

**MINIATURE RELAY**

**DS2Y RELAYS**



**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 1.5, 3, 5, 6, 9, 12, 24, 48 V

Polarity  
Nil: Standard polarity  
R: Reverse polarity

Notes: 1. Reverse polarity types available (add suffix-R)  
2. UL/CSA approved type is standard.

**TYPES**

Contact arrangement	Nominal coil voltage	Single side stable type
		Part No.
2 Form C	1.5V DC	DS2Y-S-DC1.5V
	3V DC	DS2Y-S-DC3V
	5V DC	DS2Y-S-DC5V
	6V DC	DS2Y-S-DC6V
	9V DC	DS2Y-S-DC9V
	12V DC	DS2Y-S-DC12V
	24V DC	DS2Y-S-DC24V
	48V 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 [±10%] (at 20°C 68°F)	Coil resistance [±10%] (at 20°C 68°F)	Nominal operating power	Max. applied voltage (at 50°C 122°F)
1.5V DC	70%V or less of nominal voltage (Initial)	10%V or more of nominal voltage (Initial)	132.7mA	11.3Ω	200mW	200%V of nominal voltage
3V DC			66.7mA	45Ω		
5V DC			40mA	125Ω		
6V DC			33.3mA	180Ω		
9V DC			22.2mA	405Ω		
12V DC			16.7mA	720Ω		
24V DC			8.3mA	2,880Ω	300mW	
48V DC			6.3mA	7,680Ω		

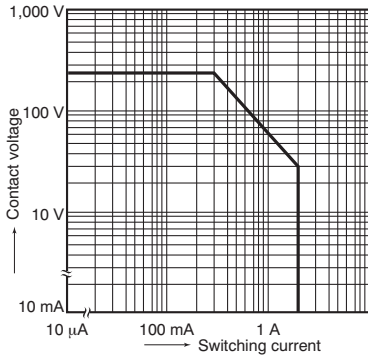
### 2. Specifications

Characteristics	Item	Specifications	
Contact	Arrangement	2 Form C	
	Initial contact resistance, max.	Max. 50 mΩ (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. 100MΩ (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: 10μs.)
		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: 10μs.)
		Destructive	10 to 55 Hz at double amplitude of 5 mm
Expected life	Mechanical	Min. 10 <sup>8</sup>	
	Electrical	5×10 <sup>5</sup> (1 A 30 V DC), 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	

\* Refer to "6. Usage, Storage and Transport Conditions" in [AMBIENT ENVIRONMENT](#) section in [Relay Technical Information](#).

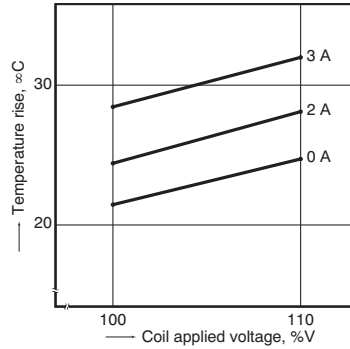
# REFERENCE DATA

## 1. Maximum switching capacity



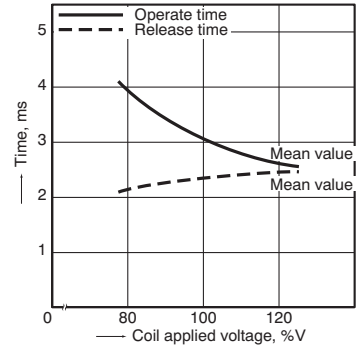
## 2. Coil temperature rise (Single side stable)

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

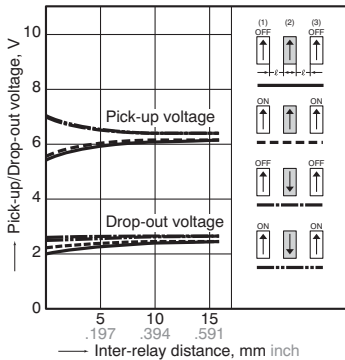


## 4-(1) Influence of adjacent mounting

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 ( $\ell$ ) changes.

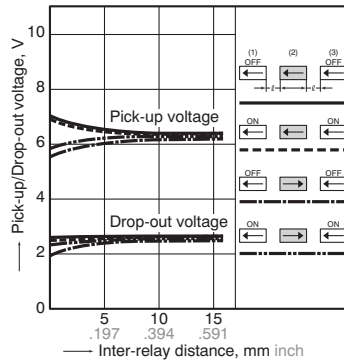


## 4-(2) Influence of adjacent mounting

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.

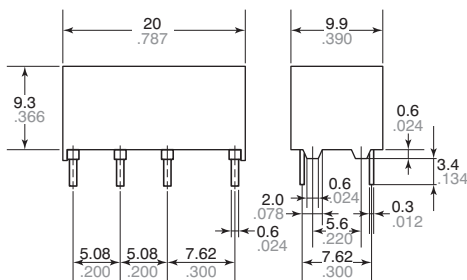


# DIMENSIONS (mm inch)

Download [CAD Data](#) from our Web site.

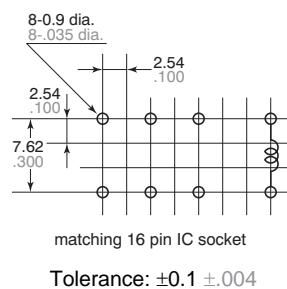
## Single side stable

### CAD Data External dimensions

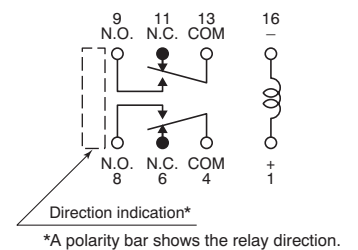


General tolerance:  $\pm 0.3 \pm 0.12$

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



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



For Cautions for Use, see [Relay Technical Information](#).