

## High Frequency and High Power Reed Relays



### DESCRIPTION

High voltage RF Reed Relays use a patented coil encapsulation, external electrostatic shields, and magnetic shields. For this series we use a special copper-plated Form A switch with a breakdown voltage up to 10 kVDC. The contacts are suitable for carrying current up to 3 Amps (5 Amps available) at 30MHz.

### APPLICATIONS

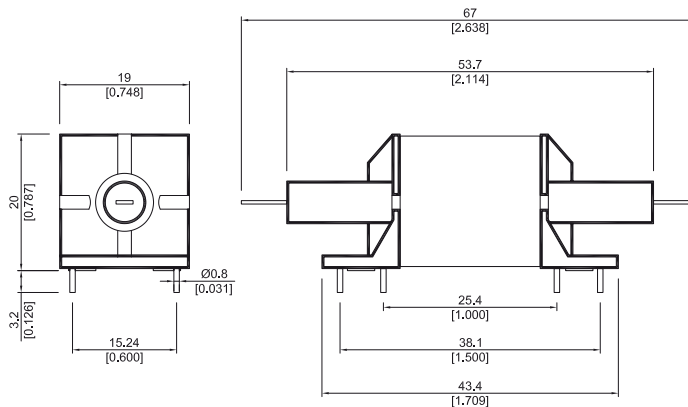
- Radio frequency technology
- Antenna tuning units
- Transmit / receive requirements

### FEATURES

- Normally open contacts (Normally closed contacts are available)
- 5 Amps available

### DIMENSIONS

All dimensions in mm [inch]



### ORDER INFORMATION

| Series  | Nominal Voltage | Contact Form | Switch Model | Pin Out       |
|---------|-----------------|--------------|--------------|---------------|
| HF      | XX -            | XX           | 54 -         | X             |
| Options | 05, 12, 24      | A, B         |              | 5, 6, 7, 8, 9 |

#### Part Number Example

HF05 - 1A54 - 6

**05** is the nominal voltage

**1A** is the contact form

**54** is the switch model

**6** is the breakdown voltage (6 kVDC)

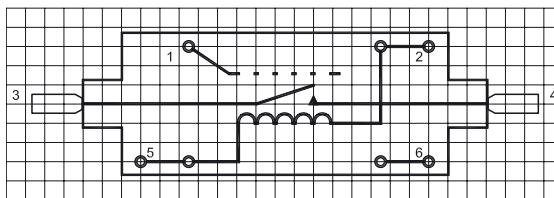
COIL DATA

| Contact Form      | Switch Model | Coil Voltage |      | Coil Resistance |      |      | Pull-in Voltage | Drop-out Voltage | Nominal Coil Power |
|-------------------|--------------|--------------|------|-----------------|------|------|-----------------|------------------|--------------------|
| All Data at 20 °C |              | VDC          |      | Ω               |      |      | VDC             | VDC              | mW                 |
|                   |              | Nom.         | Max. | Min.            | Typ. | Max. | Max.            | Min.             | Typ.               |
| 1A                | 54           | 5            | 7.5  | 36              | 40   | 44   | 3.5             | 0.75             | 625                |
|                   |              | 12           | 16   | 225             | 250  | 275  | 8.4             | 1.8              | 575                |
|                   |              | 24           | 30   | 900             | 1000 | 1100 | 16.8            | 3.6              | 575                |
| 1B **             |              | 5            | 7.5  | 27              | 30   | 33   | 3.5             | 0.75             | 835                |
|                   |              | 12           | 16   | 153             | 170  | 187  | 8.4             | 1.8              | 850                |
|                   |              | 24           | 30   | 612             | 680  | 748  | 16.8            | 3.6              | 850                |

\* The pull-in / drop-out voltage and coil resistance will change at rate of 0.4% per °C.  
 \*\* Re-closure of Form B may occur if the max. coil voltage is exceeded. Coil polarity on Form B must be observed. Pin five is positive.

PIN OUT

View from top of component  
 2.54mm [0.10"] pitch grid



Pin # 5 must be positive for Form B version

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### RELAY DATA

| All Data at 20° C   | Switch Model →<br>Contact Form →                                  | Switch 54<br>Form A / B                                  |                 |      |                        |
|---|---|--|-----------------|------|------------------------|
| Contact Ratings   | Conditions  | Min.   | Typ.            | Max. | Unit                   |
| Switching Power   | Any DC combination of V & A not to exceed their individual max.'s |  |                 | 25   | W                      |
| Switching Voltage   | 1 MHz to 30 MHz   |  |                 | 500  | V                      |
| Switching Current   | 1 MHz to 30 MHz   |  |                 | 1.5  | A                      |
| Carry Current   | 1 MHz to 30 MHz   |  |                 | 5.0  | A                      |
| Static Contact Resistance   | w/ 0.5 V & 10mA   |  |                 | 150  | mΩ                     |
| Dynamic Contact Resistance  | Measured w/ 0.5V & 50mA 1.5 ms after closure                      |  |                 | 200  |                        |
| Insulation Resistance across Contacts                                   | Across contacts<br>Contact to coil<br>Coil to shield              | 10 <sup>10</sup><br>10 <sup>10</sup><br>10 <sup>10</sup> |                 |      | Ω                      |
| Breakdown Voltage across Contact  | Across contacts<br>Contact to coil<br>Coil to shield              | *  |                 |      | kVDC                   |
| Operation Time incl. Bounce   | Measured w/ 100 % overdrive                                       |  |                 | 3.0  | ms                     |
| Release Time  | Measured w/ no coil suppression                                   |  |                 | 1.0  | ms                     |
| Capacitance   | Across contacts<br>Contact to coil<br>Coil to shield              |  | 2.5<br>10<br>20 |      | pF                     |
| <b>Life Expectancies</b>  |   |  |                 |      |                        |
| Switching 5 V - 10 mA   | DC only & <10 pF stray cap.                                       |  | 50              |      | 10 <sup>6</sup> Cycles |
| For other load requirements please see our life test section on P. 120. |   |  |                 |      |                        |
| <b>Environmental Data</b>   |   |  |                 |      |                        |
| Shock Resistance  | 1/2 sinus wave duration 11 ms                                     |  |                 | 50   | g                      |
| Vibration Resistance  | From 10 - 2000 Hz   |  |                 | 20   | g                      |
| Ambient Temperature   | 10°C/ minute max. allowable                                       | -40  |                 | 85   | °C                     |
| Stock Temperature   | 10°C/ minute max. allowable                                       | -40v   |                 | 105  | °C                     |
| Soldering Temperature   | 5 sec.  |  |                 | 260  | °C                     |

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