

FEATURES

- **Excellent high frequency characteristics (50Ω, at 5GHz)**
V.S.W.R.: Max. 1.25
Insertion loss: Max. 0.5dB
Isolation: Min. 35dB
(Between open contacts)
Min. 30dB
(Between contact sets)
- **Surface mount terminal**
Surface mount terminals are now standard so there is much less work in designing PC boards.
- **Small size**
Size: 14.00 (L)×9.00 (W)×8.20 (H) mm
.551 (L)×.354 (W)×.323 (H) inch

TYPICAL APPLICATIONS

- Measurement equipment market**
Attenuator circuits, spectrum analyzer, oscilloscope, mobile equipment, tester
- Mobile telecommunication market**
IMT2000, microwave communication
- Medical instruments market**

SPECIFICATIONS

Contact

Arrangement	2 Form C	
Contact material	Gold alloy	
Initial contact resistance	Max. 150mΩ	
Rating	Contact rating	1W (at 5 GHz, Impedance 50 Ω, V.S.W.R. ≤ 1.25) 10mA 10V DC (resistive load)
	Contact carrying power	1W (at 5 GHz, Impedance 50 Ω, V.S.W.R. ≤ 1.25)
	Max. switching voltage	30 V DC
	Max. switching current	0.3 A DC
High frequency characteristics (Initial) (~5GHz, Impedance 50Ω)	V.S.W.R.	Max. 1.25
	Insertion loss (without D.U.T. board's loss)	Max. 0.5dB
		Isolation
	Between contact sets Min. 30dB	
	Input power	1W (at 5GHz, impedance 50Ω, V.S.W.R. ≤ 1.25, at 20°C)
Expected life (min. operations)	Mechanical (at 180 cpm)	10 ⁷
	Electrical (at 20cpm)	1W, at 5GHz, V.S.W.R. ≤ 1.25 10 ⁶
		10mA 10V DC (resistive load) 10 ⁶

Coil (at 20°C, 68°F)

	Nominal operating power
Single side stable	200 mW
2 coil latching	150 mW

Characteristics

Initial insulation resistance*1	Min. 500 MΩ (at 500 V DC)	
	Initial breakdown voltage*2	Between open contacts 500 Vrms
		Between contact sets 500 Vrms
		Between contact and coil 500 Vrms
		Between coil and earth terminal 500 Vrms
Operate time [Set time]*3 (at 20°C)	Max. 5ms	
Release time (without diode)[Reset time]*3 (at 20°C)	Max. 5ms	
Temperature rise (at 20°C)*4	Max. 50°C	
Shock resistance	Functional*5	Min. 500 m/s ²
	Destructive*6	Min. 1,000 m/s ²
Vibration resistance	Functional*7	10 to 55 Hz at double amplitude of 3 mm
	Destructive	10 to 55 Hz at double amplitude of 5 mm
Conditions for operation, transport and storage*8 (Not freezing and condensing at low temperature)	Ambient temp.	-30°C to 70°C -22°F to 158°F
	Humidity	5 to 85% R.H.
Unit weight	Approx. 3 g .11 oz	

Remarks

- * Specifications will vary with foreign standards certification ratings.
- *1 Measurement at same location as "Initial breakdown voltage" section.
- *2 Detection current: 10mA
- *3 Nominal operating voltage applied to the coil, excluding contact bounce time.
- *4 By resistive method, nominal voltage applied to the coil, 5GHz, V.S.W.R. ≤ 1.25
- *5 Half-wave pulse of sine wave: 6ms, detection time: 10μs.
- *6 Pulse of sine wave: 11ms.
- *7 Detection time: 10μs
- *8 Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT.

RJ (ARJ)

ORDERING INFORMATION

Ex. ARJ 2

Contact arrangement	Operating function	Terminal shape	Coil voltage (DC)	Packing style
2: 2 Form C	0: Single side stable 2: 2 coil latching	Nil: Standard PC board terminal A: Surface-mount terminal	03 : 3V 4H: 4.5V 12 : 12V 24 : 24V	Nil: Carton packing X: Tape end reel packing (picked from 1/2/3-pin side) Z: Tape and reel packing (picked from 6/7/8-pin side)

Note: Tape and reel packing symbol “-Z” is not marked on the relay. “X” type tape and reel packing (picked from 1/2/3-pin side) is also available. Suffix “X” instead of “Z”.

