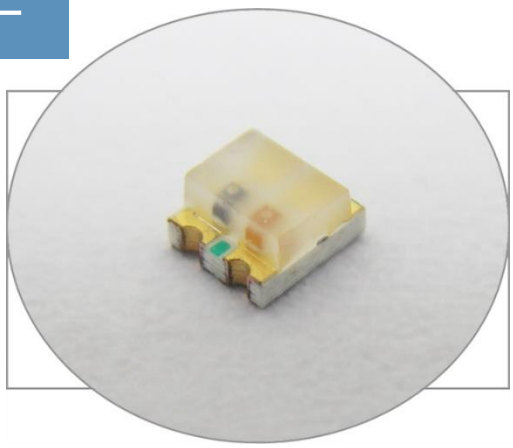
SURFACE MOUNT LED
RED/GREEN/BLUE, 0807 PACKAGE

SM0807RGB

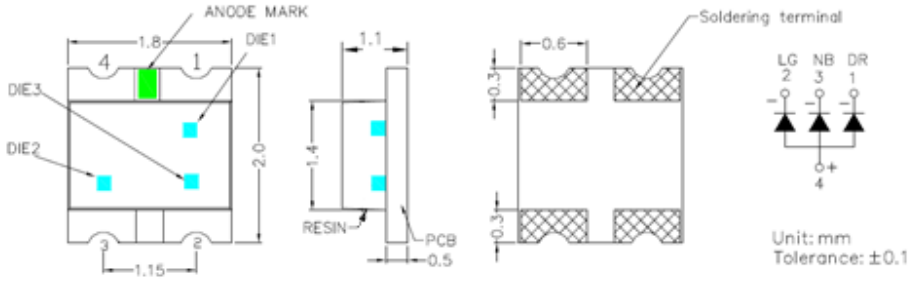
- **Industry Standard 0807 Package**
- **RoHS Compliant**
- **Three Chips in One Package**
- **Water Clear Lens**
- **Wide Viewing Angle**
- **Ideal for Status Indication and Backlighting**



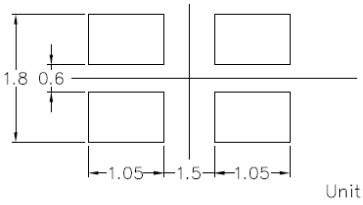
Bivar Surface Mount SM0807 RGB LED is offered in an industry standard package with high luminous intensity and wide viewing angles. The miniature package is ideal for reduced space applications such as general indication and backlighting. Low power consumption and excellent long-life reliability are suitable for battery powered equipment. The flexible three chip design allows for a wide variety of lighting options where the chips can be individually driven or mixed to create numerous color and intensity combinations. Bivar SM0807 LED is packaged in standard tape and reels for pick and place assemblies.

Part Number	Emitted Color	Peak Wavelength λP (nm) TYP.	Dominant Wavelength λD (nm) TYP.	Lens Appearance	Luminous Intensity (mcd) TYP.	Viewing Angle
SM0807RGB	ULTRA HIGH RED	639	630	Water Clear	75	120°
	BLUE	458	462		62	
	GREEN	518	522		450	

Outline Dimensions



1. Soldering terminal may shift in x, y direction.



RECOMMENDED SOLDERING PATTERN

ATTENTION
OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES

RoHS Compliant

Moisture Sensitivity Level 4

Bivar, Inc. — 4 Thomas, Irvine, California 92618, U.S.A.
Phone: (949) 951-8808 Fax: (949) 951-3974 E-mail: bivar@bivar.com Web: www.bivar.com

Absolute Maximum Ratings

T_A = 25°C unless otherwise noted

Item	Symbol	Maximum	Unit
Peak Forward Current [1]	I_{FP}	100	mA
Reverse Voltage	V_R	5	V
Derating Linear from 25°C	-	0.4	mA/°C
Operating Temperature Range	T_{opr}	-40 to 80	°C
Storage Temperature Range	T_{stg}	-40 to 85	°C

Notes: 1. 10% Duty Cycle, Pulse Width ≤ 0.1 msec.

