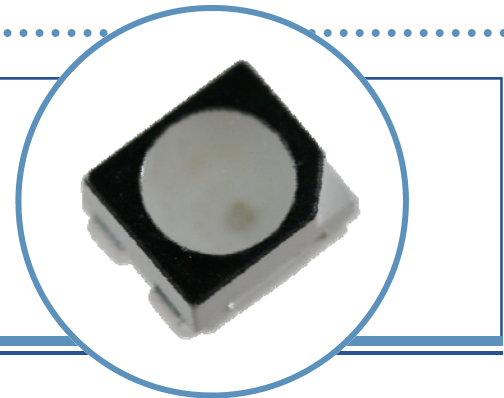


Full Color PLCC4 LED

OVSARGB4R8

- Surface mount device packaged in 8 mm 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

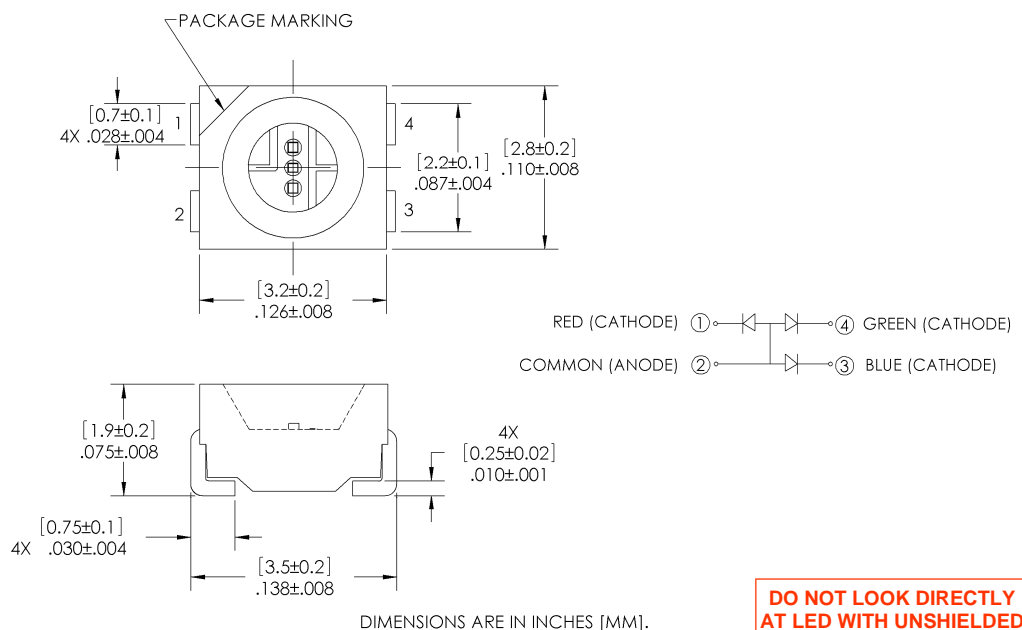


The **OVSARGB4R8** provides full color light output from a single package, 3-die design. This surface mount package is an efficient solution in modular applications that require uniform brightness and color-on-demand. Light output is optimized by an interior reflector and the wide viewing angle adds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

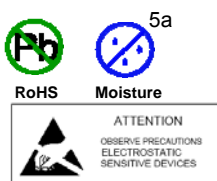
Applications

- 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.



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Full-Color PLCC4 LED

OVSARGB4R8



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 chips 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 chips 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 (max)		10	10	10	μA	$V_R = 5 \text{ V}$
λ_D	Dominant Wavelength		619-624	520-540	460-475	nm	$I_F = 20 \text{ mA}$
$2\theta_{1/2}$	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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Full-Color PLCC4 LED

OVSARGB4R8

Standard Bins

LEDs are sorted to luminous intensity (I_v) and dominant wavelength (nm) bins shown. Each reel consists of a single intensity bin and a single color bin. Orders are filled using all intensity and color bins listed in the following tables. Optek will not accept orders for single intensity bins or single color bins.

Luminous Intensity (I_v) @ 20mA

RED		
Code	Min (mcd)	Max (mcd)
hj	403	505
J	450	560
km	505	635
K	560	710
np	635	805
M	710	900

GREEN		
Code	Min (mcd)	Max (mcd)
M	710	900
qr	805	1010
N	900	1120
st	1010	1260
P	1120	1400

