



## 598 SERIES

# Infrared SMD LED

3528 PLCC-4 Package Top View 940nm  
With Dome Lens

### MECHANICAL / SPECIFICATIONS

PART NUMBER:  
[598-2JC0-103IRF](#)

DIMENSIONS:  
3.5 x 2.8 x 3.5mm

LENS COLOR:  
Diffused

LENS MATERIAL:  
Epoxy

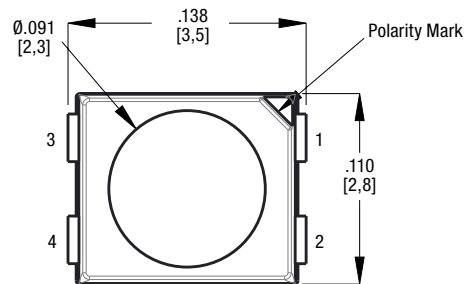
STANDARD PACKAGING:  
2000/reel

MOISTURE SENSITIVITY LEVEL:  
3

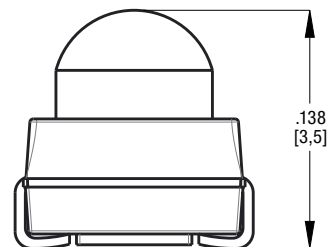
CERTIFICATIONS & RATINGS  
RoHS Compliant

### DIMENSIONS inches [mm]

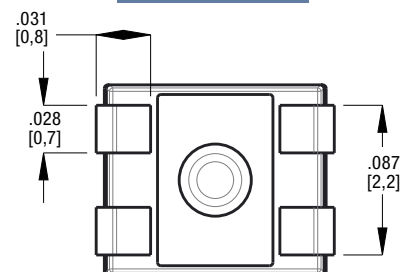
TOP VIEW



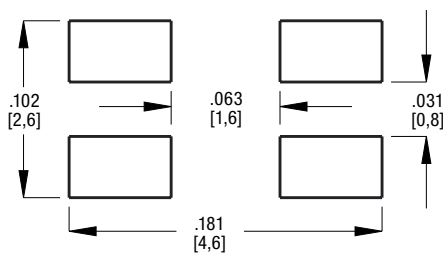
SIDE VIEW



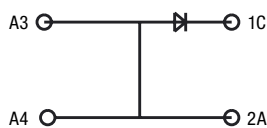
BOTTOM VIEW



RECOMMENDED PAD LAYOUT



LED SCHEMATIC



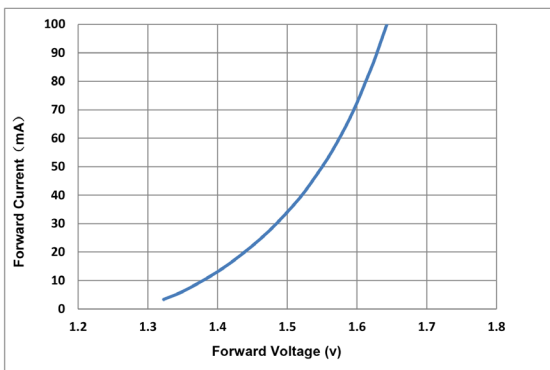
ABSOLUTE MAXIMUM RATINGS AT Ts=25°C

| Symbol           | Parameter               | Ratings  | Units |
|------------------|-------------------------|----------|-------|
| P <sub>D</sub>   | Power Dissipation       | 180      | mW    |
| I <sub>F</sub>   | Forward Current         | 100      | mA    |
| I <sub>FP</sub>  | Peak Forward Current    | 700      | mA    |
| V <sub>R</sub>   | Reverse Voltage         | 5        | V     |
| E <sub>SD</sub>  | Electrostatic Discharge | 2000     | V     |
| T <sub>OPR</sub> | Operating Temperature   | -40~+100 | °C    |
| T <sub>STG</sub> | Storage Temperature     | -40~+100 | °C    |
| T <sub>J</sub>   | Junction Temperature    | 120      | °C    |