TYPES AND COIL DATA (at 20°C 68°F)

1. Standard PC board terminal

• Packing of standard PC board terminal: 50 pcs. in an inner package (carton); 500 pcs. in an outer package

Operating function	Coil Rating, V DC	Part No.		Pick-up voltage, V DC (max.) (initial)	Drop-out voltage, V DC (min.) (initial)	Nominal operating current, mA (±10%)	Coil resistance, Ω (±10%)	Nominal operating power, mW	Max. allowable voltage, V DC
		Standard PC board terminal							
Single side stable	3	ARJ2003		2.25	0.3	66.6	45	200	3.3
	4.5	ARJ204H		3.375	0.45	44.4	101.2	200	4.95
	12	ARJ2012		9	1.2	16.6	720	200	13.2
	24	ARJ2024		18	2.4	8.3	2,880	200	26.4

Operating function	Coil Rating, V DC	Part No.		Set voltage, V DC (max.) (initial)	Reset voltage, V DC (min.) (initial)	Nominal operating current, mA (±10%)	Coil resistance, Ω (±10%)	Nominal operating power, mW	Max. allowable voltage, V DC
		Standard PC board terminal							
2 coil latching	3	ARJ2203		2.25	2.25	50	60	150	3.3
	4.5	ARJ224H		3.375	3.375	33.3	135	150	4.95
	12	ARJ2212		9	9	12.5	960	150	13.2
	24	ARJ2224		18	18	6.3	3,840	150	26.4

2. Surface-mount terminal

• Packing of surface-mount terminal: 50 pcs. in an inner package (carton); 500 pcs. in an outer package

• Packing of surface-mount terminal: 500 pcs. in an inner package (tape and reel); 500 pcs. in an outer package

Operating function	Coil Rating, V DC	Part No.		Pick-up voltage, V DC (max.) (initial)	Drop-out voltage, V DC (min.) (initial)	Nominal operating current, mA (±10%)	Coil resistance, Ω (±10%)	Nominal operating power, mW	Max. allowable voltage, V DC
		Carton packing	Tape and reel packing						
Single side stable	3	ARJ20A03	ARJ20A03Z	2.25	0.3	66.6	45	200	3.3
	4.5	ARJ20A4H	ARJ20A4HZ	3.375	0.45	44.4	101.2	200	4.95
	12	ARJ20A12	ARJ20A12Z	9	1.2	16.6	720	200	13.2
	24	ARJ20A24	ARJ20A24Z	18	2.4	8.3	2,880	200	26.4

Operating function	Coil Rating, V DC	Part No.		Set voltage, V DC (max.) (initial)	Reset voltage, V DC (min.) (initial)	Nominal operating current, mA (±10%)	Coil resistance, Ω (±10%)	Nominal operating power, mW	Max. allowable voltage, V DC
		Carton packing	Tape and reel packing						
2 coil latching	3	ARJ22A03	ARJ22A03Z	2.25	2.25	50	60	150	3.3
	4.5	ARJ22A4H	ARJ22A4HZ	3.375	3.375	33.3	135	150	4.95
	12	ARJ22A12	ARJ22A12Z	9	9	12.5	960	150	13.2
	24	ARJ22A24	ARJ22A24Z	18	18	6.3	3,840	150	26.4

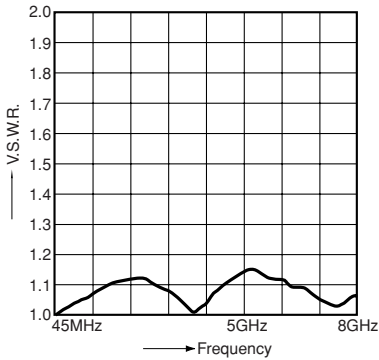
REFERENCE DATA

1. High frequency characteristics

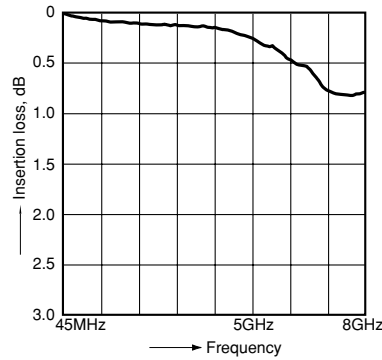
Sample: ARJ20A12

Measuring method: Measured with MEW PC board by HP network analyzer (HP8510C).

