

599 SERIES

# MicroLED® SMD LED

## Bi-Color 0805

2.0 x 1.30 x 0.50mm

### MECHANICAL / SPECIFICATIONS

DIMENSIONS:  
2.0 x 1.30 x 0.50mm

STANDARD PACKAGING:  
4000 pcs on 7in. reel

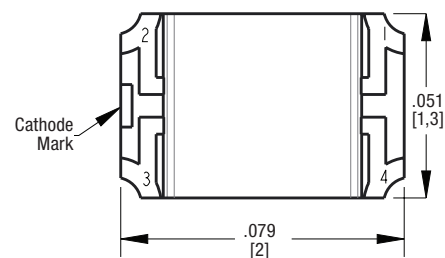
CERTIFICATIONS & RATINGS  
ROHS Compliant

### FEATURES & BENEFITS

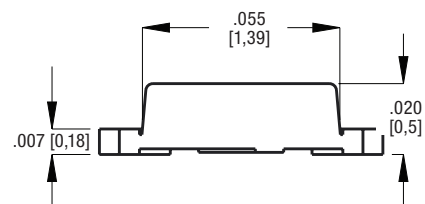
MOISTURE SENSITIVITY LEVEL: 2a  
Compatible with Automatic Placement Equipment

### DIMENSIONS inches [mm]

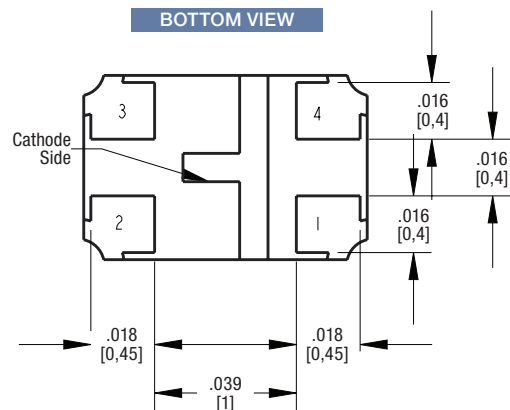
TOP VIEW



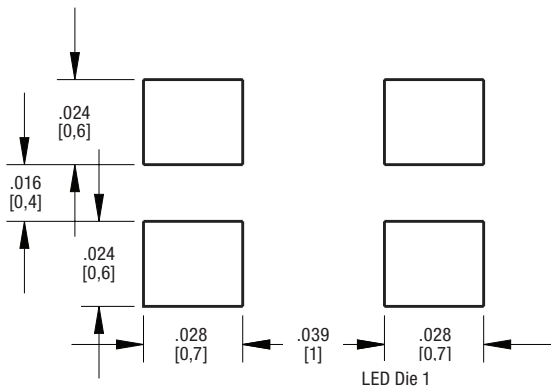
SIDE VIEW



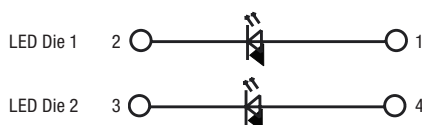
BOTTOM VIEW



RECOMMENDED PAD LAYOUT



LED SCHEMATIC



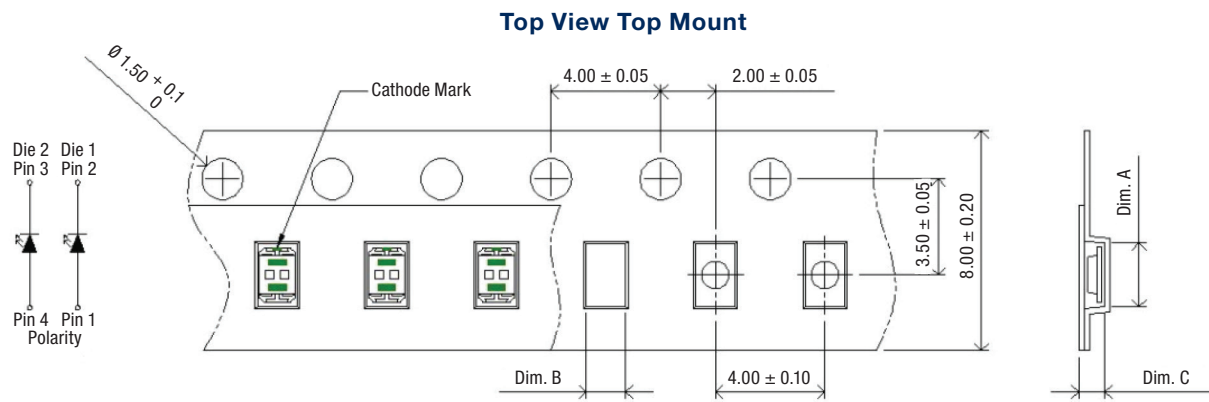
ELECTRICAL/OPTICAL CHARACTERISTICS

|                               |                |         |                     | Luminous Intensity |     |     | Dominant Wavelength |     |     | Forward Voltage |     |     | Viewing Angle (°deg.) | Reverse Current Intensity (μA) |           |
|-------------------------------|----------------|---------|---------------------|--------------------|-----|-----|---------------------|-----|-----|-----------------|-----|-----|-----------------------|--------------------------------|-----------|
|                               |                |         |                     | If=20mA            |     |     |                     |     |     |                 |     |     |                       |                                |           |
|                               |                |         |                     | Min                | Typ | Max | Min                 | Typ | Max | Min             | Typ | Max |                       | (Ir) VR=5V                     |           |
| <a href="#">599-1T30-247F</a> | ● Yellow-Green | AlGaInP | Non-Tinted Diffused | 18                 | —   | 72  | 567                 | —   | 577 | 1.6             | —   | 2.4 | X=120<br>Y=118        | 10                             | LED Die 1 |
|                               | ● Orange       |         |                     | 72                 | —   | 285 | 600                 | —   | 612 | 1.6             | —   | 2.4 | X=120<br>Y=125        |                                | LED Die 2 |
| <a href="#">599-1T10-247F</a> | ● Red          | AlGaInP |                     | 45                 | —   | 180 | 625                 | —   | 635 | 1.6             | —   | 2.4 | X=120<br>Y=118        | 10                             | LED Die 1 |
|                               | ● Green        | InGaN   |                     | 113                | —   | 360 | 520                 | —   | 535 | 2.7             | —   | 3.9 | X=120<br>Y=125        |                                | LED Die 2 |
