

# Full Color PLCC4 LED

OVSARGB4R8



**Features:**

- Surface mount device packaged in 8mm tape on 7" diameter reel
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflow solder
- Dimensions: 3.5 x 2.8 x 1.9 mm

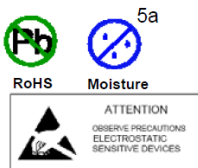
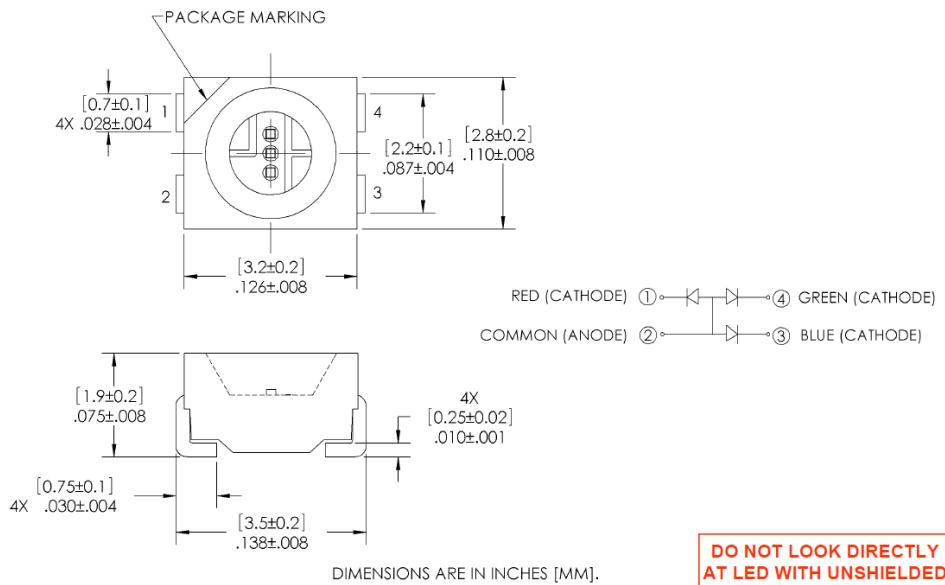
**Description:**

The OVSARGB4R8 provides full color light output from a single package, 3-die design. This surface mount package is an efficient solution in modular applications that require uniform brightness and color-on-demand. Light output is optimized by an interior reflector and the wide viewing angle adds flexibility for applications ranging from hand-held appliances to automotive interiors.

**Applications:**

- RGB full-color indoor and outdoor displays
- Backlighting
- Coupling into light guides
- Automotive interiors
- Entertainment equipment

Part Number	Chip				Lens Color
	Type	Material	Emitted Color	Intensity Typ. Mcd	
OVSARGB4R8	R	AlInGaP	Red	635	Diffused
	G	InGaN	Green	1000	
	B	InGaN	Blue	335	



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

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

**General Note**

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1645 Wallace Drive, Carrollton, TX 75006 | Ph: +1 972 323 2200  
www.optekinc.com | www.ttelectronics.com

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## Absolute Maximum Ratings

T<sub>A</sub> = 25° C unless otherwise noted

PARAMETER	RATING			UNIT
	R	G	B	
Storage Temperature	-40 ~ +100			°C
Operating Temperature	-40 ~ +100			°C
Reverse Voltage	5			V
Continuous Forward Current (1 chip on)	50	25	25	mA
Peak Forward Current (10% Duty Cycle, PW ≤ 100 μsec, 1 chip on)	200	100	100	mA
Power Dissipation	130	100	100	mW
Junction Temperature	110	110	110	°C
Junction/ambient (1 chip on)	450	400	450	°C/W
Junction/ambient (3 chips on)	650	580	680	°C/W
Junction/solder point (1 chip on)	300	280	300	°C/W
Junction/solder point (3 chips on)	450	430	480	°C/W
Electrostatic Discharge Classification (JEDEC-JESD22-A114F)				Class 1C
Moisture Sensitivity Level (IPC/JEDEC J-STD-020C)				5a / 24 Hrs

