength (initial)	Between open contacts	500 V AC for 1 minute
	Between contact and coil	1,000 V AC for 1 minute
	Between contact sets	—
Surge withstand voltage (initial)	Between open contacts	—
	Between contact and coil	—
Ambient temperature		−40 to + 70°C
Protective construction	Dust cover	—
	Flux-resistant	—
	Sealed	•
PC board pattern (BOTTOM VIEW) ● indicates input terminal		 <p>PC board terminal (TOP VIEW)</p>
Safety standards		UL, CSA
Unit weight (Approx.)		1.8 g
Option		—
Remarks		—

Signal relays types

(Part No, and electrical life, Packaging specification diagram, Notes)

GN RELAYS

TYPES

■ PC board terminal

● Tube packing

Contact arrangement	Nominal coil voltage	Part No.			Standard packing	
		Single side stable	1 coil latching	High sensitivity single side stable	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	AGN2001H	AGN2101H	AGN2601H	50 pcs.	1,000 pcs.
	3 V DC	AGN20003	AGN21003	AGN26003		
	4.5 V DC	AGN2004H	AGN2104H	AGN2604H		
	6 V DC	AGN20006	AGN21006	AGN26006		
	9 V DC	AGN20009	AGN21009	AGN26009		
	12 V DC	AGN20012	AGN21012	AGN26012		
	24 V DC	AGN20024	AGN21024	AGN26024		

■ Surface-mount terminal

● Tube packing

Contact arrangement	Nominal coil voltage	Part No.			Standard packing	
		Single side stable	1 coil latching	High sensitivity single side stable	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	AGN200*1H	AGN210*1H	AGN260*1H	50 pcs.	1,000 pcs.
	3 V DC	AGN200*03	AGN210*03	AGN260*03		
	4.5 V DC	AGN200*4H	AGN210*4H	AGN260*4H		
	6 V DC	AGN200*06	AGN210*06	AGN260*06		
	9 V DC	AGN200*09	AGN210*09	AGN260*09		
	12 V DC	AGN200*12	AGN210*12	AGN260*12		
	24 V DC	AGN200*24	AGN210*24	AGN260*24		

Note : "*" : For each surface-mount terminal identification, input the following letter. A type : A, S type : S.

● Tape and reel packing : Z

Contact arrangement	Nominal coil voltage	Part No.			Standard packing	
		Single side stable	1 coil latching	High sensitivity single side stable	Carton (1 Reel)	Outer carton
2 Form C	1.5 V DC	AGN200*1HZ	AGN210*1HZ	AGN260*1HZ	500 pcs.	1,000 pcs.
	3 V DC	AGN200*03Z	AGN210*03Z	AGN260*03Z		
	4.5 V DC	AGN200*4HZ	AGN210*4HZ	AGN260*4HZ		
	6 V DC	AGN200*06Z	AGN210*06Z	AGN260*06Z		
	9 V DC	AGN200*09Z	AGN210*09Z	AGN260*09Z		
	12 V DC	AGN200*12Z	AGN210*12Z	AGN260*12Z		
	24 V DC	AGN200*24Z	AGN210*24Z	AGN260*24Z		

Notes : 1. "*" : For each surface-mount terminal identification, input the following letter. A type : A, S type : S.

2. For taping packaging X, W, and Y, change "Z" at the end of the part number to "X", "W", and "Y".

RATING

■ Electrical life

Conditions: resistance load, switching frequency 20 times / minute.

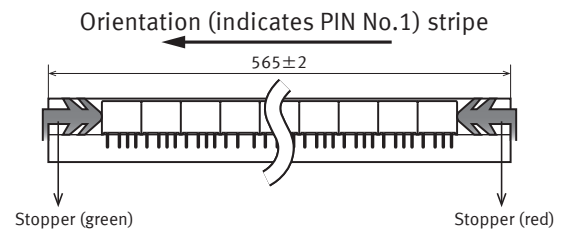
Type	Switching capacity	Number of operations
2 Form C	1 A 30 V DC	Min. 10 ⁵
	0.3 A 125 V AC	Min. 10 ⁵

PACKING STYLE

Unit: mm

■ Tube packing

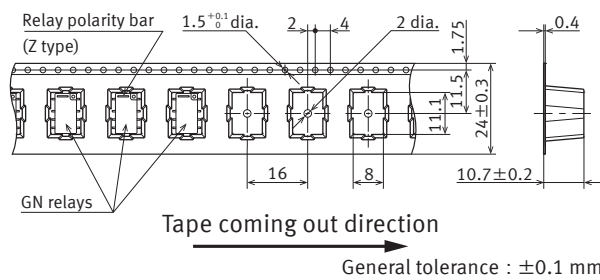
- The relay is packing in a tube with the relay orientation mark on the left side, as shown in the figure below.
Be sure to maintain relays in the correct orientation when mounting on PC boards.
- Conditions for operation, transport and storage : -40 to 70°C .



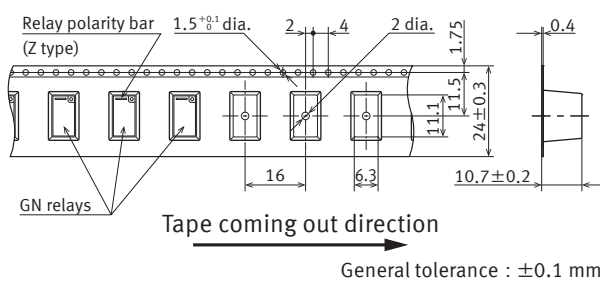
■ Taping packaging

1. Tape dimensions

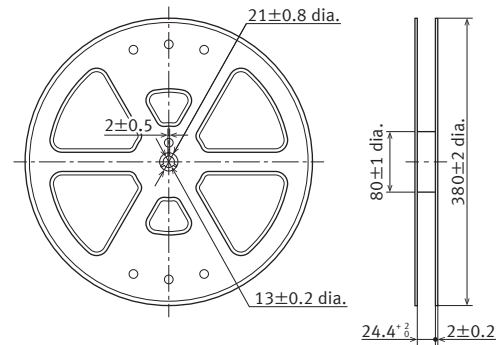
A Type



S Type



2. Dimensions of plastic reel

3. Conditions for operation, transport and storage : -40 to 70°C .

CAUTIONS FOR USE

- For cautions for use, please read “GUIDELINES FOR SIGNAL RELAYS USAGE” and “GUIDELINES FOR RELAY USAGE”.

■ Notes on using GN relay

● Latching type

- For reliable relay operation under various usage conditions, such as different ambient temperatures or applications, please apply set and reset pulse time minimum 10 ms at rated coil voltage.
- Note) See the product catalog for other precautions specific to the relay.

GQ RELAYS

TYPES

■ PC board terminal

● Tube packing

Contact arrangement	Nominal coil voltage	Part No.			Standard packing	
		Single side stable	1 coil latching	High sensitivity single side stable	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	AGQ2001H	AGQ2101H	AGQ2601H	50 pcs.	1,000 pcs.
	3 V DC	AGQ20003	AGQ21003	AGQ26003		
	4.5 V DC	AGQ2004H	AGQ2104H	AGQ2604H		
	6 V DC	AGQ20006	AGQ21006	AGQ26006		
	9 V DC	AGQ20009	AGQ21009	AGQ26009		
	12 V DC	AGQ20012	AGQ21012	AGQ26012		
	24 V DC	AGQ20024	AGQ21024	AGQ26024		

■ Surface-mount terminal

● Tube packing

Contact arrangement	Nominal coil voltage	Part No.			Standard packing	
		Single side stable	1 coil latching	High sensitivity single side stable	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	AGQ200*1H	AGQ210*1H	AGQ260*1H	50 pcs.	1,000 pcs.
	3 V DC	AGQ200*03	AGQ210*03	AGQ260*03		
	4.5 V DC	AGQ200*4H	AGQ210*4H	AGQ260*4H		
	6 V DC	AGQ200*06	AGQ210*06	AGQ260*06		
	9 V DC	AGQ200*09	AGQ210*09	AGQ260*09		
	12 V DC	AGQ200*12	AGQ210*12	AGQ260*12		
	24 V DC	AGQ200*24	AGQ210*24	AGQ260*24		

Note : "*" : For each surface-mount terminal identification, input the following letter. A type : A, S type : S.

