

# Miniature BITE Lites LED Indicator

## ML 1600/ML 1610

### FEATURES

- Performs in Severe Environments
- Low Power Use
- Long Life
- High Efficiency
- High Luminosity
- Rugged Construction
- Readily Mounted on Panel

Designed for use as function indicators on aircraft, test equipment, machine tools and wherever severe environmental conditions need to be met.

### MECHANICAL SPECIFICATIONS

**Case:** black anodized aluminum.

**Mounting:** Front panel by 5/16-32" nut and lockwasher.

**Weight:** 1.5 grams with hardware.

**Seal:** Environmentally sealed. Added front panel o-ring seal for model ML 1610.

### ENVIRONMENTAL SPECIFICATIONS

**Operating Temperature Range:** -55°C to +100°C

**Vibration:** .06" D.A. or 20 G Peak, whichever is less, 10 Hz to 2 kHz, MIL STD 202, Method 204, Test Condition D.

**Shock:** 100 G's MIL STD 202, Method 213, Test Condition I.

**Moisture Resistance (Humidity):** MIL STD 202, Method 106.

**Altitude:** 100,000 ft., MIL STD 202, Method 105, Test Condition D.

**Life:** Operational 6 x 10<sup>6</sup> hours. min. MTBF @ 25°C and max. I, steady state.

**Salt Spray:** MIL STD 202, Method 101, Test Condition B.

### ELECTRO-OPTICAL CHARACTERISTIC SPECIFICATIONS

### Absolute Maximum Ratings

| Color                                         |                          | Red                 | Yellow      | Green       |
|-----------------------------------------------|--------------------------|---------------------|-------------|-------------|
| Forward Voltage (VDC)                         |                          | 1.9                 | 2.0         | 2.1         |
| Peak Forward Current (mA)                     |                          | 90                  | 60          | 90          |
| DC Forward Current (mA)*                      |                          | 30                  | 20          | 30          |
| Reverse Voltage (VDC) (I <sub>R</sub> =100μA) |                          | 5                   | 5           | 5           |
| Power Dissipation (mW)                        |                          | 135                 | 85          | 135         |
| Luminous Intensity (mcd) typical              | Non Diffused<br>Diffused | 60                  | 50          | 70          |
| @ I <sub>f</sub> =10 mA                       |                          | 7.0                 | 8.0         | 5.2         |
| Dominant Wave Length (nm) typical             |                          | 626                 | 585         | 569         |
| Viewing Angle (2 Ø <sup>1/2</sup> ) typical   | Non Diffused<br>Diffused | 35°<br>60°          | 35°<br>60°  | 35°<br>60°  |
| Operating Temperature (°C)                    |                          | -55 to +100         | -55 to +100 | -20 to +100 |
| Storage Temperature (°C)                      |                          | -55 to +100         | -55 to +100 | -55 to +100 |
| Lead Soldering Temperature                    |                          | 200°C for 5 seconds |             |             |

\* For red and green, derate linearly from 50°C @ 0.5 mA/°C. For yellow, derate linearly from 50°C @ 0.2 mA/°C

### ORDERING INFORMATION

When ordering, show basic part number first, followed by the color of the LED, lens type and terminal style. If this is a special part, factory's modification number will be added at the end of the ordering number.

Example: A basic model with an o-ring panel seal, a yellow LED, a diffused lens, and loop terminals would be ML1610-Y-D-LT.