## Electrical Characteristics

T<sub>A</sub> = 25° C unless otherwise noted

SYMBOL	PARAMETER	VALUES			UNIT	CONDITIONS	
			R	G			B
I <sub>v</sub>	Luminous Intensity	Min	450	710	224	mcd	I <sub>F</sub> = 20 mA
		Typ	635	1000	335		
V <sub>F</sub>	Forward Voltage	Typ	2.0	3.2	3.2	V	I <sub>F</sub> = 20 mA
		Max	2.6	4.0	4.0		
I <sub>R</sub>	Reverse Current (max)		10	10	10	μA	V <sub>R</sub> = 5 V
λ <sub>D</sub>	Dominant Wavelength		619-624	520-540	460-475	nm	I <sub>F</sub> = 20 mA
2 Θ <sub>1/2</sub>	50% Power Angle		120	120	120	deg	I <sub>F</sub> = 20 mA
Δλ	Spectral Radiation Bandwidth		24	38	28	nm	I <sub>F</sub> = 20 mA

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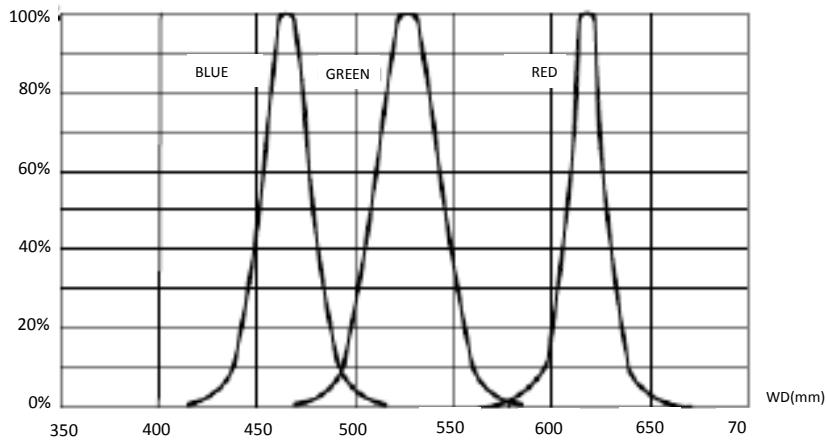
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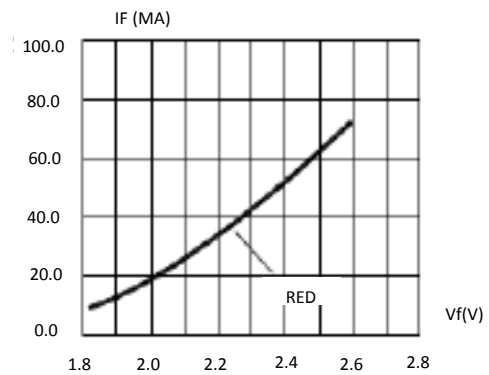
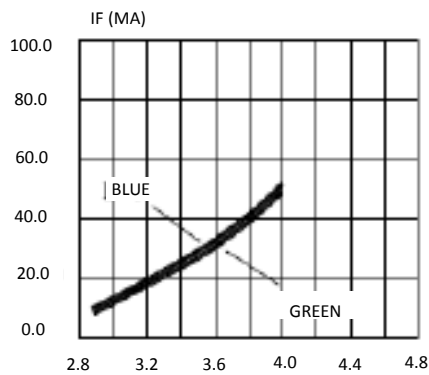
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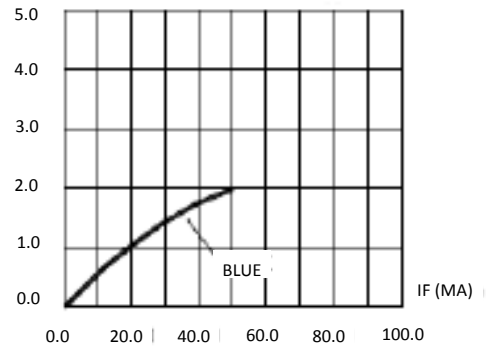
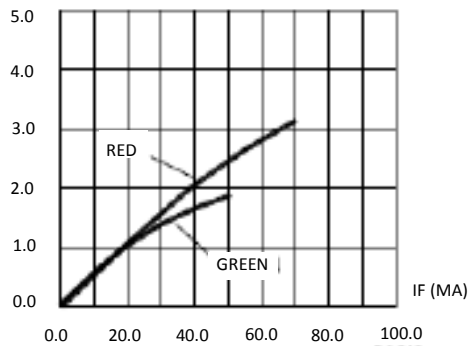
## Typical Electro-Optical Characteristics Curves