● Tape and reel packing : Z

Contact arrangement	Nominal coil voltage	Part No.			Standard packing	
		Single side stable	1 coil latching	High sensitivity single side stable	Carton (1 Reel)	Outer carton
2 Form C	1.5 V DC	AGQ200*1HZ	AGQ210*1HZ	AGQ260*1HZ	900 pcs.	1,800 pcs.
	3 V DC	AGQ200*03Z	AGQ210*03Z	AGQ260*03Z		
	4.5 V DC	AGQ200*4HZ	AGQ210*4HZ	AGQ260*4HZ		
	6 V DC	AGQ200*06Z	AGQ210*06Z	AGQ260*06Z		
	9 V DC	AGQ200*09Z	AGQ210*09Z	AGQ260*09Z		
	12 V DC	AGQ200*12Z	AGQ210*12Z	AGQ260*12Z		
	24 V DC	AGQ200*24Z	AGQ210*24Z	AGQ260*24Z		

Notes : 1.** : For each surface-mount terminal identification, input the following letter. A type : A, S type : S.
2. For taping packaging X, W, and Y, change "Z" at the end of the part number to "X", "W", and "Y".

RATING

■ Electrical life

Conditions: resistance load, switching frequency 20 times / minute.

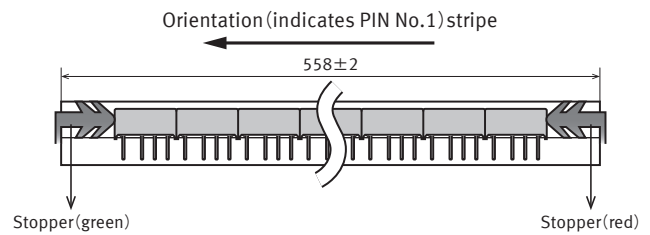
Type	Switching capacity	Number of operations
2 Form C	1 A 30 V DC	Min. 10 ⁵
	0.3 A 125 V AC	Min. 10 ⁵
	2 A 30 V DC	Min. 5 x 10 ⁴

PACKING STYLE

Unit: mm

■ Tube packing

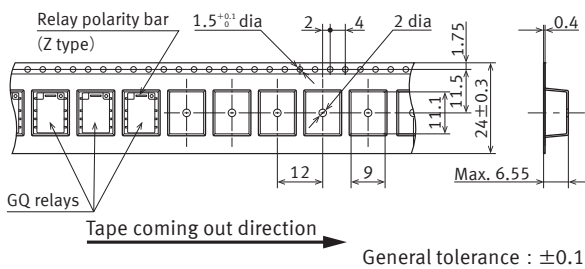
1. The relay is packing in a tube with the relay orientation mark on the left side, as shown in the figure below.
Be sure to maintain relays in the correct orientation when mounting on PC boards.
2. Conditions for operation, transport and storage : -40 to 70°C .



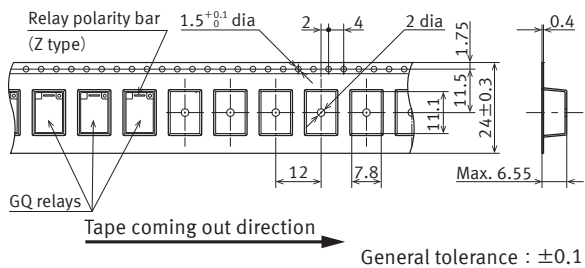
■ Taping packaging

1. Tape dimensions

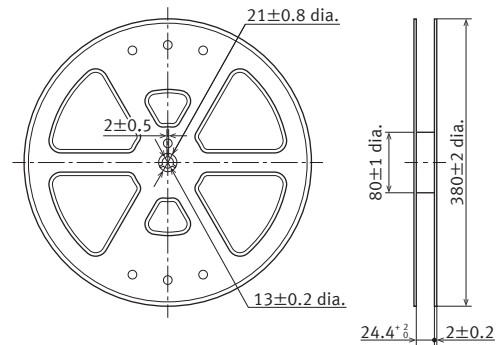
A Type



S Type



2. Dimensions of plastic reel

3. Conditions for operation, transport and storage : -40 to 70°C .

CAUTIONS FOR USE

- For cautions for use, please read “GUIDELINES FOR SIGNAL RELAYS USAGE” and “GUIDELINES FOR RELAY USAGE”.

■ Notes on using GQ relay

● Latching type

- For reliable relay operation under various usage conditions, such as different ambient temperatures or applications, please apply set and reset pulse time minimum 10 ms at rated coil voltage.
- Note) See the product catalog for other precautions specific to the relay.

TX RELAYS

TYPES

■ PC board terminal

● Tube packing

Contact arrangement	Nominal coil voltage	Single side stable		2 coil latching (LT)		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	TX2-1.5V	ATX200	TX2-LT-1.5V	ATX260	40 pcs.	1,000 pcs.
	3 V DC	TX2-3V	ATX201	TX2-LT-3V	ATX261		
	4.5 V DC	TX2-4.5V	ATX206	TX2-LT-4.5V	ATX266		
	5 V DC	TX2-5V	ATX209	TX2-LT-5V	ATX269		
	6 V DC	TX2-6V	ATX202	TX2-LT-6V	ATX262		
	9 V DC	TX2-9V	ATX207	TX2-LT-9V	ATX267		
	12 V DC	TX2-12V	ATX203	TX2-LT-12V	ATX263		
	24 V DC	TX2-24V	ATX204	TX2-LT-24V	ATX264		
	48 V DC	TX2-48V	ATX205	—	—		

Note: Please add "-1" to the end of the type number or "20" to the end of the part number for AgPd contacts (low level load).

■ Surface-mount terminal

● Tube packing

Contact arrangement	Nominal coil voltage	Single side stable		2 coil latching (LT)		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	TX2SA-1.5V	ATX200SA	TX2SA-LT-1.5V	ATX260SA	40 pcs.	1,000 pcs.
	3 V DC	TX2SA-3V	ATX201SA	TX2SA-LT-3V	ATX261SA		
	4.5 V DC	TX2SA-4.5V	ATX206SA	TX2SA-LT-4.5V	ATX266SA		
	5 V DC	TX2SA-5V	ATX209SA	TX2SA-LT-5V	ATX269SA		
	6 V DC	TX2SA-6V	ATX202SA	TX2SA-LT-6V	ATX262SA		
	9 V DC	TX2SA-9V	ATX207SA	TX2SA-LT-9V	ATX267SA		
	12 V DC	TX2SA-12V	ATX203SA	TX2SA-LT-12V	ATX263SA		
	24 V DC	TX2SA-24V	ATX204SA	TX2SA-LT-24V	ATX264SA		
	48 V DC	TX2SA-48V	ATX205SA	—	—		

Note: Please add "-1" to the end of the type number or "20" to be added in front of "surface-mount type" in part number for AgPd contacts (low level load).

● SA type : Tape and reel packing : Z

Contact arrangement	Nominal coil voltage	Single side stable		2 coil latching (LT)		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Reel)	Outer carton
2 Form C	1.5 V DC	TX2SA-1.5V-Z	ATX200SAZ	TX2SA-LT-1.5V-Z	ATX260SAZ	500 pcs.	1,000 pcs.
	3 V DC	TX2SA-3V-Z	ATX201SAZ	TX2SA-LT-3V-Z	ATX261SAZ		
	4.5 V DC	TX2SA-4.5V-Z	ATX206SAZ	TX2SA-LT-4.5V-Z	ATX266SAZ		
	5 V DC	TX2SA-5V-Z	ATX209SAZ	TX2SA-LT-5V-Z	ATX269SAZ		
	6 V DC	TX2SA-6V-Z	ATX202SAZ	TX2SA-LT-6V-Z	ATX262SAZ		
	9 V DC	TX2SA-9V-Z	ATX207SAZ	TX2SA-LT-9V-Z	ATX267SAZ		
	12 V DC	TX2SA-12V-Z	ATX203SAZ	TX2SA-LT-12V-Z	ATX263SAZ		
	24 V DC	TX2SA-24V-Z	ATX204SAZ	TX2SA-LT-24V-Z	ATX264SAZ		
	48 V DC	TX2SA-48V-Z	ATX205SAZ	—	—		

Notes: 1. Please add "-1" to the end of the type number or "20" to be added in front of "surface-mount type" in part number for AgPd contacts (low level load).
2. For taping packaging X, W, and Y, change "Z" at the end of the part number to "X", "W", and "Y".

RATING

■ Electrical life

Conditions: resistance load, switching frequency 20 times / minute.

