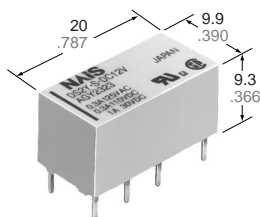


NAIS

MINIATURE RELAY

DS2Y-RELAYS



mm inch

FEATURES

- 2 Form C contact
- High sensitivity-200 mW nominal operating power
- High breakdown voltage
1500 V FCC surge between open contacts
- DIP-2C type matching 16 pin IC socket
- Sealed construction

SPECIFICATIONS

Contact

| | | | |
|--|------------------------|--------------------|-------------------|
| Arrangement | 2 Form C | | |
| Initial contact resistance, max. (By voltage drop 6 V DC 1 A) | 50 mΩ | | |
| Contact material | Gold-clad sliver | | |
| Rating (resistive) | Max. switching power | 60 W, 62.5 VA | |
| | Max. switching voltage | 220 V DC, 250 V AC | |
| | Max. switching current | 2 A | |
| | Max. carrying current | 3 A | |
| Expected life (min. operations) | Mechanical | 1×10 ⁸ | |
| | Electrical | 1 A 30 V DC | 5×10 ⁵ |
| | | 2 A 30 V DC | 1×10 ⁵ |

Coil (polarized) (at 20°C 68°F)

| | | |
|--------------------|-----------------------------|----------------------------------|
| Single side stable | Minimum operating power | Approx. 98 mW (147 mW: 48 V) |
| | Nominal operating power | Approx. 200 mW (300 mW: 48 V) |
| 2 coil latching | Minimum set and reset power | Approx. 88 mW (177 mW: 48 V) |
| | Nominal set and reset power | Approx. 180 mW (360 mW: 48 V) |

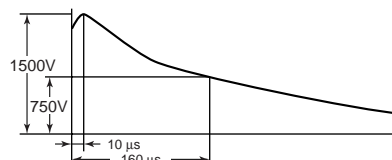
Remarks

- * Specifications will vary with foreign standards certification ratings.
 *¹ Measurement at same location as "Initial breakdown voltage" section
 *² Detection current: 10mA
 *³ Excluding contact bounce time
 *⁴ Half-wave pulse of sine wave: 11ms, detection time: 10μs
 *⁵ Half-wave pulse of sine wave: 6ms
 *⁶ Detection time: 10μs
 *⁷ Refer to 5. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT (Page 61).

Characteristics (at 20°C 68°F)

| | | |
|---|---------------------------|--|
| Initial insulation resistance* ¹ | | Min. 100 MΩ (at 500 V DC) |
| Initial breakdown voltage* ² | Between open contacts | 750 Vrms |
| | Between contact sets | 1,000 Vrms |
| | Between contact and coil | 1,000 Vrms |
| FCC surge voltage between contacts and coil | | 1,500 V |
| Operate time* ³ (at nominal voltage) | | Approx. 4 ms |
| Release time* ³ (at nominal voltage) | | Approx. 3 ms |
| Set time* ³ (latching) (at nominal voltage) | | Approx. 3 ms |
| Reset time* ³ (latching) (at nominal voltage) | | Approx. 3 ms |
| Temperature rise | | Max. 65°C with nominal voltage across coil and at nominal switching capacity |
| Shock resistance | Functional* ⁴ | Min. 490 m/s ² {50 G} |
| | Destructive* ⁵ | Min. 980 m/s ² {100 G} |
| Vibration resistance | Functional* ⁶ | 10 to 55 Hz at double amplitude of 3.3 mm |
| | Destructive | 10 to 55 Hz at double amplitude of 5 mm |
| Conditions for operation, transport and storage* ⁷ (Not freezing and condensing at low temperature) | Ambient temp. | −40°C to +70°C −40°F to +158°F |
| | Humidity | 5 to 85% R.H. |
| Unit weight | | Approx. 4 g .14 oz |

FCC (Federal Communication Commission) requests following standard as Breakdown Voltage specification.



TYPICAL APPLICATIONS

- Telecommunication equipment
- Office equipment
- Computer peripherals
- Security alarm systems
- Medical equipment

ORDERING INFORMATION

Ex DS2Y-S [L2] — [DC12 V] — [R]

| Operating function | Coil voltage | Polarity |
|--|-------------------------------------|---|
| Nil: Single side stable L2: 2 coil latching | DC 1.5, 3, 5, 6, 9, 12, 24, 48 V | Nil: Standard polarity R: Reverse polarity |

(Note) Standard packing: Carton: 50 pcs. Case: 500 pcs.