Electrical/Optical Characteristics

(T_a = 25°C)

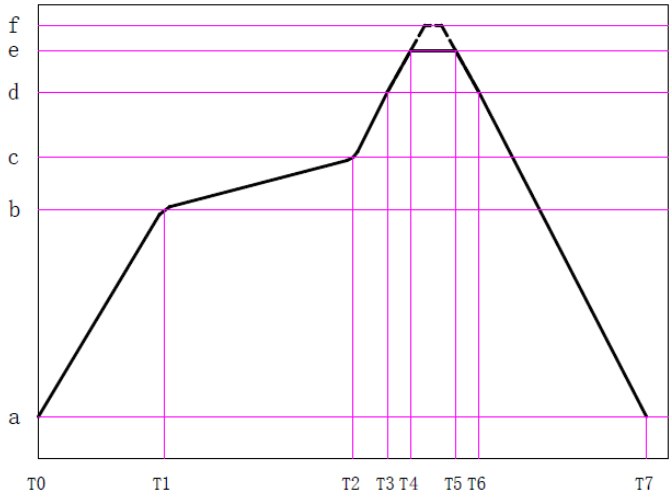
Chip			Lens Appearance	Absolute Maximum Rating			Electro-Optical Data (at 20mA)				Viewing Angle 2θ ½ (deg)
							V_f (V)		I_v (mcd)		
Emitted Color	λ_P (nm)	λ_D (nm)		Δλ (nm)	P_d (mW)	I_f (mA)	Typ.	Max.	Min.	Typ.	
Ultra High Red (Die 1)	639	630	Water Clear	18	75	30	2.0	2.5	40	75	120°
Blue (Die 2)	458	462		25	111	30	3.2	3.7	32	62	
Green (Die 3)	518	522		34	111	30	3.3	3.7	250	450	

Recommended Reflow Temp/Time:

Please refer to the figure on the right:

Temp. (℃)		Time (sec)	
a	25	T0~T1	Max. 3℃/sec
b	150	T1~T2	90~130 sec
c	200	T2~T4	Max. 3℃/sec
d	220	T3~T6	Max. 50 sec
e	245		
f	Max. 260		Max. 5 sec
		T5~T7	Max. -3℃/sec
Belt Speed		70~90 cm/min	

Note: Will vary based on equipment and process used.



Soldering Iron:

1. Temperature at tip of iron: 300℃ Max. (25W Max)
2. Soldering Time: 5 ± 1 sec.

Precautions for Use:

Customer must apply resistors for protection otherwise slight voltage shift will cause big current change, causing burnout.

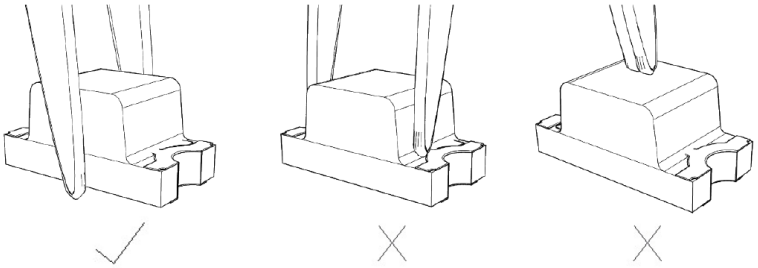
Circuit Design

1. Customer must apply resistors for protection and stability. Circuit B in the diagram below is recommended. If Circuit A is used, the current through the LEDs may vary due to the variation in Forward Voltage characteristics of the LEDs, causing burn out to happen.

2. Current change may lead to LED color change. If there is a big difference among spectral color separation current and actual service current, a color difference may occur.
3. This product should be operated using forward current. Subjecting it to continuous reverse voltage may cause migration, which may cause damage to the LED die.

Handling Precautions

1. When handling the product with tweezers, be careful to not apply excessive force to the resin. Otherwise, the resin can be cut, chipped, delaminate, or deformed, causing wire-bond breaks.

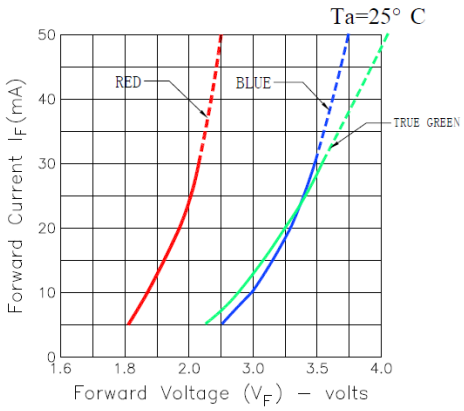


2. Reflow Soldering must not be performed more than twice. Hand soldering must not be performed more than once.
3. When soldering, do not put stress on the LEDs during heating.
4. The product is sensitive to static electricity or surge voltage. ESD can damage a die and its reliability.
5. Do not stack assembled PCBs together. Stacking assembled PCBs can cause the resin to chip, delaminate, and/or deform. This may lead to failure.

