Full-Color 1204 SMD (150° Viewing Angle)

OVSRRGBCC3 / OVSRRGBCC3TM



Features:

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

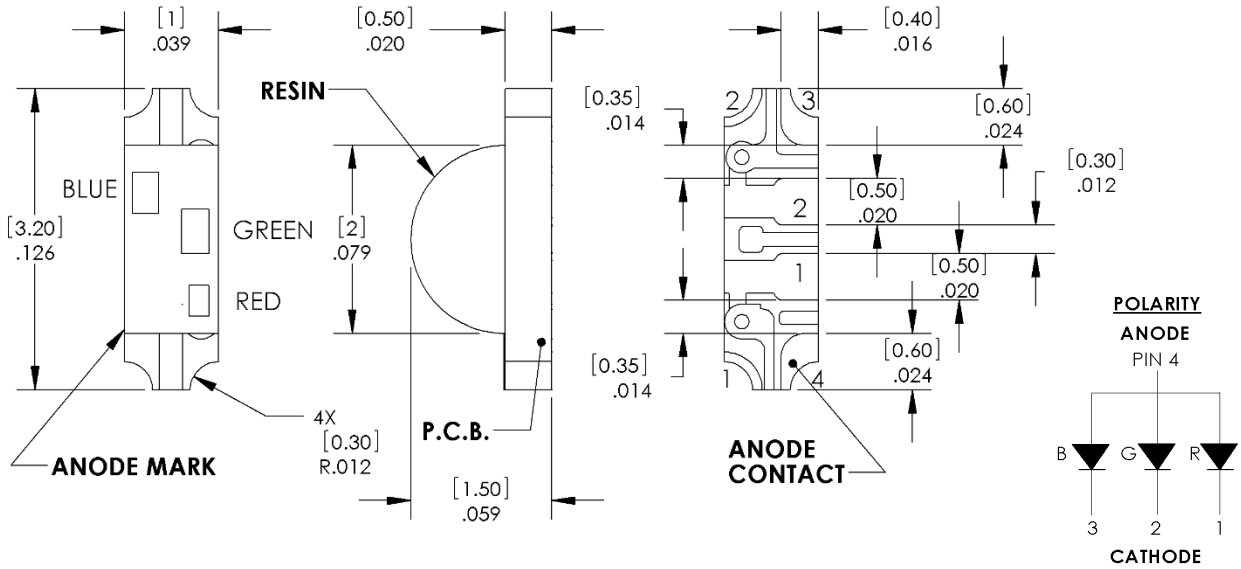
Description:

The OVSRRGBCC3 & OVSRRGBCC3TM 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)

Part Number	Material	Emitted Color	Intensity Typ. mcd	Lens Color
OVSRRGBCC3 OVSRRGBCC3TM	AlInGaP	Red	105	White Diffused
	InGaN	Green	330	
	InGaN	Blue	200	



Note: Maximum burr from saw singulation to be < 50 um from metallization surface.

RoHS

3

Moisture

ATTENTION
OBSERVE PRECAUTIONS
ELECTROSTATIC
SENSITIVE DEVICES

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

General Note
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Electrical Specifications

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	5	V
Operating Temperature Range	-40 to +85	-40 to +85	° C
Storage Temperature Range	-55 to +100	-55 to +100	° C
Soldering Temperature (for 10 seconds)	260	260	° C
Electrostatic Discharge Classification (HBM)	±2000	±2000	V
Moisture Sensitivity Level (IPC/JEDEC J-STD-020C)	3	3	168 hours

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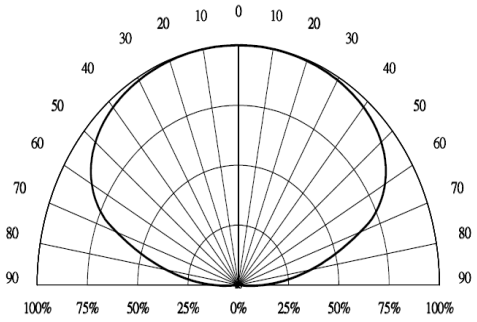
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Electrical Specifications

