VCC | OPTOELECTRONICS
lighting:theway

Full Color PLCC6 Type SMD LED
VAOS-5050RGB-W1

Features

- Super-luminosity LED.
- White SMT package.
- Built in Red, Green, and Blue chips.
- Lead frame package with 6 individual pins.
- Wide viewing angle.
- ESD protection.
- Pb-free.
- RoHS compliant version.

Descriptions

- 120° viewing angle.
- Low power comsumption.

Device Selection Guide

Chip			Lens Color
Type	Material	Emitted Color	
R	AlGaInP	Brilliant Red	Water Clear
G	InGaN	Brilliant Green	
B	InGaN	Blue	

www.vcclite.com
190 bosstick blvd, ste 101
san marcos, ca 92069
phone 760.560.1300
fax 760.560.1301

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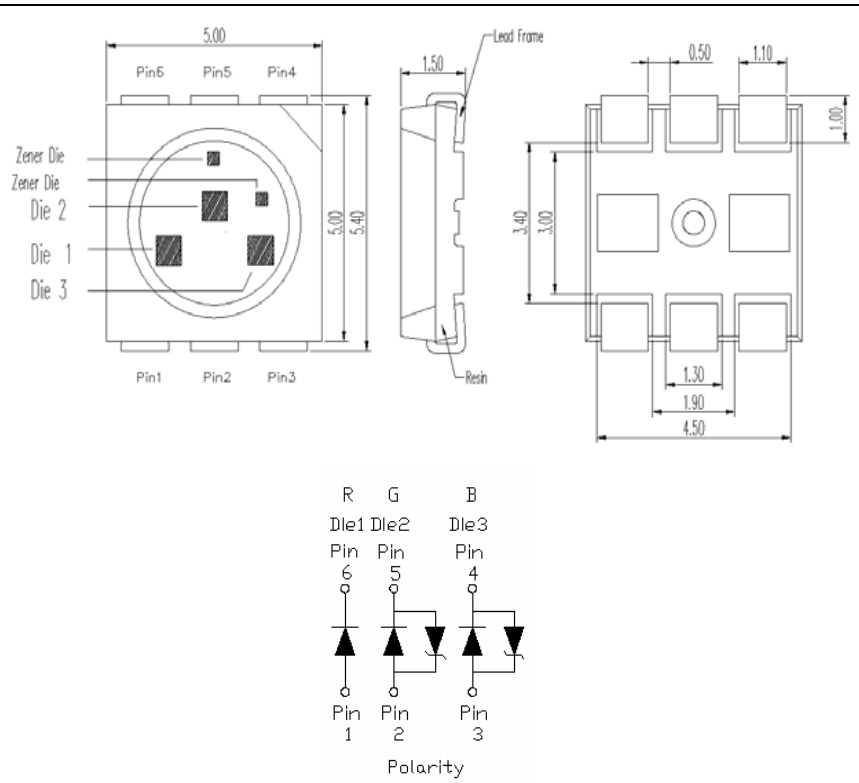
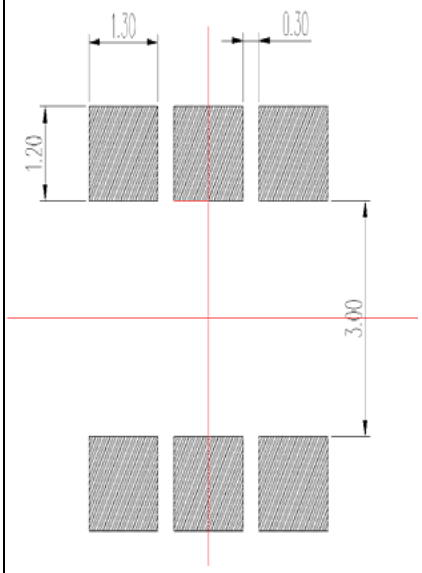
Package Outline Dimension and Recommended Soldering Pattern for Reflow Soldering

Unit: mm Tolerance: +/-0.1

Outline Dim.	Soldering Pattern
	
Soldering terminals may shift in the x, y direction.	

