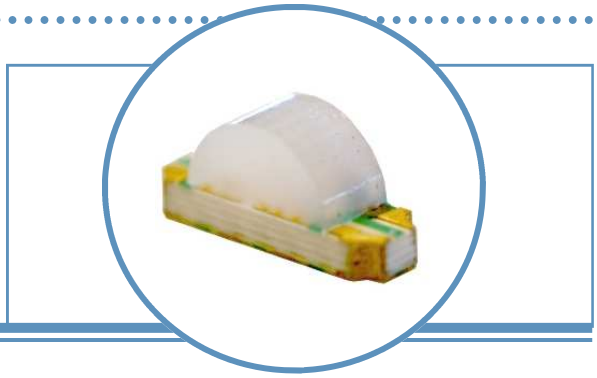
Full-Color 1204 SMD (150° Viewing Angle)

TT electronics
OPTEK Technology

OVSRRGBCC3

- Full-color RGB
- Top-view or side-view mounting options
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflow solder process

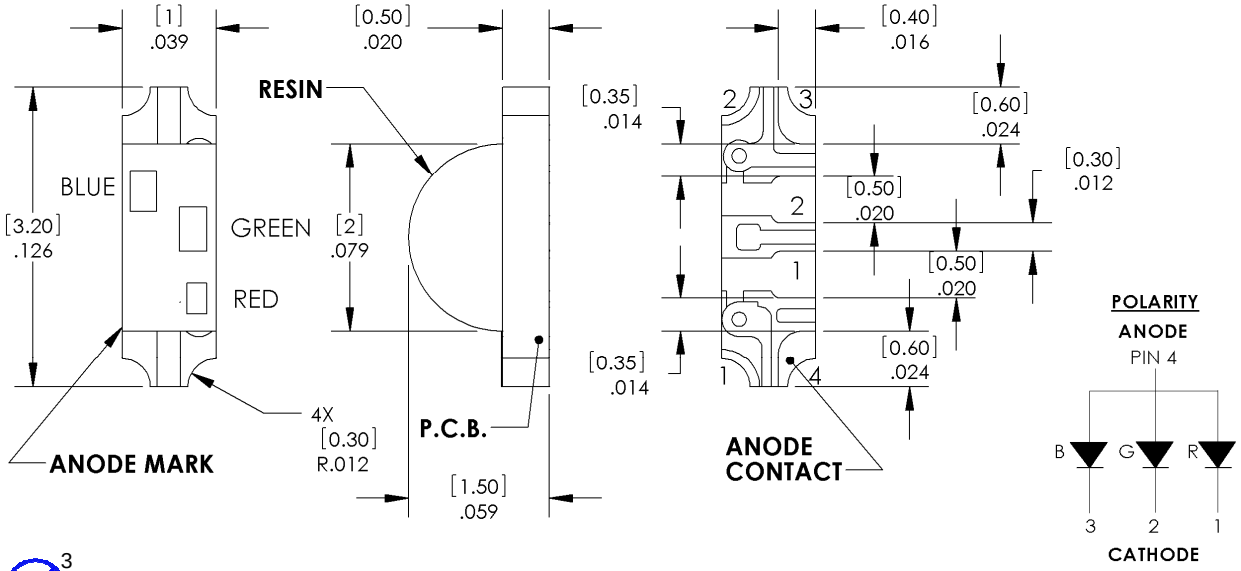


The **OVSRRGBCC3** is a compact full-color (RGB) in a miniature surface mount package with a 150° viewing angle. This 1204 package provides the option to mount it as a top-emitting or side-emitting (right angle) device. The device can be used on smaller boards with a higher packing density and is ideal for handheld applications.

Applications

- Automotive backlighting for dashboard and switches
- Telecommunications (backlighting for telephones and faxes)
- Flat backlight for LCD, switch and symbol

Part Number	Material	Emitted Color	Intensity Typ. mcd	Lens Color
OVSRRGBCC3	AlInGaP	Red	105	White Diffused
	InGaN	Green	330	
	InGaN	Blue	200	



RoHS

Moisture 3

ATTENTION
OBSERVE PRECAUTIONS ELECTROSTATIC SENSITIVE DEVICES

DO NOT LOOK DIRECTLY AT LED WITH UNSHIELDED EYES OR DAMAGE TO RETINA MAY OCCUR.

