### 3mm (T1) Package Discrete LED RED



#### 3H<mark>X</mark>-<mark>X</mark>

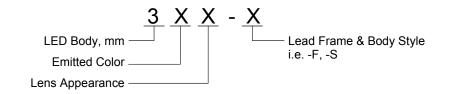
- Industry Standard 3mm (T1) Package
- RoHS Compliant
- Water Clear (C), Diffused (D), and Tinted (T) Lenses
- Available in Flange (F) and Shouldered (S) Lead Frame styles
- Ideal for Status Indication and Display



Bivar 3mm T1 Package LED may be used in almost any application. 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 Shouldered Lead frame LED is ideal for vertical spacer assemblies without lead bends and also has a built in strain relief feature which is ideal for right angle holder assemblies that require lead bends.

Part Number	Material	Emitted Color	Peak. Wavelength λp(nm) TYP.	Lens Appearance	Viewing Angle	
3HC-F				Water Clear	20°	
3HD-F				Red Diffused	35°	
3HT-F	GaAsP/GaP	RED	625nm	Red Tinted	20°	
3HC-S	GaASF/GaF	KED	02300	Water Clear	30°	
3HD-S				Red Diffused	40°	
3HT-S				Red Tinted	30°	

#### **Part Number Designation**

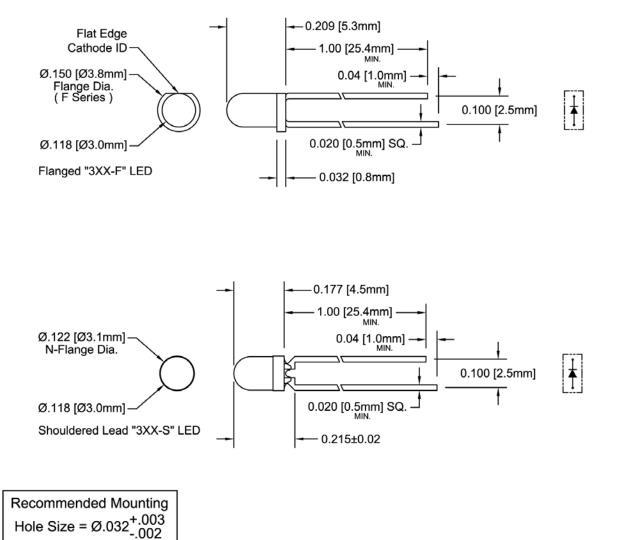




Bivar reserves the right to make changes at any time without notice.



# **Outline Dimensions**



**Outline Drawings Notes:** 

- 1. All dimensions are in inches [millimeters].
- 2. Standard tolerance: ±0.010" unless otherwise noted.
- 3. Tolerance of overall epoxy outline: ±0.020" unless otherwise noted.

4. Epoxy meniscus may extend to 0.060" max.

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### Absolute Maximum Ratings

 $T_A = 25^{\circ}C$  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 ≤ 0.1 msec. 2. Solder time less than 5 seconds at temperature extreme.

### **Electrical / Optical Characteristics**

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

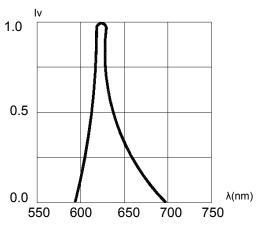
Part Number	Forward Voltage (V) <sup>1</sup>		Recommend Forward Current (mA)		Reverse Current (µA)	Dominant Wavelength (nm) <sup>2</sup>			Luminous Intensity Iv (mcd)			Viewing Angle 2 O ½ (deg)		
	MIN	TYP	MAX	MIN	TYP	MAX	MAX	MIN	TYP	MAX	MIN	TYP	MAX	TYP
3HC-F		2.0	2.8	/	20	/	100	/	/	/	/	50	/	20
3HD-F	/							/	/	/	/	30	/	35
3HT-F								/	/	/	/	50	/	20
3HC-S	/	/ 2.0	2.8	/	20	/	100	/	/	/	/	50	/	30
3HD-S								/	/	/	/	30	/	40
3HT-S								/	/	/	/	50	/	30

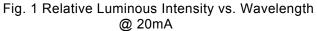
Notes: 1. Tolerance of forward voltage : ±0.05V. 2. Tolerance of dominant wavelength : ±1.0nm.