| <a href="#">599-1T00-247F</a> | ● Red          | AlGaInP |                     | 45                 | —   | 180 | 615                 | —   | 635 | 1.6             | —   | 2.4 | X=120<br>Y=118        | 10                             | LED Die 1 |
|                               | ● Blue         | InGaN   |                     | 72                 | —   | 285 | 460                 | —   | 472 | 2.7             | —   | 3.9 | X=120<br>Y=125        |                                | LED Die 2 |
| <a href="#">599-1T70-247F</a> | ● Red          | AlGaInP |                     | 45                 | —   | 180 | 615                 | —   | 635 | 1.6             | —   | 2.4 | X=120<br>Y=118        | 10                             | LED Die 1 |
|                               | ● Yellow-Green |         |                     | 29                 | —   | 113 | 567                 | —   | 577 | 1.6             | —   | 2.4 | X=120<br>Y=125        |                                | LED Die 2 |
| <a href="#">599-1T40-247F</a> | ● Yellow       | AlGaInP |                     | 29                 | —   | 113 | 587                 | —   | 595 | 1.6             | —   | 2.4 | X=120<br>Y=125        | 10                             | LED Die 1 |
|                               | ● Yellow-Green |         |                     | 72                 | —   | 226 | 567                 | —   | 577 | 1.6             | —   | 2.4 | X=120<br>Y=118        |                                | LED Die 2 |

ABSOLUTE MAXIMUM RATINGS AT TS=25°C

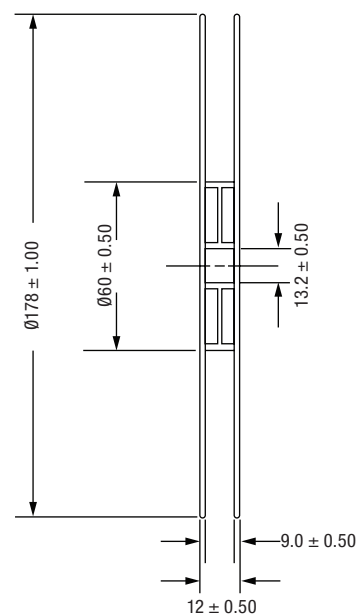
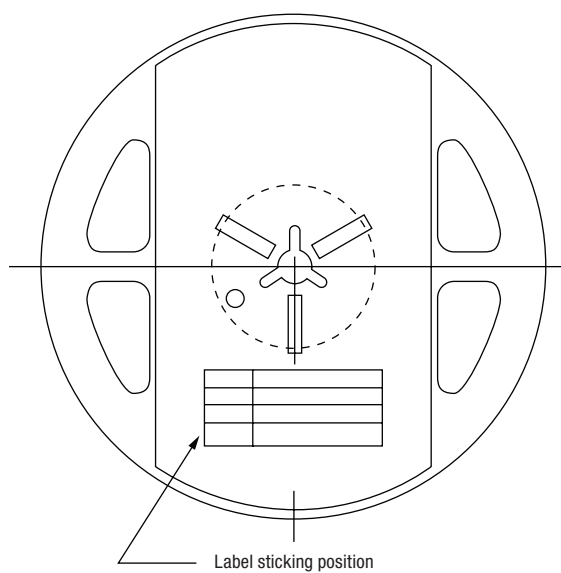
| LED Color                  | Power Dissipation (mW) | Forward Current (mA) | Reverse Voltage (V) | Peak Forward Current *(mA) | Operating Temperature (°C) | Storage Temperature (°C) |
|----------------------------|------------------------|----------------------|---------------------|----------------------------|----------------------------|--------------------------|
| ● Yellow-Green<br>● Orange | 48                     | 20                   | 5                   | 100                        | -40 to +85                 | -40 to +100              |
| ● Red<br>● Green           | 48<br>78               | 20                   | 5                   | 100<br>80                  | -40 to +85                 | -40 to +100              |
| ● Red<br>● Blue            | 48<br>78               | 20                   | 5                   | 100<br>80                  | -40 to +85                 | -40 to +100              |
| ● Red<br>● Yellow-Green    | 48                     | 20                   | 5                   | 40                         | -40 to +85                 | -40 to +100              |
| ● Yellow<br>● Yellow-Green | 48                     | 20                   | 5                   | 40                         | -40 to +85                 | -40 to +100              |

