



<b>Miniature Relay</b>	<b>DS2Y RELAYS</b>
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RoHS compliant

### FEATURES

1. 2 Form C contact
2. High sensitivity-200 mW nominal operating power
3. High breakdown voltage  
1500 V FCC surge between open contacts
4. DIP-2C type matching 16 pin IC socket
5. Sealed construction

### TYPICAL APPLICATIONS

1. Telecommunication equipment
2. Office equipment
3. Computer peripherals
4. Security alarm systems
5. Medical equipment

## ORDERING INFORMATION

DS2Y-S  -

Operating function  
Nil: Single side stable

Nominal coil voltage  
DC 3, 5, 6, 9, 12, 24, 48 V

Note: UL/CSA approved type is standard.

## TYPES

Contact arrangement	Nominal coil voltage	Single side stable type
		Part No.
2 Form C	3 V DC	DS2Y-S-DC3V
	5 V DC	DS2Y-S-DC5V
	6 V DC	DS2Y-S-DC6V
	9 V DC	DS2Y-S-DC9V
	12 V DC	DS2Y-S-DC12V
	24 V DC	DS2Y-S-DC24V
	48 V DC	DS2Y-S-DC48V

Standard packing: Tube: 50 pcs.; Case: 500 pcs.

## RATING

### 1. Coil data

Single side stable type

Nominal coil voltage	Pick-up voltage (at 20°C 68°F)	Drop-out voltage (at 20°C 68°F)	Nominal operating current [ $\pm 10\%$ ] (at 20°C 68°F)	Coil resistance [ $\pm 10\%$ ] (at 20°C 68°F)	Nominal operating power	Max. applied voltage (at 50°C 122°F)
3 V DC	70%V or less of nominal voltage (Initial)	10%V or more of nominal voltage (Initial)	66.7 mA	45 $\Omega$	200 mW	200%V of nominal voltage
5 V DC			40 mA	125 $\Omega$		
6 V DC			33.3 mA	180 $\Omega$		
9 V DC			22.2 mA	405 $\Omega$		
12 V DC			16.7 mA	720 $\Omega$		
24 V DC			8.3 mA	2,880 $\Omega$		
48 V DC			6.3 mA	7,680 $\Omega$	300 mW	

### 2. Specifications

Characteristics	Item	Specifications	
Contact	Arrangement	2 Form C	
	Initial contact resistance, max.	Max. 50 m $\Omega$ (By voltage drop 6 V DC 1A)	
	Contact material	Ag+Au clad	
Rating	Max. switching power	60 W, 62.5 VA (resistive load)	
	Max. switching voltage	220 V DC, 250 V AC	
	Max. switching current	2 A	
	Max. carrying current	3 A	
	Minimum operating power	Approx. 98 mW (147 mW: 48 V)	
	Nominal operating power	Approx. 200 mW (300 mW: 48 V)	
	Electrical characteristics	Insulation resistance (Initial)	Min. 100M $\Omega$ (at 500V DC) Measurement at same location as "Initial breakdown voltage" section.
Breakdown voltage (Initial)		Between open contacts	750 Vrms for 1min. (Detection current: 10mA.)
		Between contact sets	1,000 Vrms for 1min. (Detection current: 10mA.)
		Between contact and coil	1,000 Vrms for 1min. (Detection current: 10mA.)
FCC surge breakdown voltage between contacts and coil		1,500 V	
Temperature rise (at 20°C 68°F)		Max. 65°C with nominal coil voltage across coil and at nominal switching capacity	
Operate time [Set time] (at 20°C 68°F)		Approx. 4 ms [approx. 3 ms] (Nominal coil voltage applied to the coil, excluding contact bounce time.)	
Release time [Reset time] (at 20°C 68°F)	Approx. 3 ms [approx. 3 ms] (Nominal coil voltage applied to the coil, excluding contact bounce time.) (without diode)		
Mechanical characteristics	Shock resistance	Functional	Min. 490 m/s <sup>2</sup> (Half-wave pulse of sine wave: 11 ms; detection time: 10 $\mu$ s.)
		Destructive	Min. 980 m/s <sup>2</sup> (Half-wave pulse of sine wave: 6 ms.)
	Vibration resistance	Functional	10 to 55 Hz at double amplitude of 3.3 mm (Detection time: 10 $\mu$ s.)
		Destructive	10 to 55 Hz at double amplitude of 5 mm
Expected life	Mechanical	Min. 10 <sup>8</sup>	
	Electrical	Min. 5 $\times$ 10 <sup>5</sup> (1 A 30 V DC), Min. 10 <sup>5</sup> (2 A 30 V DC)	
Conditions	Conditions for operation, transport and storage*	Ambient temperature: -40°C to +70°C -40°F to +158°F Humidity: 5 to 85% R.H. (Not freezing and condensing at low temperature)	
	Max. operating speed (at rated load)	60 cpm	
Unit weight		Approx. 4g .14oz	