# **Typical Electrical / Optical Characteristics**

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





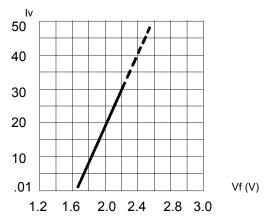
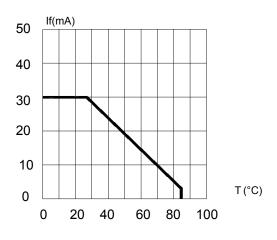
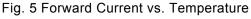
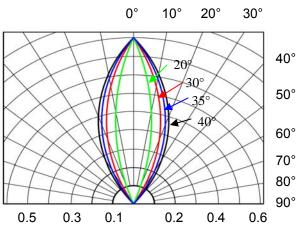


Fig. 3 Relative Intensity (10mA) vs. Forward Voltage









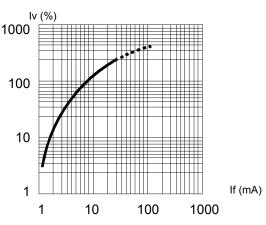
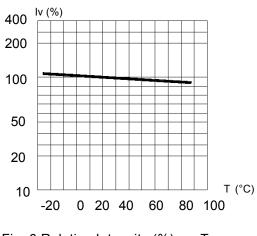
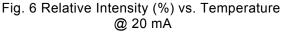


Fig. 4 Relative Luminous Intensity (%) vs. Forward Current

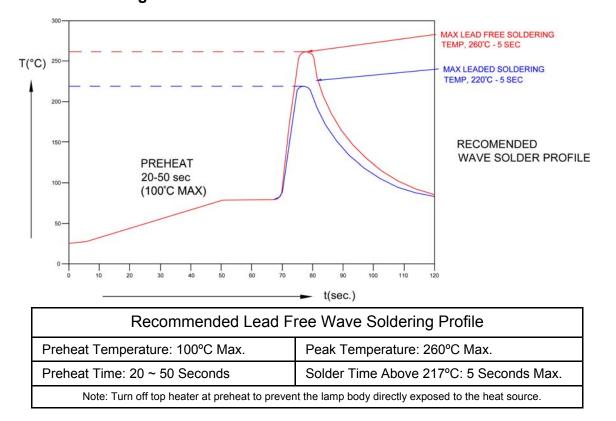




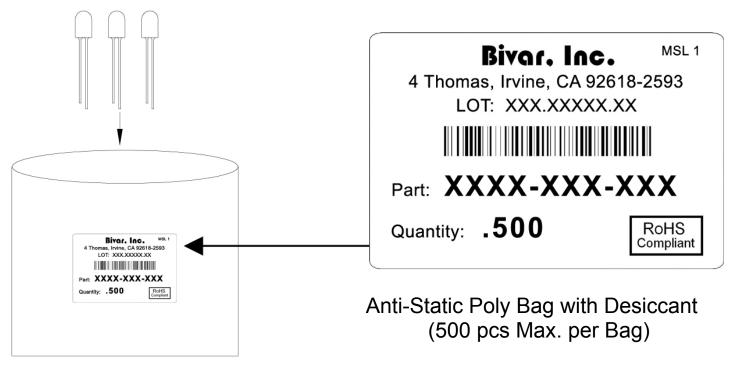
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#### **Recommended Soldering Conditions**



#### Packaging and Labeling Plan



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# **Mouser Electronics**

Authorized Distributor

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BIVAR: 3HC-S 3HD-F 3HD-S