DS2Y

TYPES AND COIL DATA (at 20°C 68°F)

Single side stable

| Nominal voltage, V DC | Part No. | Pick-up voltage, V DC (max.) | Drop-out voltage, V DC (min.) | Nominal operating current mA (±10%) | Coil resistance, Ω (±10%) | Nominal operating power mW | Maximum allowable voltage, V DC (at 50°C 122°F) |
|-----------------------|---------------|------------------------------|-------------------------------|-------------------------------------|---------------------------|----------------------------|--|
| 1.5 | DS2Y-S-DC1.5V | 1.05 | 0.15 | 132.7 | 11.3 | 200 | 3 |
| 3 | DS2Y-S-DC3V | 2.10 | 0.3 | 66.7 | 45 | 200 | 6 |
| 5 | DS2Y-S-DC5V | 3.5 | 0.5 | 40 | 125 | 200 | 10 |
| 6 | DS2Y-S-DC6V | 4.2 | 0.6 | 33.3 | 180 | 200 | 12 |
| 9 | DS2Y-S-DC9V | 6.3 | 0.9 | 22.2 | 405 | 200 | 18 |
| 12 | DS2Y-S-DC12V | 8.4 | 1.2 | 16.7 | 720 | 200 | 24 |
| 24 | DS2Y-S-DC24V | 16.8 | 2.4 | 8.3 | 2,880 | 200 | 48 |
| 48 | DS2Y-S-DC48V | 33.6 | 4.8 | 6.3 | 7,680 | 300 | 86 |

(Note) Standard packing: Carton: 50 pcs. Case: 500 pcs.

2 coil latching

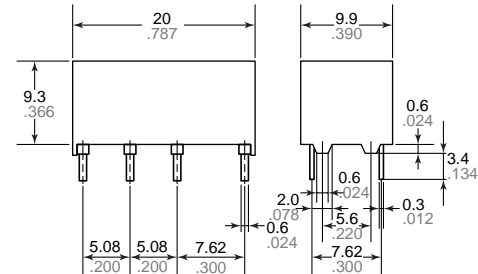
| Nominal voltage, V DC | Part No. | Reset set, V DC (max.) | Nominal operating current mA (±10%) | | Coil resistance, Ω (±10%) | | Nominal operating power, mW | | Maximum allowable voltage, V DC (at 50°C 122°F) |
|-----------------------|-----------------|------------------------|-------------------------------------|-------|---------------------------|-------|-----------------------------|-------|--|
| | | | Set | Reset | Set | Reset | Set | Reset | |
| 1.5 | DS2Y-SL2-DC1.5V | 1.05 | 120 | 120 | 12.5 | 12.5 | 180 | 180 | 3 |
| 3 | DS2Y-SL2-DC3V | 2.1 | 60 | 60 | 50 | 50 | 180 | 180 | 6 |
| 5 | DS2Y-SL2-DC5V | 3.5 | 36 | 36 | 139 | 139 | 180 | 180 | 10 |
| 6 | DS2Y-SL2-DC6V | 4.2 | 30 | 30 | 200 | 200 | 180 | 180 | 12 |
| 9 | DS2Y-SL2-DC9V | 6.3 | 20 | 20 | 450 | 450 | 180 | 180 | 18 |
| 12 | DS2Y-SL2-DC12V | 8.4 | 15 | 15 | 800 | 800 | 180 | 180 | 24 |
| 24 | DS2Y-SL2-DC24V | 16.8 | 7.5 | 7.5 | 3,200 | 3,200 | 180 | 180 | 48 |
| 48 | DS2Y-SL2-DC48V | 33.6 | 7.5 | 7.5 | 6,400 | 6,400 | 360 | 360 | 72 |

(Note) Standard packing: Carton: 50 pcs. Case: 500 pcs.

DIMENSIONS

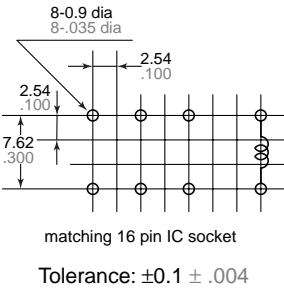
mm inch

Single side stable

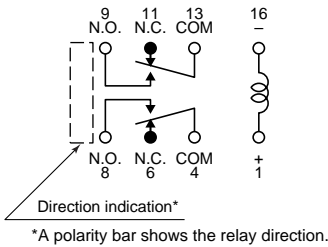


General tolerance: ±0.3 ± .012

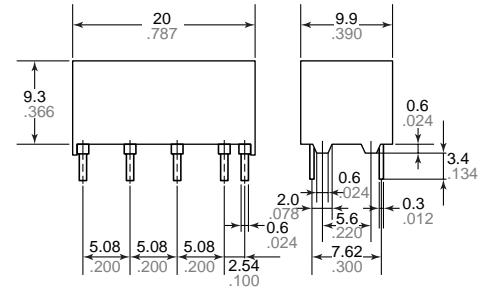
PC board pattern (Copper-side view)



Schematic (Bottom view) (Deenergized position)