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

SYMBOL	PARAMETER	COLOR	MIN	TYP	MAX	UNITS	TEST CONDITIONS
I_V	Luminous Intensity (axial direction)	Red	60	105	150	mcd	I_F = 20 mA
		Green	210	330	450		
		Blue	150	200	250		
2 Θ½	Viewing Angle	Red	140	150	160	deg	I_F = 20 mA
		Green					
		Blue					
λ_D	Dominant Wavelength	Red	615	625	635	nm	I_F = 20 mA
		Green	520	530	535		
		Blue	465	475	485		
V_F	Forward Voltage	Red	1.8	2.0	2.4	V	I_F = 20 mA
		Green	3.0	3.3	3.6		
		Blue	3.0	3.3	3.6		
I_R	Reverse Current	Red	----	----	50	µA	V_R = 5 V
		Green	----	----			
		Blue	----	----			

Spatial Distribution



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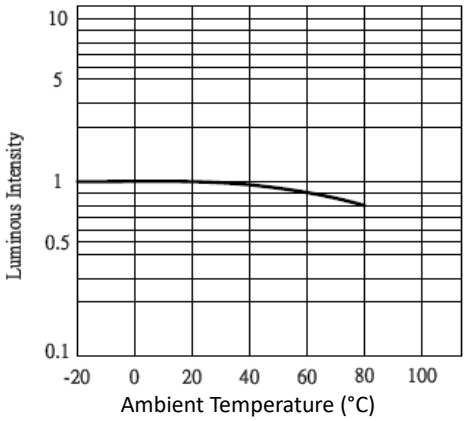
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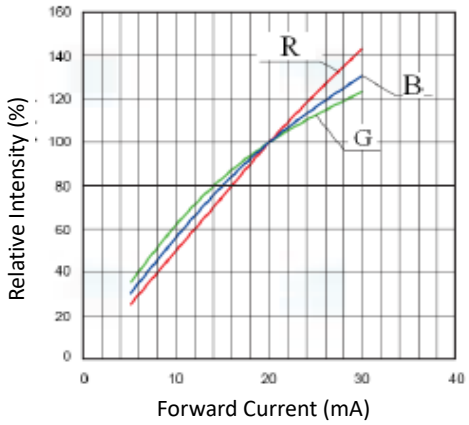
Performance

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

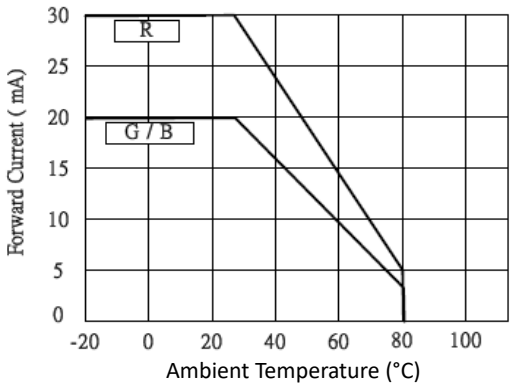
Luminous Intensity vs. Ambient Temperature



