



599 SERIES
MicroLED® SMD LED
Single-Color 0603
1.60 x 0.80 x 0.60mm

MECHANICAL / SPECIFICATIONS

DIMENSIONS:
1.60 x 0.80 x 0.60mm

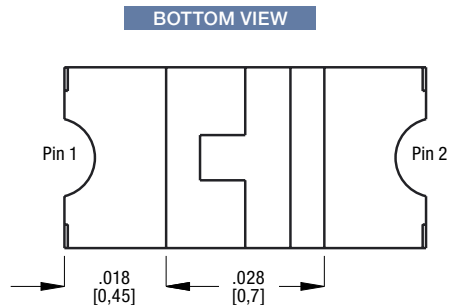
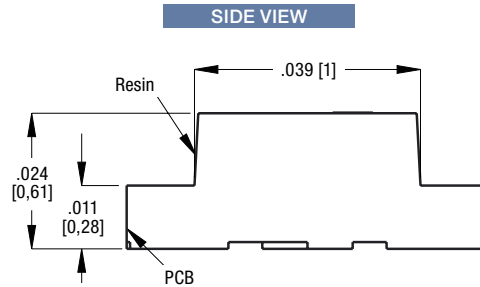
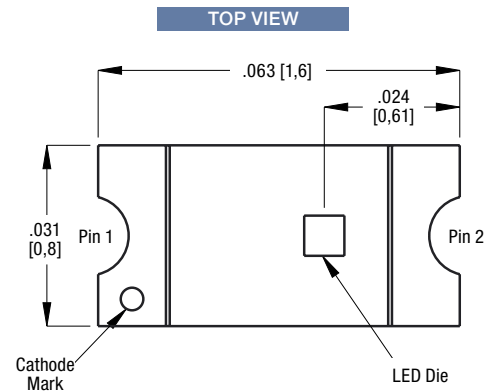
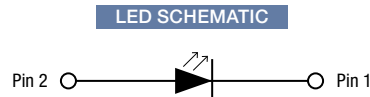
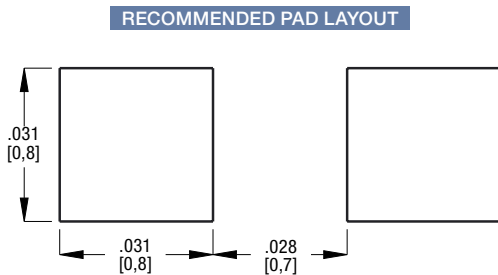
STANDARD PACKAGING:
4000 pcs on 7in. reel

CERTIFICATIONS & RATINGS
ROHS Compliant

FEATURES & BENEFITS
MOISTURE SENSITIVITY LEVEL: 2a
Compatible with Automatic Placement Equipment

COUNTRY OF ORIGIN
Taiwan

DIMENSIONS inches [mm]