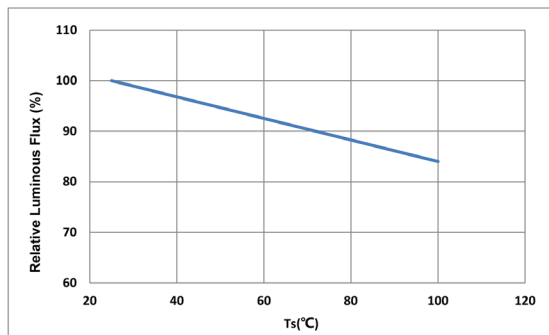
ELECTRICAL - OPTICAL CHARACTERISTICS AT Ts=25°C

| Symbol             | Parameters         | Test Conditions       | Min  | Typ | Max | Unit  |
|--------------------|--------------------|-----------------------|------|-----|-----|-------|
| V <sub>F</sub>     | Forward Voltage    | I <sub>F</sub> =100mA | 1.2  | 1.6 | 1.8 | V     |
| I <sub>R</sub>     | Reverse Current    | V <sub>R</sub> =5V    | -    | -   | 10  | μA    |
| I <sub>e</sub>     | Radiant Intensity  | I <sub>F</sub> =100mA | 71.5 | 120 | 180 | mW/sr |
| Wd                 | Peak Wavelength    | I <sub>F</sub> =100mA | 930  | 940 | 960 | nm    |
| 2θ½                | Viewing Angle      | I <sub>F</sub> =100mA | -    | 30  | -   | deg   |
| R <sub>THJ-S</sub> | Thermal Resistance | I <sub>F</sub> =100mA | -    | -   | 130 | K/W   |

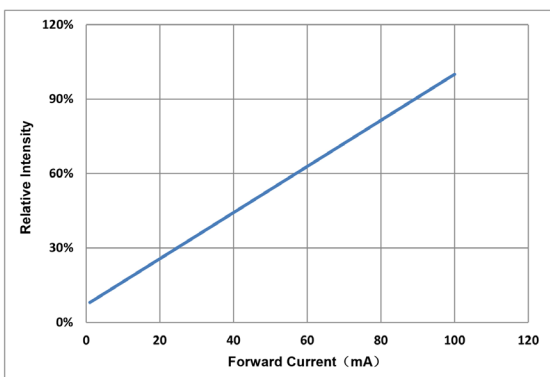
## TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS



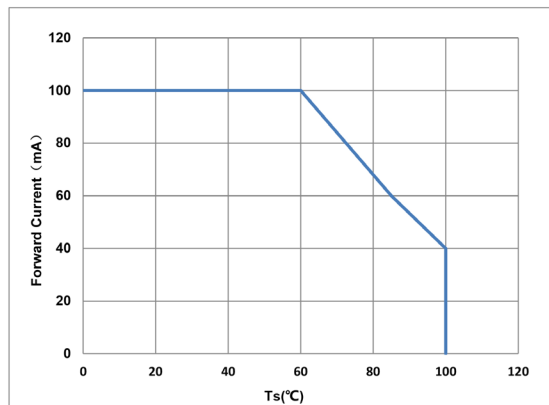
Forward Voltage vs Forward Current



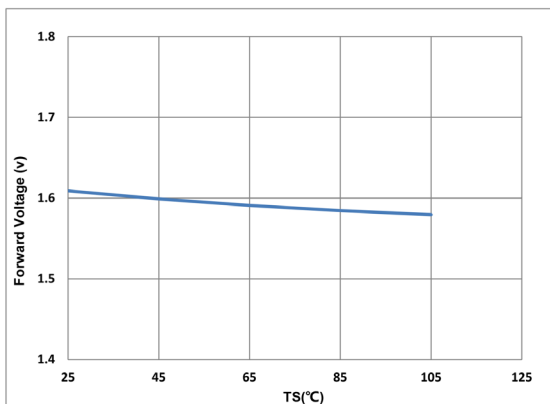
Solder Temperature vs Relative Intensity