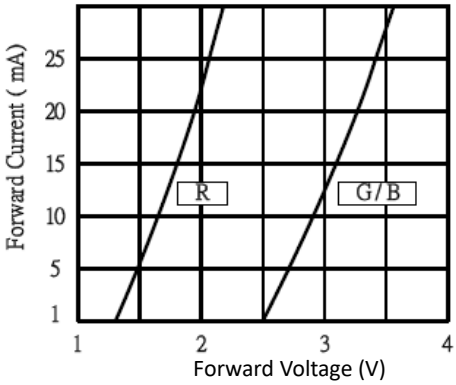
Relative Intensity vs. Forward Current



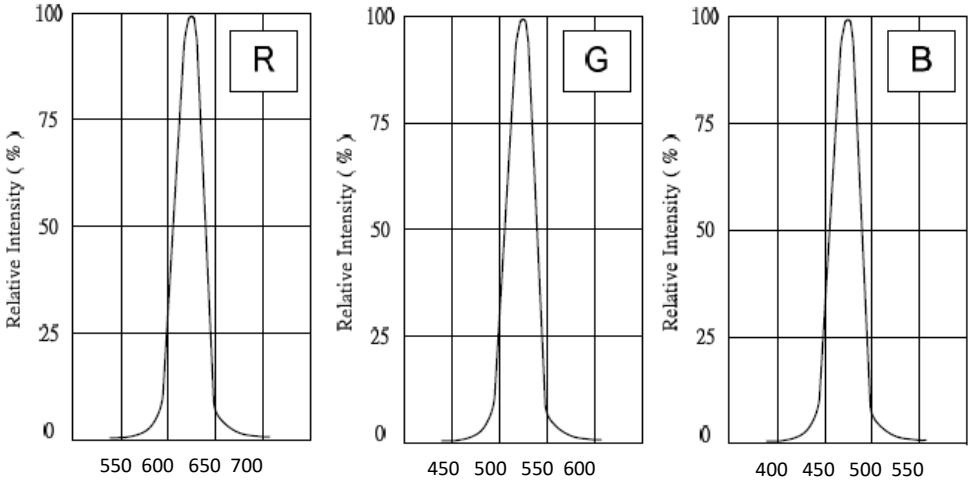
Forward Current vs. Ambient Temperature



Forward Current vs. Forward Voltage



Relative Intensity vs. Wavelength



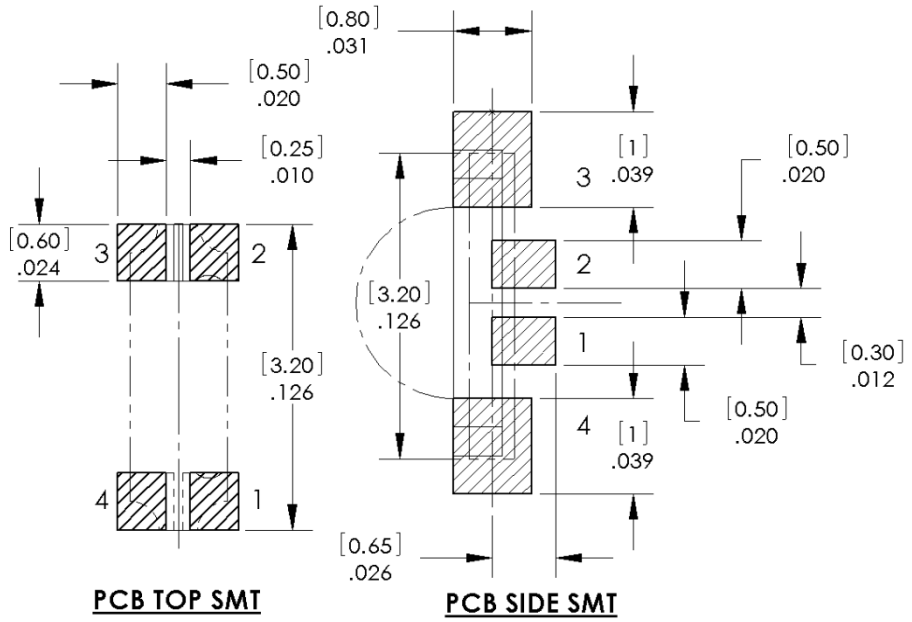
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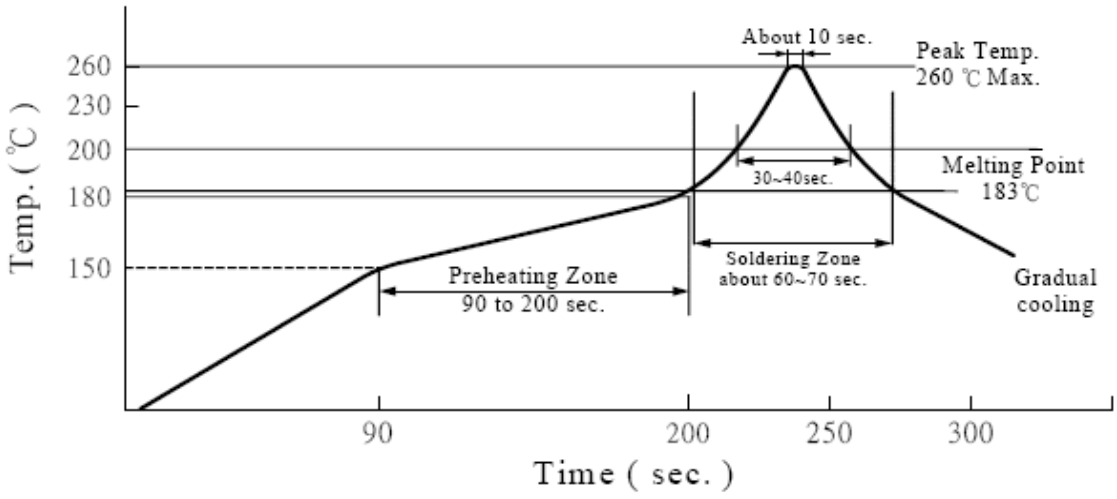
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Recommended Solder Patterns