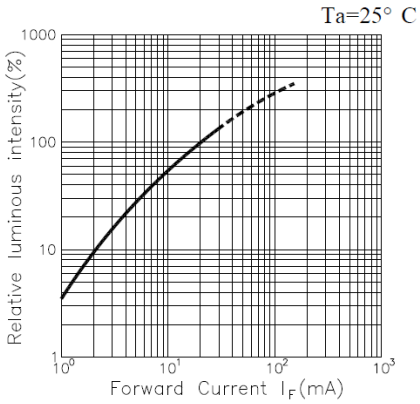
Typical Electrical/Optical Characteristics

T_A =25℃ unless otherwise noted

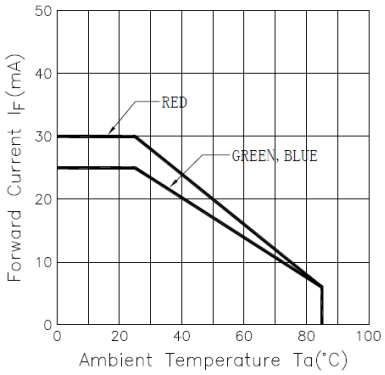
Forward Current Vs. Forward Voltage



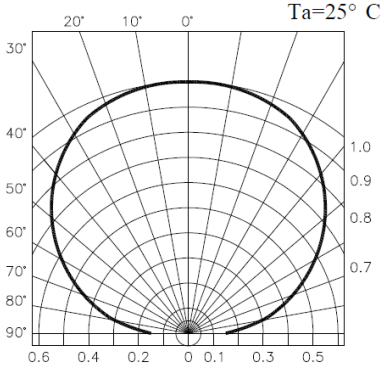
Luminous Intensity Vs. Forward Current



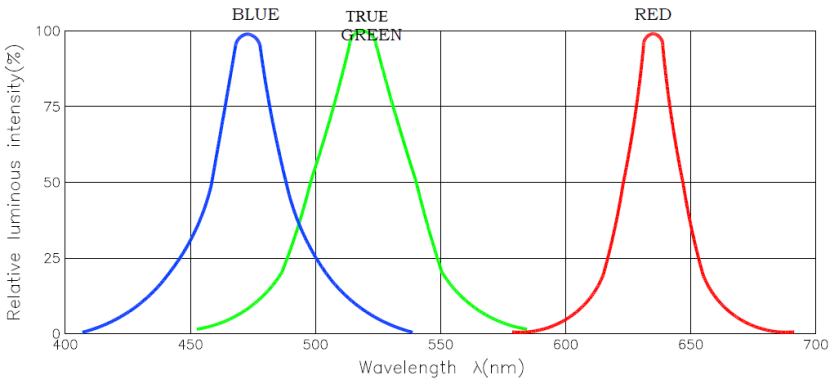
Forward Current Derating Curve



Radiation Diagram



Spectrum Distribution

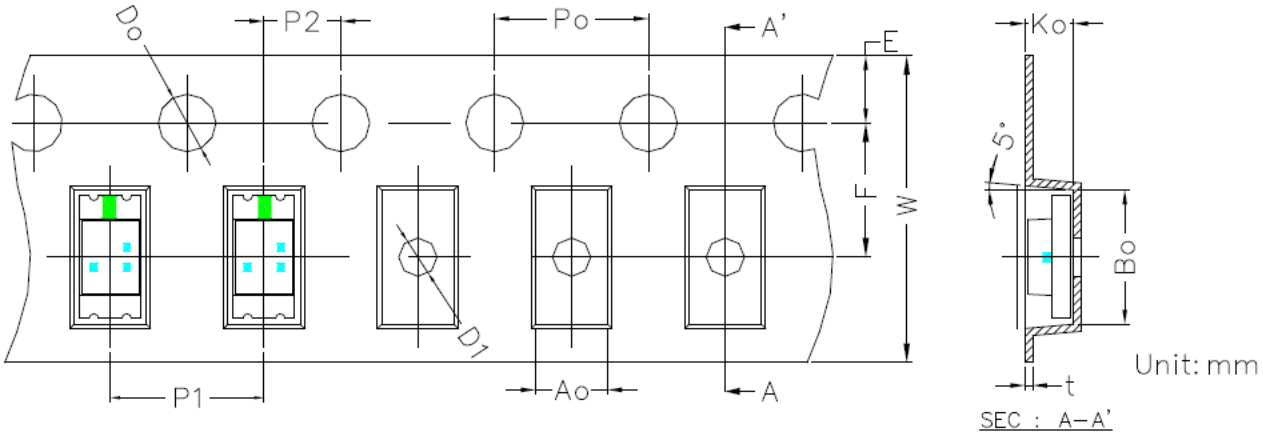


Storage:

