



# 100 GRID TERMINAL RELAY SENSITIVE DPDT

Series  
MGS

• Basic • Suppression • Suppression/Steering

## Product Description

A series of ultra miniature hermetically sealed relays with .100 inch grid spaced terminations. These relays are similar to MS series TO-5 relays construction.

The following construction features ensure the highest reliability in extreme environments:

- All welded relay construction
- Cleaning and sealing techniques ensures maximum internal cleanliness
- Low level to 1 ampere switching
- 2 form C, DPDT contacts, special metal alloy with gold plating
- SMD terminal style available
- Frame design and force / mass ratio provides exceptional shock and vibration immunity

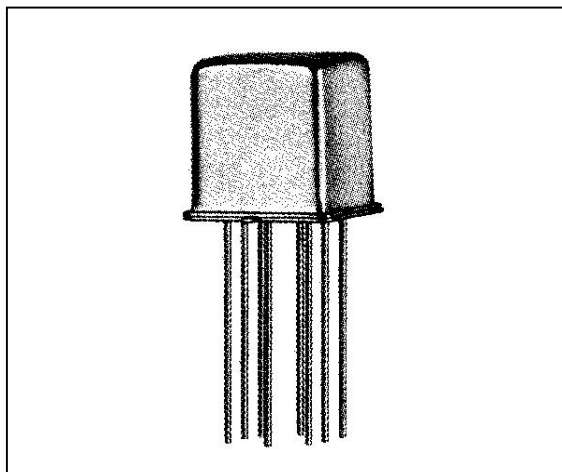
Low intercontact capacitance and contact circuit losses, provides also a reliable switching functions in demanding RF applications, combined with small size and low coil power dissipation (see figure 1).

## Series Types (note 1)

- **MGS\*** Basic Relay, 2 form C, DPDT
- **MGS\*D** Basic Relay combined with an internal diode for coil transient suppression
- **MGS\*DD** Basic Relay incorporates two internal diodes for coil transient suppression and polarity reversal protection

## Environmental and Physical Specifications

|                        |  |
|------------------------|--|
| Temperature (Ambient)  | - 65°C to + 125°C                      |
| Shock                  | 75 g, 6 ms.                            |
| Vibration (sinusoidal) | 30 g, 10 to 3000 Hz                    |
| Vibration (random)     | 0,4 g <sup>2</sup> / Hz, 50 to 2000 Hz |
| Acceleration           | 50 g                                   |
| Sealing                | All welded, Hermetic                   |
| Weight                 | 0,15 oz. (4,30 grams) max.             |



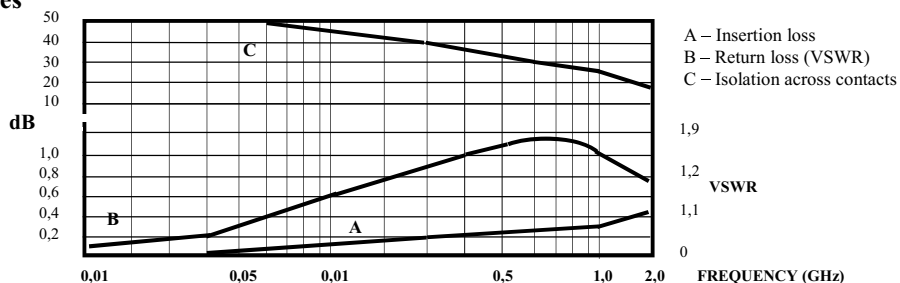
## Electrical Characteristics (over the Temperature range. Unless otherwise noted)

