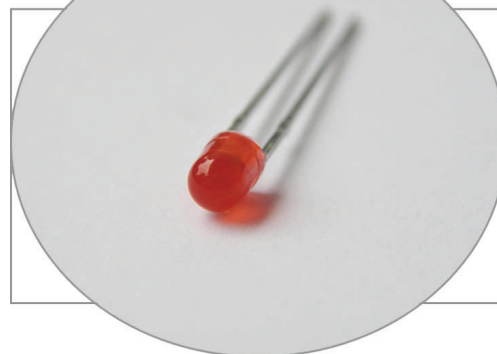


# 3mm (T1) Package Discrete LED RED, Low Current

# BIVAR

## 3RDL-X

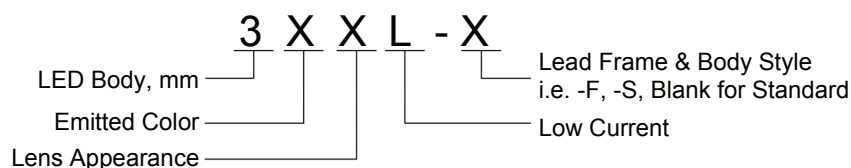
- ◆ Industry Standard 3mm (T1) Package
- ◆ RoHS Compliant
- ◆ Diffused Lens
- ◆ Available in Flange (F), Standard (Blank), and Shouldered (S) Lead Frame styles
- ◆ 2 mA Low Operating Current
- ◆ Ideal for Status Indication and Display



Bivar 3mm T1 Package 2 mA Low Current LED is special binned at 2 mA and is ideal for those applications where lower power budget is required such as solar panel or battery-powered portable devices. Bivar offers diffused LED lens for uniform light output. The Flanged LED is ideal for Panel Mount Clip & Ring assemblies, the Standard Lead frame LED is ideal for vertical spacer assemblies without lead bends, and the Shouldered Lead frame LED has a built in strain relief feature which is ideal for Right Angle Holder assemblies that require lead bends. A long lead version is also available with a “-LL” suffix added to the part numbers.

| Part Number | Material | Emitted Color | Peak. Wavelength<br>$\lambda_p$ (nm) TYP. | Lens Appearance | Viewing Angle |
|-------------|----------|---------------|-------------------------------------------|-----------------|---------------|
| 3RDL-F      | GaP/GaP  | RED           | 700nm                                     | Red Diffused    | 35°           |
| 3RDL        |          |               |                                           | Red Diffused    | 40°           |
| 3RDL-S      |          |               |                                           | Red Diffused    | 40°           |

