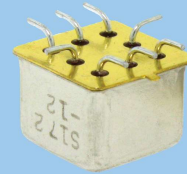


## CENTIGRAD® SURFACE MOUNT COMMERCIAL RELAYS DPDT



SERIES	RELAY TYPE
S172	DPDT basic relay
S172D	DPDT relay with internal diode for coil transient suppression

### DESCRIPTION

The S172 surface mount Centigrad® relay is an ultraminiature, hermetically sealed, armature relay for commercial applications. Its low profile height (.470) and .100" grid spaced terminals make it an ideal choice where extreme packaging density and/or close PC board spacing are required. The specially formed leads are pre-tinned to make the relays ideal for all types of surface-mount solder reflow processes.

The basic design and internal structure are similar to Teledyne's DPDT 114 Centigrad® relay. Unique construction features and manufacturing techniques provide overall high reliability and excellent resistance to environmental extremes:

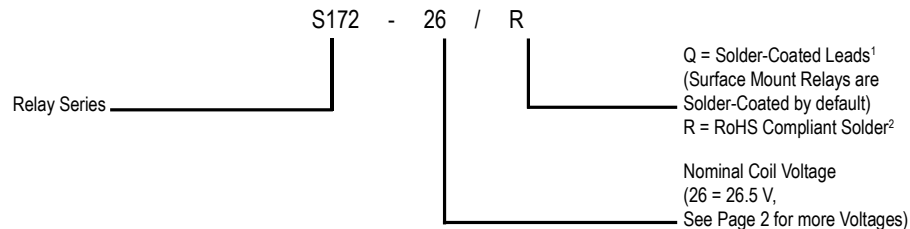
#### The S172 feature:

- All welded construction.
- High force/mass ratios for resistance to shock and vibration.

- Unique uni-frame design providing high magnetic efficiency and mechanical rigidity.
- Advanced cleaning techniques provide maximum assurance of internal cleanliness.
- Precious metal alloy contact material with gold plating assures excellent high current and dry circuit switching capabilities.

The S172D relay has an internal discrete silicon diode for coil transient suppression.

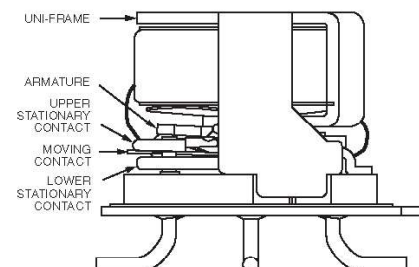
### Part Numbering System



### ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS

<b>Temperature</b> (Operating)	-55°C to +85°C
<b>Vibration</b> (General Note I)	10 g's to 500 Hz
<b>Shock</b> (General Note I)	30 g's, 6ms half sine
<b>Enclosure</b>	Hermetically sealed
<b>Weight</b>	0.15 oz. (4.3g) max.
<b>Reflow Temperature</b>	260°C max. temp. 1 min. max

### INTERNAL CONSTRUCTION



## SERIES S172

### GENERAL ELECTRICAL SPECIFICATIONS (-55 °C to 85 °C unless otherwise noted. See notes 2 & 3.)

<b>Contact Arrangement</b>	2 Form C (DPDT)	
<b>Rated Duty</b>	Continuous	
<b>Contact Resistance</b>	0.15 $\Omega$ max.	
<b>Contact Load Rating</b>	Resistive: 1 A / 28 Vdc Inductive: 200 mA / 28 Vdc (320mH) Lamp: 100 mA / 28 Vdc (320mH) Low level: 10 to 50 $\mu$ A @ 10 to 50 mV	
<b>Contact Life Ratings</b>	5,000,000 cycles (typical) at low level 500,000 cycles (typical) at 0.5 A / 28 Vdc resistive 100,000 cycles min. at all other loads specified above	
<b>Contact Overload Rating</b>	2 A / 28 Vdc Resistive (100 cycles min.)	
<b>Contact Carry Rating</b>	Contact Factory	
<b>Operate Time</b>	6.0 msec max. at nominal rated coil voltage	
<b>Release Time</b>	S172: 3.0 ms max.	S172D: 6.0 ms max.
<b>Contact Bounce</b>	1.5 msec max.	
<b>Intercontact Capacitance</b>	0.4 pf typical	
<b>Insulation Resistance</b>	1,000 M $\Omega$ min. between mutually isolated terminals	
<b>Dielectric Strength</b>	300 Vrms (60 Hz) @ atmospheric pressure	
<b>Negative Coil Transient (Vdc)</b>	2.0 Vdc Max.	
<b>Diode P.I.V. (Vdc)</b>	60 Vdc Min.	

