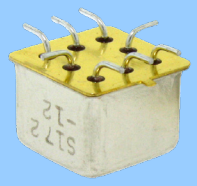
CENTIGRID® SURFACE MOUNT COMMERCIAL RELAYS DPDT



SERIES	RELAY TYPE
S172	SMT-J mounted, non-latching DPDT
S172D	SMT-J mounted, non-latching DPDT relay with internal diode for coil transient suppression

DESCRIPTION

The S172 surface mount Centigrid® relay is an ultraminiature, hermetically sealed, armature relay for commercial applications. Its low profile height (.370) 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 J-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 Centigrid® relay. Unique construction features and manufacturing techniques provide overall high reliability and excellent resistance to environmental extremes:

The S172 feature:

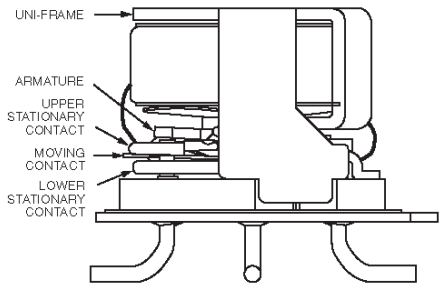
- All welded construction.
- High force/mass ratios for resistance to shock and vibration.
- Unique uni-frame design providing high magnetic efficiency and mechanical rigidity.
- Advanced cleaning techniques provide maximum assurance of internal cleanliness.
- Precious metal alloy contact material with gold plating assures excellent high current and dry circuit switching capabilities.

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

ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS

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

INTERNAL CONSTRUCTION



Part Numbering System (Notes 4 & 5)

S172 - 26 / R

Relay Series
S172
S172D

Coil Voltage
5 = 5V
12 = 12V
26 = 26.5V

Lead Finish
Q = Solder-Coated Leads (Sn60 / Pb40)
R = RoHS Compliant Solder (Sn99.3/Cu0.7)

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

Contact Arrangement	2 Form C (DPDT)	
Rated Duty	Continuous	
Contact Resistance	0.15 Ω max.	
Contact Load Rating	Resistive: 1 A / 28 Vdc Inductive: 200 mA/ 28 Vdc (320mH) Lamp: 100 mA / 28 Vdc (320mH) Low level: 10 to 50 µA @ 10 to 50 mV	
Contact Life Ratings	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	
Contact Overload Rating	2 A / 28 Vdc Resistive (100 cycles min.)	
Contact Carry Rating	Contact Factory	
Operate Time	6.0 ms max. @ nominal rated coil voltage	
Release Time	S172: 3.0 ms max.	S172D: 6.0 ms max.
Contact Bounce	1.5 ms max.	
Intercontact Capacitance	0.4 pf typical	
Insulation Resistance	1,000 MΩ min. between mutually isolated terminals	
Dielectric Strength	300 Vrms (60 Hz) @ atmospheric pressure	
Negative Coil Transient (Vdc)	2.0 Vdc Max.	
Diode P.I.V. (Vdc)	60 Vdc Min.	

DETAILED ELECTRICAL SPECIFICATIONS (-55 °C to 85 °C unless otherwise noted. See note 3.)

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

NOTES:
1. Relay contacts will exhibit no chatter in excess of 10 µs or transfer in excess of 1 µs.
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. Unless otherwise specified, relays will be supplied with solder-coated leads.
5. The slash and characters appearing after the slash are not marked on the relay.

PERFORMANCE CURVES (Note 2)

TYPICAL RF PERFORMANCE

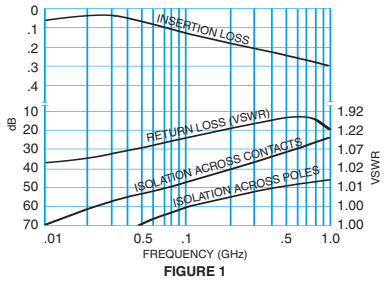


FIGURE 1

TYPICAL DC CONTACT RATING (RESISTIVE)

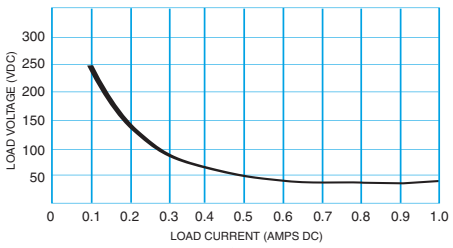
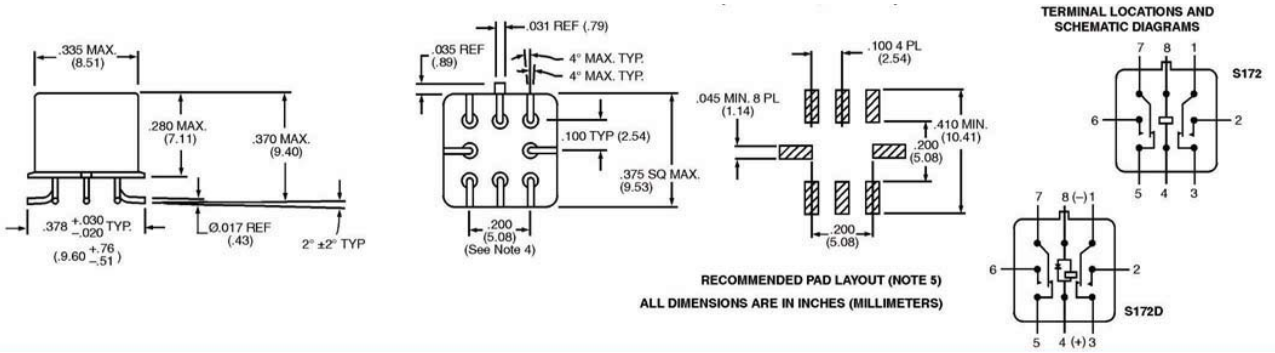


FIGURE 2

GENERAL NOTES

1. Relay contacts will exhibit no chatter in excess of 10 µsec or transfer in excess of 1 µsec.
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.

OUTLINE DIMENSIONS

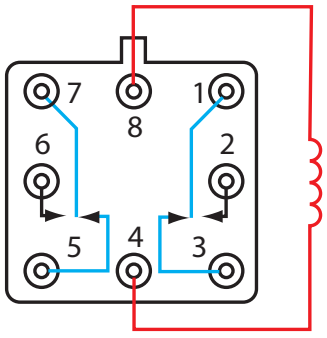


(Viewed From Terminals)

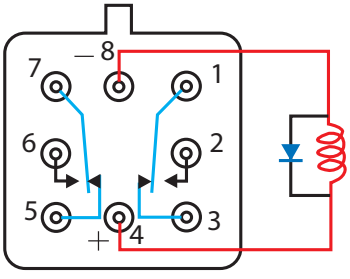
NOTES:

1. Dimensions are in inches, metric equivalents shown in ( ).
2. unless otherwise specified, tolerances on dimensions are ± .010 inch (0.025 mm)

SCHEMATIC DIAGRAMS



S172



S172D