## Part Number Designation

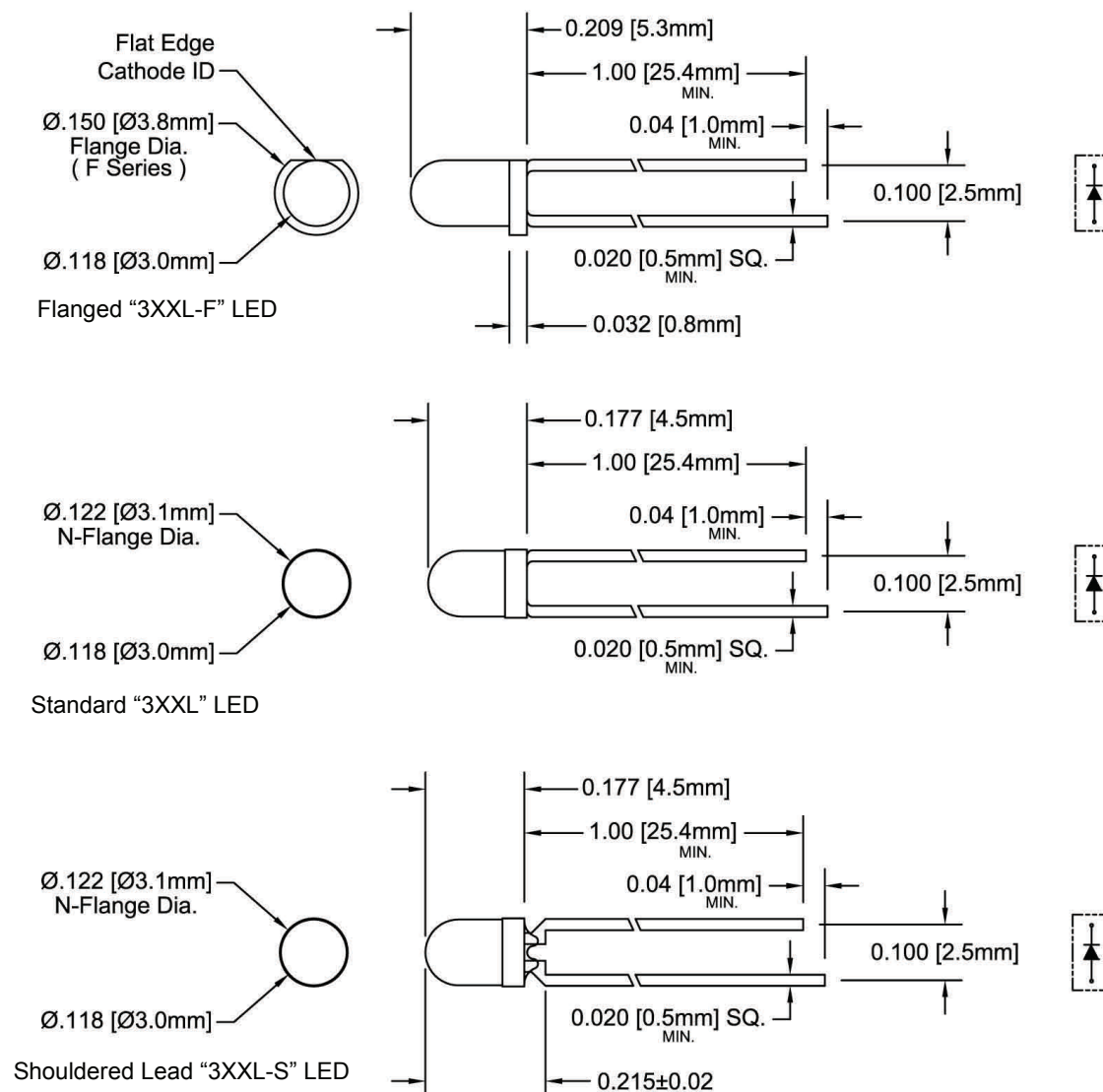


Bivar reserves the right to make changes at any time without notice.

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## Outline Dimensions



Recommended Mounting  
Hole Size =  $\varnothing.032^{+.003}_{-.002}$

NOTE: Add suffix -LL for long lead.  
Changes 1.00 Min. to 1.57 Min.  
**Standard Lead Only**

**Outline Drawings Notes:**  
 1. All dimensions are in inches [millimeters].  
 2. Standard tolerance:  $\pm 0.010$ " unless otherwise noted.  
 3. Tolerance of overall epoxy outline:  $\pm 0.020$ " unless otherwise noted.  
 4. Epoxy meniscus may extend to 0.060" max.

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## Absolute Maximum Ratings

T<sub>A</sub> = 25°C unless otherwise noted

|                                                                                  |              |
|----------------------------------------------------------------------------------|--------------|
| Power Dissipation                                                                | 10 mW        |
| Forward Current ( DC )                                                           | 7 mA         |
| Peak Forward Current <sup>1</sup>                                                | / mA         |
| Reverse Voltage                                                                  | 5 V          |
| Operating Temperature Range                                                      | -25 ~ +85°C  |
| Storage Temperature Range                                                        | -30 ~ +100°C |
| Lead Soldering Temperature ( 3 mm from the base of the epoxy bulb ) <sup>2</sup> | 260°C        |

Notes: 1. 10% Duty Cycle, Pulse Width ≤ 0.1 msec.      2. Solder time less than 5 seconds at temperature extreme.

## Electrical / Optical Characteristics

T<sub>A</sub> = 25°C & I<sub>F</sub> = 2 mA unless otherwise noted

| Part Number | Forward Voltage (V) <sup>1</sup> |     |     | Recommend Forward Current (mA) |     |     | Reverse Current (μA) | Dominant Wavelength (nm) <sup>2</sup> |     |     | Luminous Intensity I <sub>v</sub> (mcd) |     |     | Viewing Angle 2 Θ ½ (deg) |
|-------------|----------------------------------|-----|-----|--------------------------------|-----|-----|----------------------|---------------------------------------|-----|-----|-----------------------------------------|-----|-----|---------------------------|
|             | MIN                              | TYP | MAX | MIN                            | TYP | MAX | MAX                  | MIN                                   | TYP | MAX | MIN                                     | TYP | MAX | TYP                       |
| 3RDL-F      | /                                | 2.1 | 2.8 | /                              | 2   | /   | 100                  | /                                     | /   | /   | /                                       | 0.5 | /   | 35                        |
| 3RDL        |                                  | 2.1 | 2.6 |                                |     |     |                      | /                                     | /   | /   | /                                       | 0.5 | /   | 40                        |
| 3RDL-S      |                                  |     |     |                                |     |     |                      | /                                     | /   | /   | /                                       | 0.5 | /   | 40                        |

Notes: 1. Tolerance of forward voltage : ±0.05V.      2. Tolerance of dominant wavelength : ±1.0nm.