| Coil Data                              | See Typical Characteristics chart                                |  |  |
|--|--|--|--|
| Contact Rating                         | Type Load  | Contact Load                                       | Cycles min.                                    |
| (Note: All ratings with grounded case) | Low Level  | 10 to 50 $\mu$ A / 10 to 50 mV                     | 1.000.000                                      |
|  | Resistive  | 1 A / 28 Vdc                                       | 100.000  |
|  |  | 250 mA / 115Vac, 60 and 400 Hz (Case not grounded) | 100.000  |
|  | Resistive overload   | 100 mA / 115 Vac, 60 and 400 Hz                    | 100.000  |
|  |  | 2 A / 28 Vdc                                       | 100  |
| Inductive                              |  | 200 mA / 28 Vdc (320 mH)                           | 100.000  |
| Lamp                                   | 100 mA / 28 Vdc  | 100.000  |  |
| Contact Resistance                     | 0,1 $\Omega$ max. initial, 0,2 $\Omega$ max. after life          |  |  |
| Operate Time                           | 4,0 ms. max.   |  |  |
| Release Time                           | 2,5 ms. max. Series: MGS*  | 7,5 ms. max. Series: MGS*D, MGS*DD                 |  |
| Contact Bounce                         | 1,5 ms. max.   |  |  |
| Dielectric Strength                    | 500 Vrms min., 60 Hz, all points at sea level                    |  | 125 Vrms min., 60 Hz, all points at 70.000 ft. |
| Insulation Resistance                  | 10.000 M $\Omega$ min. all points at 500 Vdc                     |  |  |
| Intercontact Capacitance               | 0,4 pF typical   |  |  |
| Sensitivity                            | 60 mW at pick-up, 250 mW at nominal rated coil voltage, at 25 °C |  |  |
| Diode P.I.V.                           | 100 Vdc min. Series: MGS*D, MGS*DD                               |  |  |
| Negative Coil Transient                | 1,0 Vdc max. Series: MGS*D, MGS*DD                               |  |  |

Figure 1 - Radio Frequency Curves

Note:

Radio frequency curves are typical characteristics based on factory knowledge. Tests to ensure compliance on RF performance, are not performed.





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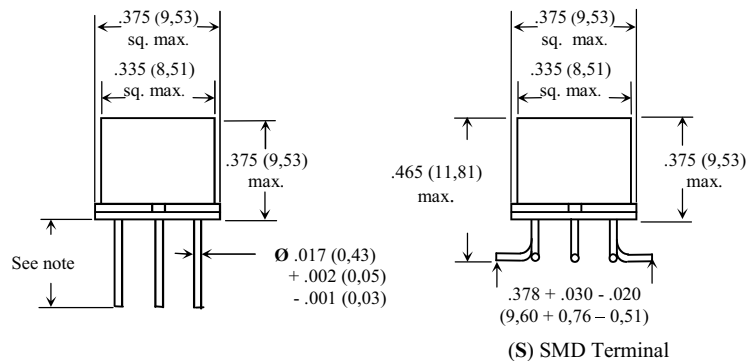
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## Typical Characteristics

