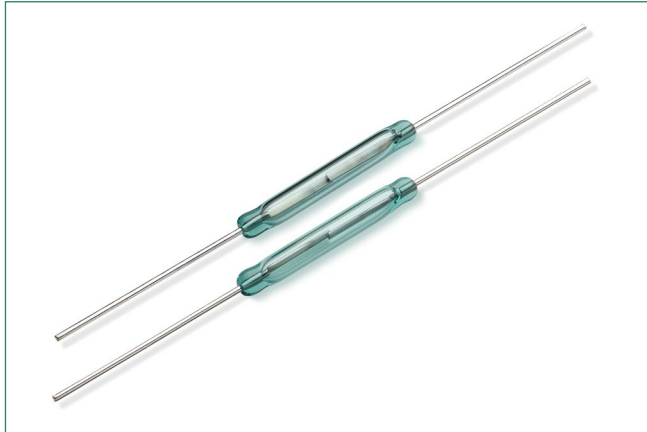


# MVSR-20

## 19.7mm Reed Switch



### Web Resources



Download ECAD models, order samples, and find technical resources at [www.littelfuse.com](http://www.littelfuse.com)

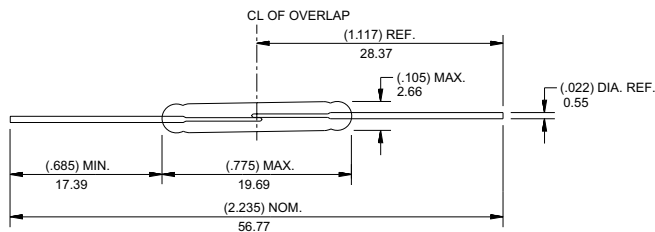
### Agency Approvals

| Agency | Agency File Number | Ampere-Turns Range |
|--------|--------------------|--------------------|
|        | E67006             | 17-48 AT           |

**Note:** Contact Littelfuse for specific agency approval ratings.

### Dimensions

Dimensions in mm (inch)



### Description

The MVSR-20 series reed switch is a miniature, normally open switch with a 19.69mm long x 2.66mm diameter (0.775" x 0.105") glass envelope, capable of high voltage switching of up to 1kVdc at 1mA. It has high insulation resistance of  $10^{12}$  ohms minimum and contact resistance less than 100 milli-ohms.

### Features and Benefits

- Miniature normally open switch
- Capable of switching 1000 Vdc at 1 mA or 0.5 A up to 10 W
- Minimum voltage breakdown 2000 Vdc
- Available sensitivity range 17-48AT
- Hermetically sealed switch contacts are not affected by and have no effect on their external environment
- Zero operating power required for contact closure

### Applications

- Reed relays (particularly suitable for high voltage breakdown applications)
- Security
- Limit switching
- Telecoms line switching
- Industrial equipment
- Automatic test equipment

### Switch Type

|                     |                                             |
|---------------------|---------------------------------------------|
| <b>Contact Form</b> | A (SPST-NO)                                 |
| <b>Materials</b>    | Body: Glass<br>Leads: Tin-plated Ni-Fe wire |

**Note:** SPST-NO = Single-pole, single-throw, normally open

### Electrical Ratings

|                             |                                                  |                    |                                                                 |
|-----------------------------|--------------------------------------------------|--------------------|-----------------------------------------------------------------|
| Contact Rating <sup>1</sup> | -                                                | W/VA - max.        | 10                                                              |
| Voltage <sup>3</sup>        | Switching <sup>2</sup><br>Breakdown <sup>4</sup> | Vdc - max.         | 1000                                                            |
|                             |                                                  | Vac - max.         | 265                                                             |
|                             |                                                  | Vdc - min.         | < 32AT = 2000 min<br>32-38 AT = 3000 min<br>37-48 AT = 3600 min |
|                             |                                                  |                    |                                                                 |
| Current <sup>3</sup>        | Switching <sup>2</sup><br>Carry                  | Adc - max.         | 0.50                                                            |
|                             |                                                  | Aac - max.         | 0.35                                                            |
|                             |                                                  | Adc - max.         | 1.30                                                            |
| Capacitance                 | Contact                                          | pF - typ.          | 0.43                                                            |
| Resistance                  | Contact, Initial Insulation                      | $\Omega$ - max.    | 0.100                                                           |
|                             |                                                  | $\Omega$ - min.    | $10^{12}$                                                       |
| Temperature                 | Operating                                        | $^{\circ}\text{C}$ | -65 to +125                                                     |
|                             | Storage <sup>5</sup>                             |                    |                                                                 |

#### Notes:

1. Contact rating - Product of the switching voltage and current should never exceed the wattage rating. Contact Littelfuse for additional load/life information.