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# 3mm (T1) Package Discrete LED RED, Low Current



## Typical Electrical / Optical Characteristics

$T_A = 25^\circ\text{C}$  unless otherwise noted

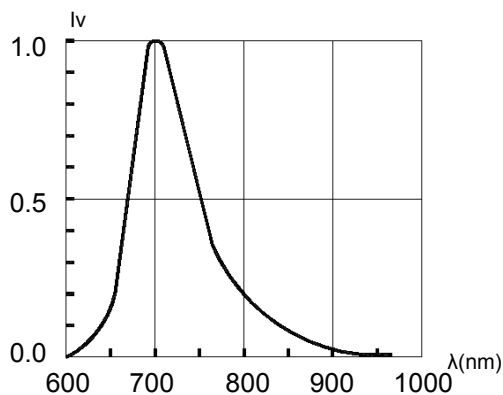


Fig. 1 Relative Luminous Intensity vs. Wavelength

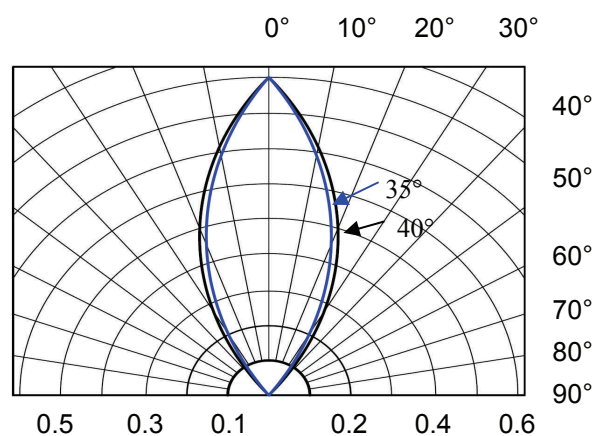


Fig. 2 Directivity Radiation Diagram

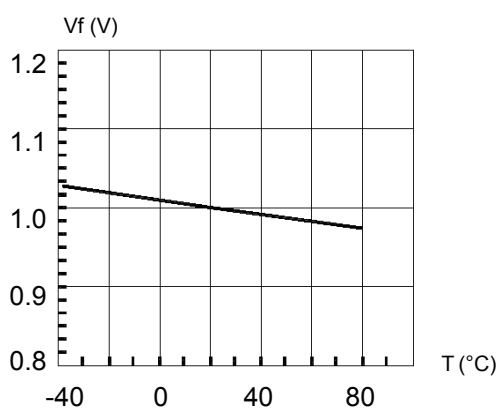


Fig. 3 Forward Voltage vs. Temperature

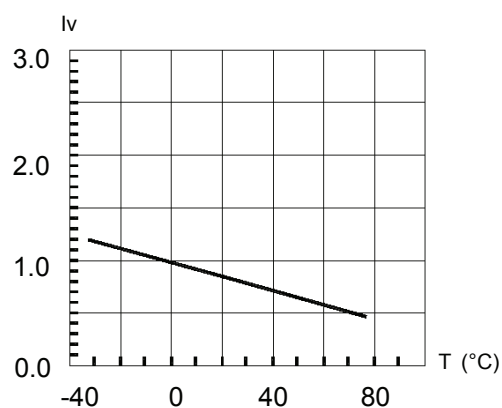


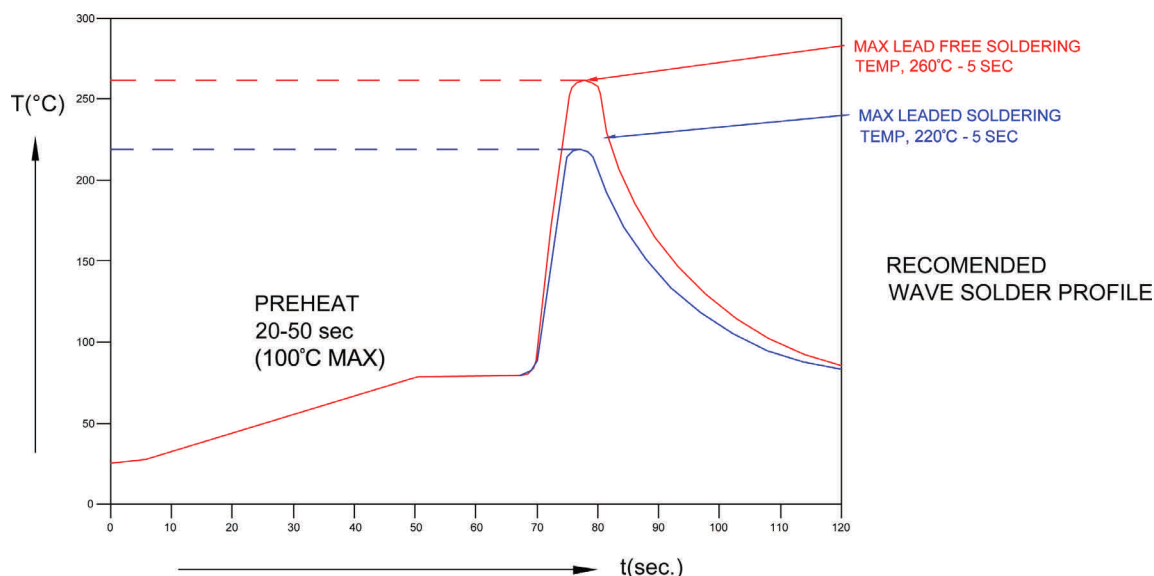
Fig. 4 Relative Luminous Intensity vs. Temperature

