

MASM-14 14mm Close-Differential Reed Switch



Description

The MASM-14 surface mount reed switch is a close-differential, sub-miniature, normally open switch with a 14mm long x 2.28mm diameter (0.551" x 0.090") glass envelope, capable of switching 200Vdc at 10W.

This reed switch is a surface mount version of MACD-14. It has high insulation resistance of 10^{10} ohms minimum and a contact resistance of less than 100 milliohms. Both reed switches are intended for use in applications that require low hysteresis between Pull-In and Drop-Out values.

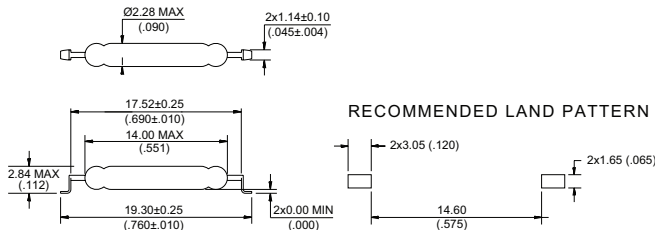
Agency Approvals

| Agency | Agency File Number | Ampere-Turns Range |
|--------|--------------------|--------------------|
| | E47258 E471070 | 10-30 AT |

Note: Contact Littelfuse for specific agency approval ratings.

Dimensions

Dimensions in mm (inch)



Note: Land pattern is Littelfuse recommendation only. User is responsible for proper PCB design.

Features

- Surface mount normally open switch
- Capable of switching 200Vdc or 0.5A at up to 10W
- Low close/open hysteresis (close differential)

Benefits

- Hermetically sealed switch contacts are not affected by and have no effect on their external environment
- Zero operating power required for contact closure
- Excellent for switching micro-controller logic level loads

Applications

- Position Sensing
- Level Sensing
- Security
- Industrial Controls
- Office Equipment
- Home Appliances

Switch Type

| | |
|--------------|---|
| Contact Form | A (SPST-NO) |
| Materials | Body: Glass Leads: Tin-plated Ni-Fe wire |

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

Electrical Ratings

| | | | |
|-----------------------------|--------------------------------|-----------------|-------------|
| Contact Rating ¹ | | W/VA - max. | 10 |
| Voltage ³ | Switching ² | Vdc - max. | 200 |
| | | Vac - max. | 140 |
| | Breakdown ⁴ | Vdc - min. | 200 |
| Current ³ | Switching ² | Adc - max. | 0.50 |
| | | Aac - max. | 0.35 |
| | Carry | Adc - max. | 1.00 |
| Resistance | Contact, Initial Insulation | Ω - max. | 0.100 |
| | | Ω - min. | 10^{10} |
| Capacitance | Contact | pF - typ. | 0.3 |
| Temperature | Operating Storage ⁵ | °C | -40 to +125 |
| | | °C | -65 to +125 |

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.

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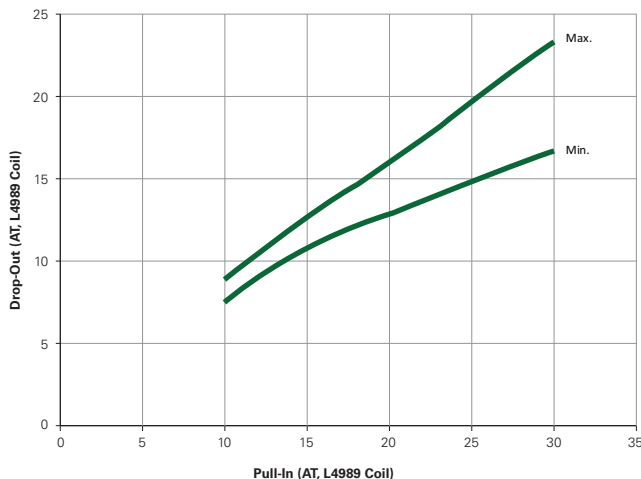
Product Characteristics

| Operating Characteristics | | |
|---------------------------------|--------------------|----------------------------|
| Operate Time ¹ | | 0.6ms - max. |
| Release Time ¹ | | 0.2ms - max. |
| Shock ² | 11ms 1/2 sine wave | 100G - max. |
| Vibration ² | 50-2000 Hertz | 30G - max. |
| Resonant Frequency | | 5.3kHz typ |
| Magnetic Characteristics | | |
| Pull-In Range ³ | Ampere Turns | 10-15, 15-20, 20-25, 25-30 |
| Rating Sensitivity ⁴ | Ampere Turns | 20 |
| Test Coil | | L4989 |

Notes:

- Operate (including bounce)/Release Time - per EIA/NARM RS-421-A, diode suppressed coil (Coil II).
- Shock and Vibration - per EIA/NARM RS-421-A and MIL-STD-202.
- Pull-In Range - Contact Littelfuse for narrower AT ranges available. These AT ranges are the before modification AT of the MACD-14.
- Rating Sensitivity - The value at which contact ratings and operating characteristics are determined. Derating may be required below this value.

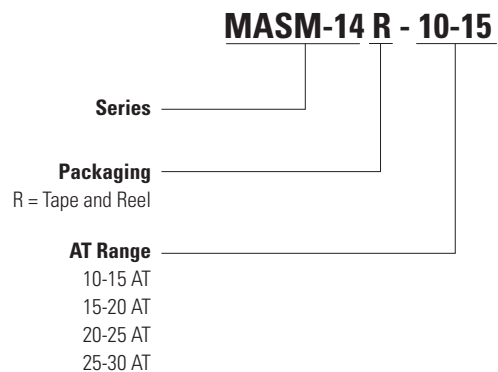
Drop-Out vs. Pull-In Chart



Note:

Chart represents the range of Drop Out, min to max for a given Pull-In value of the MACD-14 prior to modification into the MASM-14.

Part Numbering System



Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity & Packaging Code | Taping Width |
|------------------|-------------------------|----------|---------------------------|--------------|
| Tape and Reel | EIA-RS-481-1 | 3000 | R | 32mm |

