

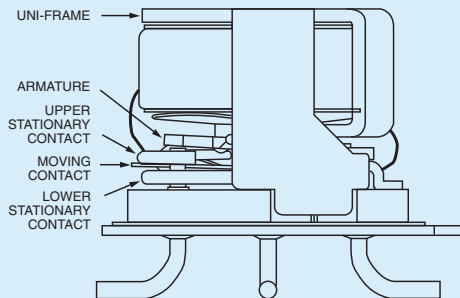
A Unit of Teledyne Electronics and Communications

# CENTIGRID® SURFACE MOUNT COMMERCIAL RELAYS DPDT

## SERIES S172

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

### INTERNAL CONSTRUCTION



### DESCRIPTION

The S172 surface mount Centigrid® 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 Centigrid® relay. Unique construction features and manufacturing techniques provide overall high reliability and excellent resistance to environmental extremes:

- All welded construction.
- Unique uni-frame design providing high magnetic efficiency and mechanical rigidity.
- High force/mass ratios for resistance to shock and vibration.
- 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

<b>Temperature</b> (Ambient)	<b>Storage</b>	-65°C to +125°C
	<b>Operating</b>	-55°C to +85°C
<b>Vibration</b> (General Note 1)		10 g's to 500 Hz
<b>Shock</b> (General Note 1)		30 g's, 6 msec, 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.

**SERIES S172**  
**GENERAL ELECTRICAL SPECIFICATIONS (@25°C) (Notes 2 & 3)**

<b>Contact Arrangement</b>	2 Form C (DPDT)	
<b>Rated Duty</b>	Continuous	
<b>Contact Resistance</b>	0.15 ohm max. before life; 0.3 ohm max. after life at 1A/28Vdc (measured 1/8" from header)	
<b>Contact Load Ratings (DC)</b> (See Fig. 1 for other DC resistive voltage/current ratings)	Resistive: 1 Amp/28Vdc Inductive: 200 mA/28Vdc (320 mH) Lamp: 100 mA/28Vdc Low Level: 10 to 50 µA/10 to 50mV	
<b>Contact Life Ratings</b>	5,000,000 cycles (typical) at low level 500,000 cycles (typical) at 0.5A/28Vdc resistive 100,000 cycles min. at all other loads specified above	
<b>Contact Overload Rating</b>	2A/28Vdc 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 msec max. S172D: 6.0 msec max.	
<b>Contact Bounce</b>	1.5 msec max.	
<b>Intercontact Capacitance</b>	0.4 pf typical	
<b>Insulation Resistance</b>	1,000 megohms min. between mutually isolated terminals	
<b>Dielectric Strength</b>	Atmospheric pressure: 300 Vrms/60Hz	
<b>Negative Coil Transient (Vdc)</b>	S172D	2.0 max
<b>Diode P.I.V. (Vdc)</b>	S172D	60 min.

**DETAILED ELECTRICAL SPECIFICATIONS (@25°C) (Note 3)**

	BASE PART NUMBERS	S172-5	S172-12	S172-26
		S172D-5	S172D-12	S172D-26
<b>Coil Voltage (Vdc)</b>	Nom.	5.0	12.0	26.5
	Max.	5.8	16.0	32.0
<b>Coil Resistance (Ohms ±20%)</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 (Milliwatts)</b>		405	360	440

**TYPICAL DC CONTACT RATINGS (RESISTIVE)**

**FIGURE 1**

**GENERAL NOTES**

- Relay contacts will exhibit no chatter in excess of 10 µsec or transfer in excess of 1 µsec.
- “Typical” characteristics are based on available data and are best estimates. No on-going verification tests are performed.
- Unless otherwise specified, parameters are initial values.
- Position of leads as they emerge from relay base.
- Leads will fit noted pad layout with no overhang.
- Lead ends are coplanar within .008" wide tolerance zone.
- Terminals coated with SN60 or SN63 solder per QQ-S-571. Base material exposed at sheared end of leads.

**OUTLINE DIMENSIONS AND RECOMMENDED PAD LAYOUT (Notes 5, 6 & 7)**

**RECOMMENDED PAD LAYOUT (NOTE 5)**  
 ALL DIMENSIONS ARE IN INCHES (MILLIMETERS)

**TERMINAL LOCATIONS AND SCHEMATIC DIAGRAMS**

**CENTIGRID® AND T0-5**