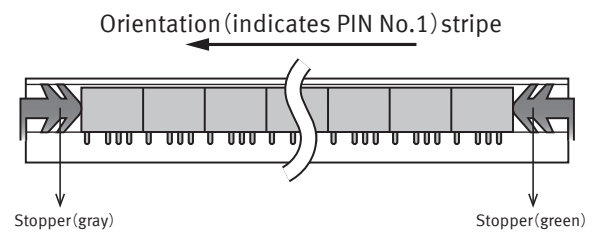
Type	Switching capacity	Number of operations
2 Form C	1 A 30 V DC	Min. 5 x 10 ⁵
	2 A 30 V DC	Min. 10 ⁵

PACKING STYLE

Unit: mm

■ Tube packing

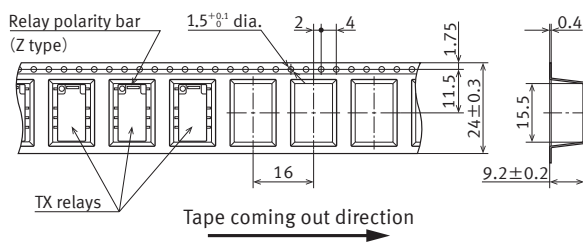
- The relay is packing in a tube with the relay orientation mark on the left side, as shown in the figure below.
Be sure to maintain relays in the correct orientation when mounting on PC boards.
- Conditions for operation, transport and storage : -40 to 70°C .



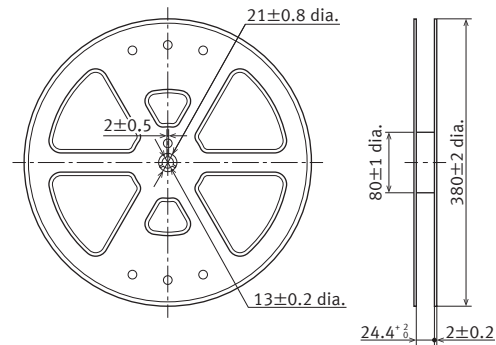
■ Taping packaging

- Tape dimensions

SA Type



- Dimensions of plastic reel



- Conditions for operation, transport and storage : -40 to 70°C .

CAUTIONS FOR USE

- For cautions for use, please read “GUIDELINES FOR SIGNAL RELAYS USAGE” and “GUIDELINES FOR RELAY USAGE”.

■ Notes on using TX relay

- Latching type
 - For reliable relay operation under various usage conditions, such as different ambient temperatures or applications, please apply set and reset pulse time minimum 10 ms at rated coil voltage.
 - Note) See the product catalog for other precautions specific to the relay.

TX-TH RELAYS

TYPES

■ PC board terminal

● Tube packing

Contact arrangement	Nominal coil voltage	Single side stable		2 coil latching (LT)		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	TX2-1.5V-TH	ATX200TH	TX2-LT-1.5V-TH	ATX260TH	40 pcs.	1,000 pcs.
	2.4 V DC	—	—	TX2-LT-2.4V-TH	ATX26ATH		
	3 V DC	TX2-3V-TH	ATX201TH	TX2-LT-3V-TH	ATX261TH		
	4.5 V DC	TX2-4.5V-TH	ATX206TH	TX2-LT-4.5V-TH	ATX266TH		
	5 V DC	TX2-5V-TH	ATX209TH	TX2-LT-5V-TH	ATX269TH		
	6 V DC	TX2-6V-TH	ATX202TH	TX2-LT-6V-TH	ATX262TH		
	9 V DC	TX2-9V-TH	ATX207TH	TX2-LT-9V-TH	ATX267TH		
	12 V DC	TX2-12V-TH	ATX203TH	TX2-LT-12V-TH	ATX263TH		
	24 V DC	TX2-24V-TH	ATX204TH	TX2-LT-24V-TH	ATX264TH		
	48 V DC	TX2-48V-TH	ATX205TH	—	—		

■ Surface-mount terminal

● SA type : Tube packing

Contact arrangement	Nominal coil voltage	Single side stable		2 coil latching (LT)		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	TX2SA-1.5V-TH	ATX200THSA	TX2SA-LT-1.5V-TH	ATX260THSA	40 pcs.	1,000 pcs.
	2.4 V DC	—	—	TX2SA-LT-2.4V-TH	ATX26ATHSA		
	3 V DC	TX2SA-3V-TH	ATX201THSA	TX2SA-LT-3V-TH	ATX261THSA		
	4.5 V DC	TX2SA-4.5V-TH	ATX206THSA	TX2SA-LT-4.5V-TH	ATX266THSA		
	5 V DC	TX2SA-5V-TH	ATX209THSA	TX2SA-LT-5V-TH	ATX269THSA		
	6 V DC	TX2SA-6V-TH	ATX202THSA	TX2SA-LT-6V-TH	ATX262THSA		
	9 V DC	TX2SA-9V-TH	ATX207THSA	TX2SA-LT-9V-TH	ATX267THSA		
	12 V DC	TX2SA-12V-TH	ATX203THSA	TX2SA-LT-12V-TH	ATX263THSA		
	24 V DC	TX2SA-24V-TH	ATX204THSA	TX2SA-LT-24V-TH	ATX264THSA		
	48 V DC	TX2SA-48V-TH	ATX205THSA	—	—		

● SA type : Tape and reel packing : Z

Contact arrangement	Nominal coil voltage	Single side stable		2 coil latching (LT)		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Reel)	Outer carton
2 Form C	1.5 V DC	TX2SA-1.5V-TH-Z	ATX200THSAZ	TX2SA-LT-1.5V-TH-Z	ATX260THSAZ	500 pcs.	1,000 pcs.
	2.4 V DC	—	—	TX2SA-LT-2.4V-TH-Z	ATX26ATHSAZ		
	3 V DC	TX2SA-3V-TH-Z	ATX201THSAZ	TX2SA-LT-3V-TH-Z	ATX261THSAZ		
	4.5 V DC	TX2SA-4.5V-TH-Z	ATX206THSAZ	TX2SA-LT-4.5V-TH-Z	ATX266THSAZ		
	5 V DC	TX2SA-5V-TH-Z	ATX209THSAZ	TX2SA-LT-5V-TH-Z	ATX269THSAZ		
	6 V DC	TX2SA-6V-TH-Z	ATX202THSAZ	TX2SA-LT-6V-TH-Z	ATX262THSAZ		
	9 V DC	TX2SA-9V-TH-Z	ATX207THSAZ	TX2SA-LT-9V-TH-Z	ATX267THSAZ		
	12 V DC	TX2SA-12V-TH-Z	ATX203THSAZ	TX2SA-LT-12V-TH-Z	ATX263THSAZ		
	24 V DC	TX2SA-24V-TH-Z	ATX204THSAZ	TX2SA-LT-24V-TH-Z	ATX264THSAZ		
	48 V DC	TX2SA-48V-TH-Z	ATX205THSAZ	—	—		

Note : For taping packaging X, W, and Y, change "Z" at the end of the part number to "X", "W", and "Y".

RATING

■ Electrical life

Conditions: resistance load, switching frequency 20 times / minute.

Type	Load	Switching capacity	Number of operations
2 Form C	Resistive load	1 A 30 V DC	Min. 5×10^5
		2 A 30 V DC	Min. 10^5
		0.5 A 125 V AC	Min. 10^5
	Inrush load*	Inrush current : 7.5 A 30 V AC (250 ms time) Steady state current : 1.5 A 30 V AC ($\cos\phi=0.4$)	Min. 2×10^5 (Switching frequency ON : OFF = 1s : 9s)

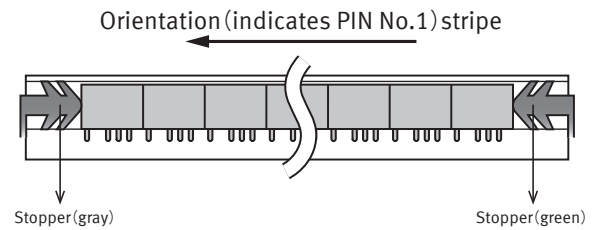
*When using at 7.5 A, please refer to "GUIDELINES FOR USAGE, Max. switching current".

PACKING STYLE

Unit: mm

■ Tube packing

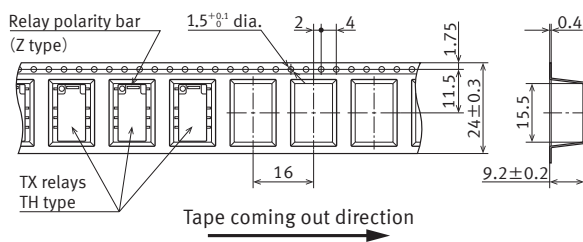
1. The relay is packing in a tube with the relay orientation mark on the left side, as shown in the figure below.
Be sure to maintain relays in the correct orientation when mounting on PC boards.
2. Conditions for operation, transport and storage : -40 to 70°C .



