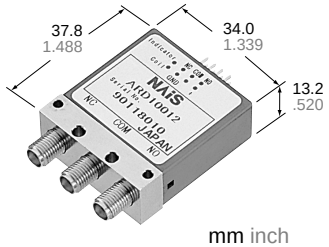
NAiS

26.5GHz COAXIAL SWITCH

RD-COAXIAL SWITCHES



mm inch

FEATURES

1. High frequency characteristics (Impedance 50Ω)

Frequency (GHz)	to 1	1 to 4	4 to 8	8 to 12.4	12.4 to 18	18 to 26.5*
V.S.W.R. (max.)	1.1	1.15	1.25	1.35	1.5	1.7
Insertion loss (dB. max.)	0.2		0.3	0.4	0.5	0.8
Isolation (dB. min.)	85	80	70	65	60	55

*: 18 to 26.5GHz characteristics can be applied
ARD5❍❍❍❍(26.5GHz type) only

2. Small size
34.0(W)×37.8(L)×13.2(H) mm
1.339(W)×1.488(L)×.520(H) inch

3. High sensitivity: 700 mW nominal operating power (Failsafe type)

SPECIFICATIONS

Contact

Arrangement		SPDT
Contact material		Gold plating
Initial contact resistance		Max. 100mΩ
Rating	Contact input power *1	120W 3GHz (V.S.W.R 1.15 or less, no contact switching, ambient temperature 40°C)
Indicator rating	Contact rating	Max. 30V 100mA
	Initial contact resistance (Measured by 5V 100mA)	Max. 1Ω
High frequency characteristics (Impedance 50Ω)	V.S.W.R. (max.)	1.15 (to 4GHz), 1.5 (to 18GHz), 1.7 (to 26.5GHz)
	Insertion loss (max.)	0.2dB (to 4GHz), 0.5dB (to 18GHz), 0.8dB (to 26.5GHz)
	Isolation (min.)	80dB (to 4GHz), 60dB (to 18GHz), 55dB (to 26.5GHz)
Expected life (min. operation)	Mechanical (at 180 cpm)	5×10^6
	Electrical (at 20 cpm)	5×10^6 (5W, to 3GHz, impedance 50Ω, V.S.W.R.; max. 1.2)

Coil (at 20°C 68°F)

Type	Nominal operating power
Failsafe	700mW
Latching	500mW

Characteristics

Initial insulation resistance *2		Min. 1,000 MΩ
Initial breakdown voltage *3	Between open contacts	500 Vrms for 1 min.
	Between contact and coil	500 Vrms for 1 min.
	Between contact and earth terminal	500 Vrms for 1 min.
Operate time *4 (at 20°C)		Max. 15ms
Operate bounce time		Max. 10ms
Shock resistance	Functional *5	500 m/s²
	Destructive *6	1,000 m/s²
Vibration resistance	Functional *7	10 to 55 Hz at double amplitude of 3mm
	Destructive	10 to 55 Hz at double amplitude of 5mm
Conditions for operation, transport and storage *8 (Not freezing and condensing at low temperature)	Ambient temp	–55°C to +85°C –67°F to +185°F
	Humidity	5 to 85% R.H.
Unit weight		Approx. 50g 1.76oz

Remarks
* Specifications will vary with foreign standards certification ratings.
*1 Please verify the usability of input power under actual conditions because heat generated from connectors can influence connection.
*2 Measurement at same location as "Initial breakdown voltage" section.
*3 Detection current: 10mA
*4 Nominal operating voltage applied to the coil, excluding contact bounce time.
*5 Half-wave pulse of sine wave: 11ms, detection time: 10μs.
*6 Half-wave pulse of sine wave: 11ms
*7 Detection time: 10μs
*8 Refer to 5. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT (Page 61)

TYPICAL APPLICATIONS

Mobile telecommunication market
• Cellular phone base stations
• High frequency amplifier
High frequency measurement instruments

ORDERING INFORMATION

Ex. A | RD | 1 | 00 | 12 | Q

Product name	Frequency	Operating function	Nominal operating voltage, V DC	Data attached (indicate package only)
RD	1: to 18GHz 5: to 26.5GHz	00: Failsafe 20: Latching 51: Latching with TTL driver	4H: 4.5V (Failsafe, Latching type only) 05: 5V (Latching with TTL driver type only) 12: 12V 24: 24V	Nil: No RF test data attached Q: RF test data attached

Notes 1: Standard packing; Carton: 10 pcs. Case 100 pcs.
2: Latching with TTL driver types are equipped with self cut-off function.

