



599 SERIES

MicroLED® SMD LED

Bi-Color 0603

1.60 x 0.80 x 0.60mm

MECHANICAL / SPECIFICATIONS

DIMENSIONS:
1.60 x 0.80 x 0.60mm

STANDARD PACKAGING:
4000 pcs on 7in. reel

CERTIFICATIONS & RATINGS

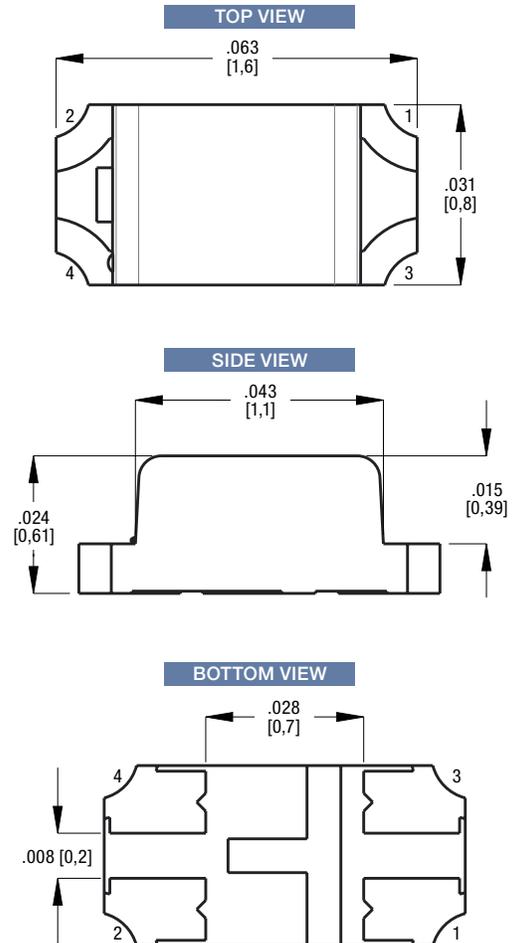
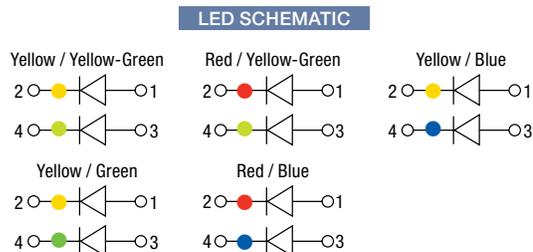
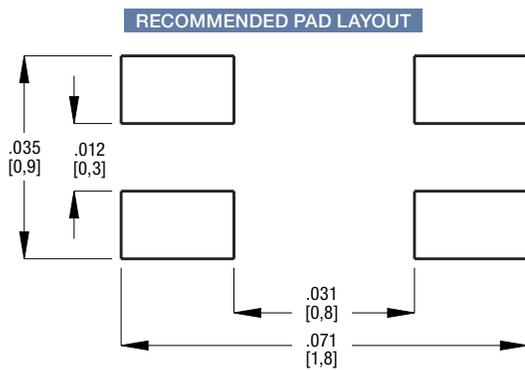
ROHS Compliant

FEATURES & BENEFITS

MOISTURE SENSITIVITY LEVEL: 3

Compatible with Automatic Placement Equipment

DIMENSIONS inches [mm]