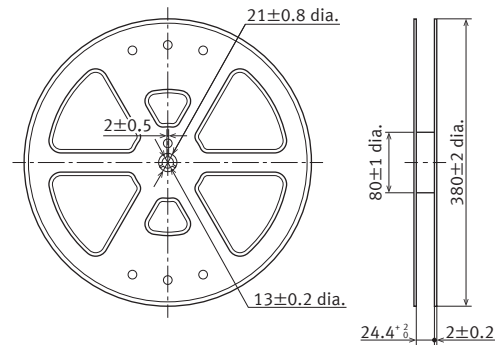
■ Taping packaging

1. Tape dimensions

SA Type



2. Dimensions of plastic reel



3. Conditions for operation, transport and storage : -40 to 70°C .

CAUTIONS FOR USE

- For cautions for use, please read “GUIDELINES FOR SIGNAL RELAYS USAGE” and “GUIDELINES FOR RELAY USAGE”.

■ Notes on using TX-TH relay

- Latching type
 - For reliable relay operation under various usage conditions, such as different ambient temperatures or applications, please apply set and reset pulse time minimum 10 ms at rated coil voltage.
 - Note) See the product catalog for other precautions specific to the relay.

TX-S RELAYS

TYPES

■ PC board terminal

● Tube packing

Contact arrangement	Nominal coil voltage	Single side stable		2 coil latching (LT)		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	TXS2-1.5V	ATXS200	TXS2-LT-1.5V	ATXS260	40 pcs.	1,000 pcs.
	3 V DC	TXS2-3V	ATXS201	TXS2-LT-3V	ATXS261		
	4.5 V DC	TXS2-4.5V	ATXS206	TXS2-LT-4.5V	ATXS266		
	6 V DC	TXS2-6V	ATXS202	TXS2-LT-6V	ATXS262		
	9 V DC	TXS2-9V	ATXS207	TXS2-LT-9V	ATXS267		
	12 V DC	TXS2-12V	ATXS203	TXS2-LT-12V	ATXS263		
	24 V DC	TXS2-24V	ATXS204	TXS2-LT-24V	ATXS264		

Note : Please add "-1" to the end of the type number or "20" to the end of the part number for AgPd contacts (low level load).

■ Surface-mount terminal

● SA type : Tube packing

Contact arrangement	Nominal coil voltage	Single side stable		2 coil latching (LT)		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	TXS2SA-1.5V	ATXS200SA	TXS2SA-LT-1.5V	ATXS260SA	40 pcs.	1,000 pcs.
	3 V DC	TXS2SA-3V	ATXS201SA	TXS2SA-LT-3V	ATXS261SA		
	4.5 V DC	TXS2SA-4.5V	ATXS206SA	TXS2SA-LT-4.5V	ATXS266SA		
	6 V DC	TXS2SA-6V	ATXS202SA	TXS2SA-LT-6V	ATXS262SA		
	9 V DC	TXS2SA-9V	ATXS207SA	TXS2SA-LT-9V	ATXS267SA		
	12 V DC	TXS2SA-12V	ATXS203SA	TXS2SA-LT-12V	ATXS263SA		
	24 V DC	TXS2SA-24V	ATXS204SA	TXS2SA-LT-24V	ATXS264SA		

Note : Please add "-1" to the end of the type number or "20" to be added in front of "surface-mount type" in part number for AgPd contacts (low level load).

● SA type : Tape and reel packing : Z

Contact arrangement	Nominal coil voltage	Single side stable		2 coil latching (LT)		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Reel)	Outer carton
2 Form C	1.5 V DC	TXS2SA-1.5V-Z	ATXS200SAZ	TXS2SA-LT-1.5V-Z	ATXS260SAZ	500 pcs.	1,000 pcs.
	3 V DC	TXS2SA-3V-Z	ATXS201SAZ	TXS2SA-LT-3V-Z	ATXS261SAZ		
	4.5 V DC	TXS2SA-4.5V-Z	ATXS206SAZ	TXS2SA-LT-4.5V-Z	ATXS266SAZ		
	6 V DC	TXS2SA-6V-Z	ATXS202SAZ	TXS2SA-LT-6V-Z	ATXS262SAZ		
	9 V DC	TXS2SA-9V-Z	ATXS207SAZ	TXS2SA-LT-9V-Z	ATXS267SAZ		
	12 V DC	TXS2SA-12V-Z	ATXS203SAZ	TXS2SA-LT-12V-Z	ATXS263SAZ		
	24 V DC	TXS2SA-24V-Z	ATXS204SAZ	TXS2SA-LT-24V-Z	ATXS264SAZ		

Notes : 1. Please add "-1" to the end of the type number or "20" to be added in front of "surface-mount type" in part number for AgPd contacts (low level load).

2. For taping packaging X, W, and Y, change "Z" at the end of the part number to "X", "W", and "Y".

RATING

■ Electrical life

Conditions: resistance load, switching frequency 20 times / minute.

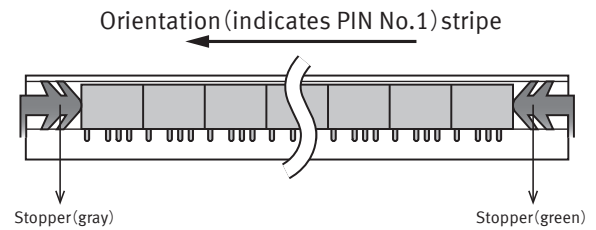
Type		Switching capacity	Number of operations
2 Form C	Standard contact	1 A 30 V DC	Min. 2 x 10 ⁵
	AgPd contact (low level load)		Min. 10 ⁵

PACKING STYLE

Unit: mm

■ Tube packing

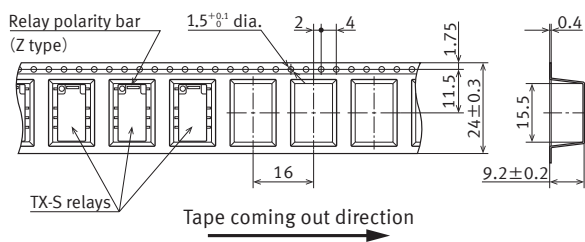
1. The relay is packing in a tube with the relay orientation mark on the left side, as shown in the figure below.
Be sure to maintain relays in the correct orientation when mounting on PC boards.
2. Conditions for operation, transport and storage : -40 to 70°C .



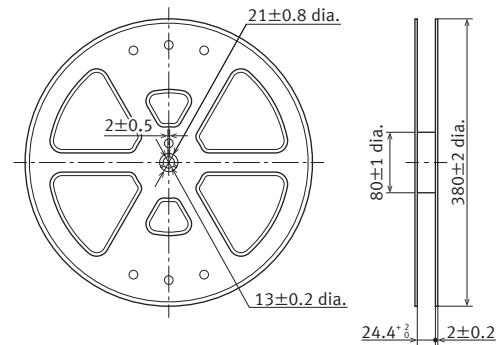
■ Taping packaging

1. Tape dimensions

SA Type



2. Dimensions of plastic reel



3. Conditions for operation, transport and storage : -40 to 70°C .

CAUTIONS FOR USE

- For cautions for use, please read “GUIDELINES FOR SIGNAL RELAYS USAGE” and “GUIDELINES FOR RELAY USAGE”.

■ Notes on using TX-S relay

- Latching type
 - For reliable relay operation under various usage conditions, such as different ambient temperatures or applications, please apply set and reset pulse time minimum 10 ms at rated coil voltage.
 - Note) See the product catalog for other precautions specific to the relay.

TX-D RELAYS

TYPES

■ PC board terminal

● PC board terminal : Tube packing

Contact arrangement	Nominal coil voltage	Single side stable		1 coil latching		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	TXD2-1.5V	ATXD200	TXD2-L-1.5V	ATXD210	40 pcs.	1,000 pcs.
	3 V DC	TXD2-3V	ATXD201	TXD2-L-3V	ATXD211		
	4.5 V DC	TXD2-4.5V	ATXD206	TXD2-L-4.5V	ATXD216		
	5 V DC	TXD2-5V	ATXD209	TXD2-L-5V	ATXD219		
	6 V DC	TXD2-6V	ATXD202	TXD2-L-6V	ATXD212		
	9 V DC	TXD2-9V	ATXD207	TXD2-L-9V	ATXD217		
	12 V DC	TXD2-12V	ATXD203	TXD2-L-12V	ATXD213		
	24 V DC	TXD2-24V	ATXD204	TXD2-L-24V	ATXD214		

Note : Please add "-1" to the end of the type number or "20" to the end of the part number for AgPd contacts (low level load).