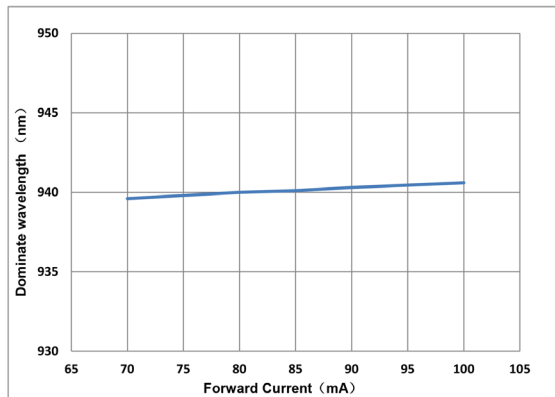
Forward Current vs Relative Intensity



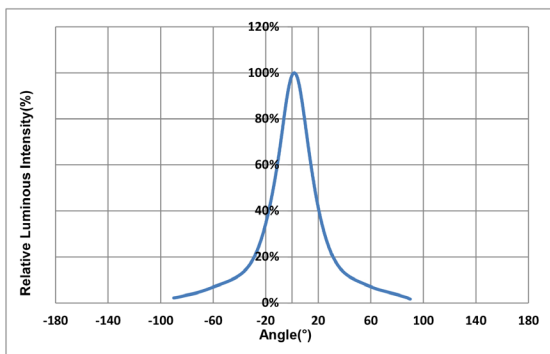
Solder Temperature vs Forward Current  $T_j \leq 120^\circ\text{C}$



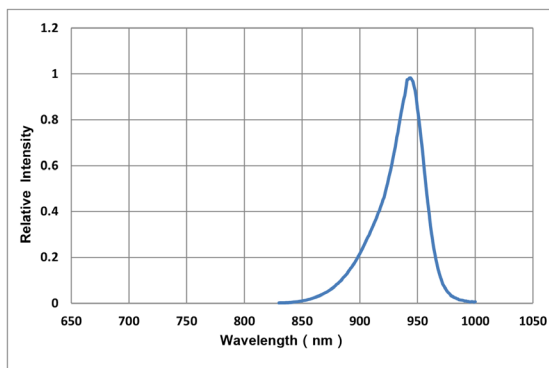
Forward Voltage vs Solder Temperature



Forward Current vs. Dominate Wavelength (Ts=25°C)