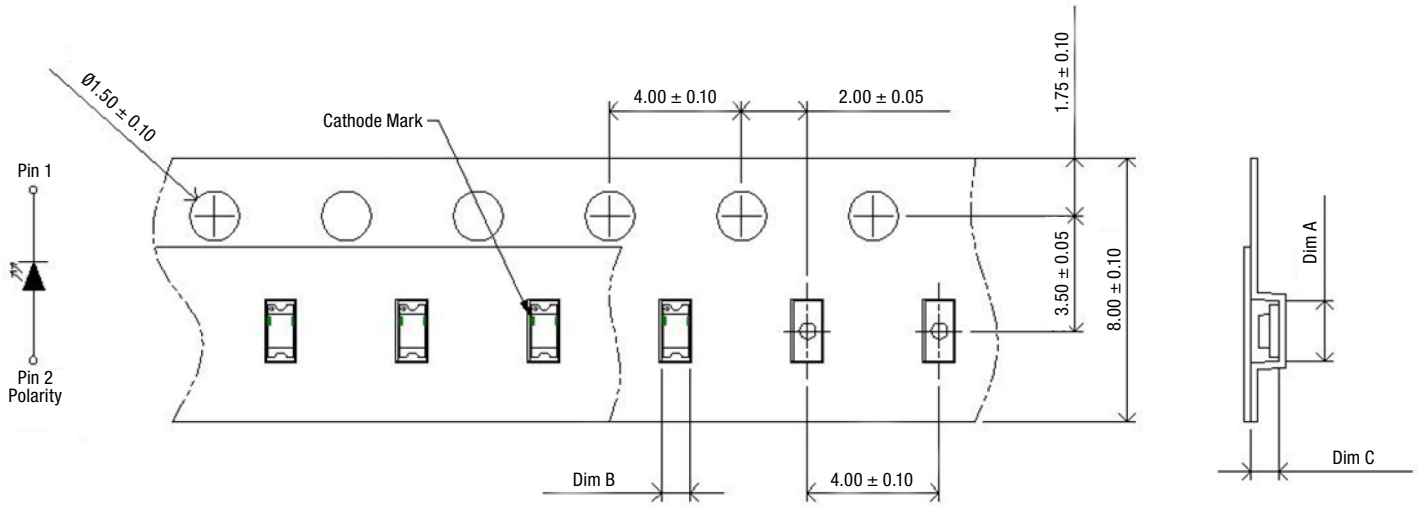
ELECTRICAL/OPTICAL CHARACTERISTICS AT Ta=25°C

| Part Number | Emitted Color | Material | Lens Color | Luminous Intensity (mcd) | | | Dominant Wavelength (nm) | | | Forward Voltage (V) | | | Viewing Angle (°deg.) | Reverse Current Intensity (µA) |
|-------------------------------|----------------|----------|------------|--------------------------|-----|-----|--------------------------|-----|-----|---------------------|-----|-----|-----------------------|--------------------------------|
| | | | | If=20mA | | | | | | | | | | |
| | | | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | (Ir) VR=5V | |
| 599-1010-147F | ● Red | AlGaInP | Diffused | 28 | 45 | 113 | 620 | 624 | 635 | 1.6 | 2.0 | 2.4 | 130 | 10 |
| 599-1030-147F | ● Orange | AlGaInP | | 71 | 113 | 180 | 600 | 605 | 612 | 1.6 | 2.0 | 2.4 | | |
| 599-1040-147F | ● Yellow | AlGaInP | | 71 | 113 | 180 | 587 | 591 | 595 | 1.6 | 2.0 | 2.4 | | |
| 599-1060-147F | ● Yellow-Green | AlGaInP | | 45 | 72 | 113 | 570 | 573 | 577 | 1.6 | 2.0 | 2.4 | | |
| 599-1080-147F | ● Green | InGaN | | 112 | 285 | 360 | 515 | 525 | 535 | 2.7 | 3.3 | 3.9 | | |
| 599-1090-147F | ● Blue | InGaN | | 45 | 72 | 180 | 464 | 470 | 476 | 2.7 | 3.3 | 3.9 | | |
| 599-2000-147F | ○ White | InGaN | | 226 | 300 | 560 | x=0.2900 y=0.2850 | | | 2.7 | 3.0 | 3.9 | | |