### ML 1610 - Y - D - LT - S ( )

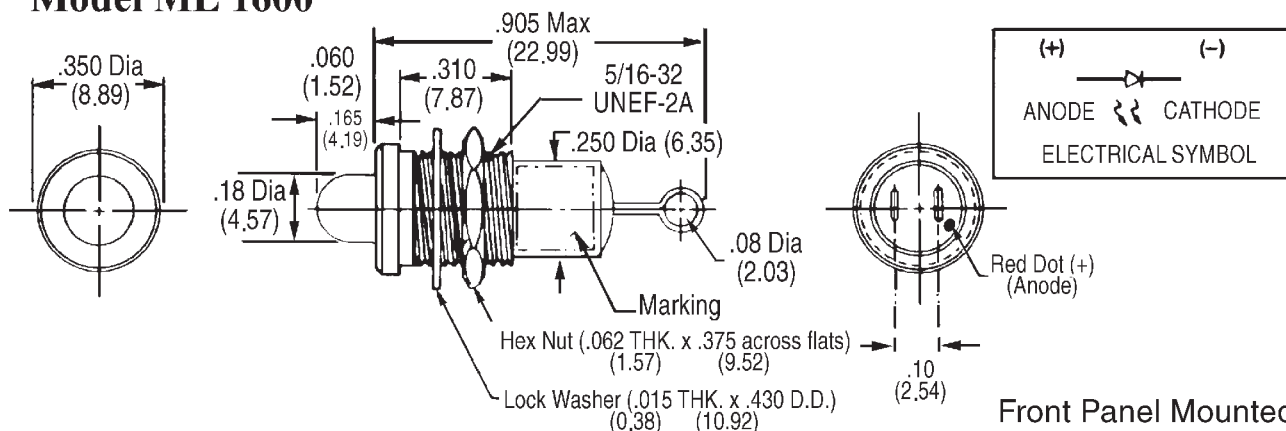
| Basic Model Number        | LED Color                          | Lens Type                         | Terminal Style                     | Factory Modification Number if Special |
|---------------------------|------------------------------------|-----------------------------------|------------------------------------|----------------------------------------|
| ML1600<br>(w/o "O" Ring)  | (R) Red<br>(Y) Yellow<br>(G) Green | (ND) Non-diffused<br>(D) Diffused | ST Straight Lead<br>LT Solder Loop | S.+ ID No.                             |
| ML1610<br>(with "O" Ring) |                                    |                                   |                                    |                                        |

# Miniature BITE Lites LED Indicator

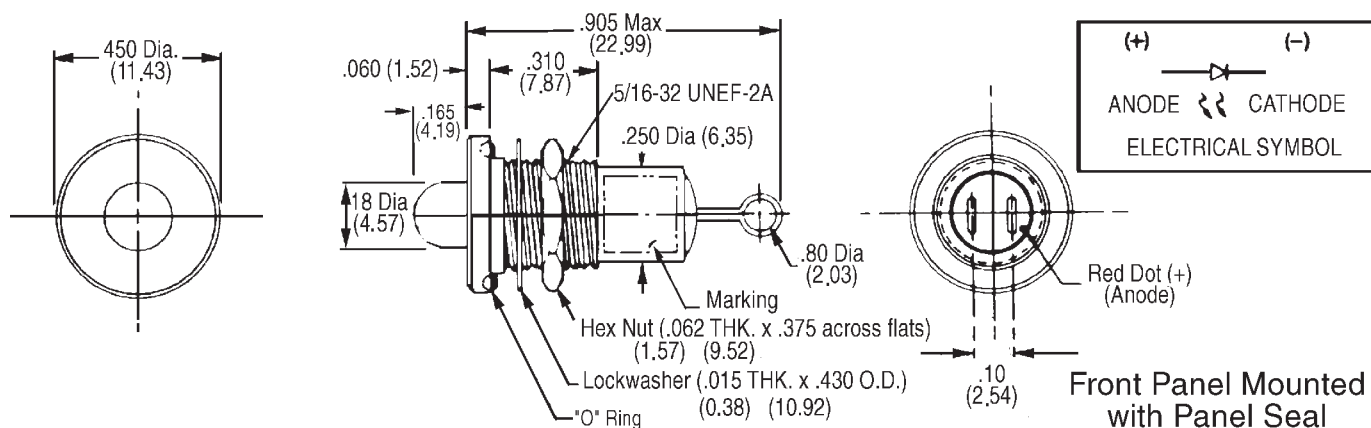
## ML 1600/ML 1610



### Model ML 1600



### Model ML 1610



**NOTE:**

Dimensions in ( ) are mm. Tolerances: Decimals:  $\pm .010$  (0,25)

Fractions:  $\pm 1/64$

Mounting Torque: 5-7 in. lbs.