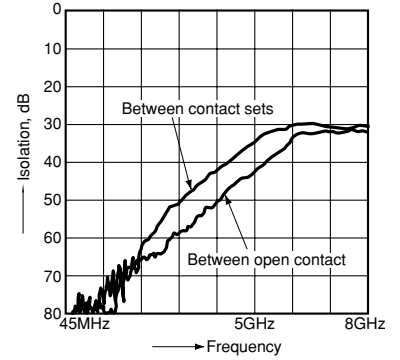
• V.S.W.R. characteristics



• Insertion loss characteristics (without D.U.T. board's loss)



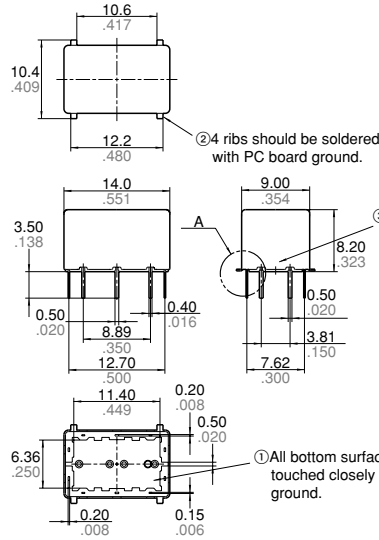
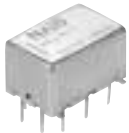
• Isolation characteristics



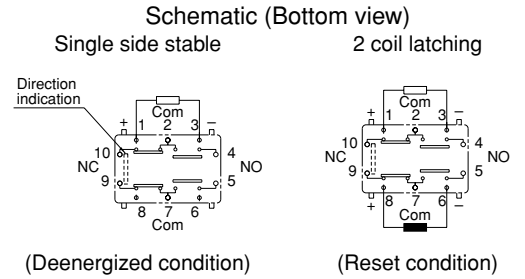
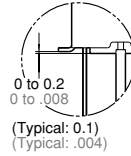
DIMENSIONS

mm inch

1. Standard PC board terminal

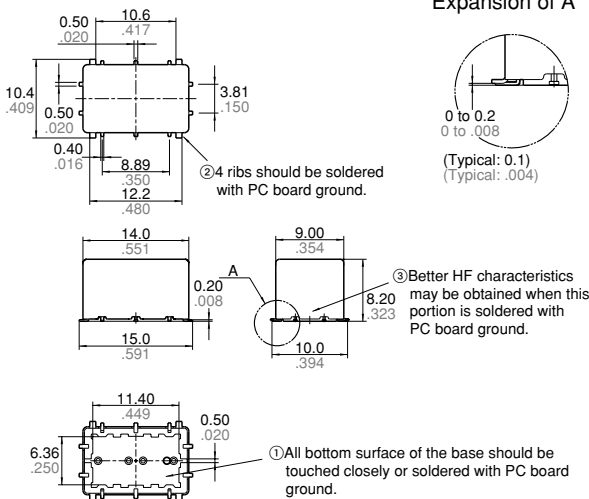


Expansion of A

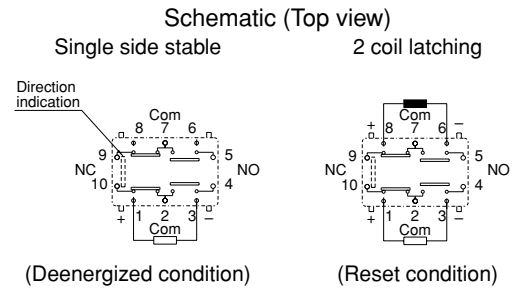
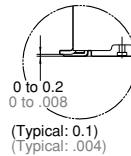


General tolerance: $\pm 0.3 \pm .012$

2. Surface mount terminal



Expansion of A



General tolerance: $\pm 0.3 \pm .012$

