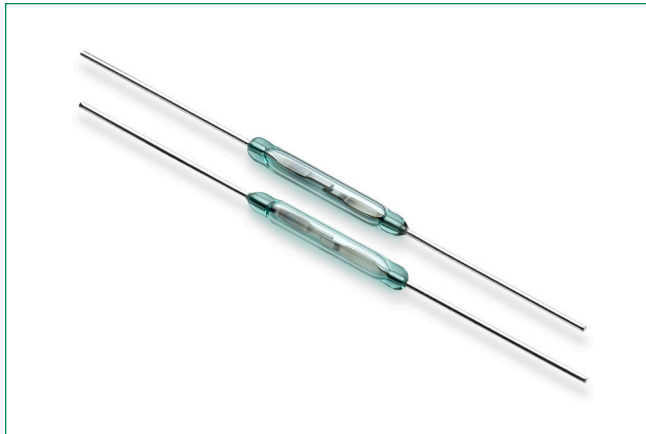


MATE-12B Series

Long life > High Reliability > 12.7mm > Sub-miniature



Description

The MATE-12B Reed Switch is a sub-miniature, normally open switch with a 12.70 mm long x 1.80 mm diameter (0.500" x 0.071") glass envelope, capable of switching 200 Vdc at 10 W. It has high insulation resistance of 10¹² ohms minimum and low contact resistance of less than 100 milli-ohms.

Features

- Long Life and high reliability switch
- Ideal for Auto Test Equipment (ATE) switching
- Capable of Switching 200 V or 0.5 A at up to 10 W
- Available sensitivity range 8–25 AT

Benefits

- Hermetically sealed switch contacts are not affected by and have no effect on their external environment
- Low, stable contact resistance
- Zero operating power required for contact
- Excellent for switching microcontroller logic level loads

Agency Approvals

Agency	Agency File Number	Ampere-Turns Range
	E47258 E471070	8–25 AT

Note: Contact Littelfuse for specific agency approval ratings.

Additional Information



Resources



Accessories

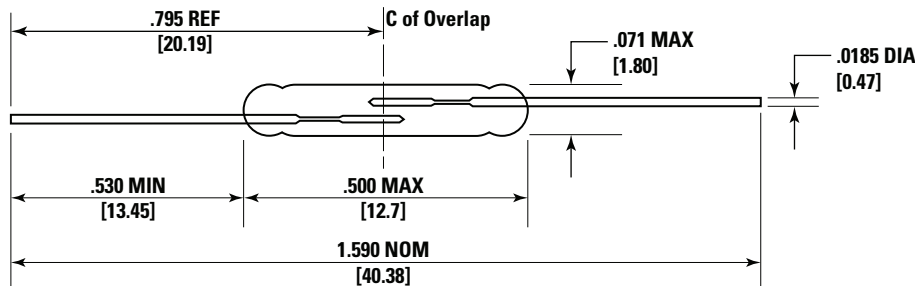


Samples

Applications

- Reed Relay particularly for ATE application that requires long life
- Limit switching
- Appliance apps that require long life and high reliability switch

Dimension in mm [inch]



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Electrical Ratings

Contact Type			Normally Open
Switch Type			1
Contact Rating ¹		VA/Watt - max.	10
Voltage ³	Switching ²	Vdc - max.	200
		Vac - max.	140
	Breakdown ⁴	Vdc - min.	250
Current ³	Switching ²	Adc - max.	0.5
		Aac - max.	0.35
	Carry	Adc - max.	1.0
Resistance ⁵	Contact, Initial	Ω - max.	0.100
	Insulation	Ω - min.	10 ¹²
Capacitance	Contact	pF - typ.	0.7
Temperature	Operating	°C	-40 to +125
	Storage ⁵	°C	-65 to +125

Notes:

- Contact rating - Product of the switching voltage and current should never exceed the wattage rating. Contact Littelfuse for additional load/life information.
- 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.
- Electrical Load Life Expectancy - Contact Littelfuse with voltage, current values along with type of load.
- Breakdown Voltage - per MIL-STD-202, Method 301.
- Storage Temperature - Long time exposure at elevated temperature may degrade solderability of the leads.

Product Characteristics

Operating Characteristics		
Operate Time ¹		0.6 ms - max.
Release Time ¹		0.2 ms - max.
Shock ²	11ms 1/2 sine wave	100 G - max.
Vibration ²	50-2000 Hertz	30 G - max.
Resonant Frequency		6250 Hz - typ.
Magnetic Characteristics		
Pull-In Range ³	Ampere Turns	8-25 AT
Rating Sensitivity ⁴	Ampere Turns	20
Test Coil		L4989

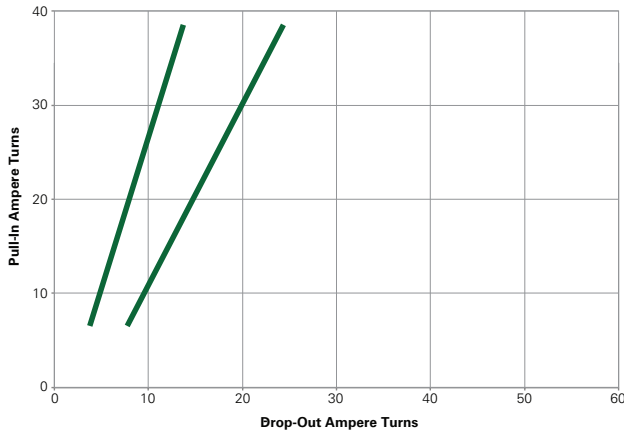
Notes:

- 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.
- Rating Sensitivity - The value at which contact ratings and operating characteristics are determined. Derating may be required below this value.
- Custom modifications of forming and/or cutting of reed switches are available. Please contact Littelfuse.

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Drop-Out vs. Pull-In Chart



Example:

10–20 Ampere turns Pull-In
5–15 Ampere turns Drop-Out

Note: The chart represents the range of Drop-Out, minimum to maximum for a given Pull-In value.

Part Numbering System

MATE-12B-XX-XX

Series

AT Range

- 8–13 AT
- 10–15 AT
- 12–18 AT
- 17–23 AT
- 15–20 AT
- 20–25 AT

Example:

10-15 AT product is MATE-12B-10-15

Note: These AT values are the before-modification values of the bare Reed Switch.

Life Expectancy

- 5 Vdc, 20 mA, 100 Hz: Life = reached 100M without failure
 - Closure and Opening delay is 2ms, stick if 0.7 V, Miss definition if >1 Ohms
- 5 Vdc, 40 mA, 200 Hz: Life = 150 M cycles at 90% confidence level
 - Closure and Opening delay is 1.5ms, stick if 0.7V, Miss definition if >1 Ohms
- 12 Vdc, 8.3 mA, 100 Hz: Life = 4.7 M cycles at 90% confidence level
 - Closure and Opening delay is 2ms, stick if 0.7 V, Miss definition if >2 Ohms
- 200 Vdc, 10 mA, 100 Hz: Life = 560 k cycles at 90% confidence level
 - Closure and Opening delay is 4ms, stick if <10 kOhms, Miss definition if >10 kOhms
- 200 Vdc, 30 mA, 100 Hz: Life = 450 K cycles at 90% confidence level
 - Closure and Opening delay is 4ms, stick if <10 k ohms, Miss definition if >10 kOhms

Packaging

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

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