### DETAILED ELECTRICAL SPECIFICATIONS (-55 °C to 85 °C unless otherwise noted. See note 2.)

BASE PART NUMBERS (S172, S172D)		S172-5 S172D-5	S172-12 S172D-12	S172-26 S172D-26
<b>Coil Voltage</b>	<b>Nom.</b>	5.0	12.0	26.5
	<b>Max.</b>	5.8	16.0	32.0
<b>Coil Resistance (Ohms <math>\pm</math>25%)</b>		64	400	1600
<b>Pick-up Voltage (Vdc, Max.) Pulse Operation</b>		3.8	9.0	18.0
<b>Coil Operating Power at Nominal Voltage (mW)</b>		405	360	440

### PERFORMANCE CURVES (Note 2)

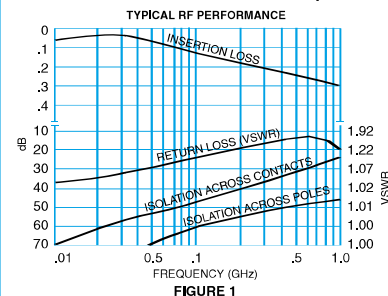


FIGURE 1

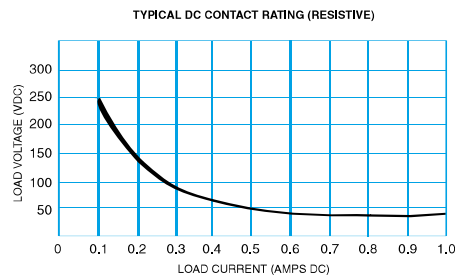
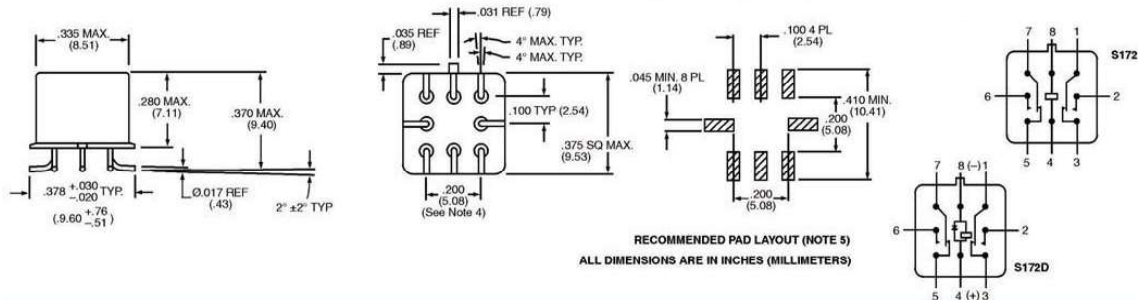


FIGURE 2

### GENERAL NOTES

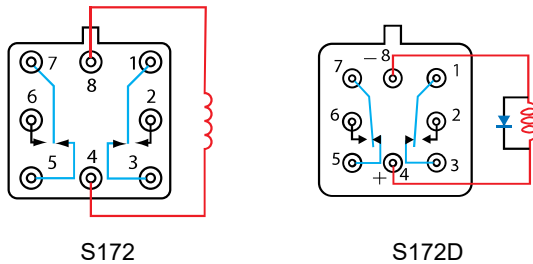
1. Relay contacts will exhibit no chatter in excess of 10  $\mu$ sec or transfer in excess of 1  $\mu$ sec.
2. "Typical" characteristics are based on available data and are best estimates. No on-going verification tests are performed.
3. Unless otherwise specified, parameters are initial values.
4. Relays can be supplied with a spacer pad. See appendix.

## SERIES S172 OUTLINE DIMENSIONS



(Viewed From Terminals)

## SCHEMATIC DIAGRAMS



### NOTES:

1. DIMENSIONS ARE IN INCHES, METRIC EQUIVALENTS SHOWN IN [ ].
2. POSITIONS 5 AND 10 ARE FOR UNINSULATED CASE GROUND OPTIONS.
3. NO PROTRUSION BELOW BOTTOM OF HEADER WHEN GROUND PINS ARE INSTALLED
4. TO ORDER THE CASE GROUND OPTION, AFTER THE SERIES DESIGNATOR, ADD "Y" TO THE PART NUMBER FOR POSITION 5 OR "Z" TO THE PART NUMBER FOR POSITION 10.
5. UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE  $\pm .010$  INCH (0.025 MM)

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## Teledyne Relays:

[S172-12](#) [S172-5](#) [S172D-12](#) [S172D-26](#) [S172D-5](#) [S172](#) [S172D](#) [S172-5/28](#)