

# MACD-14 Series

## 14mm Close-Differential Reed Switch



### Web Resources



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

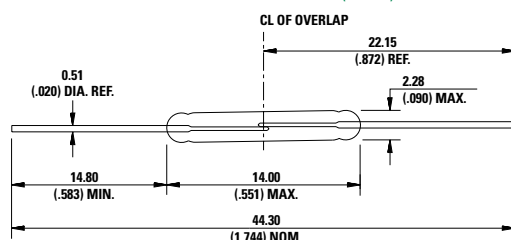
### Agency Approvals

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

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

### Dimensions

Dimensions in mm (inch)



### Description

The MACD-14 reed switch is a close-differential, sub-miniature, normally open switch with a 14.00mm long x 2.28mm diameter (0.551" x 0.090") glass envelope, capable of switching 200Vdc at 10W.

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

### Features

- Low close/open hysteresis (close differential)
- Normally open switch
- Capable of switching 200Vdc or 0.5A at up to 10W
- UL Recognized for the US and Canadian Markets per UL 508 and CSA C22.2 No. 14-10.

### 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

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

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

### Electrical Ratings

Contact Type			Normally Open
Contact Rating <sup>1</sup>		WVA - max.	10
Voltage <sup>3</sup>	Switching <sup>2</sup>	Vdc - max.	200
		Vac - max.	140
	Breakdown <sup>4</sup>	Vdc - min.	200
Current <sup>3</sup>	Switching <sup>2</sup>	Adc - max.	0.50
		Aac - max.	0.35
	Carry	Adc - max.	1.00
Resistance	Contact, Initial	Ω - max.	0.100
	Insulation	Ω - min.	$10^{10}$
Capacitance	Contact	pF - typ.	0.3
Temperature	Operating	°C	-40 to +125
	Storage <sup>5</sup>	°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 and 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.

# MACD-14 Series

## 14mm Close-Differential Reed Switch

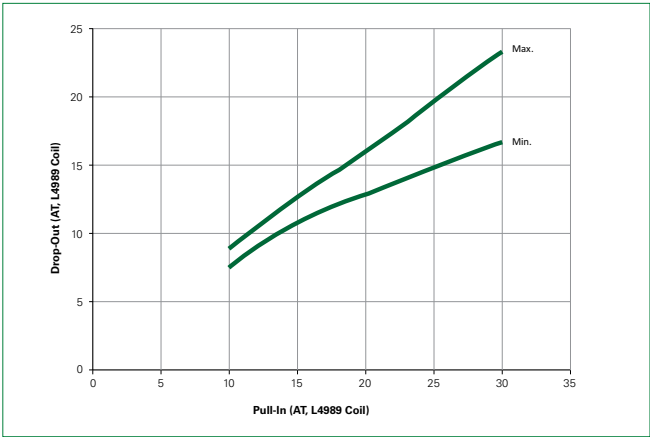
### Product Characteristics

Operating Characteristics		
Operate Time <sup>1</sup>		0.6ms - max.
Release Time <sup>1</sup>		0.20ms - max.
Shock <sup>2</sup>	11ms 1/2 sine wave	100G - max.
Vibration <sup>2</sup>	50-2000 Hertz	30G - max.
Resonant Frequency		5.3kHz - typ.

Magnetic Characteristics		
Pull-In Range <sup>3</sup>	Ampere Turns	10-30
Rating Sensitivity <sup>4</sup>	Ampere Turns	20
Test Coil		L4989

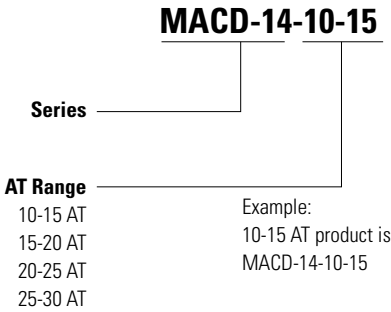
- Notes:**
- 1. Operate (including bounce)/Release Time - per EIA/NARM RS-421-A, diode suppressed coil (Coil II).
  - 2. Shock and Vibration - per EIA/NARM RS-421-A and MIL-STD-202.
  - 3. Pull-In Range - Contact Littelfuse for narrower AT ranges available.
  - 4. Rating Sensitivity - The value at which 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



**Note:** These AT values are the before-modification values of the bare reed switch.

### Packaging

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	Taping Width
Bulk	Bulk	1000	N/A	N/A