## 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

Dort Number		Long Color				
Part Number	Part Number Type		Emitted Color	Intensity Typ. mcd	Lens Coloi	
	R	AllnGaP	IInGaP Red 635			
OVSARGB4R8	G	InGaN	Green	1000	Diffused	
	В	InGaN	Blue	335		





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

PARAMETER		RATING		
		G	В	UNIT
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)		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	£W
Junction/solder point (1 chip on)	300	280	300	£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**

 $T_A = 25^{\circ} C$  unless otherwise noted

SYMBOL	PARAMETER	VALUES					CONDITIONS
STIVIDUL			R	G	В	UNIT	CONDITIONS
		Min	450	710	224	mod	L = 20 m A
١V			635	1000	335	mca	$I_F = 20 \text{ mA}$
¥-			2.0	3.2	3.2	V	l 20 mΔ
V <sub>F</sub> Forward	Forward Voltage	Max	2.6	4.0	4.0	v	$I_F = 20 IIIA$
I <sub>R</sub>	Reverse Current (max)		10	10	10	μΑ	$V_R = 5 V$
$\lambda_{D}$	Dominant Wavelength		619-624	520–540	460–480	nm	I <sub>F</sub> = 20 mA
2 Θ½	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



### **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<sub>V</sub>) @ 20mA

	RED	
Code	Min (mcd)	Max (mcd)
J	450	560
К	560	710
М	710	900

	GREEN	
Code	Min (mcd)	Max (mcd)
М	710	900
N	900	1120
Р	1120	1400

	BLUE	
Code	Min (mcd)	Max (mcd)
F	224	280
G	280	355
Н	355	450

#### Dominant Wavelength (nm)

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

	GREEN	
Code	Min (nm)	Max (nm)
G7	520	525
G8	525	530
G9	530	535
Ga	535	540

	BLUE	
Code	Min (nm)	Max (nm)
B3	460	465
B4	465	470
B5	470	475





RECOMMENDED SOLDER PASTE PATTERN

#### RECOMMENDED COPPER PATTERN



## Typical Electro-Optical Characteristics Curves





## Typical Electro-Optical Characteristics Curves



Maximum Forward DC Current vs Solder Point Temperature



Maximum Forward DC Current vs Ambient Temperature





## **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℃ 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:



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

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



Reel Dimensions: 7-inch reel



Carrier Tape Dimensions: Loaded quantity 500 pieces per reel



Moisture Resistant Packaging



## **Mouser Electronics**

Authorized Distributor

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TT electronics: OVSARGB4R8