

FEATURES

1. High frequency characteristics (Impedance 50 Ω)

| 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. 100m |
| 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. 1 |
| High frequency characteristics (Impedance 50 Ω) | 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 50 Ω, 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 M |
| 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/s ² |
| | Destructive *6 | 1,000 m/s ² |
| 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.

RD

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, (±:10%) | Nominal power consumption, mW |
|---------------------------------|--------------------------|-------------------------------|
| 12 | 206 | 700 |
| 24 | 823 | |

2. Latching type

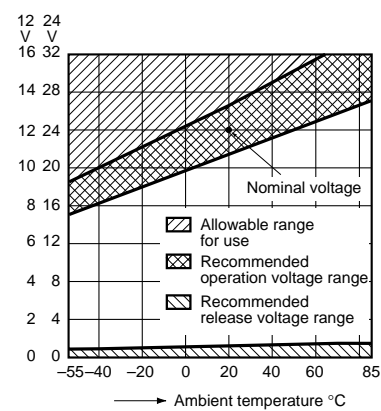
| Nominal operating voltage, V DC | Coil resistance, (±:10%) | Nominal power consumption, mW |
|---------------------------------|--------------------------|-------------------------------|
| 12 | 288 | 500 |
| 24 | 1,152 | |

3. Latching with TTL driver type

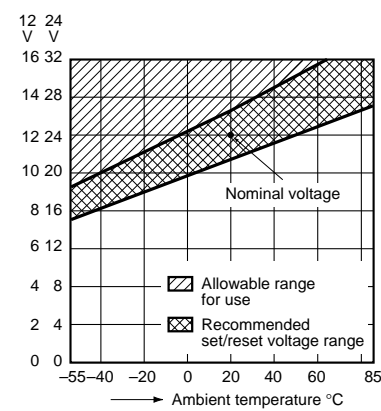
| Nominal operating voltage, V DC | TTL logic level | |
|---------------------------------|-----------------|-----------|
| | ON | OFF |
| 12 | 2.4 to 5.5V | 0 to 0.5V |
| 24 | | |

• Operating voltage range

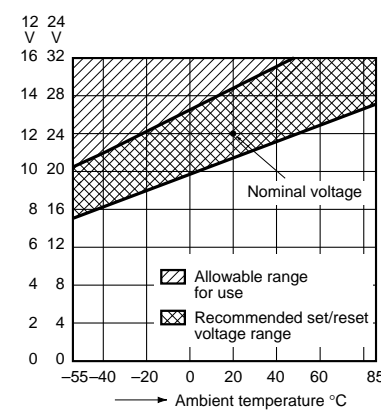
Failsafe type



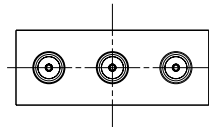
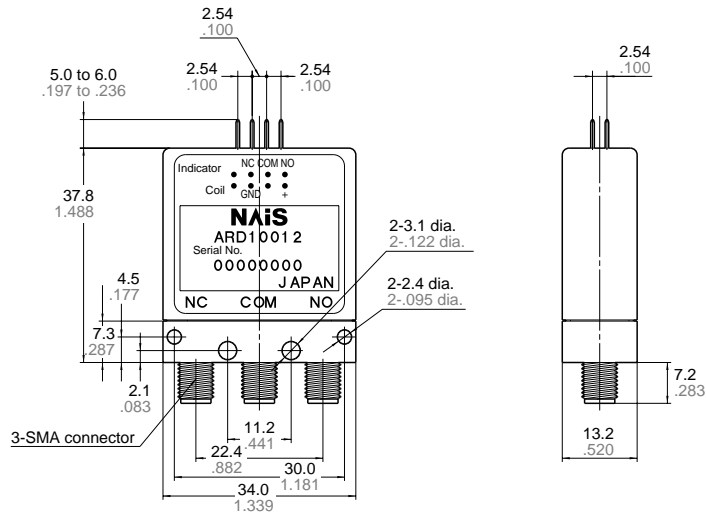
Latching type



Latching with TTL driver type

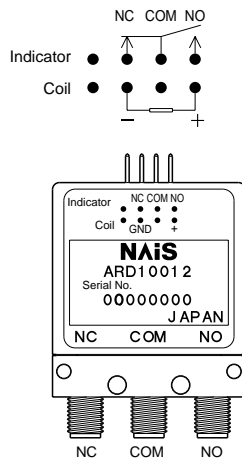


DIMENSIONS

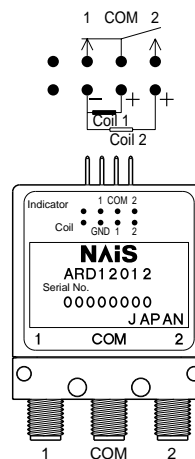


Tolerance: $\pm 0.3 \pm .012$

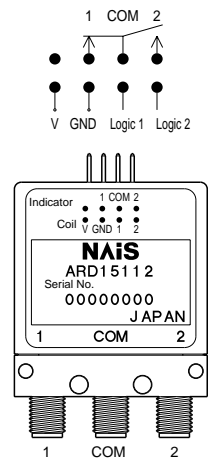
Failsafe



Latching



Latching with TTL driver



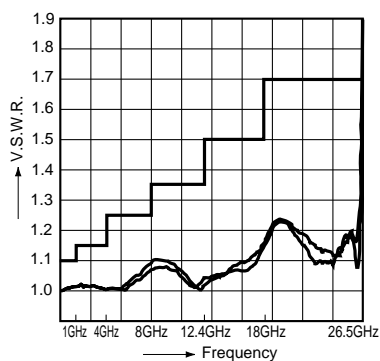
REFERENCE DATA

1. High frequency characteristics

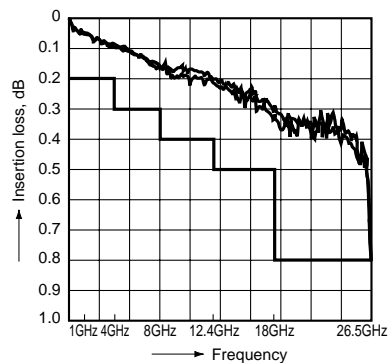
Sample: ARD10012

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

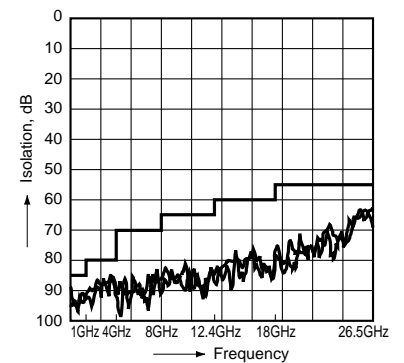
• V.S.W.R.



• 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).