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OPTEK Technology Inc. — 1645 Wallace Drive, Carrollton, Texas 75006
Phone: (972) 323-2200 or (800) 341-4747 FAX: (972) 323-2396 visibleLED@optekinc.com www.optekinc.com

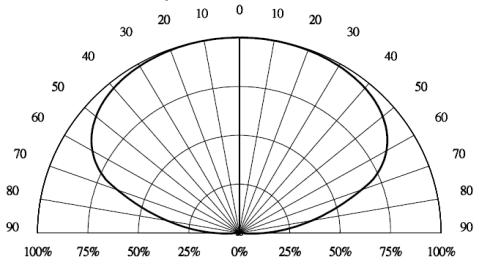
Absolute Maximum Ratings (T_A = 25° C unless otherwise noted)

Parameter	Red	Green / Blue	Unit
Continuous Forward Current	30	20	mA
Peak Forward Current (10% Duty Cycle, 10 ms pulse width)	100	80	mA
Power Dissipation	72	72	mW
Reverse Voltage	5		V
Operating Temperature Range	-40 to +85		℃
Storage Temperature Range	-55 to +100		℃
Soldering Temperature (for 10 seconds)	260		℃
Electrostatic Discharge Classification (HBM)	±2000		V
Moisture Sensitivity Level (IPC/JEDEC J-STD-020C)	3		168 hours

Electrical Characteristics (T_A = 25° C unless otherwise noted)

SYMBOL	PARAMETER	COLOR	MIN	TYP	MAX	UNITS	CONDITIONS
I_V	Luminous Intensity (axial direction)	Red	60	105	150	mcd	I_F = 20mA
		Green	210	330	450		
		Blue	150	200	250		
2 Θ½	Viewing Angle	Red	140	150	160	deg	I_F = 20mA
		Green					
		Blue					
λ_D	Dominant Wavelength	Red	615	625	635	nm	I_F = 20mA
		Green	520	530	535		
		Blue	465	475	485		
V_F	Forward Voltage	Red	1.8	2.0	2.4	V	I_F = 20mA
		Green	3.0	3.3	3.6		
		Blue	3.0	3.3	3.6		
I_R	Reverse Current	Red	----	----	50	µA	I_F = 20mA
		Green	----	----			
		Blue	----	----			

Spatial Distribution



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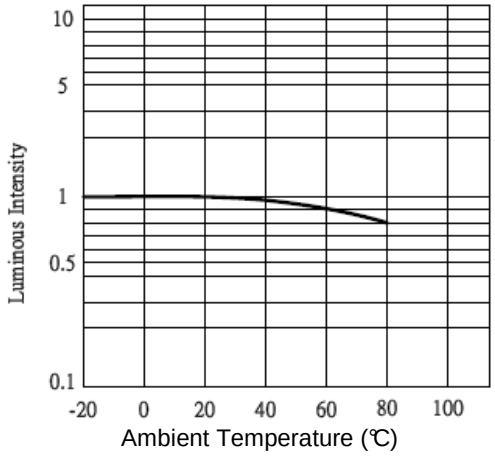
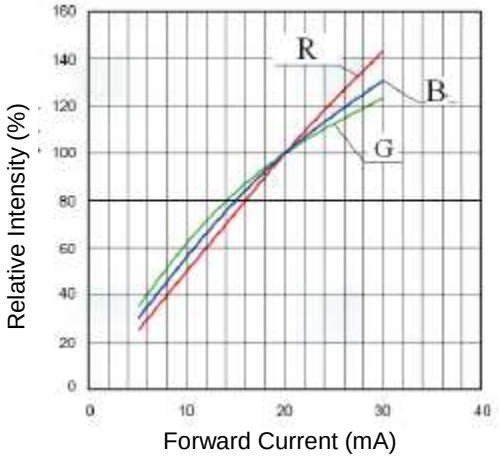
Typical Electro-Optical Characteristics Curves (T_A = 25° C unless otherwise noted)

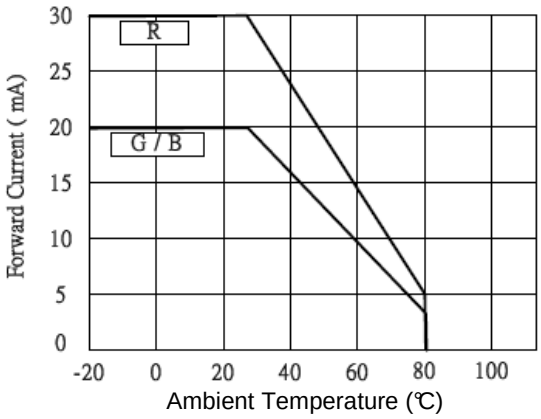
Luminous Intensity vs. Ambient Temperature



