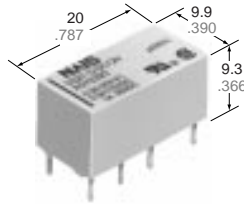


# NAIS

**2 FORM C—200 mW  
SENSITIVE MINIATURE RELAY  
1500 V FCC SURGE  
WITHSTAND**

# DS2Y- RELAYS



mm inch

**UL File No.: E43149  
CSA File No.: LR26550**

- 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, 250V AC	
	Max. switching current	2 A	
	Max. carrying current	3 A	
UL/CSA rating	0.3 A 125 V AC 0.3 A 110 V DC 1 A 30 V DC		
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)

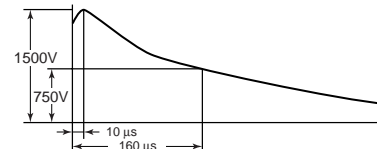
Single side stable	Minimum operating power	Approx. 98 mW (147 mW: 48 V)
	Nominal operating power	Approx. 200 mW (300 mW: 48 V)
2 coil latching	Minimum set and reset power	Approx. 88 mW (177 mW: 48 V)
	Nominal set and reset power	Approx. 180 mW (360 mW: 48 V)

### Remarks

- \*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 49)

Initial insulation resistance*1		Min. 1,000 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 (without diode)*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 <sup>2</sup> {50 G}
	Destructive*5	Min. 980 m/s <sup>2</sup> {100 G}
Vibration resistance	Functional*6	196 m/s <sup>2</sup> {20 G}, 10 to 55 Hz at double amplitude of 3.3 mm
	Destructive	294 m/s <sup>2</sup> {30 G}, 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.

# 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

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		12.5		180		3
3	DS2Y-SL2-DC3V	2.1	60		50		180		6
5	DS2Y-SL2-DC5V	3.5	36		139		180		10
6	DS2Y-SL2-DC6V	4.2	30		200		180		12
9	DS2Y-SL2-DC9V	6.3	20		450		180		18
12	DS2Y-SL2-DC12V	8.4	15		800		180		24
24	DS2Y-SL2-DC24V	16.8	7.5		3,200		180		48
48	DS2Y-SL2-DC48V	33.6	7.5		6,400		360		72

## DIMENSIONS

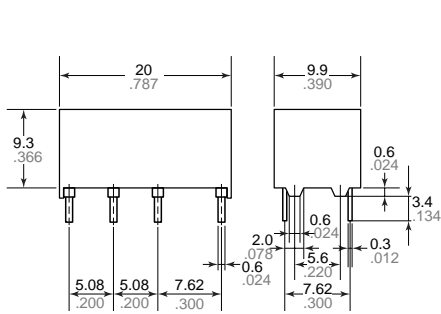
mm inch

Single side stable

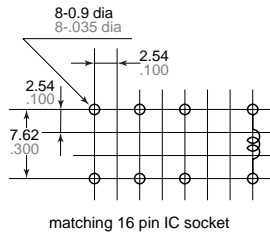
PC board pattern (Copper-side view)

Schematic (Bottom view)

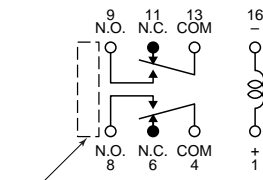
Tolerance: ±0.1 ±.004



General tolerance: ±0.3 ±.012



(Deenergized position)



Direction indication\*

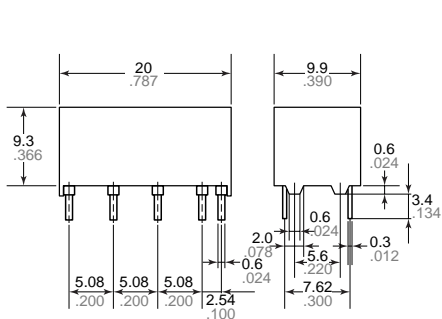
\*A polarity bar shows the relay direction.