Relative Intensity vs Dominant Wavelength



Forward Current vs Forward Voltage



Relative Luminous Intensity vs Forward Current

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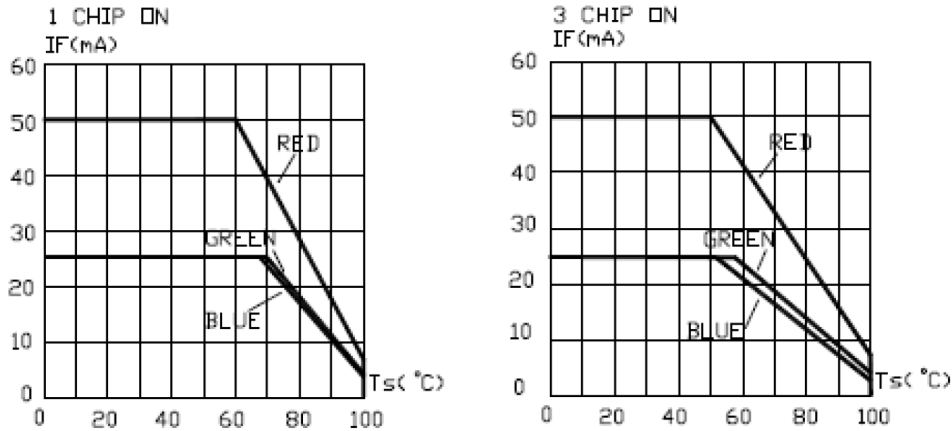
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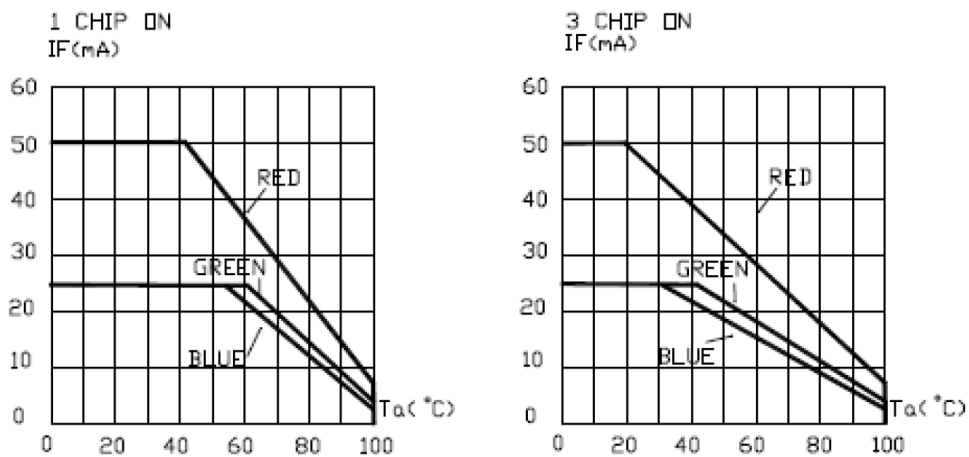
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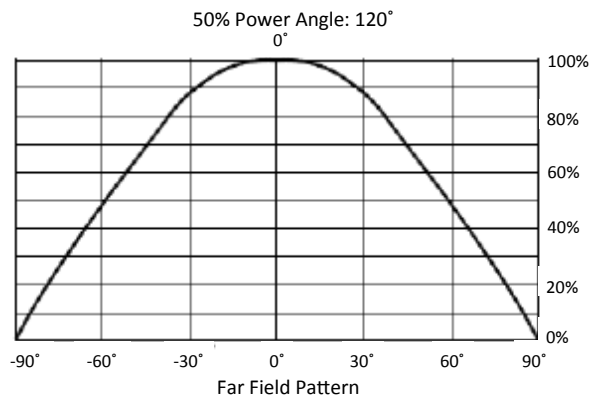
## Typical Electro-Optical Characteristics Curves