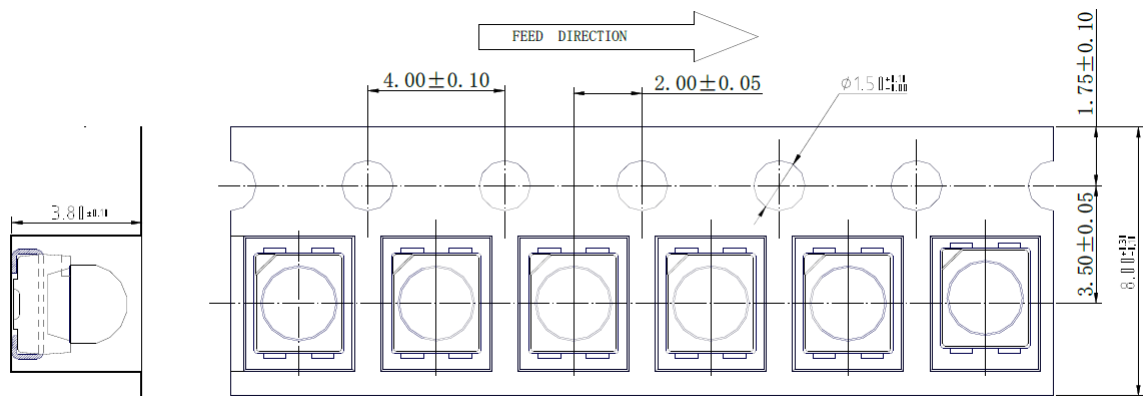


Radiation Diagram

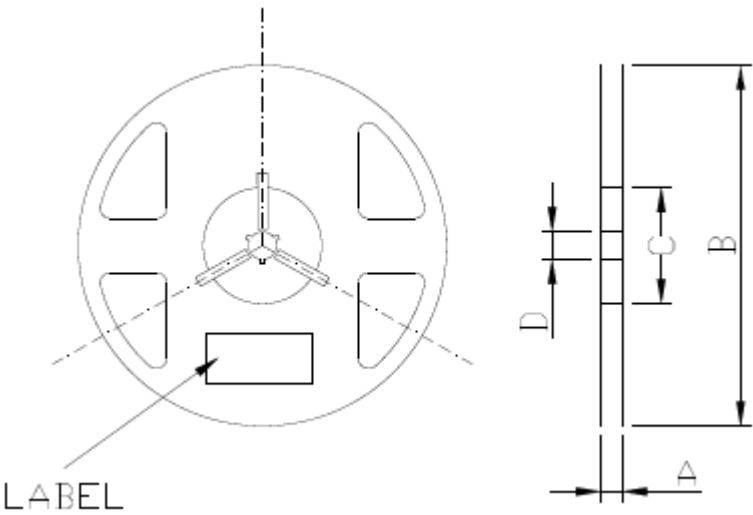


Spectrum Distribution

TAPE AND REEL SPECIFICATION



| Dim A    | Dim B | Dim C  | Dim D    |
|----------|-------|--------|----------|
| 16.6±0.3 | 330±1 | 60±0.2 | 13.6±0.2 |

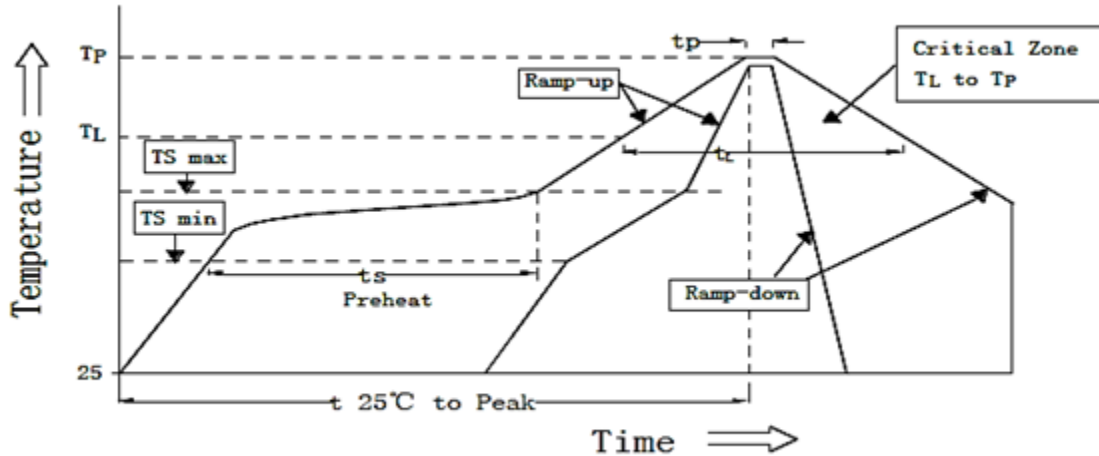


## REFLOW SOLDERING

Recommended soldering paste specifications:

1. Reflow soldering should not be done more than two times.

## LEAD-FREE SOLDER PROFILE



|                                                                              |               |
|------------------------------------------------------------------------------|---------------|
| Average temperature rise speed (T <sub>smax</sub> - T <sub>p</sub> )         | Max 3 °C/ s   |
| Preheating: minimum temperature (T <sub>smin</sub> )                         | 150 °C        |
| Preheating: Max temperature (T <sub>smax</sub> )                             | 200 °C        |
| Preheating: Time ( T <sub>smin</sub> - T <sub>smax</sub> )                   | 60s-120s      |
| Time limited to maintain high temperature: the temperature (T <sub>L</sub> ) | 217 °C        |
| Time limited to maintain high temperature: The Time (t <sub>L</sub> )        | Max 60s       |
| Peak / Classification of temperature (T <sub>p</sub> )                       | 260 °C        |
| Time limit classification of peak temperature time ( t <sub>p</sub> )        | Max 10s       |
| Hold time within 5 °C with the actual peak temperature (TP)                  | Max 30s       |
| Cooling speed                                                                | Max 6 °C/ s   |
| Needed time from 25 °C to Tp                                                 | Max 8 minutes |



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