

# 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
- 120° viewing angle

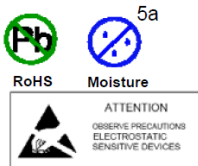
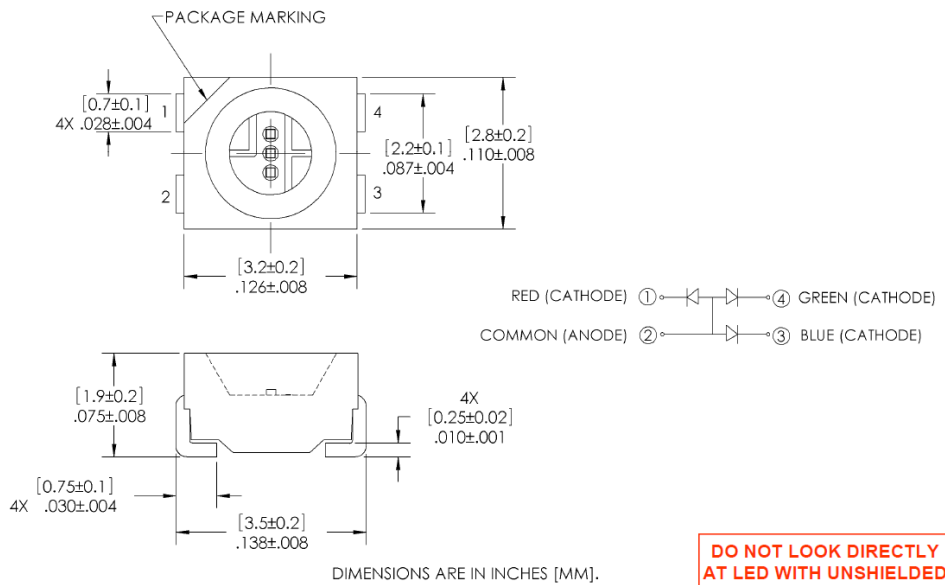
### Description:

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	AllnGaP	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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### Electrical Specifications

**Absolute Maximum Ratings**  $T_A = 25^\circ\text{C}$  unless otherwise noted

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

**Electrical Characteristics**  $T_A = 25^\circ\text{C}$  unless otherwise noted

SYMBOL	PARAMETER	VALUES				UNIT	CONDITIONS
			R	G	B		
$I_V$	Luminous Intensity	Min	450	710	224	mcd	$I_F = 20\text{ mA}$
		Typ	635	1000	335		
$V_F$	Forward Voltage	Typ	2.0	3.2	3.2	V	$I_F = 20\text{ mA}$
		Max	2.6	4.0	4.0		
$I_R$	Reverse Current		10	10	10	$\mu\text{A}$	$V_R = 5\text{ V}$
$\lambda_D$	Dominant Wavelength		619-624	520-540	460-475	nm	$I_F = 20\text{ mA}$
$2 \Theta_{\frac{1}{2}}$	50% Power Angle		120	120	120	deg	$I_F = 20\text{ mA}$
$\Delta\lambda$	Spectral Radiation Bandwidth		24	38	28	nm	$I_F = 20\text{ mA}$