ABSOLUTE MAXIMUM RATINGS AT Ta=25°C

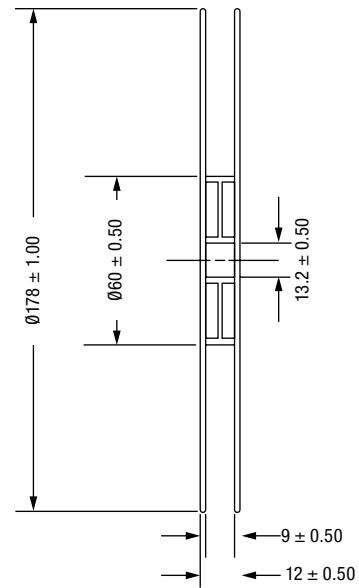
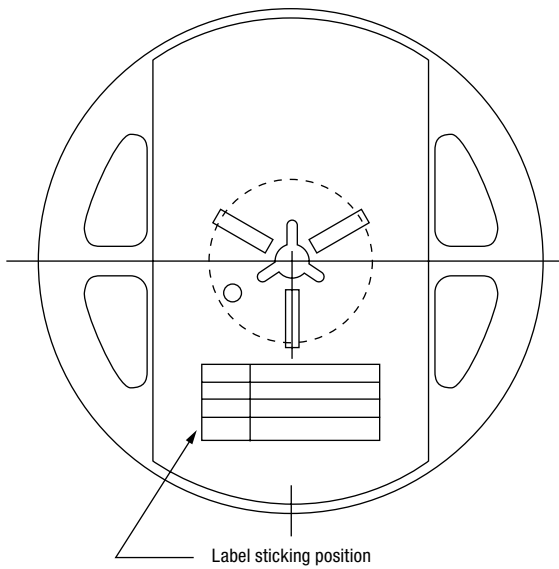
| LED Color | Power Dissipation (mW) | Forward Current (mA) | Reverse Voltage (V) | Peak Forward Current *(mA) | Operating Temperature (°C) | Storage Temperature (°C) |
|----------------|------------------------|----------------------|---------------------|----------------------------|----------------------------|--------------------------|
| ● Red | 48 | 20 | 5 | 100 | -40~+85 | -40~+100 |
| ● Orange | 48 | 20 | 5 | 100 | -40~+85 | -40~+100 |
| ● Yellow | 48 | 20 | 5 | 100 | -40~+85 | -40~+100 |
| ● Yellow-Green | 48 | 20 | 5 | 100 | -40~+85 | -40~+100 |
| ● Green | 78 | 20 | 5 | 80 | -40~+85 | -40~+100 |
| ● Blue | 78 | 20 | 5 | 80 | -40~+85 | -40~+100 |
| ○ White | 78 | 20 | 5 | 60 | -40~+85 | -40~+100 |

TAPE AND REEL SPECIFICATION



| Dim A | Dim B | Dim C | Quantity/Reel |
|-----------|-----------|-----------|---------------|
| 1.85±0.05 | 0.88±0.05 | 0.85±0.05 | 4K |

Unit: mm



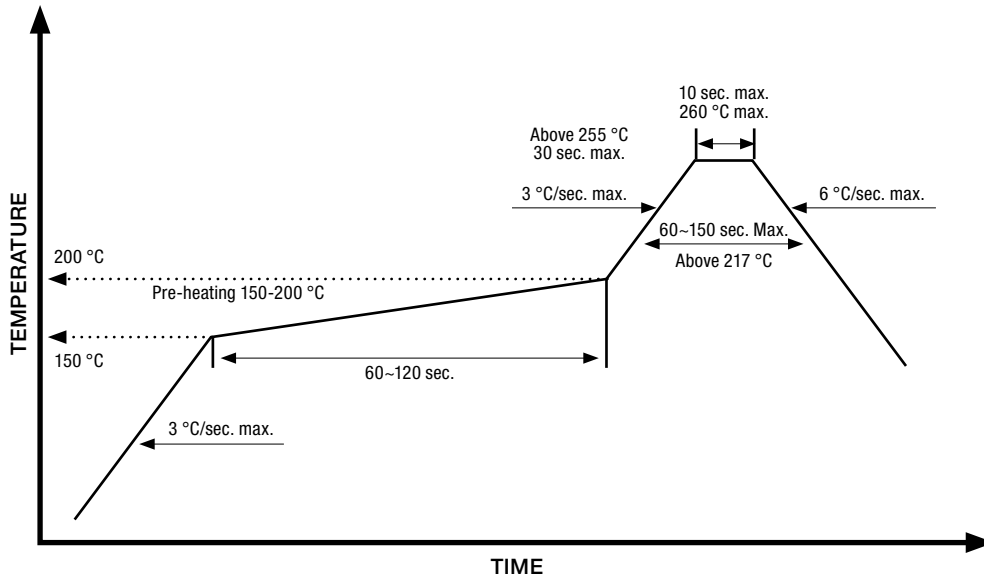
Unit: mm

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.

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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