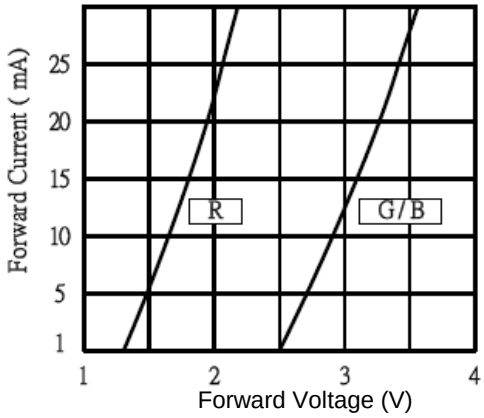
Relative Intensity vs. Forward Current



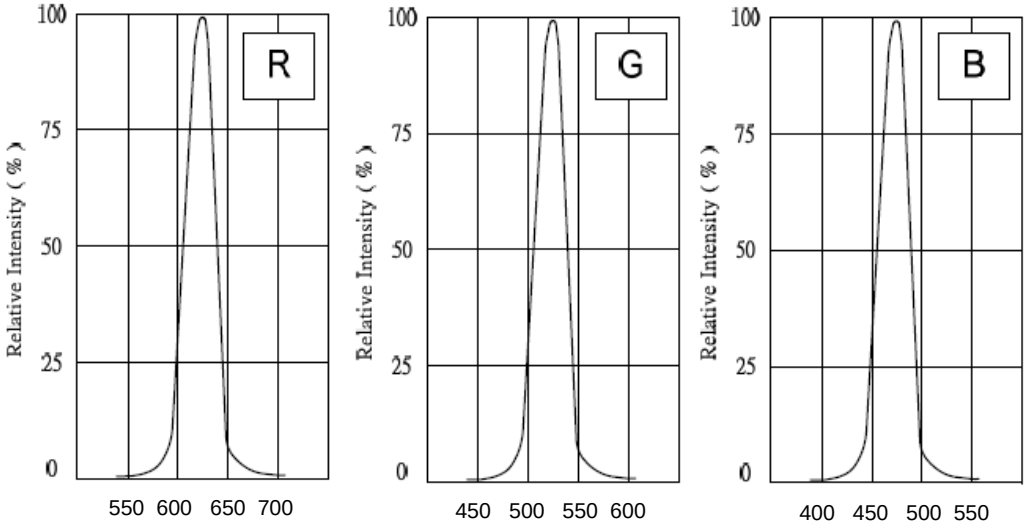
Forward Current vs. Ambient Temperature



Forward Current vs. Forward Voltage



Relative Intensity vs. Wavelength



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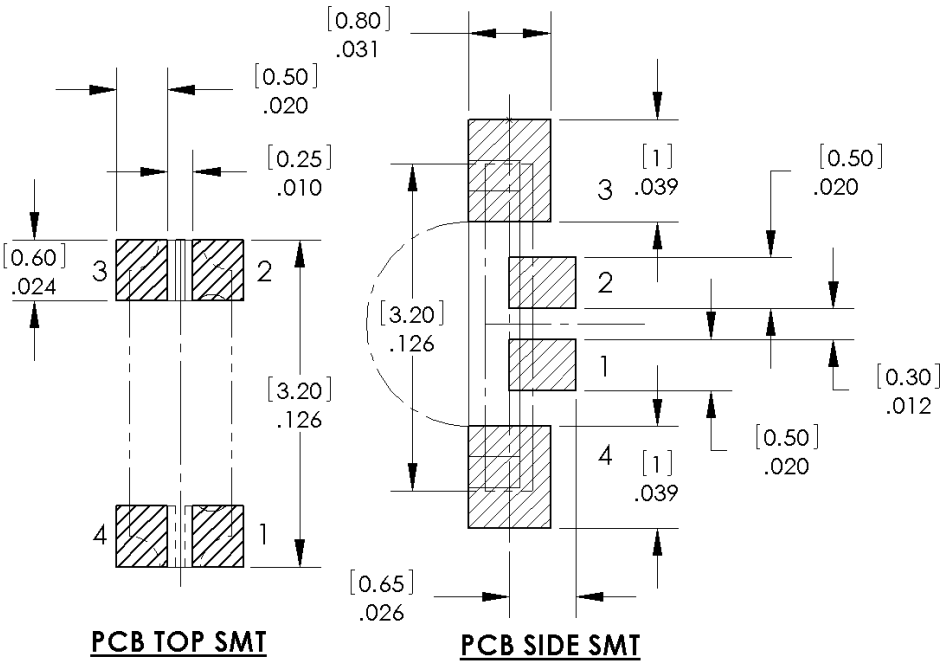
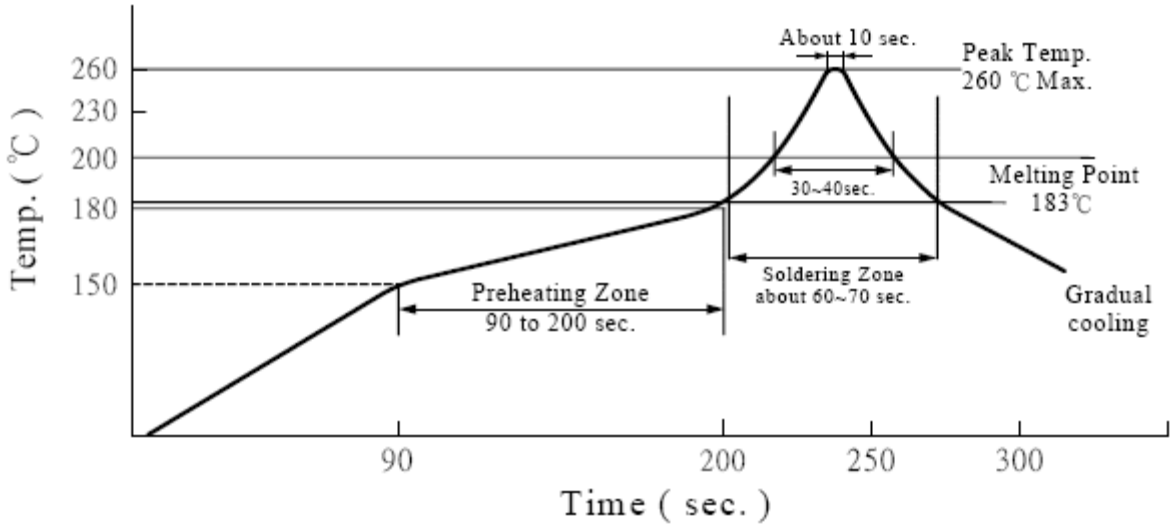
Recommended Solder Patterns



Recommended Pb Free IR-Reflow Solder Profile



Notes:

1. Exceeding the recommended temperatures and accelerating the heating and cooling processes may cause electrical and/or optical failure.
2. Solder dipping method is not recommended. Optek cannot guarantee the LEDs after assembly using the solder dipping method.

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Reliability Test Items and Conditions

● Results of Reliability Test

No	Item	Test Condition	Test Hours/Cycles	Sample No.	Ac / Re
1	DC Operating Life	R~I_F: 30mA, G/B~I_F: 20mA	1,000 Hours	50 pcs	0 / 1
2	High Temperature Storage	Temp: 100℃	1,000 Hours	50 pcs	0 / 1
3	Low Temperature Storage	Temp: -55℃	1,000 Hours	5 0 pcs	0 / 1
4	Thermal Shock Test	-40℃ ⟷ 80℃ 5min 8secs 5min	100 Cycles	50 pcs	0 / 1
5	Temperature Cycle	-40℃ ~ 25℃ ~ 100℃ ~ 25℃ 30min ~ 5min ~ 30min ~ 5min	300 Cycles	50 pcs	0 / 1
6	Temp. & Humidity Bias	T_A=85℃, RH=85%, I_F=5mA*	1,000 Hours	50 pcs	0 / 1

*Values are based on single-die performance.