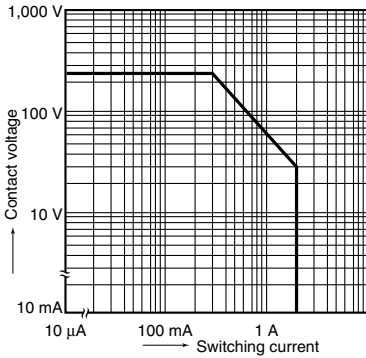
Notes: \*1 This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load. TX/TX-S/TX-D relay AgPd contact type are available for low level load switching (10V DC, 10mA max. level).

\*2 Half-wave pulse of sine wave: 11ms; detection time: 10 $\mu$ s

\*3 Refer to "AMBIENT ENVIRONMENT" in GENERAL APPLICATION GUIDELINES.

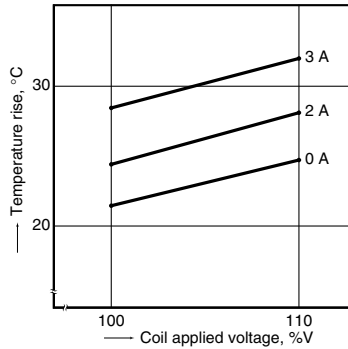
# REFERENCE DATA

## 1. Maximum switching capacity



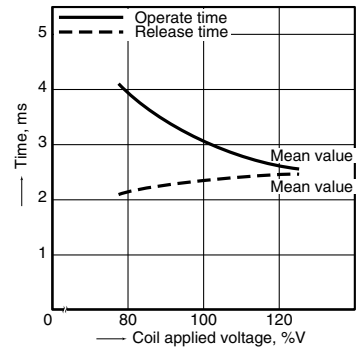
## 2. Coil temperature rise (Single side stable)

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



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

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

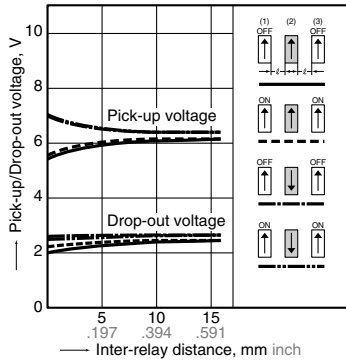


## 4-(1) Influence of adjacent mounting

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.

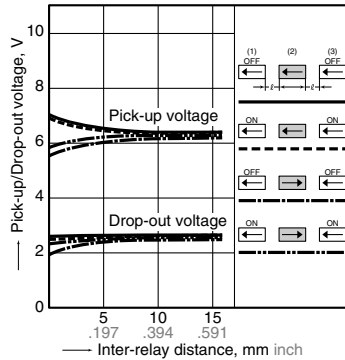


## 4-(2) Influence of adjacent mounting

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.



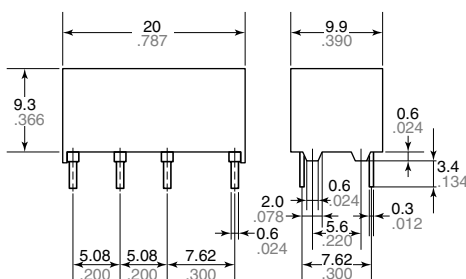
# DIMENSIONS (mm inch)

The CAD data of the products with a **CAD Data** mark can be downloaded from: <http://industrial.panasonic.com/ac/e/>

## Single side stable

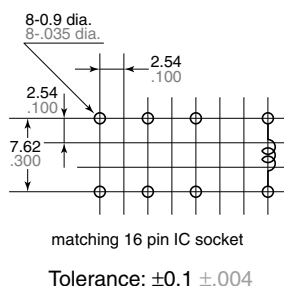
### CAD Data

#### External dimensions



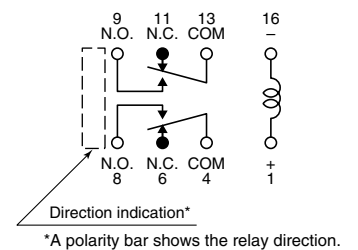
General tolerance:  $\pm 0.3 \pm 0.12$

#### PC board pattern (Copper-side view)



Tolerance:  $\pm 0.1 \pm 0.004$

#### Schematic (Bottom view) (Deenergized position)



\*A polarity bar shows the relay direction.

**For general cautions for use, please refer to the "Cautions for use of Signal Relays" or "General Application Guidelines".**