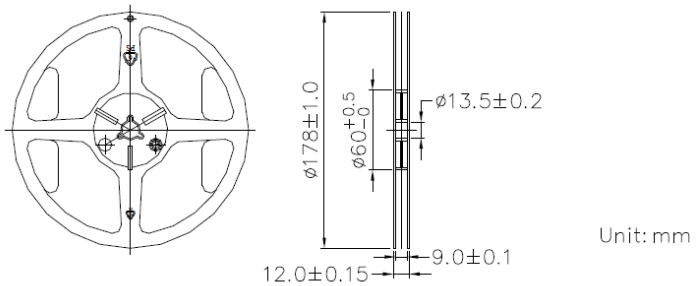
1. The storage temperature and relative humidity range are: 5℃ ~ 30℃, R.H. 60 % max
2. Once the package is opened, products should be used within 72 hrs. Otherwise, they should be kept in a damp-proof box with a desiccating agent. Considering the tape life, we suggest using the product within 1 year of production date.
3. It's recommended to bake at 80℃ ± 5℃ for 24 hrs before soldering them when the package is unsealed for 72 hrs.

Tape Specification: 3000 pcs per Reel

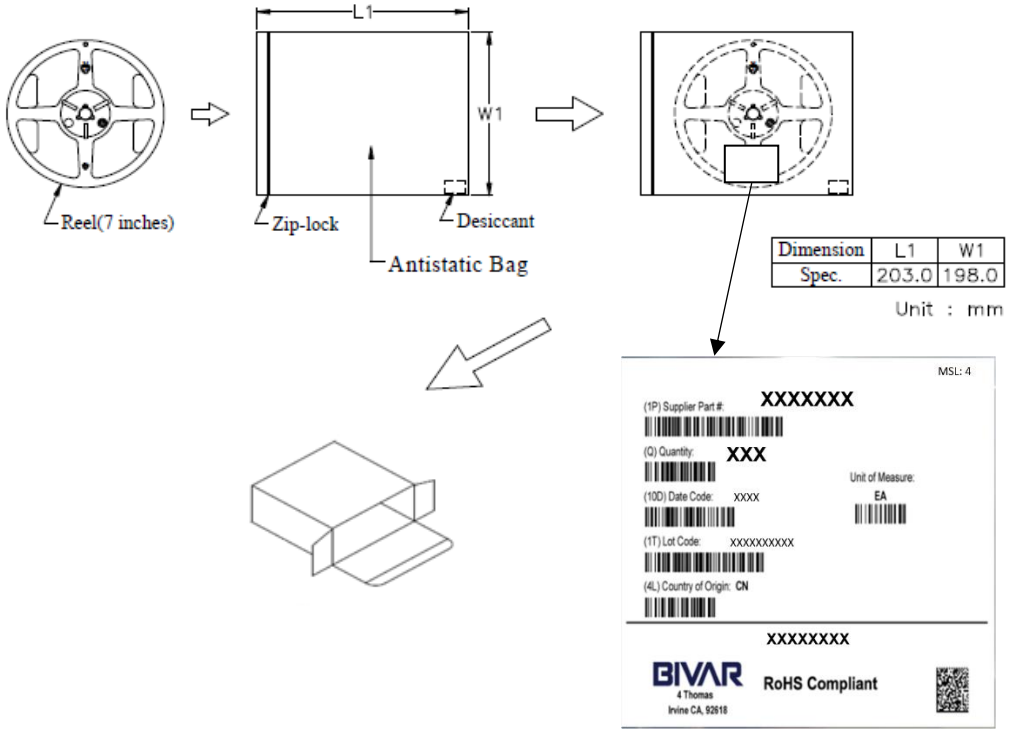
Packing Size													
Item	W	P1	E	F	Do	D1	Po	10Po	P2	Ao	Bo	Ko	t
Spec. (mm)	8.00	4.00	1.75	3.50	1.50	1.00	4.00	40.00	2.00	1.95	2.25	1.35	0.20
Tolerance (mm)	+0.30 -0.10	±0.10	±0.10	±0.05	+0.10 -0.00	+0.25 -0.00	±0.05	±0.20	±0.05	±0.10	±0.10	±0.10	±0.05



Dimensions of Reel and Packaging:



1 reel per bag.



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