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

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

● Reliability Criteria

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

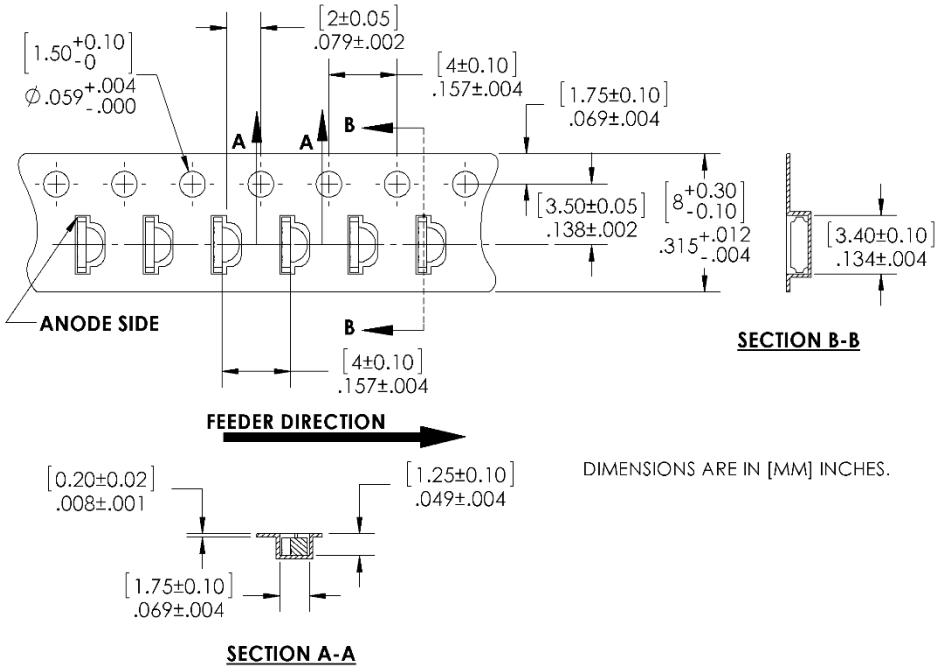
- LED light output is strong enough to cause injury to the human eye. Precaution must be taken to avoid looking directly into the LEDs with unprotected eyes for more than a few seconds.
- Flashing lights have been known to cause discomfort in people. This can be prevented by taking precautions during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