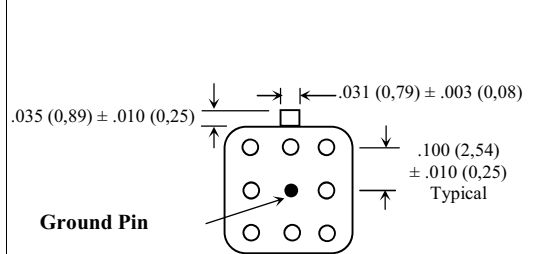
| Coil Voltage Code | Series Types | Coil Voltage Vdc |      | Coil Resistance $\Omega$ at 25°C $\pm$ 10% | Coil Current mA, at 25°C |      | Pick-up Voltage Vdc, at 25°C Typ. | Drop-out Voltage Vdc, at 25°C |      |
|-------------------|--------------|------------------|------|--|--------------------------|------|-----------------------------------|-------------------------------|------|
|                   |              | Rated            | Max. |  | Min.                     | Max. |                                   | Max.                          | Min. |
| 5                 | MGS*, MGS*D  | 5,0              | 7,5  | 100  | -                        | -    | 2,6                               | 1,4                           | 0,23 |
|                   | MGS*DD       |                  |      | 64   | 56,8                     | 78,1 | 2,9                               | 2,2                           | 0,8  |
| 6                 | MGS*, MGS*D  | 6,0              | 10,0 | 200  | -                        | -    | 3,4                               | 2,0                           | 0,28 |
|                   | MGS*DD       |                  |      | 125  | 36,3                     | 48,9 | 4,0                               | 2,5                           | 0,9  |
| 9                 | MGS*, MGS*D  | 9,0              | 15,0 | 400  | -                        | -    | 4,85                              | 3,0                           | 0,55 |
|                   | MGS*DD       |                  |      |  | 18,1                     | 23,6 | 6,1                               | 3,6                           | 1,1  |
| 12                | MGS*, MGS*D  | 12,0             | 20,0 | 800  | -                        | -    | 7,0                               | 4,0                           | 0,64 |
|                   | MGS*DD       |                  |      |  | 12,5                     | 16,0 | 7,8                               | 4,6                           | 1,3  |
| 18                | MGS*, MGS*D  | 18,0             | 30,0 | 1600                                       | -                        | -    | 9,8                               | 6,0                           | 0,92 |
|                   | MGS*DD       |                  |      |  | 9,6                      | 12,2 | 11,3                              | 7,0                           | 1,5  |
| 26                | MGS*, MGS*D  | 26,5             | 40,0 | 3200                                       | -                        | -    | 14,0                              | 8,0                           | 1,4  |
|                   | MGS*DD       |                  |      |  | 7,2                      | 9,0  | 15,2                              | 10,8                          | 1,7  |
| 36                | MGS*, MGS*D  | 36,0             | 57,0 | 6500                                       | -                        | -    | 20,0                              | 10,0                          | 1,8  |
|                   | MGS*DD       |                  |      |  | 4,9                      | 6,1  | 21,7                              | 14,7                          | 2,3  |
| 48                | MGS*, MGS*D  | 48,0             | 75,0 | 11000                                      | -                        | -    | 25,8                              | 13,0                          | 2,4  |
|                   | MGS*DD       |                  |      |  | 3,9                      | 4,8  | 27,8                              | 19,8                          | 2,8  |

## Outline Dimensions



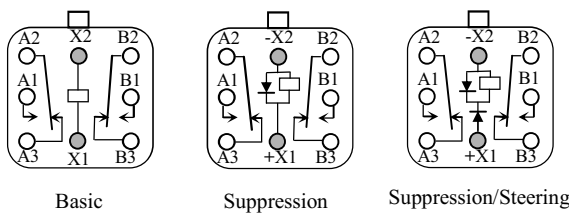
Note:  
 - Dimensions are shown in inches (millimetres)  
 - Terminal Variants: - (C) Wire Terminal = .500 (12,7) min.  
 - (P) Pin Terminal = .187  $\pm$  .010 (4,75  $\pm$  0,25)

## Terminal Locations



Note:  
 - Viewed from terminals  
 - Ground pin is optional  
 - Dimensions are shown in inches (millimetres)

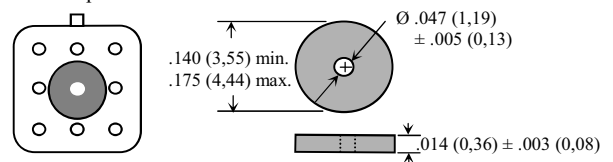
## Schematic Diagrams



Note:  
 Schematics are viewed from terminals, numbers are for references only

## Mounting Pad

Relays can be supplied with a mounting pad epoxied to the relay header, to prevent the possible shorting of printed circuit board land lines and to facilitate circuit board cleaning. To order relay with pad add. "W" to Part Number. Example: **MGSCD-26W**



Note: Dimensions are in inches (millimetres)

## Note:

1 " \* " Indicates Terminal Variants: C, P or S

## How to Order, (Part Numbering System)