2 coil latching

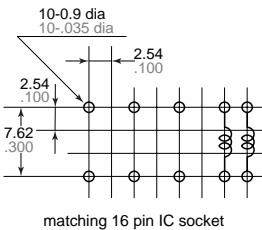
PC board pattern (Copper-side view)

Schematic (Bottom view)

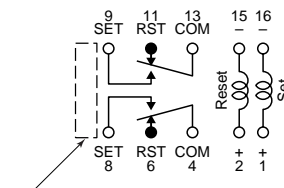
Tolerance: ±0.1 ±.004



General tolerance: ±0.3 ±.012



(Reset position)



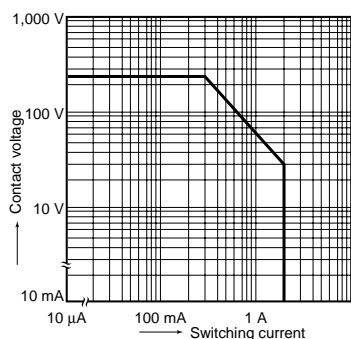
Direction indication\*

\*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 power

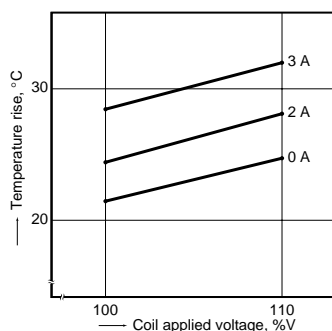


### 2.-(1) Coil temperature rise (Single side stable)

Ambient temperature: 21°C to 25°C 70°F to 77°F

Sample: DS2Y-S-DC12V, 5 pcs.

(Inside of coil)

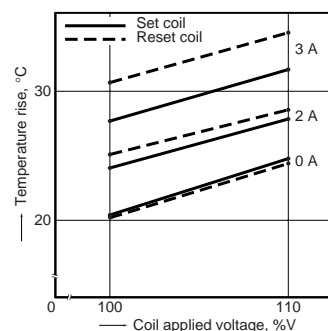


### 2.-(2) Coil temperature rise (2 coil latching)

Ambient temperature: 21°C to 25°C 70°F to 77°F

Sample: DS2Y-SL2-DC12V, 5 pcs.

(Inside of coil)

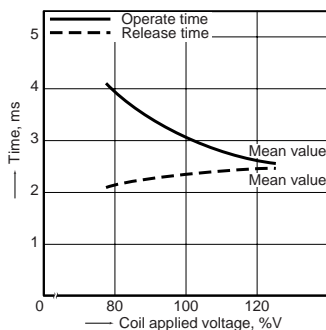


### 3. Operate/release time (single side stable)

Ambient temperature: 20°C 68°F

Sample: DS2Y-S-DC12V, 10 pcs.

(Without diode)



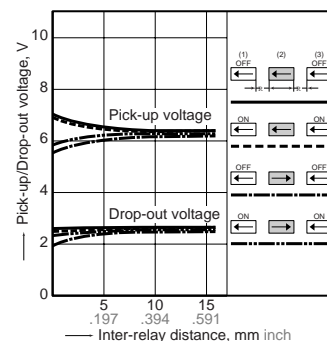
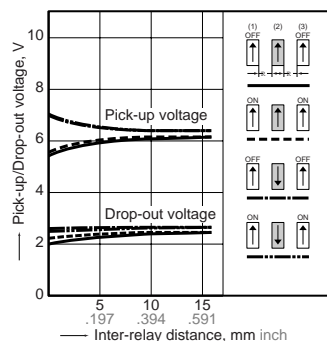
### 4. Influence of adjacent mounting

Ambient temperature: 20°C 68°F

Sample: DS2Y-S-DC12V 10 pcs.

#### TEST METHOD

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



## For Cautions for Use