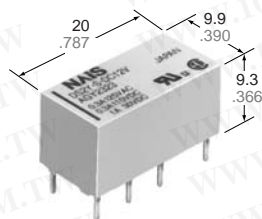


# NAIS

## 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 <sup>8</sup>	
	Electrical	1 A 30 V DC	5×10 <sup>5</sup>
		2 A 30 V DC	1×10 <sup>5</sup>

### 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)

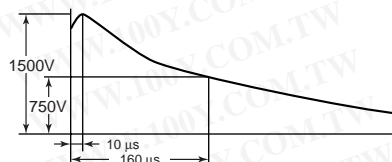
### Remarks

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

### Characteristics (at 20°C 68°F)

Initial insulation resistance* <sup>1</sup>		Min. 100 MΩ (at 500 V DC)
Initial breakdown voltage* <sup>2</sup>	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* <sup>3</sup> (at nominal voltage)		Approx. 4 ms
Release time* <sup>3</sup> (at nominal voltage)		Approx. 3 ms
Set time* <sup>3</sup> (latching) (at nominal voltage)		Approx. 3 ms
Reset time* <sup>3</sup> (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* <sup>4</sup>	Min. 490 m/s <sup>2</sup> {50 G}
	Destructive* <sup>5</sup>	Min. 980 m/s <sup>2</sup> {100 G}
Vibration resistance	Functional* <sup>6</sup>	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* <sup>7</sup> (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 ( $\pm 10\%$ )	Coil resistance, $\Omega$ ( $\pm 10\%$ )	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

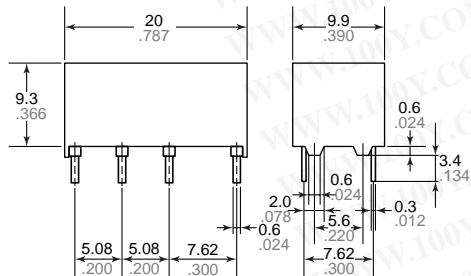
Nominal voltage, V DC	Part No.	Reset set, V DC (max.)	Nominal operating current mA (±10%)		Coil resistance, Ω (±10%)		Nominal operating power, mW		Maximum allowable voltage, V DC (at 50°C 122°F )
			Set	Reset	Set	Reset	Set	Reset	
1.5	DS2Y-SL2-DC1.5V	1.05	120	120	12.5	12.5	180	180	3
3	DS2Y-SL2-DC3V	2.1	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

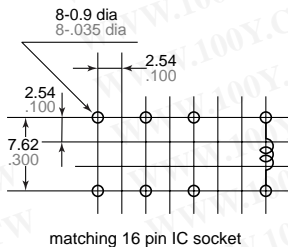
mm inch

Single side stable



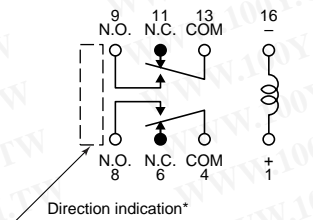
General tolerance:  $\pm 0.3 \pm .012$

PC board pattern (Copper-side view)



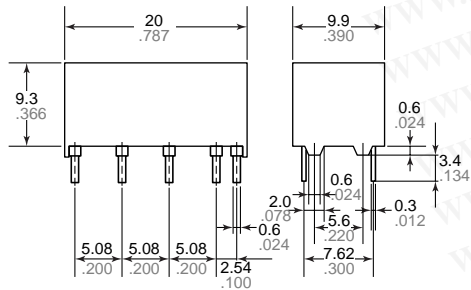
Tolerance:  $\pm 0.1 \pm .004$

Schematic (Bottom view)  
(Deenergized position)



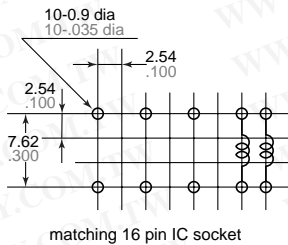
\*A polarity bar shows the relay direction.

## 2 coil latching



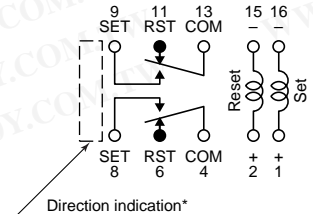
General tolerance:  $\pm 0.3 \pm .012$

PC board pattern (Copper-side view)



Tolerance:  $\pm 0.1 \pm .004$

Schematic (Bottom view)  
(Reset position)

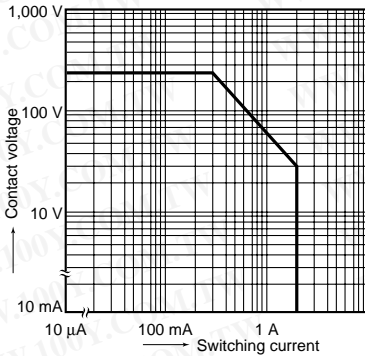


\*A polarity bar shows the relay direction.

Diagram shows the “reset” position when terminals 2 and 15 are energized. Energize terminals 1 and 16 to transfer contacts.

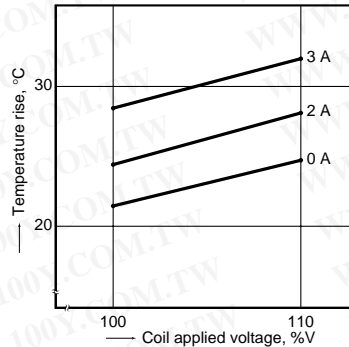
## REFERENCE DATA

### 1. Maximum switching capacity



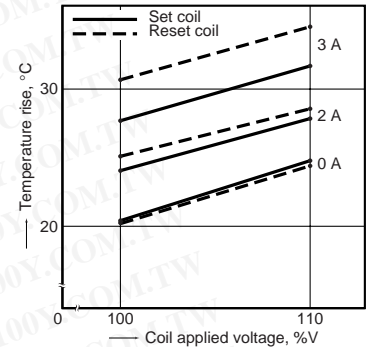
### 2-(1) Coil temperature rise (Single side stable)

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



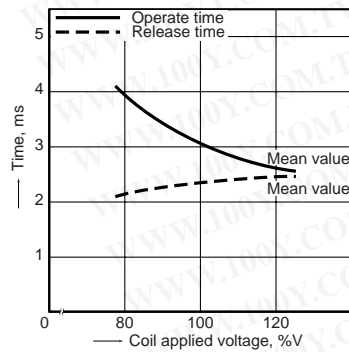
### 2-(2) Coil temperature rise 2 coil latching

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

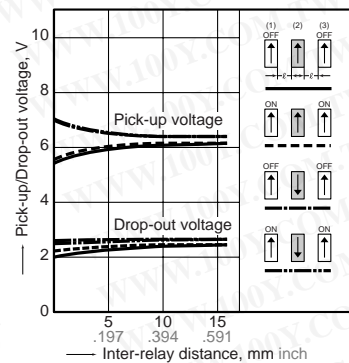


### 4-(1) Influence of adjacent mounting

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 ( $\ell$ ) changes.

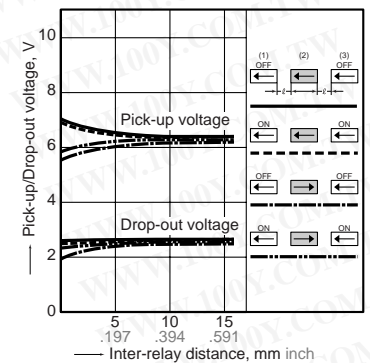


### 4-(2) Influence of adjacent mounting

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 ( $\ell$ ) changes.



**For Cautions for Use, see Relay Technical Information**