

# 3mm (T1) Package Discrete LED GREEN, Super Bright

# BIVAR

## 3SGX-X

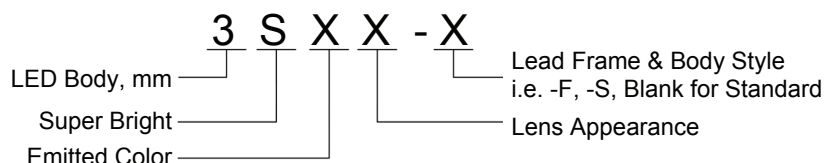
- ◆ Industry Standard 3mm (T1) Package
- ◆ RoHS Compliant
- ◆ Water Clear (C), Diffused (D), and Tinted (T) Lenses
- ◆ Available in Flange (F), Standard (Blank), and Shouldered (S) Lead frame styles
- ◆ Up to 50 mcd Luminous Intensity at 20 mA
- ◆ Ideal for Status Indication and Display
- ◆ Recommended for Bivar Flexible Light Pipe assemblies



Bivar 3mm T1 Package Super Bright LED is ideal for those applications where higher ambient lighting exists such as sign boards, security system displays, and medical applications. Bivar offers water clear LED lens for maximum light output, diffused LED lens for uniform light output, and tinted lens to identify the color of the LED. 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 part numbers.

| Part Number | Material | Emitted Color | Peak. Wavelength<br>$\lambda_p$ (nm) TYP. | Lens Appearance | Viewing Angle |
|-------------|----------|---------------|-------------------------------------------|-----------------|---------------|
| 3SGC-F      | GaP/GaP  | GREEN         | 568nm                                     | Water Clear     | 20°           |
| 3SGD-F      |          |               |                                           | Green Diffused  | 35°           |
| 3SGT-F      |          |               |                                           | Green Tinted    | 20°           |
| 3SGC        |          |               |                                           | Water Clear     | 30°           |
| 3SGD        |          |               |                                           | Green Diffused  | 40°           |
| 3SGT        |          |               |                                           | Green Tinted    | 30°           |
| 3SGC-S      |          |               |                                           | Water Clear     | 30°           |
| 3SGD-S      |          |               |                                           | Green Diffused  | 40°           |
| 3SGT-S      |          |               |                                           | Green Tinted    | 30°           |