Maximum Forward DC Current vs Solder Point Temperature



Maximum Forward DC Current vs Ambient Temperature



General Note

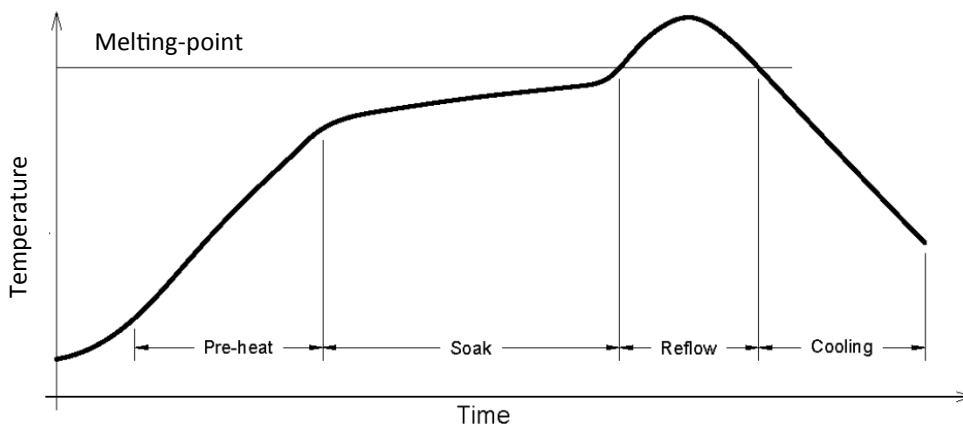
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### Reflow Solder Profile

Manual soldering by soldering iron

- The use of a soldering iron of less than 25W is recommended. The temperature of the iron must be kept at below 315°C with soldering time within 2 seconds
- The epoxy resin of the SMD LED should not contact the tip of the soldering iron
- No mechanical stress should be exerted on the resin portion of the SMD LED during soldering.
- Handling of the SMD LED should be done when the package has been cooled down to below 40°C or less. This is to prevent LED failures due to thermal-mechanical stress during handling.
- The temperature (top surface of the SMD LED) profile is as below:



Solder = Lead-Free
Average ramp-up rate = 4°C / sec. max
Preheat temperature: 150 - 200°C
Preheat time: 120 sec. max.
Ramp-down rate = 6°C / sec. max.
Peak temperature = 250°C max.
Time within 5°C of actual peak temperature = 10 sec. max
Duration above 217°C is 60 sec. max

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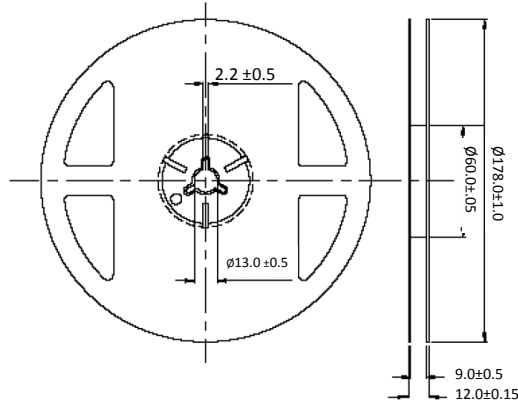
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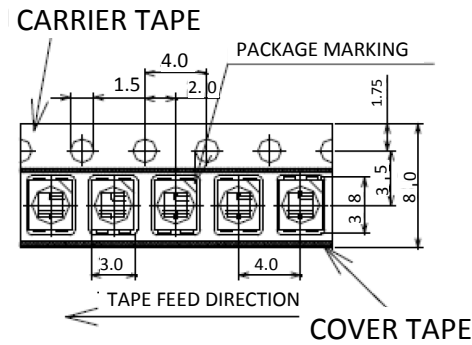
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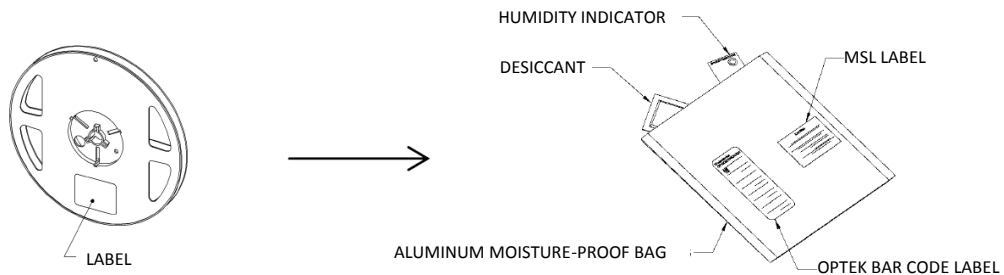
## Reel Dimensions: 7-inch reel



## Carrier Tape Dimensions: Loaded quantity 2,000 pieces per reel



## Moisture Resistant Packaging



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