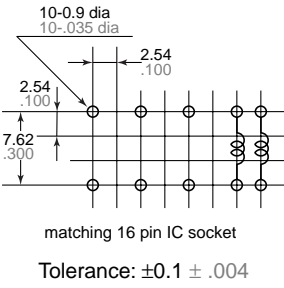


2 coil latching

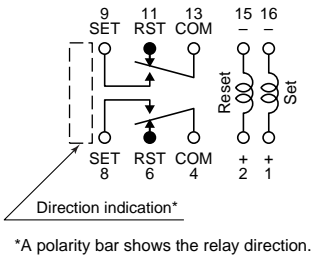


General tolerance: ±0.3 ± .012

PC board pattern (Copper-side view)

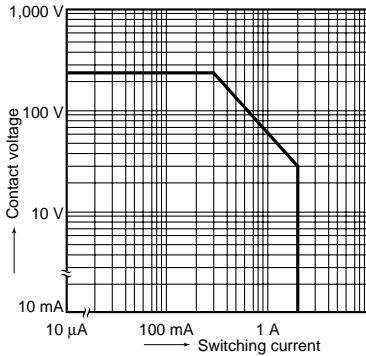


Schematic (Bottom view) (Reset position)



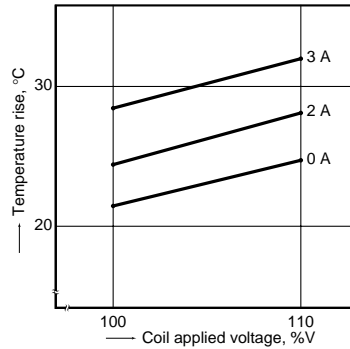
REFERENCE DATA

1. Maximum switching capacity



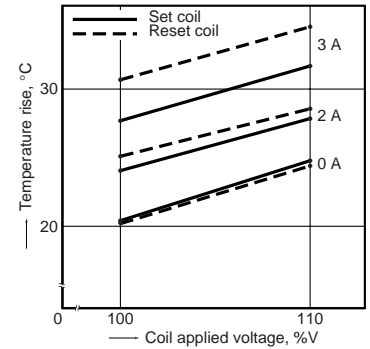
2-(1) Coil temperature rise (Single side stable)

Tested sample: DS2Y-S-DC12V, 5 pcs.
Measured portion: Inside the coil
Ambient temperature: 21°C to 25°C 70°F to 77°F



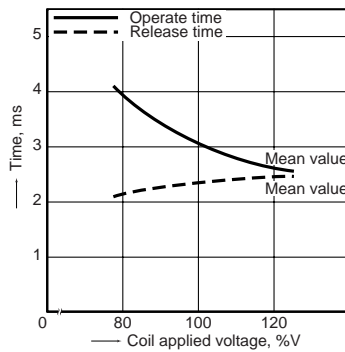
2-(2) Coil temperature rise 2 coil latching

Tested sample: DS2Y-SL2-DC12V, 5 pcs.
Measured portion: Inside the coil
Ambient temperature: 21°C to 25°C 70°F to 77°F



3. Operate/release time for single side stable (Without diode)

Tested sample: DS2Y-S-DC12V, 10 pcs.
Ambient temperature: 20°C 68°F

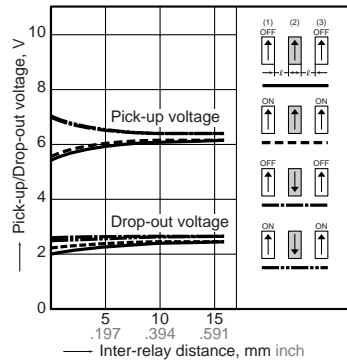


4-(1) Influence of adjacent mounting

Tested sample: DS2Y-S-DC12V, 10 pcs.
Ambient temperature: 20°C 68°F

TEST METHOD

1. Apply nominal voltage to No. (1) and (3) DS2Y relays.
2. Measure pick-up voltage and drop-out voltage of No. (2) relay when inter-relay distance (ℓ) changes.

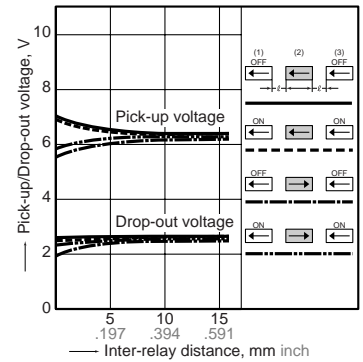


4-(2) Influence of adjacent mounting

Tested sample: DS2Y-S-DC12V, 10 pcs.
Ambient temperature: 20°C 68 °F

TEST METHOD

1. Apply nominal voltage to No. (1) and (3) DS2Y relays.
2. Measure pick-up voltage and drop-out voltage of No. (2) relay when inter-relay distance (ℓ) changes.



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