## Part Number Designation

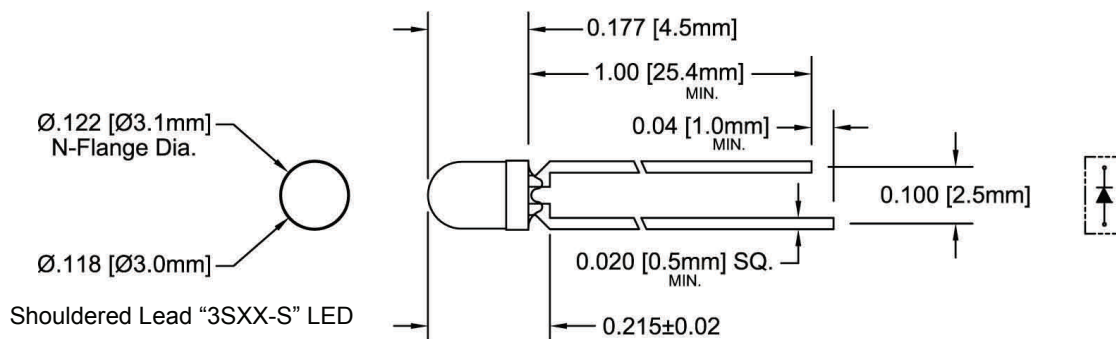
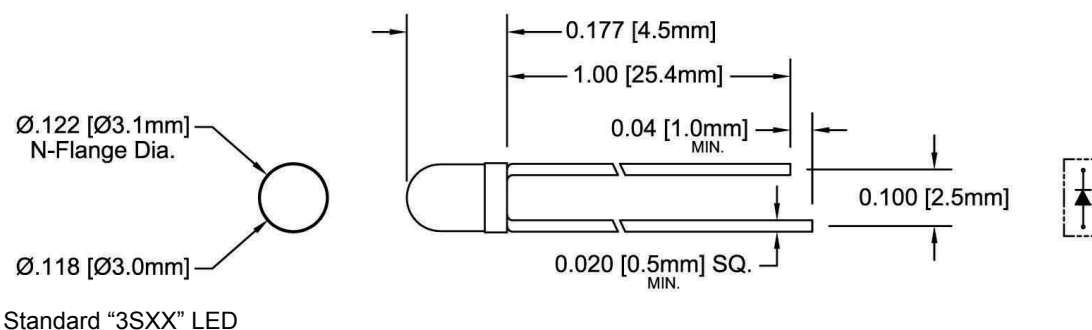
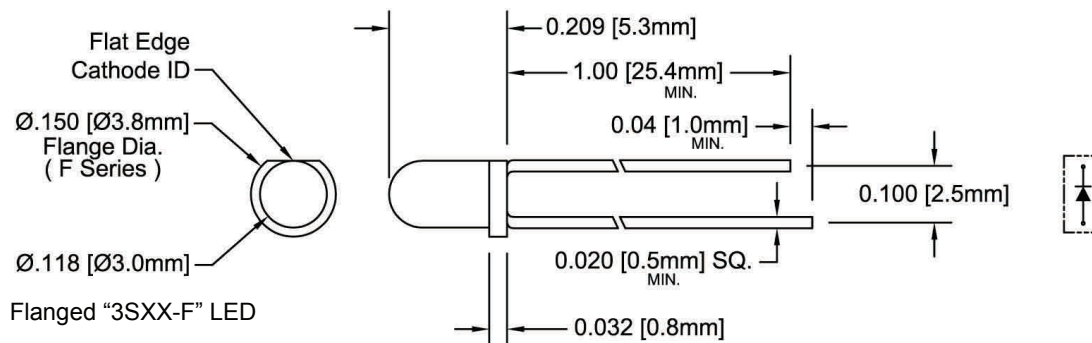


Bivar reserves the right to make changes at any time without notice.

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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

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

|                                                                                  |              |
|----------------------------------------------------------------------------------|--------------|
| Power Dissipation                                                                | 80 mW        |
| Forward Current ( DC )                                                           | 30 mA        |
| Peak Forward Current <sup>1</sup>                                                | 150 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  $\leq 0.1$  msec. 2. Solder time less than 5 seconds at temperature extreme.

## Electrical / Optical Characteristics

$T_A = 25^\circ\text{C}$  &  $I_F = 20$  mA unless otherwise noted

| Part Number | Forward Voltage (V) <sup>1</sup> |     |     | Recommend Forward Current (mA) |     |     | Reverse Current ( $\mu\text{A}$ ) | Dominant Wavelength (nm) <sup>2</sup> |     |     | Luminous Intensity $I_v$ (mcd) |     |     | Viewing Angle $2\theta_{1/2}$ (deg) |
|-------------|----------------------------------|-----|-----|--------------------------------|-----|-----|-----------------------------------|---------------------------------------|-----|-----|--------------------------------|-----|-----|-------------------------------------|
|             | MIN                              | TYP | MAX | MIN                            | TYP | MAX | MAX                               | MIN                                   | TYP | MAX | MIN                            | TYP | MAX | TYP                                 |
| 3SGC-F      | /                                | 2.1 | 2.8 | /                              | 20  | /   | 100                               | /                                     | /   | /   | /                              | 50  | /   | 20                                  |
| 3SGD-F      |                                  |     |     |                                |     |     |                                   | /                                     | /   | /   | /                              | 30  | /   | 35                                  |
| 3SGT-F      |                                  |     |     |                                |     |     |                                   | /                                     | /   | /   | /                              | 50  | /   | 20                                  |
| 3SGC        | /                                | 2.1 | 2.8 | /                              | 20  | /   | 100                               | /                                     | /   | /   | /                              | 50  | /   | 30                                  |
| 3SGD        |                                  |     |     |                                |     |     |                                   | /                                     | /   | /   | /                              | 30  | /   | 40                                  |
| 3SGT        |                                  |     |     |                                |     |     |                                   | /                                     | /   | /   | /                              | 50  | /   | 30                                  |
| 3SGC-S      | /                                | 2.1 | 2.8 | /                              | 20  | /   | 100                               | /                                     | /   | /   | /                              | 50  | /   | 30                                  |
| 3SGD-S      |                                  |     |     |                                |     |     |                                   | /                                     | /   | /   | /                              | 30  | /   | 40                                  |
| 3SGT-S      |                                  |     |     |                                |     |     |                                   | /                                     | /   | /   | /                              | 50  | /   | 30                                  |