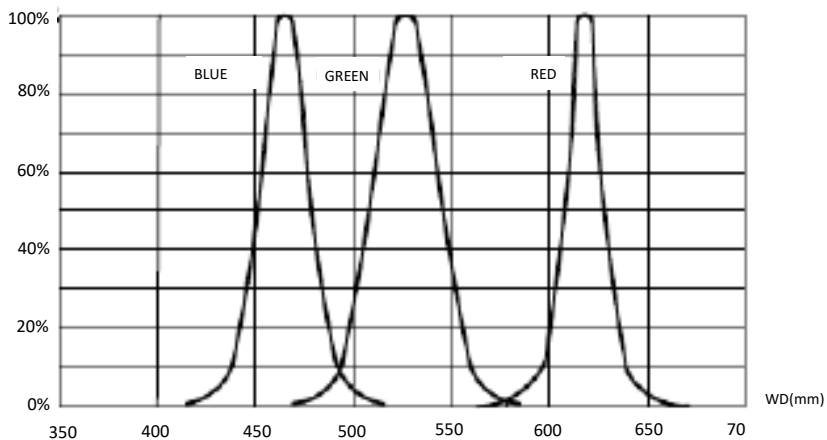
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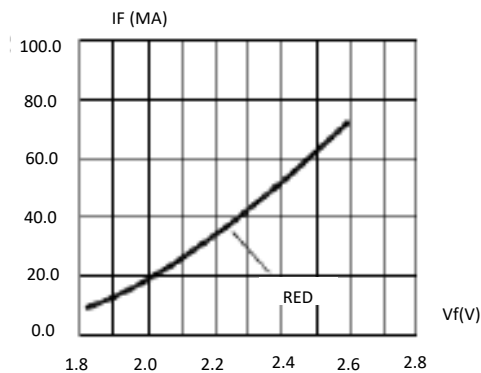
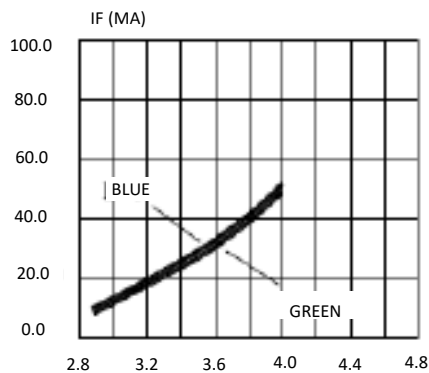
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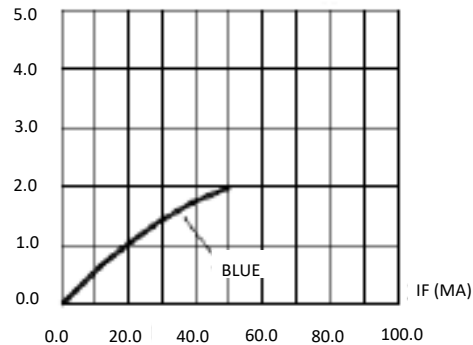
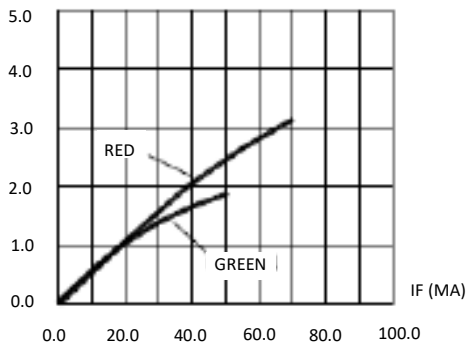
## Typical Electro-Optical Characteristics Curves



Relative Intensity vs Dominant Wavelength



Forward Current vs Forward Voltage



Relative Luminous Intensity vs Forward Current

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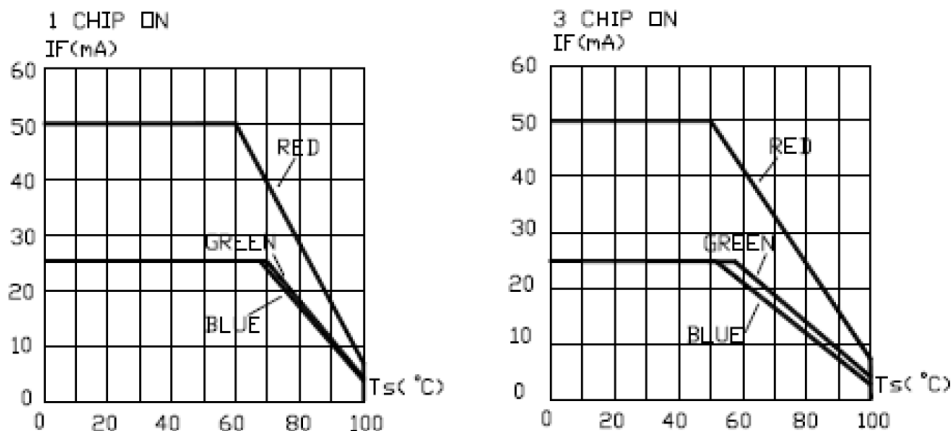
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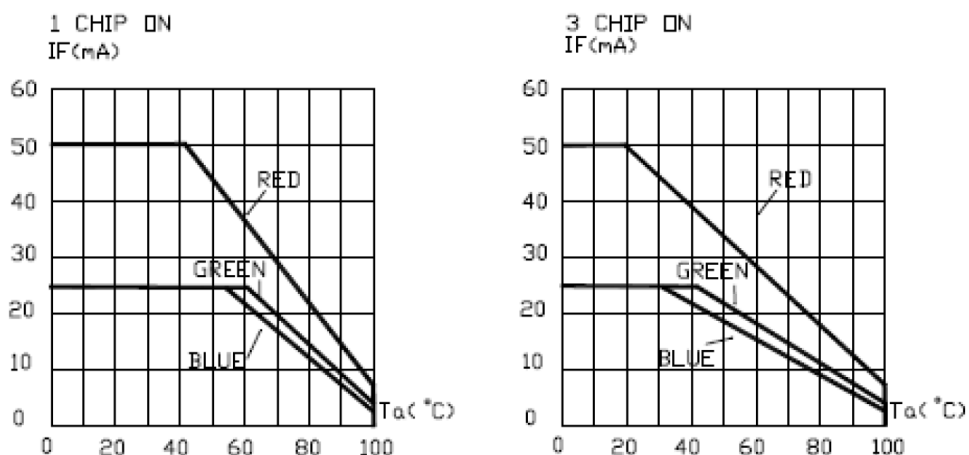
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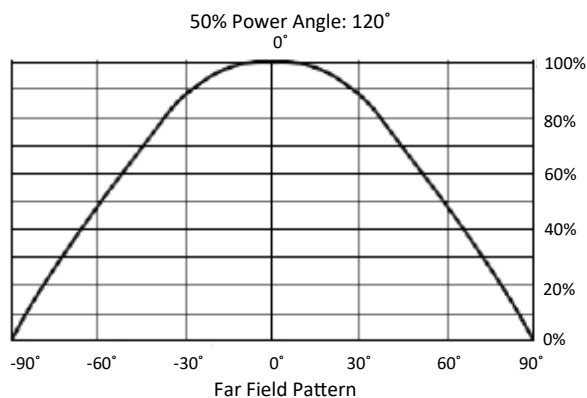
## Typical Electro-Optical Characteristics Curves