● Surface-mount terminal SA type : Tube packing

Contact arrangement	Nominal coil voltage	Single side stable		1 coil latching		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	TXD2SA-1.5V	ATXD200SA	TXD2SA-L-1.5V	ATXD210SA	40 pcs.	1,000 pcs.
	3 V DC	TXD2SA-3V	ATXD201SA	TXD2SA-L-3V	ATXD211SA		
	4.5 V DC	TXD2SA-4.5V	ATXD206SA	TXD2SA-L-4.5V	ATXD216SA		
	5 V DC	TXD2SA-5V	ATXD209SA	TXD2SA-L-5V	ATXD219SA		
	6 V DC	TXD2SA-6V	ATXD202SA	TXD2SA-L-6V	ATXD212SA		
	9 V DC	TXD2SA-9V	ATXD207SA	TXD2SA-L-9V	ATXD217SA		
	12 V DC	TXD2SA-12V	ATXD203SA	TXD2SA-L-12V	ATXD213SA		
	24 V DC	TXD2SA-24V	ATXD204SA	TXD2SA-L-24V	ATXD214SA		

Note : Please add "-1" to the end of the type number or "20" to be added in front of "surface-mount type" in part number for AgPd contacts (low level load).

● Surface-mount terminal SA type : Tape and reel packing : Z

Contact arrangement	Nominal coil voltage	Single side stable		1 coil latching		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Reel)	Outer carton
2 Form C	1.5 V DC	TXD2SA-1.5V-Z	ATXD200SAZ	TXD2SA-L-1.5V-Z	ATXD210SAZ	500 pcs.	1,000 pcs.
	3 V DC	TXD2SA-3V-Z	ATXD201SAZ	TXD2SA-L-3V-Z	ATXD211SAZ		
	4.5 V DC	TXD2SA-4.5V-Z	ATXD206SAZ	TXD2SA-L-4.5V-Z	ATXD216SAZ		
	5 V DC	TXD2SA-5V-Z	ATXD209SAZ	TXD2SA-L-5V-Z	ATXD219SAZ		
	6 V DC	TXD2SA-6V-Z	ATXD202SAZ	TXD2SA-L-6V-Z	ATXD212SAZ		
	9 V DC	TXD2SA-9V-Z	ATXD207SAZ	TXD2SA-L-9V-Z	ATXD217SAZ		
	12 V DC	TXD2SA-12V-Z	ATXD203SAZ	TXD2SA-L-12V-Z	ATXD213SAZ		
	24 V DC	TXD2SA-24V-Z	ATXD204SAZ	TXD2SA-L-24V-Z	ATXD214SAZ		

Notes : 1. Please add "-1" to the end of the type number or "20" to be added in front of "surface-mount type" in part number for AgPd contacts (low level load).

2. For taping packaging X, W, and Y, change "Z" at the end of the part number to "X", "W", and "Y".

■ MBB contact

● PC board terminal/Surface-mount terminal SA type : Tube packing

Contact arrangement	Nominal coil voltage	PC board terminal		Surface-mount terminal		Standard packing	
		Single side stable		Single side stable		Carton (1 Tube packing)	Outer carton
		Type No.	Part No.	Type No.	Part No.		
2 Form D	1.5 V DC	TXD2-2M-1.5V	ATXD20022	TXD2SA-2M-1.5V	ATXD20022SA	40 pcs.	1,000 pcs.
	3 V DC	TXD2-2M-3V	ATXD20122	TXD2SA-2M-3V	ATXD20122SA		
	4.5 V DC	TXD2-2M-4.5V	ATXD20622	TXD2SA-2M-4.5V	ATXD20622SA		
	5 V DC	TXD2-2M-5V	ATXD20922	TXD2SA-2M-5V	ATXD20922SA		
	6 V DC	TXD2-2M-6V	ATXD20222	TXD2SA-2M-6V	ATXD20222SA		
	9 V DC	TXD2-2M-9V	ATXD20722	TXD2SA-2M-9V	ATXD20722SA		
	12 V DC	TXD2-2M-12V	ATXD20322	TXD2SA-2M-12V	ATXD20322SA		
	24 V DC	TXD2-2M-24V	ATXD20422	TXD2SA-2M-24V	ATXD20422SA		

Note : Please add "-1" to the end of the type number or "28" to be added in front of "surface-mount type" in part number for AgPd contacts (low level load).

● Surface-mount terminal SA type : Tape and reel packing : Z

Contact arrangement	Nominal coil voltage	Single side stable		Standard packing	
		Type No.	Part No.	Carton (1 Reel)	Outer carton
2 Form D	1.5 V DC	TXD2SA-2M-1.5V-Z	ATXD20022SAZ	500 pcs.	1,000 pcs.
	3 V DC	TXD2SA-2M-3V-Z	ATXD20122SAZ		
	4.5 V DC	TXD2SA-2M-4.5V-Z	ATXD20622SAZ		
	5 V DC	TXD2SA-2M-5V-Z	ATXD20922SAZ		
	6 V DC	TXD2SA-2M-6V-Z	ATXD20222SAZ		
	9 V DC	TXD2SA-2M-9V-Z	ATXD20722SAZ		
	12 V DC	TXD2SA-2M-12V-Z	ATXD20322SAZ		
	24 V DC	TXD2SA-2M-24V-Z	ATXD20422SAZ		

Note : 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. ATXD***28)

2. For taping packaging X, W, and Y, change "Z" at the end of the part number to "X", "W", and "Y".

RATING

■ Electrical life

Conditions: resistance load, switching frequency 20 times / minute.

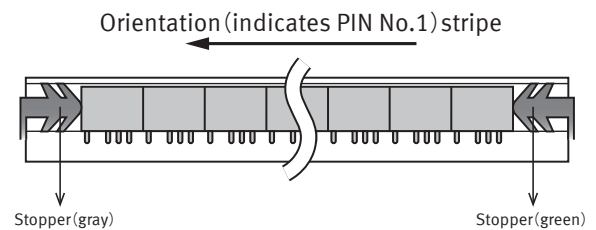
Type	Switching capacity	Number of operations
2 Form C	1 A 30 V DC	Min. 5×10^5
	2 A 30 V DC	Min. 10^5
2 Form D (MBB contact)	1 A 30 V DC	Min. 10^5

PACKING STYLE

Unit: mm

■ Tube packing

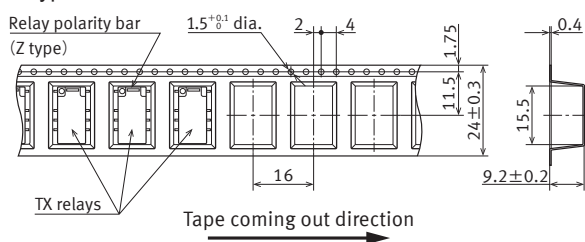
- The relay is packing in a tube with the relay orientation mark on the left side, as shown in the figure below.
Be sure to maintain relays in the correct orientation when mounting on PC boards.
- Conditions for operation, transport and storage : -40 to 70°C .



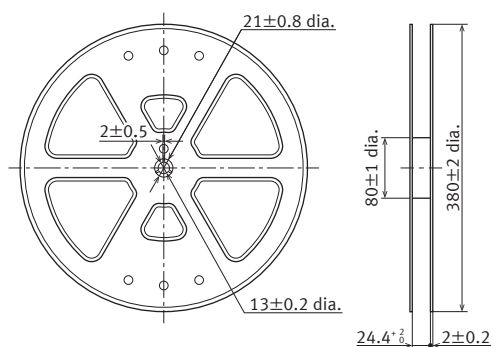
■ Taping packaging

1. Tape dimensions

SA Type



2. Dimensions of plastic reel

3. Conditions for operation, transport and storage : -40 to 70°C .

CAUTIONS FOR USE

■ For cautions for use, please read "GUIDELINES FOR SIGNAL RELAYS USAGE" and "GUIDELINES FOR RELAY USAGE".

■ Notes on using TX-D relay

● Latching type

- For reliable relay operation under various usage conditions, such as different ambient temperatures or applications, please apply set and reset pulse time minimum 10 ms at rated coil voltage.
- Note) See the product catalog for other precautions specific to the relay.