Notes: 1. Tolerance of forward voltage :  $\pm 0.05\text{V}$ . 2. Tolerance of dominant wavelength :  $\pm 1.0\text{nm}$ .

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## Typical Electrical / Optical Characteristics

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

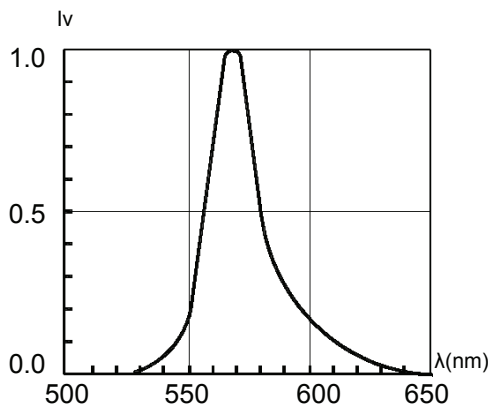


Fig. 1 Relative Luminous Intensity vs. Wavelength  
@ 20mA

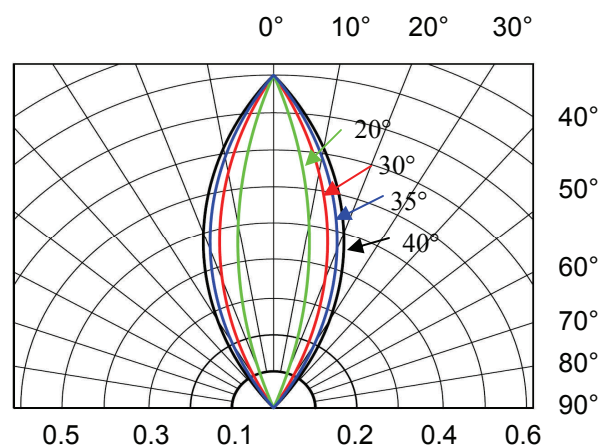


Fig. 2 Directivity Radiation Diagram

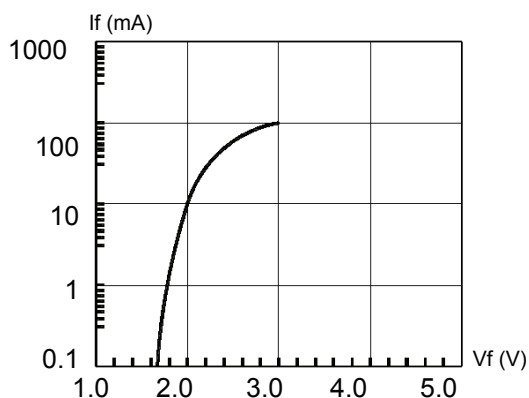