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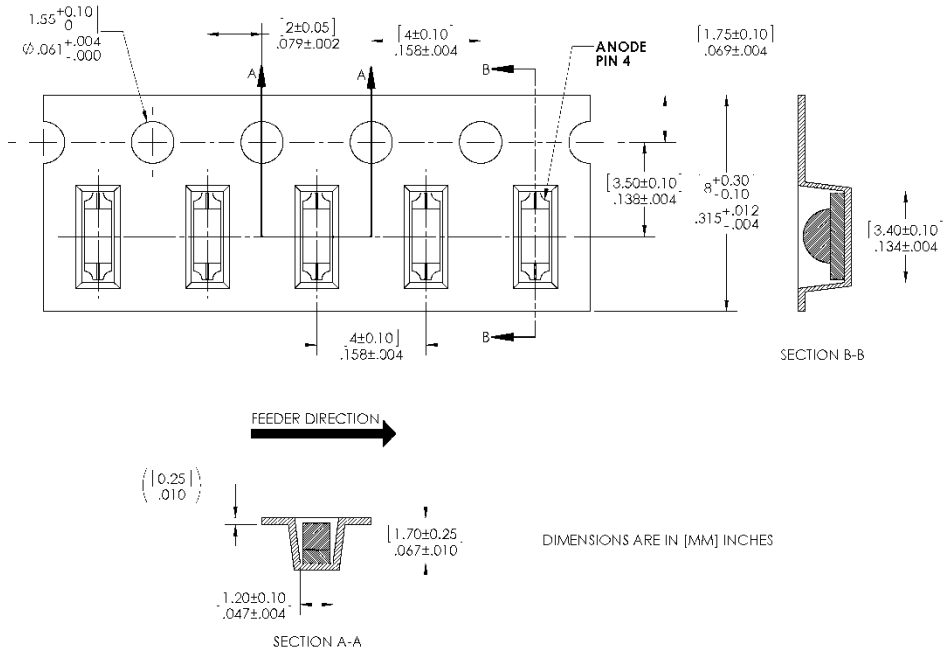
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Carrier Tape Dimensions OVSRRGBCC3: Loaded quantity 2000 pieces per reel



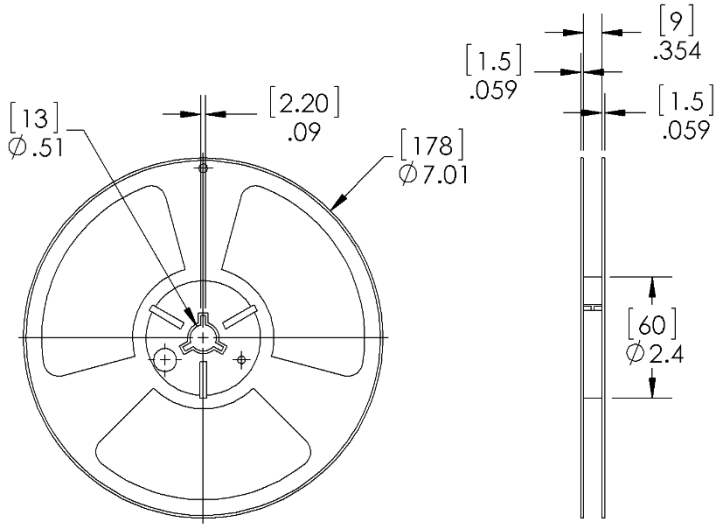
Carrier Tape Dimensions OVSRRGBCC3TM: Loaded quantity 1,500 pieces per reel



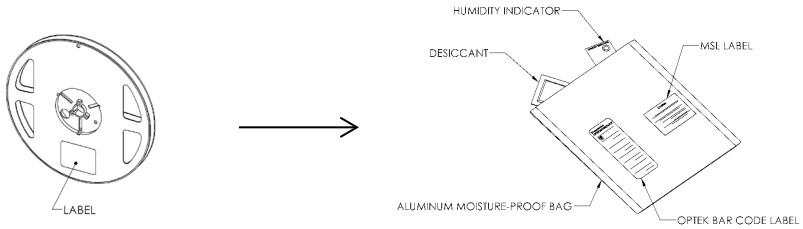
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Reel Dimensions: 7-inch reel



Moisture Resistant Packaging



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