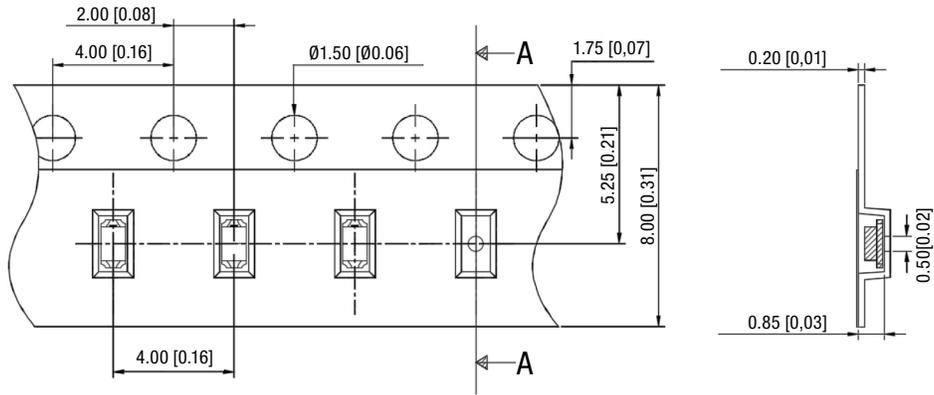
ELECTRICAL/OPTICAL CHARACTERISTICS AT Ta=25°C

| Part Number | Emitted Color | Material | Lens Color | Luminous Intensity | | | Dominant Wavelength | | | Forward Voltage | | | Viewing Angle (°deg.) | Reverse Current Intensity (µA) | LED Die Pin Out |
|-------------------------------|----------------|----------|-------------|--------------------|-----|------|---------------------|-----|-----|-----------------|-----|-----|-----------------------|--------------------------------|-----------------|
| | | | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | | | |
| If=20mA | | | | | | | | | | | | | | | |
| 599-0040-227F | ● Yellow | AlGaInP | Water Clear | 86 | - | 321 | 585 | - | 595 | 1.8 | - | 2.4 | 120 | 10 | Pin 1, 2 |
| | ● Yellow-Green | | | 30 | - | 112 | 565 | - | 576 | 1.8 | - | 2.4 | | | Pin 3, 4 |
| 599-0050-227F | ● Yellow | AlGaInP | | 112 | - | 321 | 585 | - | 595 | 1.8 | - | 2.4 | | | Pin 1, 2 |
| | ● Green | InGaN | | 417 | - | 1192 | 520 | - | 530 | 2.8 | - | 3.7 | | | Pin 3,4 |
| 599-0070-227F | ● Red | AlGaInP | | 51 | - | 190 | 624 | - | 636 | 1.8 | - | 2.4 | | | Pin 1, 2 |
| | ● Yellow-Green | | | 30 | - | 112 | 566 | - | 576 | 1.8 | - | 2.4 | | | Pin 3, 4 |
| 599-0001-227F | ● Red | AlGaInP | | 86 | - | 247 | 620 | - | 630 | 1.8 | - | 2.4 | | | Pin 1, 2 |
| | ● Blue | InGaN | | 112 | - | 321 | 466 | - | 474 | 2.8 | - | 3.4 | | | Pin 3,4 |
| 599-0090-227F | ● Yellow | AlGaInP | | 86 | - | 321 | 585 | - | 595 | 1.8 | - | 2.4 | | | Pin 1, 2 |
| | ● Blue | InGaN | | 146 | - | 417 | 465 | - | 475 | 2.8 | - | 3.7 | | | Pin 3, 4 |

ABSOLUTE MAXIMUM RATINGS AT Ta=25°C

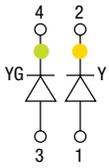
| LED Color | Power Dissipation (mW) | Forward Current (mA) | Reverse Voltage (V) | Peak Forward Current *(mA) | Operating Temperature (°C) | Storage Temperature (°C) |
|----------------------------|------------------------|----------------------|---------------------|----------------------------|----------------------------|--------------------------|
| ● Yellow ● Yellow-Green | 72 | 30 | 5 | 125 | -40 to +85 | -40 to +85 |
| ● Yellow ● Green | 72 111 | | | | | |
| ● Red ● Yellow-Green | 72 | | | | | |
| ● Red ● Blue | 72 111 | | | | | |
| ● Yellow ● Blue | 72 111 | | | | | |