Fig. 3 Forward Current vs. Forward Voltage

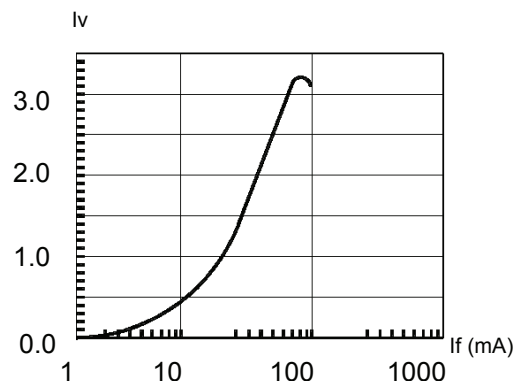


Fig. 4 Relative Luminous Intensity vs. Forward Current  
Normalize @ 20 mA

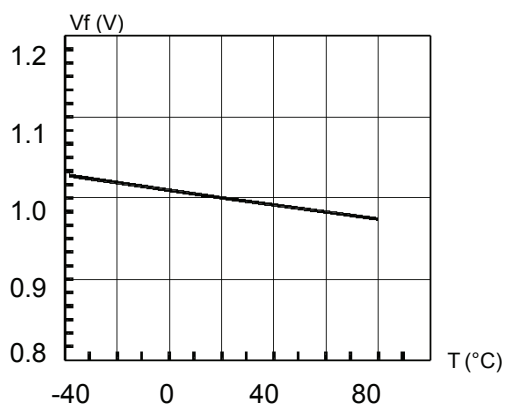


Fig. 5 Forward Voltage vs. Temperature

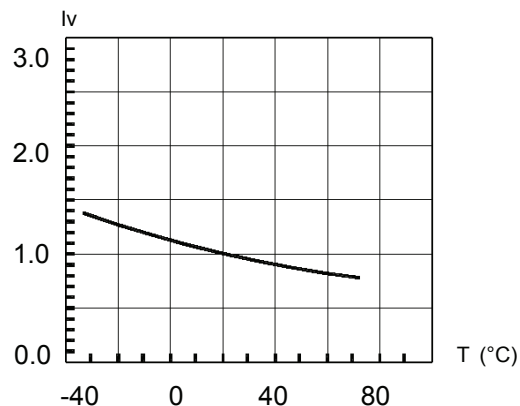


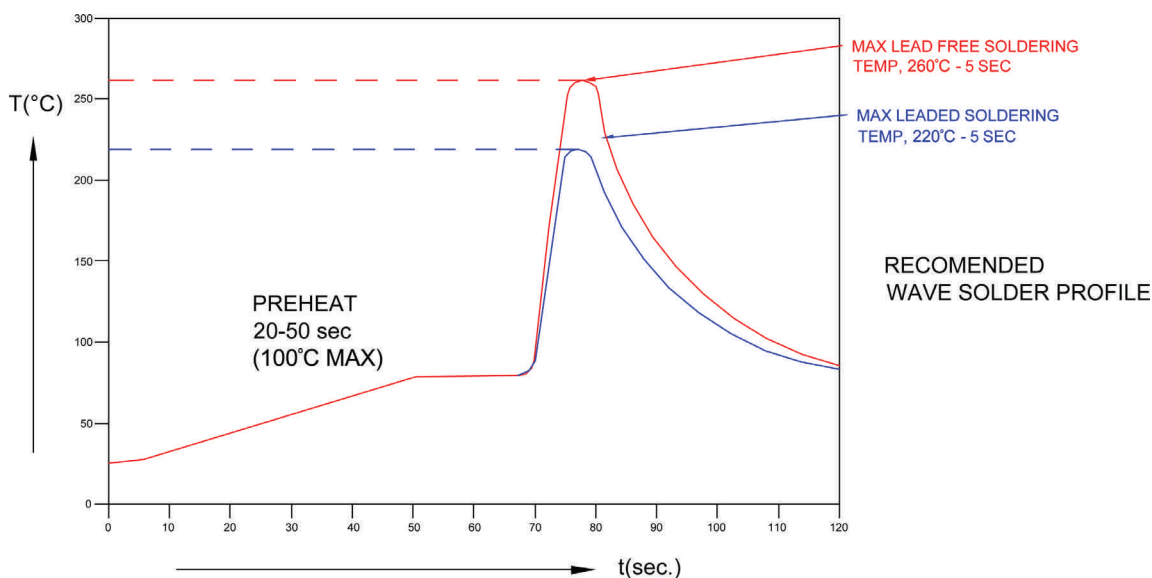
Fig. 6 Relative Luminous Intensity vs. Temperature

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## 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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