TYPES

Operating function	Nominal operating voltage, V DC	18GHz type		26.5GHz type	
		No RF datasheet attached	RF datasheet attached	No RF datasheet attached	RF datasheet attached
Failsafe	12	ARD10012	ARD10012Q	ARD50012	ARD50012Q
	24	ARD10024	ARD10024Q	ARD50024	ARD50024Q
Latching	12	ARD12012	ARD12012Q	ARD52012	ARD52012Q
	24	ARD12024	ARD12024Q	ARD52024	ARD52024Q
Latching with TTL driver	12	ARD15112	ARD15112Q	ARD55112	ARD55112Q
	24	ARD15124	ARD15124Q	ARD55124	ARD55124Q

* 4.5V type (Failsafe, Latching) and 5V type (Latching with TTL driver) are also available.

COIL DATA (at 20°C 68°F)

1. Failsafe type

Nominal operating voltage, V DC	Coil resistance, Ω (±:10%)	Nominal power consumption, mW
12	206	700
24	823	

2. Latching type

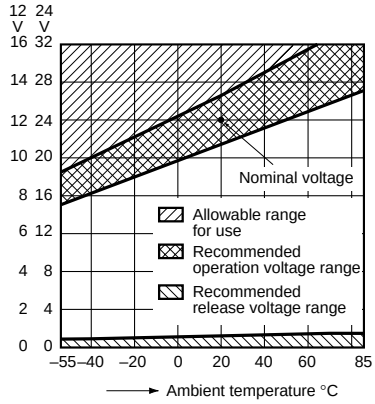
Nominal operating voltage, V DC	Coil resistance, Ω (±:10%)	Nominal power consumption, mW
12	288	500
24	1,152	

3. Latching with TTL driver type

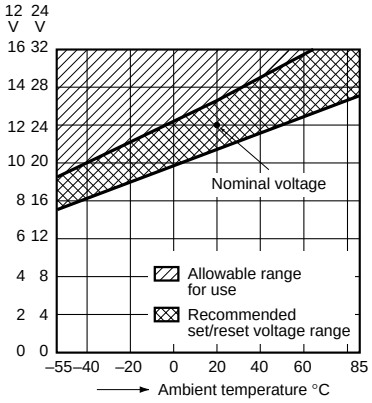
Nominal operating voltage, V DC	TTL logic level	
	ON	OFF
12	2.4 to 5.5V	0 to 0.5V
24		