TQ RELAYS

TYPES

■ PC board terminal

● PC board terminal (Standard) : Tube packing

Contact arrangement	Nominal coil voltage	Single side stable		1 coil latching		2 coil latching		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
2 Form C	3 V DC	TQ2-3V	ATQ201	TQ2-L-3V	ATQ211	TQ2-L2-3V	ATQ221	50 pcs.	1,000 pcs.
	4.5 V DC	TQ2-4.5V	ATQ206	TQ2-L-4.5V	ATQ216	TQ2-L2-4.5V	ATQ226		
	5 V DC	TQ2-5V	ATQ209	TQ2-L-5V	ATQ219	TQ2-L2-5V	ATQ229		
	6 V DC	TQ2-6V	ATQ202	TQ2-L-6V	ATQ212	TQ2-L2-6V	ATQ222		
	9 V DC	TQ2-9V	ATQ207	TQ2-L-9V	ATQ217	TQ2-L2-9V	ATQ227		
	12 V DC	TQ2-12V	ATQ203	TQ2-L-12V	ATQ213	TQ2-L2-12V	ATQ223		
	24 V DC	TQ2-24V	ATQ204	TQ2-L-24V	ATQ214	TQ2-L2-24V	ATQ224		
	48 V DC	TQ2-48V	ATQ205	—	—	—	—		

● PC board terminal (self-clinching terminal) : Tube packing

Contact arrangement	Nominal coil voltage	Single side stable		1 coil latching		2 coil latching		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
2 Form C	3 V DC	TQ2H-3V	ATQ231	TQ2H-L-3V	ATQ241	TQ2H-L2-3V	ATQ251	50 pcs.	1,000 pcs.
	4.5 V DC	TQ2H-4.5V	ATQ236	TQ2H-L-4.5V	ATQ246	TQ2H-L2-4.5V	ATQ256		
	5 V DC	TQ2H-5V	ATQ239	TQ2H-L-5V	ATQ249	TQ2H-L2-5V	ATQ259		
	6 V DC	TQ2H-6V	ATQ232	TQ2H-L-6V	ATQ242	TQ2H-L2-6V	ATQ252		
	9 V DC	TQ2H-9V	ATQ237	TQ2H-L-9V	ATQ247	TQ2H-L2-9V	ATQ257		
	12 V DC	TQ2H-12V	ATQ233	TQ2H-L-12V	ATQ243	TQ2H-L2-12V	ATQ253		
	24 V DC	TQ2H-24V	ATQ234	TQ2H-L-24V	ATQ244	TQ2H-L2-24V	ATQ254		
	48 V DC	TQ2H-48V	ATQ235	—	—	—	—		

Note : The products (ATQ***25) designed to withstand strong vibration caused, for example, by the use of terminal cutters, can also be ordered. However, please inquire our sales representative for details, if you need parts for use in low level load.

■ MBB contact

● Standard PC board terminal and self-clinching terminal : Tube packing

Contact arrangement	Nominal coil voltage	Standard		Self-clinching terminal*		Standard packing	
		Single side stable		Single side stable		Carton (1 Tube packing)	Outer carton
		Type No.	Part No.	Type No.	Part No.		
2 Form D	3 V DC	TQ2-2M-3V	ATQ20122	TQ2H-2M-3V	ATQ23122	50 pcs.	1,000 pcs.
	4.5 V DC	TQ2-2M-4.5V	ATQ20622	TQ2H-2M-4.5V	ATQ23622		
	5 V DC	TQ2-2M-5V	ATQ20922	TQ2H-2M-5V	ATQ23922		
	6 V DC	TQ2-2M-6V	ATQ20222	TQ2H-2M-6V	ATQ23222		
	9 V DC	TQ2-2M-9V	ATQ20722	TQ2H-2M-9V	ATQ23722		
	12 V DC	TQ2-2M-12V	ATQ20322	TQ2H-2M-12V	ATQ23322		
	24 V DC	TQ2-2M-24V	ATQ20422	TQ2H-2M-24V	ATQ23422		

* Latching types are available by request. Please inquire our sales representative for details.

RATING

■ Electrical life

Conditions: resistance load, switching frequency 20 times / minute.

● Standard PC board terminal and self-clinching terminal

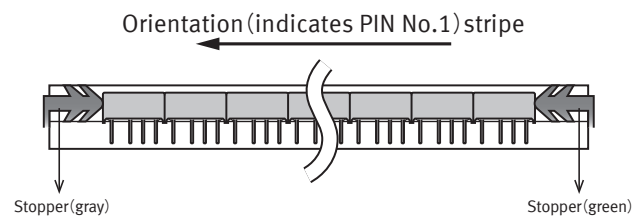
Type		Switching capacity	Number of operations
2 Form C	Standard	1 A 30 V DC	Min. 2 x 10 ⁵
		0.5 A 125V AC	Min. 10 ⁵
2 Form D	MBB contact	1 A 30 V DC	Min. 10 ⁵

PACKING STYLE

Unit: mm

■ Tube packing

1. The relay is packing in a tube with the relay orientation mark on the left side, as shown in the figure below.
Be sure to maintain relays in the correct orientation when mounting on PC boards.
2. Conditions for operation, transport and storage : -40 to 60°C.



CAUTIONS FOR USE

- For cautions for use, please read "GUIDELINES FOR SIGNAL RELAYS USAGE" and "GUIDELINES FOR RELAY USAGE".

■ Notes on using TQ relay

- Latching type
 - For reliable relay operation under various usage conditions, such as different ambient temperatures or applications, please apply set and reset pulse time minimum 10 ms at rated coil voltage.
 - Note) See the product catalog for other precautions specific to the relay.

TQ-SMD RELAYS

TYPES

■ PC board terminal

● Surface-mount terminal : Tube packing

Contact arrangement	Nominal coil voltage	Single side stable		1 coil latching		2 coil latching		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
2 Form C	1.5 V DC	TQ2S*-1.5V	ATQ200S*	TQ2S*-L-1.5V	ATQ210S*	TQ2S*-L2-1.5V	ATQ220S*	50 pcs.	1,000 pcs.
	3 V DC	TQ2S*-3V	ATQ201S*	TQ2S*-L-3V	ATQ211S*	TQ2S*-L2-3V	ATQ221S*		
	4.5 V DC	TQ2S*-4.5V	ATQ206S*	TQ2S*-L-4.5V	ATQ216S*	TQ2S*-L2-4.5V	ATQ226S*		
	5 V DC	TQ2S*-5V	ATQ209S*	TQ2S*-L-5V	ATQ219S*	TQ2S*-L2-5V	ATQ229S*		
	6 V DC	TQ2S*-6V	ATQ202S*	TQ2S*-L-6V	ATQ212S*	TQ2S*-L2-6V	ATQ222S*		
	9 V DC	TQ2S*-9V	ATQ207S*	TQ2S*-L-9V	ATQ217S*	TQ2S*-L2-9V	ATQ227S*		
	12 V DC	TQ2S*-12V	ATQ203S*	TQ2S*-L-12V	ATQ213S*	TQ2S*-L2-12V	ATQ223S*		
	24 V DC	TQ2S*-24V	ATQ204S*	TQ2S*-L-24V	ATQ214S*	TQ2S*-L2-24V	ATQ224S*		
	48 V DC	TQ2S*-48V	ATQ205S*	—	—	—	—		

Note : Enter "A" for SA type, "L" for SL type and "S" for SS type into the "**".

● Surface-mount terminal : Tape and reel packing : Z

Contact arrangement	Nominal coil voltage	Single side stable		1 coil latching		2 coil latching		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Type No.	Part No.	Carton (1 Reel)	Outer carton
2 Form C	1.5 V DC	TQ2S*-1.5V-Z	ATQ200S*Z	TQ2S*-L-1.5V-Z	ATQ210S*Z	TQ2S*-L2-1.5V-Z	ATQ220S*Z	500 pcs.	1,000 pcs.
	3 V DC	TQ2S*-3V-Z	ATQ201S*Z	TQ2S*-L-3V-Z	ATQ211S*Z	TQ2S*-L2-3V-Z	ATQ221S*Z		
	4.5 V DC	TQ2S*-4.5V-Z	ATQ206S*Z	TQ2S*-L-4.5V-Z	ATQ216S*Z	TQ2S*-L2-4.5V-Z	ATQ226S*Z		
	5 V DC	TQ2S*-5V-Z	ATQ209S*Z	TQ2S*-L-5V-Z	ATQ219S*Z	TQ2S*-L2-5V-Z	ATQ229S*Z		
	6 V DC	TQ2S*-6V-Z	ATQ202S*Z	TQ2S*-L-6V-Z	ATQ212S*Z	TQ2S*-L2-6V-Z	ATQ222S*Z		
	9 V DC	TQ2S*-9V-Z	ATQ207S*Z	TQ2S*-L-9V-Z	ATQ217S*Z	TQ2S*-L2-9V-Z	ATQ227S*Z		
	12 V DC	TQ2S*-12V-Z	ATQ203S*Z	TQ2S*-L-12V-Z	ATQ213S*Z	TQ2S*-L2-12V-Z	ATQ223S*Z		
	24 V DC	TQ2S*-24V-Z	ATQ204S*Z	TQ2S*-L-24V-Z	ATQ214S*Z	TQ2S*-L2-24V-Z	ATQ224S*Z		
	48 V DC	TQ2S*-48V-Z	ATQ205S*Z	—	—	—	—		

Notes : 1. Enter "A" for SA type, "L" for SL type and "S" for SS type into the "**".