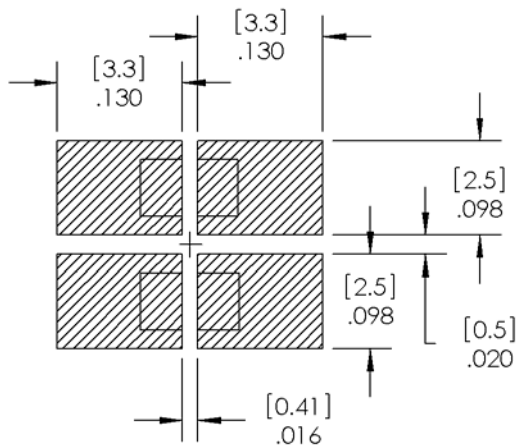
BLUE		
Code	Min (mcd)	Max (mcd)
F	224	280
de	252	318
G	280	355
fg	318	403
H	355	450

Dominant Wavelength (nm)

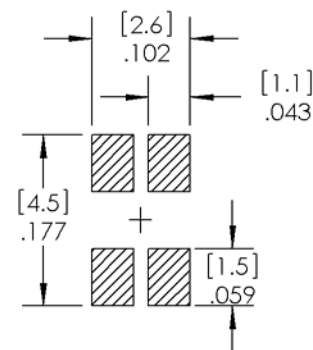
RED		
Code	Min (nm)	Max (nm)
RB	619	624

GREEN		
Code	Min (nm)	Max (nm)
G7	520	525
G23	522.5	527.5
G8	525	530
G45	527.5	532.5
G9	530	535
G67	532.5	537.5
Ga	535	540

BLUE		
Code	Min (nm)	Max (nm)
B3	460	465
B23	462.5	467.5
B4	465	470
B45	467.5	472.5
B5	470	475



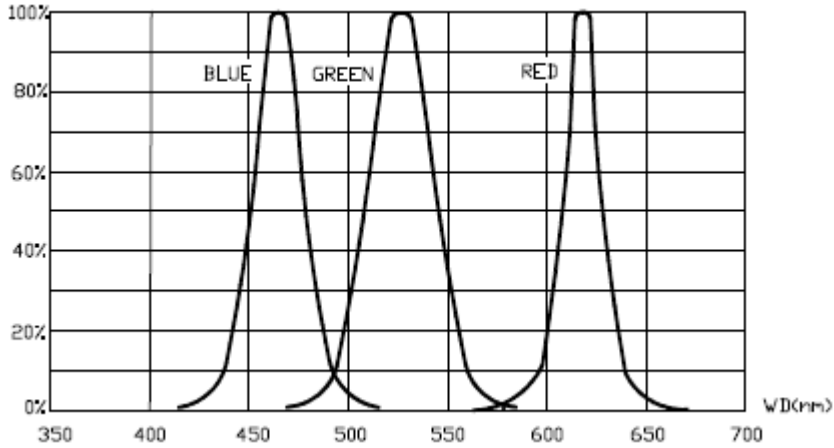
RECOMMENDED COPPER PATTERN



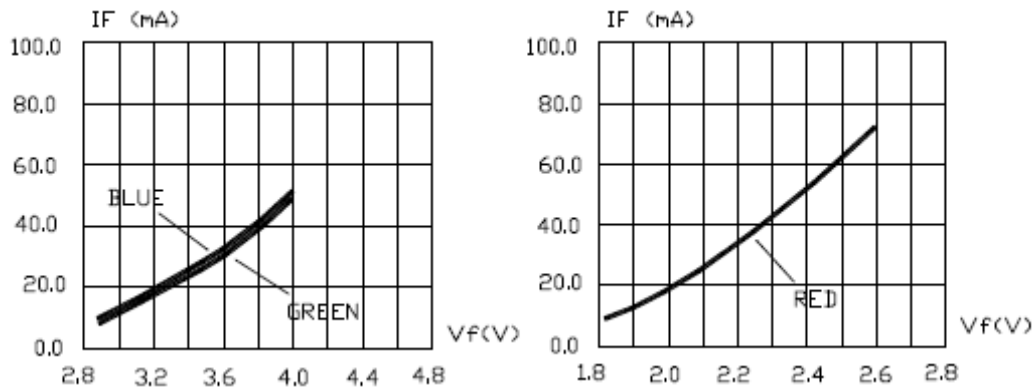
RECOMMENDED SOLDER PASTE PATTERN

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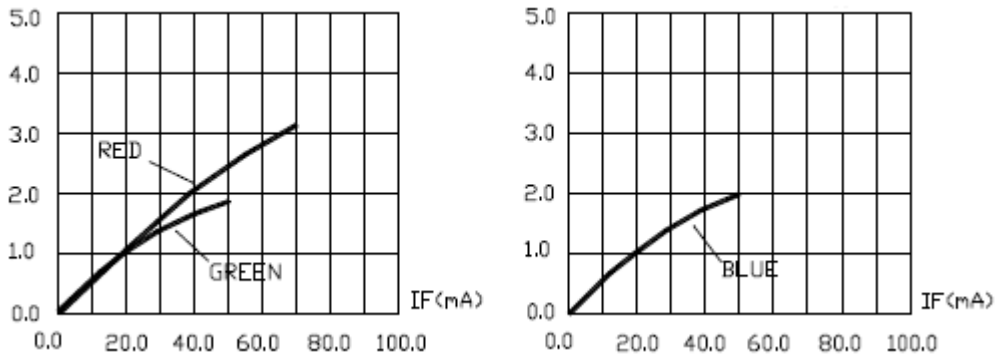
Typical Electro-Optical Characteristics Curves