## TAPE AND REEL SPECIFICATION



| Dim A    | Dim B    | Dim C    | Quantity/Reel |
|----------|----------|----------|---------------|
| 2.30±0.1 | 1.40±0.1 | 0.60±0.1 | 4K            |

Unit: mm



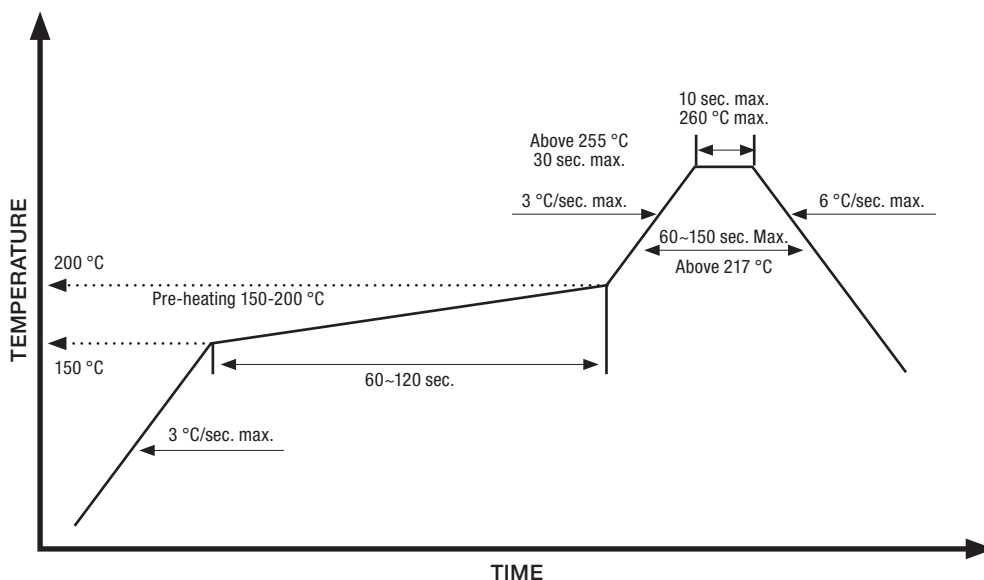
Unit: mm

## REFLOW SOLDERING

Recommend soldering paste specifications:

1. Operating temp.: Above 217°C ,60~150 sec.
2. Peak temp.:260°C Max.,10sec Max.
3. Reflow soldering should not be done more than two times.
4. Never attempt next process until the component is cooled down to room temperature after reflow.
5. The recommended reflow soldering profile (measured on the surface of the LED terminal) is as following:

## REFLOW SOLDER PROFILE



| Mark          | Definition                               | Condition      |
|---------------|------------------------------------------|----------------|
| $T_{S_{max}}$ | MAXIMUM OF PRE-HEATING TEMPERATURE       | 200°C          |
| $T_{S_{min}}$ | MINIMUM OF PRE-HEATING TEMPERATURE       | 150°C          |
| $T_S$         | TIME FORM $T_{S_{min}}$ To $T_{S_{max}}$ | 60-120 sec     |
| $T_L$         | REFERENCE TEMPERATURE                    | 217°C          |
| $t_L$         | RETENTION TIME FOR $T_L$                 | WITHIN 60s     |
| $T_P$         | PEAK TEMPERATURE                         | 260°C          |
| $t_p$         | TIME FOR PEAK TEMPERATURE                | WITHIN 10s     |
| $DT_r/Dt$     | TEMPERATURE RISING RATE                  | WITHIN 3°C/sec |
| $DT_d/Dt$     | TEMPERATURE DECREASING RATE              | WITHIN 6°C/sec |



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