2. For taping packaging X, W, and Y, change "Z" at the end of the part number to "X", "W", and "Y" (SA type and SS type only).

3. The "W" and "Y" at the end of part number is only available for SA and SS (Tape and reel packing).

RATING

■ Electrical life

Conditions: resistance load, switching frequency 20 times / minute.

● Surface-mount terminal

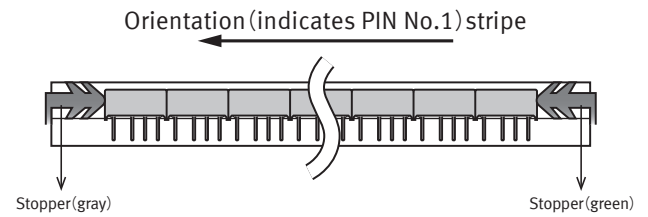
Type	Switching capacity	Number of operations
2 Form C	1 A 30 V DC	Min. 2 x 10 ⁵
	2 A 30 V DC	Min. 10 ⁵
	0.5 A 125V AC	Min. 10 ⁵

PACKING STYLE

Unit: mm

■ Tube packing

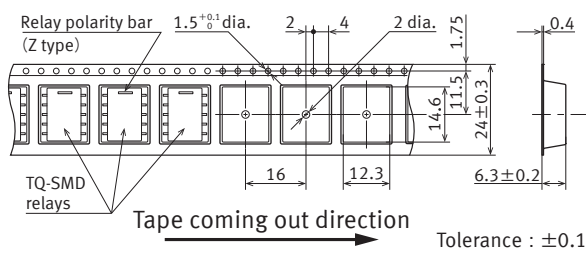
- The relay is packing in a tube with the relay orientation mark on the left side, as shown in the figure below.
Be sure to maintain relays in the correct orientation when mounting on PC boards.
- Conditions for operation, transport and storage : -40 to 60°C .



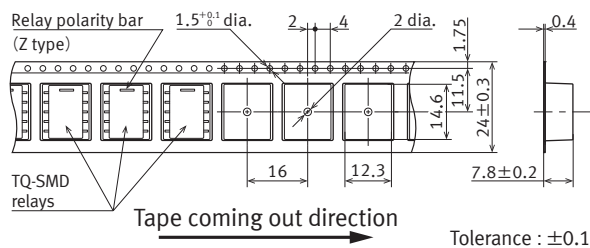
■ Taping packaging

1. Tape dimensions

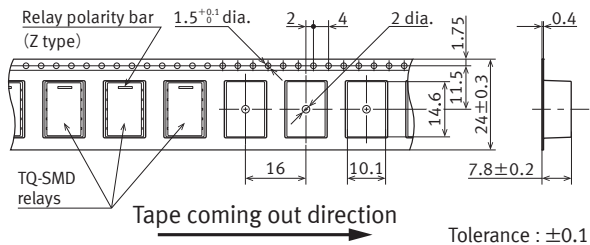
SA Type



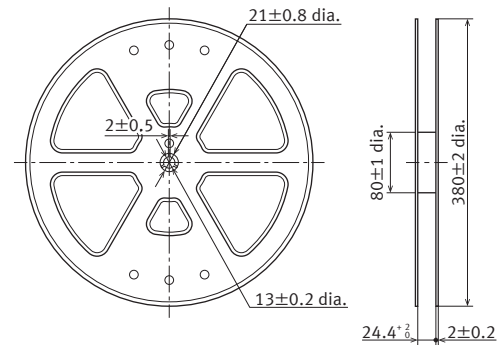
SL Type



SS Type



2. Dimensions of plastic reel

3. Conditions for operation, transport and storage : -40 to 70°C .

CAUTIONS FOR USE

- For cautions for use, please read “GUIDELINES FOR SIGNAL RELAYS USAGE” and “GUIDELINES FOR RELAY USAGE”.

■ Notes on using TQ-SMD relay

● Latching type

- For reliable relay operation under various usage conditions, such as different ambient temperatures or applications, please apply set and reset pulse time minimum 10 ms at rated coil voltage.
- Note) See the product catalog for other precautions specific to the relay.

DS RELAYS

TYPES

■ PC board terminal

● Standard type (M) : Inner carton

Contact arrangement	Nominal coil voltage	Single side stable		2 coil latching		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton	Outer carton
1 Form C	1.5 V DC	DS1E-M-DC1.5V	AG201044	DS1E-ML2-DC1.5V	AG221044	50 pcs.	500 pcs.
	3 V DC	DS1E-M-DC3V	AG201144	DS1E-ML2-DC3V	AG221144		
	5 V DC	DS1E-M-DC5V	AG201944	DS1E-ML2-DC5V	AG221944		
	6 V DC	DS1E-M-DC6V	AG201244	DS1E-ML2-DC6V	AG221244		
	9 V DC	DS1E-M-DC9V	AG201744	DS1E-ML2-DC9V	AG221744		
	12 V DC	DS1E-M-DC12V	AG201344	DS1E-ML2-DC12V	AG221344		
	24 V DC	DS1E-M-DC24V	AG201444	DS1E-ML2-DC24V	AG221444		
	48 V DC	DS1E-M-DC48V	AG201544	DS1E-ML2-DC48V	AG221544		

● High sensitive type (S): Inner carton

Contact arrangement	Nominal coil voltage	Single side stable		2 coil latching		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton	Outer carton
1 Form C	1.5 V DC	DS1E-S-DC1.5V	AG231044	DS1E-SL2-DC1.5V	AG251044	50 pcs.	500 pcs.
	3 V DC	DS1E-S-DC3V	AG231144	DS1E-SL2-DC3V	AG251144		
	5 V DC	DS1E-S-DC5V	AG231944	DS1E-SL2-DC5V	AG251944		
	6 V DC	DS1E-S-DC6V	AG231244	DS1E-SL2-DC6V	AG251244		
	9 V DC	DS1E-S-DC9V	AG231744	DS1E-SL2-DC9V	AG251744		
	12 V DC	DS1E-S-DC12V	AG231344	DS1E-SL2-DC12V	AG251344		
	24 V DC	DS1E-S-DC24V	AG231444	DS1E-SL2-DC24V	AG251444		
	48 V DC	DS1E-S-DC48V	AG231544	DS1E-SL2-DC48V	AG251544		
2 Form C	3 V DC	DS2E-S-DC3V	AG232144	DS2E-SL2-DC3V	AG252144		
	5 V DC	DS2E-S-DC5V	AG232944	DS2E-SL2-DC5V	AG252944		
	6 V DC	DS2E-S-DC6V	AG232244	DS2E-SL2-DC6V	AG252244		
	9 V DC	DS2E-S-DC9V	AG232744	DS2E-SL2-DC9V	AG252744		
	12 V DC	DS2E-S-DC12V	AG232344	DS2E-SL2-DC12V	AG252344		
	24 V DC	DS2E-S-DC24V	AG232444	DS2E-SL2-DC24V	AG252444		
	48 V DC	DS2E-S-DC48V	AG232544	DS2E-SL2-DC48V	AG252544		

RATING

■ Electrical life

Conditions: resistance load, switching frequency 60 times / minute.

Type	Switching capacity	Number of operations
1 Form C, 2 Form C	2 A 30 V DC	Min. 5 x 10 ⁵

CAUTIONS FOR USE

■ For cautions for use, please read “GUIDELINES FOR SIGNAL RELAYS USAGE” and “GUIDELINES FOR RELAY USAGE”.

■ Notes on using DS relay

● Latching type

- For reliable relay operation under various usage conditions, such as different ambient temperatures or applications, please apply set and reset pulse time minimum 20 ms at rated coil voltage.
- Note) See the product catalog for other precautions specific to the relay.