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# 3mm (T1) Package Discrete LED RED, Low Current

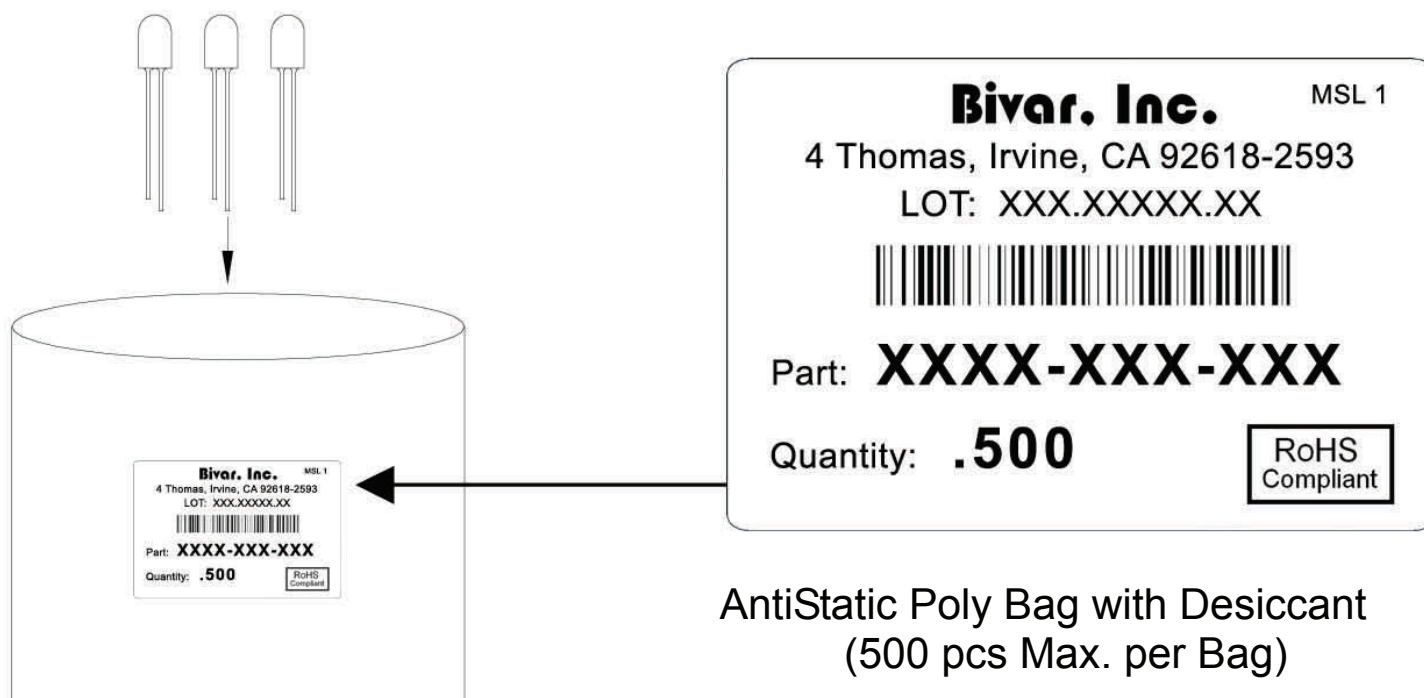


## Recommended Soldering Conditions



| Recommended Lead Free Wave Soldering Profile                                                       |                                         |
|----------------------------------------------------------------------------------------------------|-----------------------------------------|
| Preheat Temperature: 100°C Max.                                                                    | Peak Temperature: 260°C Max.            |
| Preheat Time: 20 ~ 50 Seconds                                                                      | Solder Time Above 217°C: 5 Seconds Max. |
| Note: Turn off top heater at preheat to prevent the lamp body directly exposed to the heat source. |                                         |

## Packaging and Labeling Plan



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# Mouser Electronics

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