

# 59165 Series

## Miniature Overmolded Reed Switch



### Description

The 59165 is a miniature overmolded reed switch 16.00mm x 2.40mm x 2.40mm (0.630" x 0.095" x 0.095") with either straight or Gull Wing leads. It has normally open contact, capable of switching up to 200Vdc at 10W.

**Note:** The 57045 Actuator is sold separately.

### Features & Benefits

- Two-part magnetically operated proximity switch
- Gull Wing, leaded and staple form options
- Tape and reel option
- RoHS Compliant
- Solder reflow capable
- Thermoset overmolded material
- ATEX certified for use in European explosive atmospheres:  $\text{Ex II 3 G Ex nC IIC Gc}$
- Certified for use in North American Hazardous Locations: Class I, Division 2 and Zone 2
- Suitable for pick and place
- No standby power requirement
- Operates through non-ferrous materials such as wood, plastic or aluminium
- Hermetically sealed, magnetically operated contacts continue to operate long after optical and other technologies fail due to contamination

### Additional Information



Resources



Accessories



Samples

### Agency Approvals

| Agency | Agency File Number                                     |
|--------|--------------------------------------------------------|
|        | E61760<br>e471070                                      |
|        | DEMKO 14 ATEX 1393U<br>$\text{Ex II 3 G Ex nC IIC Gc}$ |

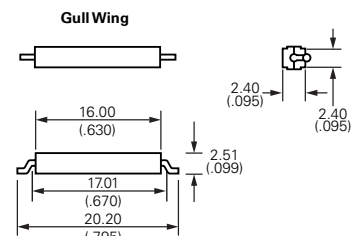
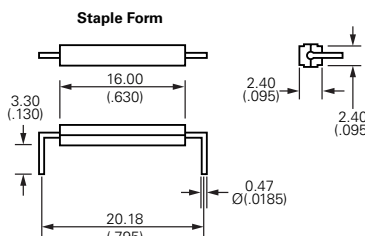
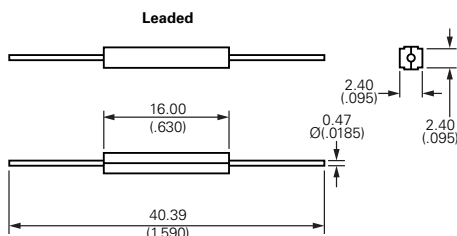
**Note:** Contact Littelfuse for specific agency approval ratings.

### Applications

- Position and Limit Sensing
- Security System Switch
- Door and Window Proximity Sensing
- Metering
- Automotive Electronics
- Anti-Tamper Detection
- Small Appliances

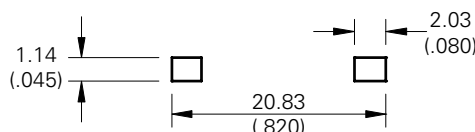
### Dimensions

Dimensions in mm (inch)



### Soldering Footprint

Dimensions in mm (inch)



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### Electrical Ratings

| Contact Type                |                        |                 | Normally Open |
|-----------------------------|------------------------|-----------------|---------------|
| Switch Type                 |                        |                 | 1             |
| Contact Rating <sup>1</sup> |                        | VA/Watt - max.  | 10            |
| Voltage <sup>3</sup>        | Switching <sup>2</sup> | Vdc - max.      | 200           |
|                             |                        | Vac - max.      | 140           |
|                             | Breakdown <sup>4</sup> | Vdc - min.      | 250           |
| Current <sup>3</sup>        | Switching <sup>2</sup> | Adc - max.      | 0.5           |
|                             |                        | Aac - max.      | 0.35          |
|                             | Carry                  | Adc - max.      | 0.8           |
| Resistance                  | Contact, Initial       | $\Omega$ - max. | 0.2           |
|                             | Insulation             | $\Omega$ - min. | $10^{10}$     |
| Capacitance                 | Contact                | pF - typ.       | 0.3           |
| Temperature                 | Operating              | °C              | -40 to +125   |
| Product Characteristics     |                        |                 |               |
| Operate Time <sup>5</sup>   |                        | ms - max.       | 1.0           |
| Release Time <sup>5</sup>   |                        | ms - max.       | 1.0           |
| Shock <sup>6</sup>          | 11ms ½ sine            | G - max.        | 100           |
| Vibration <sup>6</sup>      | 50-2000 Hz             | G - max.        | 30            |

#### 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.
- 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.

### Sensitivity Options (Using 57045 Actuator)

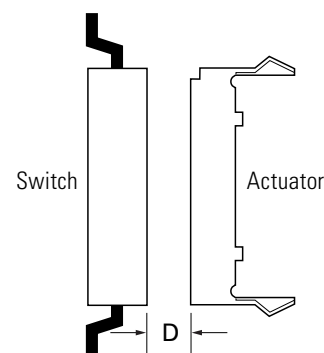
| Select Option |               | S                |                                        | T                |                                        | U                |                                        |
|---------------|---------------|------------------|----------------------------------------|------------------|----------------------------------------|------------------|----------------------------------------|
| Switch Type   |               | Pull-In AT Range | Activate Distance, D mm (inch) Average | Pull-In AT Range | Activate Distance, D mm (inch) Average | Pull-In AT Range | Activate Distance, D mm (inch) Average |
| 1             | Normally Open | 10-15            | 7.4 (.292)                             | 15-20            | 6.1 (.240)                             | 20-25            | 5.1 (.201)                             |

#### Note:

- Pull-In AT Range: These AT values are the before molding and modification AT of the 59165.
- The activation distance is average value post modification for the Gull wing option C or D.

### Termination Specification

| Termination Options |                         |
|---------------------|-------------------------|
| Select Option       | Description             |
| A                   | Leaded                  |
| C                   | Gull Wing bulk packed   |
| D                   | Gull Wing tape and reel |



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### Part Numbering System

**Switch:**      **59165 - 1 - X - 00 - X**

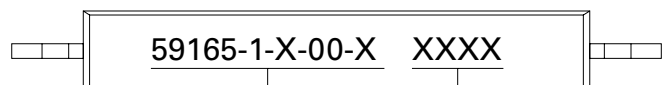
**Series** ————  
**Switch Type** ————  
**Sensitivity** ————  
 S, T, or U  
**Termination & Packaging** ————  
 A, C, or D

**Actuator:**      **57045 - 000**

**Series** ————  
**Standard Actuator** ————  
 000

**Note:** The 57045 Actuator is sold separately.

### Product Marking



**Part Number** ————  
**Date Code** ————  
 (YYWW)

### Packaging

| Packaging Option | Packaging Specification | Quantity | Quantity and Packaging Code | Taping Width  |
|------------------|-------------------------|----------|-----------------------------|---------------|
| Bulk             | Bulk                    | 800/box  | 59165-1-X-00-A              | N/A           |
| Bulk             | Bulk                    | 1500/box | 59165-1-X-00-C              | N/A           |
| Tape and Reel    | EIA-RS-481-1            | 1500     | R                           | 32.00/(1.260) |

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