HY RELAYS

TYPES

■ PC board terminal

● PC board terminal : Tube packing

Contact arrangement	Nominal coil voltage	150mW type		200mW type		Standard packing	
		Type No.	Part No.	Type No.	Part No.	Carton (1 Tube packing)	Outer carton
1 Form C	1.5 V DC	HY1-1.5V	AHY100	HY1Z-1.5V	AHY120	50 pcs.	2,000 pcs.
	3 V DC	HY1-3V	AHY101	HY1Z-3V	AHY121		
	4.5 V DC	HY1-4.5V	AHY106	HY1Z-4.5V	AHY126		
	5 V DC	HY1-5V	AHY109	HY1Z-5V	AHY129		
	6 V DC	HY1-6V	AHY102	HY1Z-6V	AHY122		
	9 V DC	HY1-9V	AHY107	HY1Z-9V	AHY127		
	12 V DC	HY1-12V	AHY103	HY1Z-12V	AHY123		
	24 V DC	HY1-24V	AHY104	HY1Z-24V	AHY124		

RATING

■ Electrical life

Conditions: resistance load, switching frequency 20 times / minute.

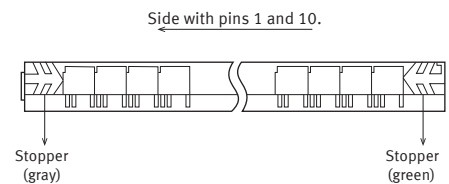
Type	Switching capacity	Number of operations
1 Form C	1 A 30 V DC	Min. 10 ⁵

PACKING STYLE

Unit: mm

■ Tube packing

- The relays are presented in tube packages with pins 1 and 10 on the left.
Be sure to maintain relays in the correct orientation when mounting on PC boards.



- Conditions for operation, transport and storage : -40 to 60°C.

CAUTIONS FOR USE

- For cautions for use, please read “GUIDELINES FOR SIGNAL RELAYS USAGE” and “GUIDELINES FOR RELAY USAGE”.

■ Notes on using HY relay

Note) See the product catalog for other precautions specific to the relay.

Safety standards chart

Item	UL/C-UL(Recognized)				CSA(Certified)				BSI
	File No.	Contact rating	Cycles	Temp.	File No.	Contact rating	Cycles	Temp.	File No.
GN	E43149	1 A 30 V DC General use	10 ⁵	40°C	CSA standaard certified by C-UL				VC648944 (Standard insulation)
		0.3 A 110 V DC General use	3×10 ⁴						
		0.3 A 125 V AC Resistive	10 ⁵						
GQ	E43149	2 A 30 V DC Resistive	5×10 ⁴	40°C	CSA standaard certified by C-UL				VC667389 (Standard insulation)
		1 A 30 V DC Resistive	10 ⁵						
		0.5 A 60 V DC Resistive*	6×10 ³	85°C					
		0.3 A 110 V DC Resistive	3×10 ⁴	40°C					
		0.3 A 125 V AC Resistive	10 ⁵						
TX	E43149	2 A 30 V DC Resistive	10 ⁵	40°C	CSA standaard certified by C-UL				VC659956 (Standard insulation)
		0.5 A 125 V AC Resistive	10 ⁵						
		0.3 A 110 V DC Resistive	10 ⁵						
TX-TH	E43149	2 A 30 V DC Resistive	10 ⁵	40°C	CSA standaard certified by C-UL				VC659956 (Standard insulation)
		0.5 A 125 V AC Resistive	10 ⁵						
		0.3 A 110 V DC Resistive	10 ⁵						
TX-S	E43149	1 A 30 V DC Resistive	10 ⁵	40°C	CSA standaard certified by C-UL				VC648943 (Standard insulation)
		0.5 A 125 V AC Resistive	10 ⁵						
		0.3 A 110 V DC Resistive	3×10 ⁴						
TX-D	E43149	2 A 30 V DC Resistive	10 ⁵	40°C	CSA standaard certified by C-UL				VC670289 (Supplementary insulation)
		0.5 A 125 V AC Resistive	10 ⁵						
		0.3 A 110 V DC Resistive	10 ⁵						
TQ	E43149	1 A 30 V DC Resistive	10 ⁵	40°C	LR26550 etc	1 A 30 V DC	10 ⁵	40°C	—
		0.5 A 125 V AC General use	10 ⁵			0.5 A 125 V AC	10 ⁵		
		0.3 A 110 V DC Resistive	10 ⁵			0.3 A 110 V DC	10 ⁵		
TQ-SMD	E43149	2 A 30 V DC Resistive	10 ⁵	40°C	LR26550 etc	2 A 30 V DC	10 ⁵	40°C	
		0.5 A 125 V AC General use	10 ⁵			0.5 A 125 V AC	10 ⁵		
		0.3 A 110 V DC Resistive	10 ⁵			0.3 A 110 V DC	10 ⁵		
DS	E43149	2 A 30 V DC Resistive	10 ⁵	40°C	LR26550 etc	2 A 30 V DC	10 ⁵	40°C	
		0.6 A 110 V DC Resistive	10 ⁵			0.6 A 110 V DC	10 ⁵		
		0.6 A 125 V AC General use	10 ⁵			0.6 A 125 V AC	10 ⁵		
HY	E43149 (UL only)	1 A 30 V DC General use	10 ⁵	40°C	LR26550	1 A 30 V DC	10 ⁵	40°C	—

* Only for single side stable (excluding high sensitivity) 1.5 to 12 V DC.

Products Conforming to EN/IEC Standards

Products classification	Products name	Applied standards	3rd party certifying body	File No.
Signal Relays (2A or less)	GN	EN62368-1	BSI	VC648944
	GQ	EN62368-1	BSI	VC667389
	TX	EN62368-1	BSI	VC659956
	TX-TH	EN62368-1	BSI	VC659956
	TX-S	EN62368-1	BSI	VC648943
	TX-D	EN62368-1	BSI	VC670289

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.

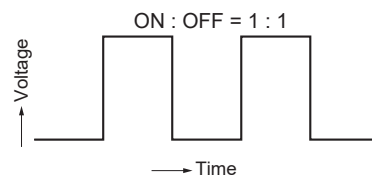
● Temperature rise due to pulse voltage

When a pulse voltage with ON time of less than 2 minutes is used, the coil temperature rise bears 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%



● Pick-up 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 pick-up 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 pick-up voltage and the pick-up 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.

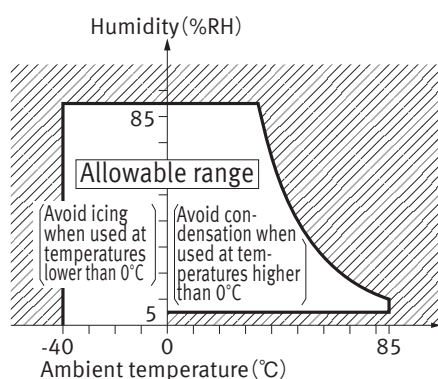
- (2) Humidity : 5 to 85% R.H.

- (3) Pressure : 86 to 106 kPa

The humidity range varies with the temperature.

Use within the range indicated in the graph.

(The allowable temperature depends on the relays.)



● Dew 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.

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.

GUIDELINES FOR RELAY USAGE

● Storage requirements

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

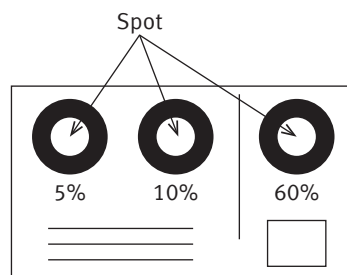
- 1) Please use promptly once the anti-humidity pack is opened.
(within 72 hours, Max. 30°C / 70% R.H.).
If left with the pack open, the relay will absorb moisture which will cause thermal stress when reflow mounting and thus cause the case to expand. As a result, the seal may break.
- 2) If relays will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

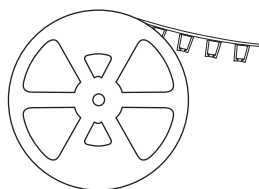
	5%	10%	60%	Bake treatment necessity judgment
I	●	●	●	No need to bake
II	○	●	●	No need to bake
III	○	○	●	Need to bake
IV	○	○	○	Need to bake



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.

C a u t i o n

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.

•Requests to customers:

<https://industrial.panasonic.com/ac/e/salespolicies/>



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Asia Pacific

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Panasonic Electric Works

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