TAPE AND REEL SPECIFICATION

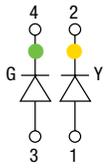


NOTE: Cathode side is facing toward the sprocket holes

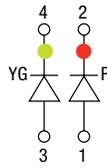
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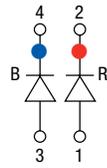
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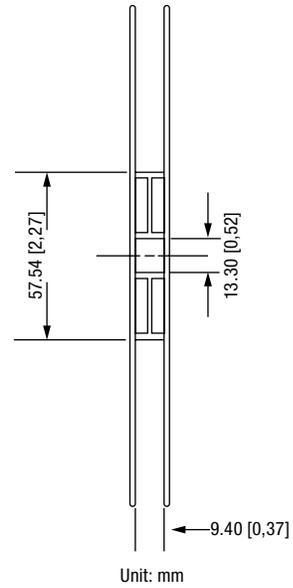
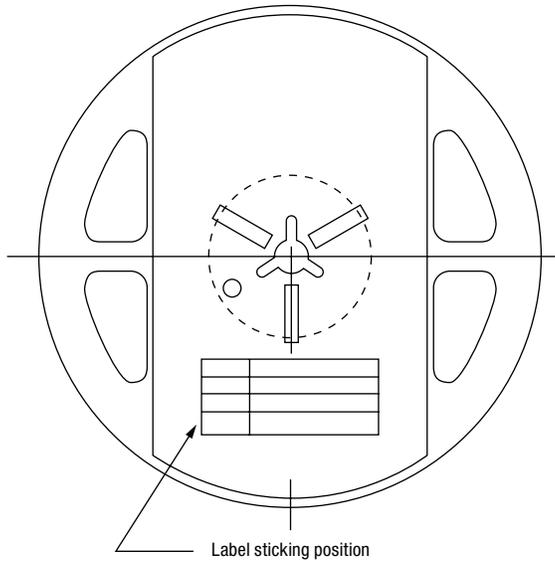
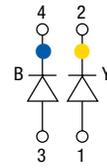
599-0070-227F



599-0001-227F



599-0090-227F



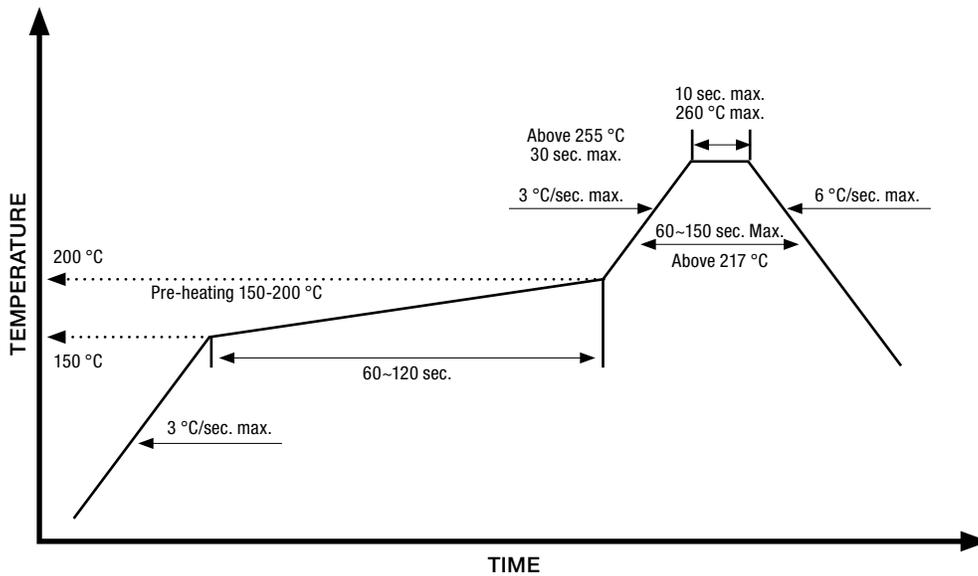
Unit: mm

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 |
| DTr/Dt | TEMPERATURE RISING RATE | WITHIN 3°C/sec |
| DTd/Dt | TEMPERATURE DECREASING RATE | WITHIN 6°C/sec |



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