● Reliability Criteria

Item	Symbol	Test Conditions	Limit	
			Min.	Max.
Forward Voltage	V_F	I_F: 20mA		U.S.L. *1.2
Reverse Current	I_R	V_R: 5V		U.S.L. *2
Power	P_O	I_F: 20mA	L.S.L. *0.5	

*U.S.L.: Upper Standard Level *L.S.L.: Lower Standard Level

Precautions:

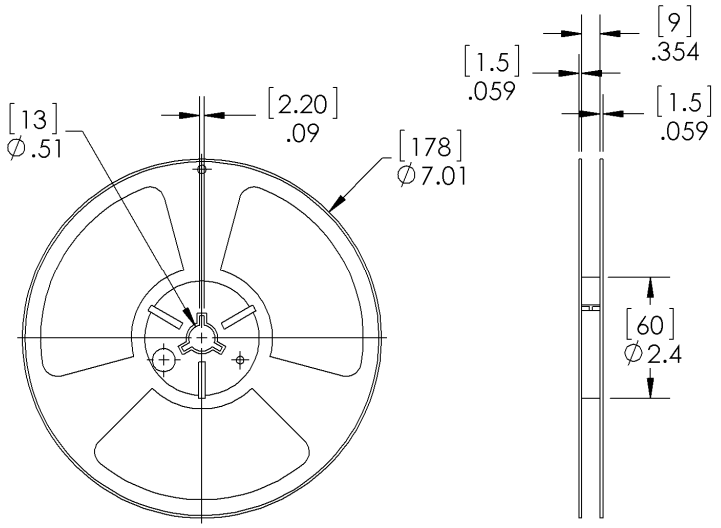
Cleaning

- Optek recommends isopropyl alcohol be used as a solvent for cleaning the LEDs. When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and/or the resin. Freon solvents should not be used to clean LEDs because of worldwide regulations.
- Do not use ultrasonic methods.

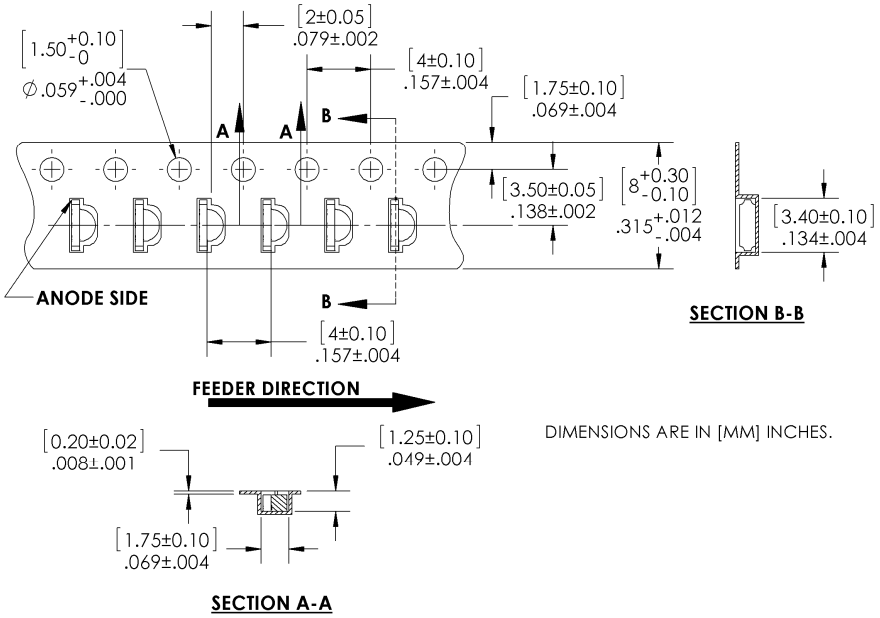
Safety

- LED light output is strong enough to cause injury to the human eye. Precaution must be taken to avoid looking directly into the LEDs with unprotected eyes for more than a few seconds.
- Flashing lights have been known to cause discomfort in people. This can be prevented by taking precautions during operation.

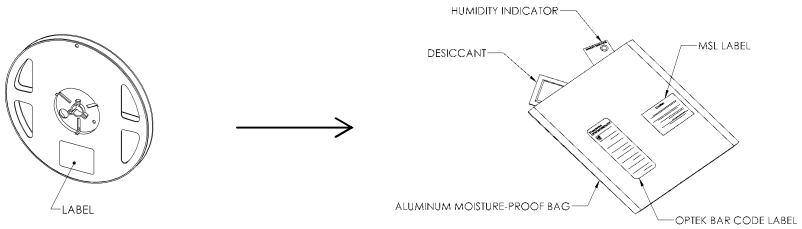
Reel Dimensions: 7-inch reel



Carrier Tape Dimensions: Loaded quantity 2000 pieces per reel



Moisture Resistant Packaging



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