Maximum Forward DC Current vs Solder Point Temperature



Maximum Forward DC Current vs Ambient Temperature



### General Note

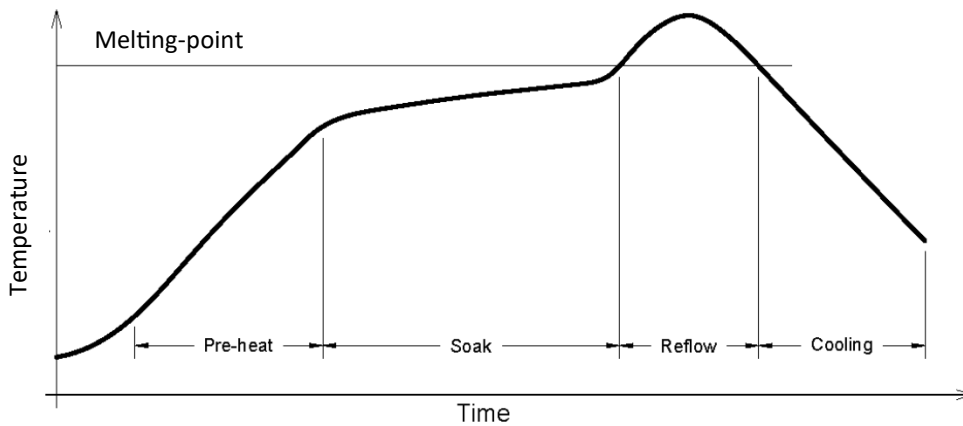
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### Reflow Solder Profile

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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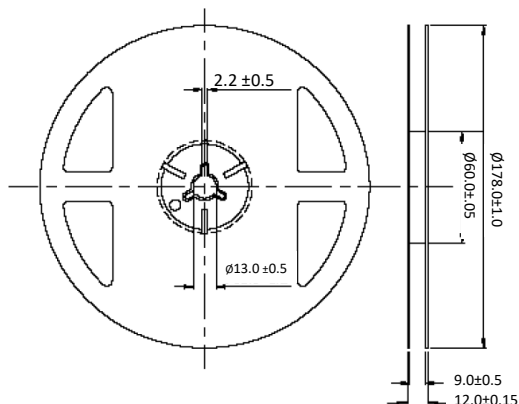
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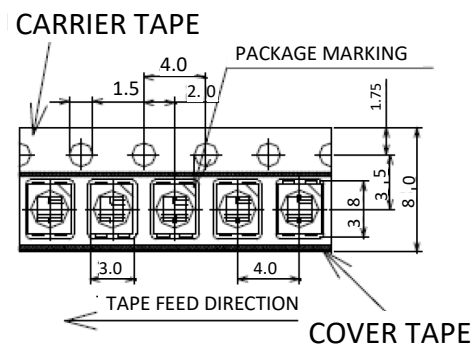
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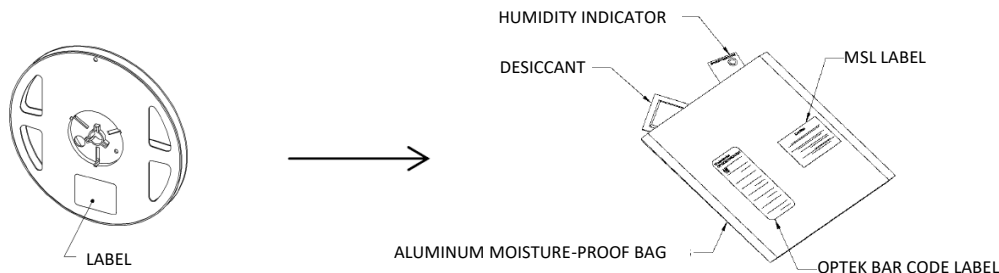
### Reel Dimensions: 7-inch reel



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



### Moisture Resistant Packaging



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