Relative Intensity vs Dominant Wavelength



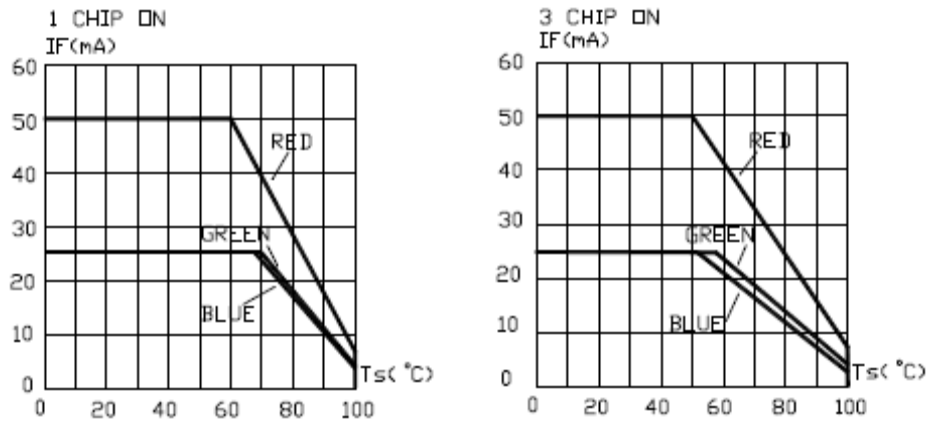
Forward Current vs Forward Voltage



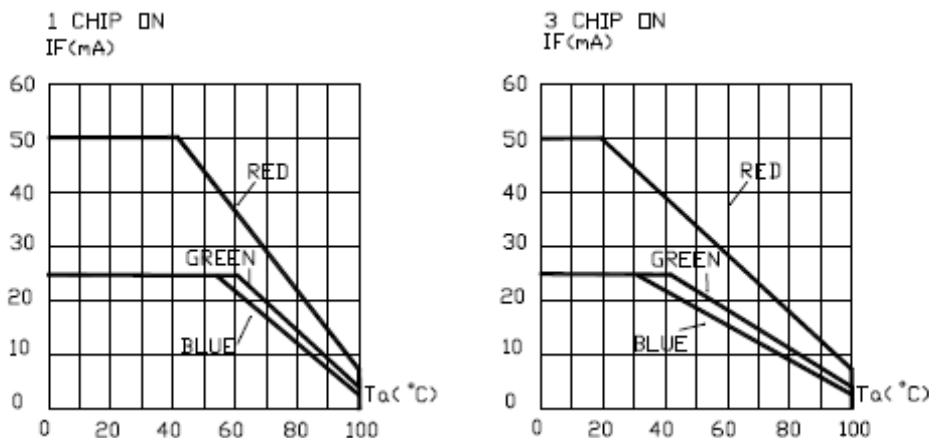
Relative Luminous Intensity vs Forward Current

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

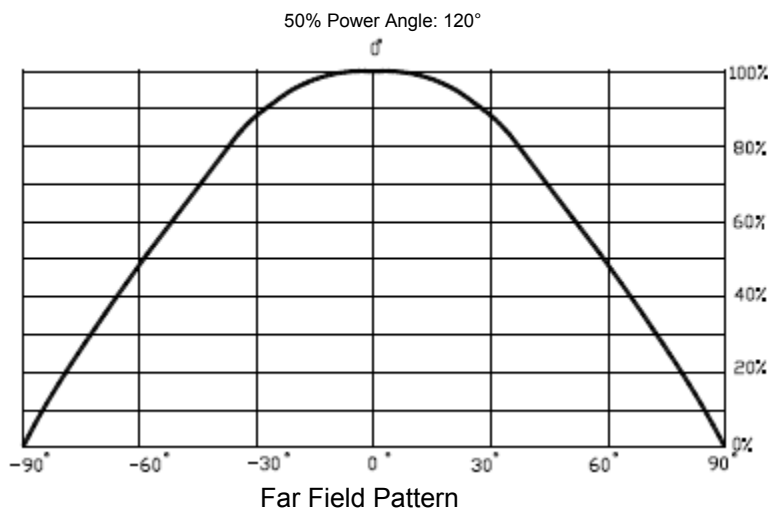
Typical Electro-Optical Characteristics Curves