2. When switching inductive and/or capacitive loads, the effects of transient voltages and/or currents should be considered. Refer to Application Notes AN108A and AN107 for details.

3. Electrical Load Life Expectancy - Contact Littelfuse with voltage, current values along with type of load.

4. Breakdown Voltage - per MIL-STD-202, Method 301.

5. Storage Temperature - Long time exposure at elevated temperature may degrade solderability of the leads.

# MVSR-20

## 19.7mm Reed Switch

### Product Characteristics

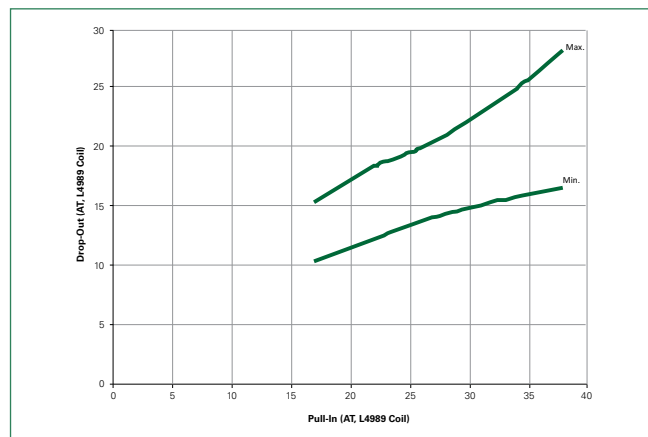
| Operating Characteristics |                    |               |
|---------------------------|--------------------|---------------|
| Operate Time <sup>1</sup> | -                  | 0.75ms - max. |
| Release Time <sup>1</sup> | -                  | 0.30ms - max. |
| Shock <sup>2</sup>        | 11ms 1/2 sine wave | 20G - max.    |
| Vibration <sup>2</sup>    | 50-2000 Hertz      | 10G - max.    |
| Resonant Frequency        | -                  | 3.5kHz - typ. |

| Magnetic Characteristics        |              |           |
|---------------------------------|--------------|-----------|
| Pull-In Range <sup>3</sup>      | Ampere Turns | 17-48     |
| Rating Sensitivity <sup>4</sup> | Ampere Turns | 35 and 45 |
| Test Coil                       | -            | L4989     |

#### Notes:

1. Operate (including bounce)/Release Time - per EIA/NARM RS-421-A, diode suppressed coil (Coil II).
2. Shock and Vibration - per EIA/NARM RS-421-A and MIL-STD-202.
3. Pull-In Range - Contact Littelfuse for narrower AT ranges available.
4. Rating Sensitivity - The value at which contact ratings and operating characteristics are determined. Derating may be required below this value.
5. Custom modifications of forming and/or cutting of reed switches are available. Please contact Littelfuse.

### Drop-Out vs. Pull-In Chart



**Note:** Chart represents the range of Drop Out, min to max for a given Pull-In value.

### Part Numbering System

#### MVSR-20-22-28

Series

AT Range

17-23 AT  
17-28 AT  
22-28 AT  
22-33 AT  
27-33 AT  
27-38 AT

Example:  
22-28 AT product  
is MVSR-20-22-28  
MVSR-20E\*-32-38<sup>2</sup>  
MVSR-20E\*-37-43<sup>2</sup>  
MVSR-20E\*-42-48<sup>2</sup>  
MVSR-20EH\*-37-43<sup>3</sup>  
MVSR-20EH\*-42-48<sup>3</sup>

#### Note:

1. These AT values are the before-modification values of the bare reed switch.
2. E = 3000V Voltage Breakdown
3. EH = 3600V Voltage Breakdown

### Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width |
|------------------|-------------------------|----------|---------------------------|--------------|
| Bulk             | Bulk                    | 1000     | -                         | -            |

**Disclaimer Notice** - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at [www.littelfuse.com/disclaimer-electronics](http://www.littelfuse.com/disclaimer-electronics).