• Operating voltage range

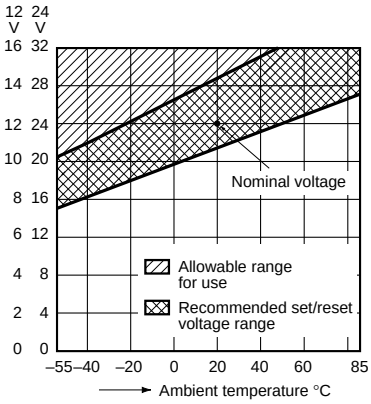
Failsafe type



Latching type

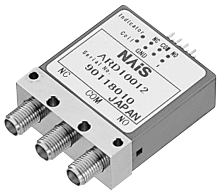


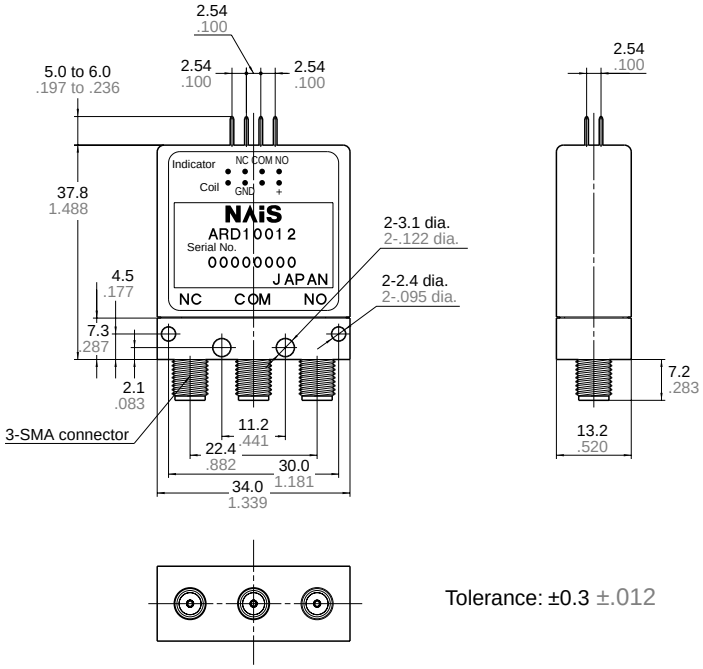
Latching with TTL driver type



DIMENSIONS

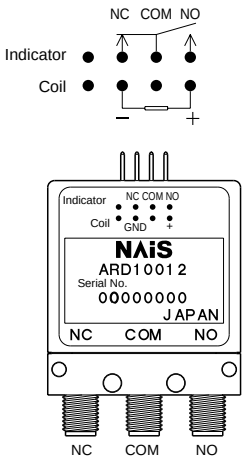
mm inch



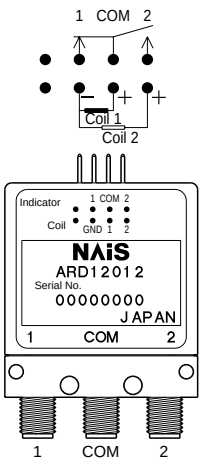


Tolerance: ±0.3 ±.012

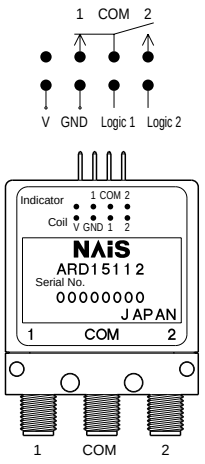
Failsafe



Latching



Latching with TTL driver

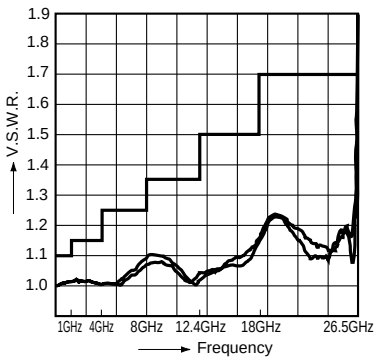


REFERENCE DATA

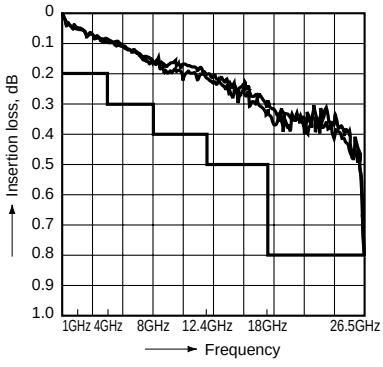
1. High frequency characteristics

Sample: ARD10012
Measuring method: Measured with HP network analyzer (HP8510).

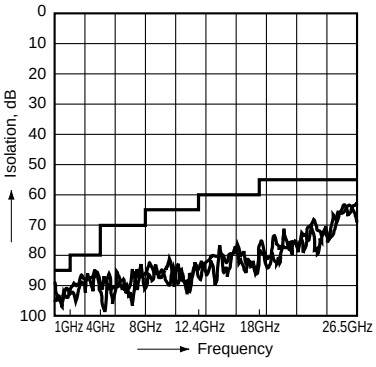
• V.S.W.R.



• Insertion loss



• Isolation



NOTES

1. Coil operating power

Pure 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, check it with the actual circuit since the characteristics may be slightly different. The nominal operating voltage should be applied to the coil for more than 50 ms to set/reset the latching type relay.

2. Coil connection

When connecting coils, refer to the wiring diagram to prevent mis-operation or malfunction.

3. Connection of coil indicator and washing conditions

1) The connection of coil indicator terminal shall be done by soldering.

Soldering conditions

Max. 260°C 500°F(solder temp) within 10sec (soldering time)

Max. 350°C 662°F(solder temp) within 3sec (soldering time)

• When socket is used, following cautions are necessary.

Used socket; MEW made 10 pin (with semi-cover) pressure connection socket

• Although RD coaxial switch has 8 pins, please use 10 pin standard socket.

• The size of lead wire is AWG22 to 28.

Cautions

Because the socket has no lock function, there is a case that the socket is disconnected due to pull force of lead wire or long term vibration.

Therefore following the condition must be observed.

• RD coaxial switch and the lead wire connector must be fixed and no pull force is applied to lead wire during the coaxial switch use.

• Socket must be fully inserted to coaxial switch connector.

Also, the socket disconnect force is more than 280g with 8 pin type. It is also recommended to use socket connector pin for the lead wire which is not used for connection.

2) This product is not sealed type, therefore washing is not allowed.

For Cautions for Use, see Relay Technical Information (Page 48 to 76).

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