Maximum Forward DC Current vs Solder Point Temperature



Maximum Forward DC Current vs Ambient Temperature



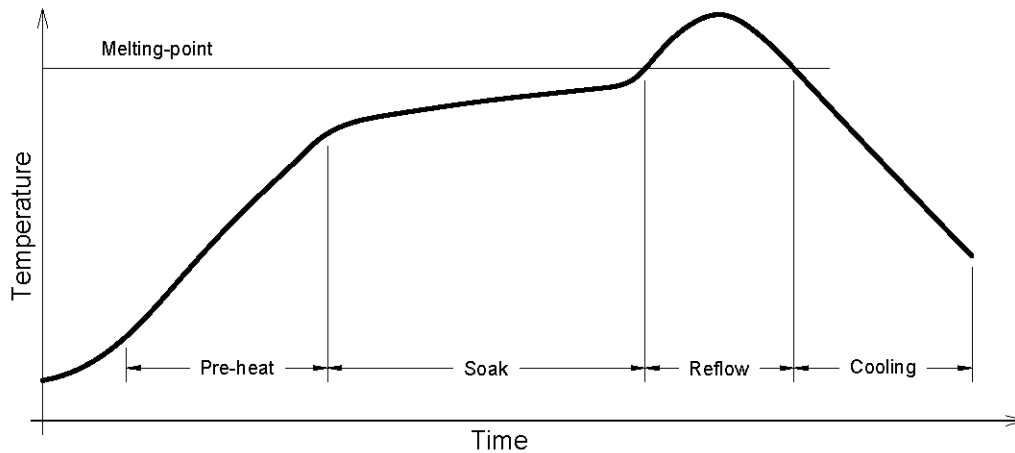
Far Field Pattern

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Reflow Solder Profile

Manual soldering by soldering iron:

- The use of a soldering iron of less than 25 W 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:

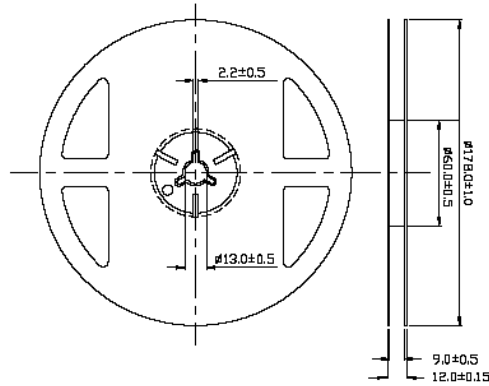


Solder = Lead-Free
Average ramp-up rate = 4°C / sec. max
Preheat temperature: 150 - 200°C
Preheat time: 120 sec. max.
Ramp-down rate = 6°C / sec. max.
Peak temperature = 250°C max.
Time within 5°C of actual peak temperature = 10 sec. max
Duration above 217°C is 60 sec. max

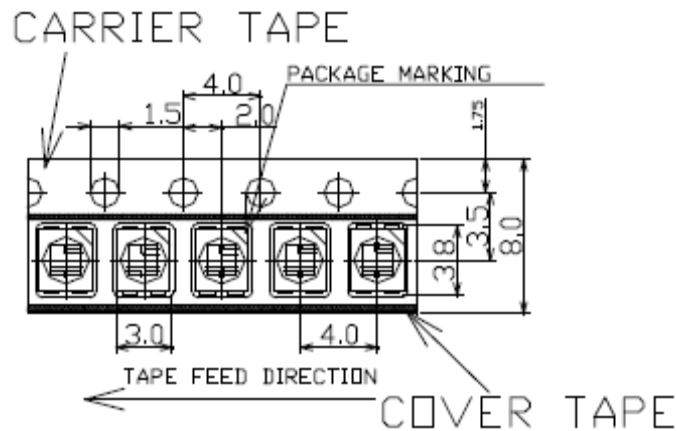
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Full-Color PLCC4 LED OVSARGB4R8

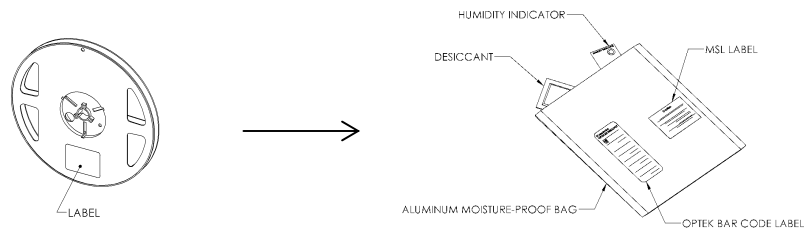
Reel Dimensions: 7-inch reel



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



Moisture Resistant Packaging



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