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RoHS
ISO 9001 Registered

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating		Unit
Reverse Voltage	V_R	5		V
Forward Current	I_F	R	30	mA
		G	30	
		B	30	
Peak Forward Current (Duty 1/10 @ 1KHz)	I_{FP}	R	120	mA
		G	110	
		B	110	
Power Dissipation	Pd	R	80	mW
		G	110	
		B	110	
Electrostatic Discharge(HBM)	ESD	2000		V
Operating Temperature	Topr	-40 ~ +85		℃
Storage Temperature	Tstg	-40~ +90		℃
Soldering Temperature	Tsol	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.		

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol		Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	R	450	-----	715	mcd	I_F=20mA
		G	900	-----	2250		
		B	225	-----	450		
Viewing Angle	$2\theta_{1/2}$		-----	120	-----	deg	I_F=20mA
Peak Wavelength	λp	R	-----	632	-----	nm	I_F=20mA
		G	518	-----	-----		
		B	-----	468	-----		
Dominant Wavelength	λd	R	617.5	-----	633.5	nm	I_F=20mA
		G	523.5	-----	535.5		
		B	466	-----	472		
Spectrum Radiation Bandwidth	△λ	R	-----	20	-----	nm	I_F=20mA
		G	-----	35	-----		
		B	-----	35	-----		
Forward Voltage	V_F	R	1.75	-----	2.35	V	I_F=20mA
		G	2.75	-----	3.95		
		B	2.75	-----	3.95		
Reverse Current	I_R	R	-----	-----	10	μA	V_R=5V

Specific binning requirements- please contact our home office

Notes:

1.Tolerance of Luminous Intensity ±10%

2.Tolerance of Dominant Wavelength ±1 nm

■ Luminous Intensity (Iv) Bin:

Color	BinCode	Spec.Range
Red	V	450 -560mcd
	W	560 -715mcd
Green	Y	900 -1125mcd
	Z	1125 -1440mcd
	AA	1440 -1800mcd
	AB	1800 -2250mcd
Blue	S2	220 -285mcd
	T	285 -360mcd
	U	360 -450mcd

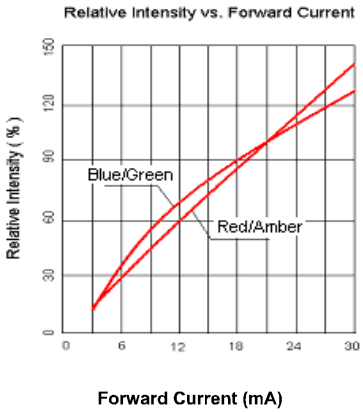
■ Dominant Wavelength (λ_D) Bin:

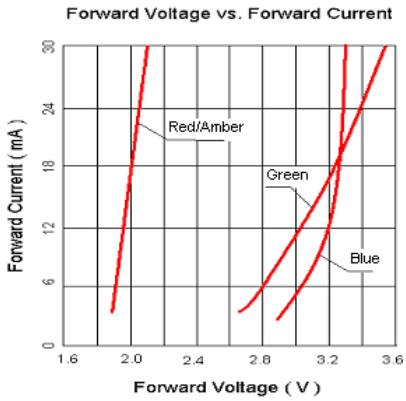
Color	BinCode	Spec.Range
Red	A	615 -620nm
	B	620 -625nm
	C	625 -630nm
Green	B	520 -525nm
	C	525 -530nm
	D	530 -535nm
Blue	A	460 -465nm
	B	465 -470nm

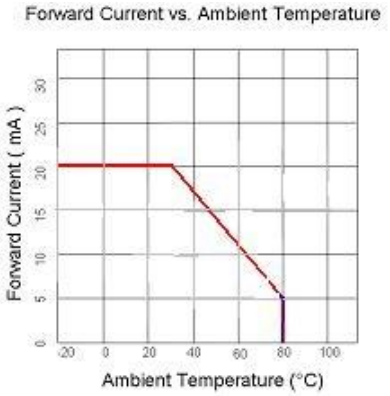
■ Forward Voltage (Vf) Bin:

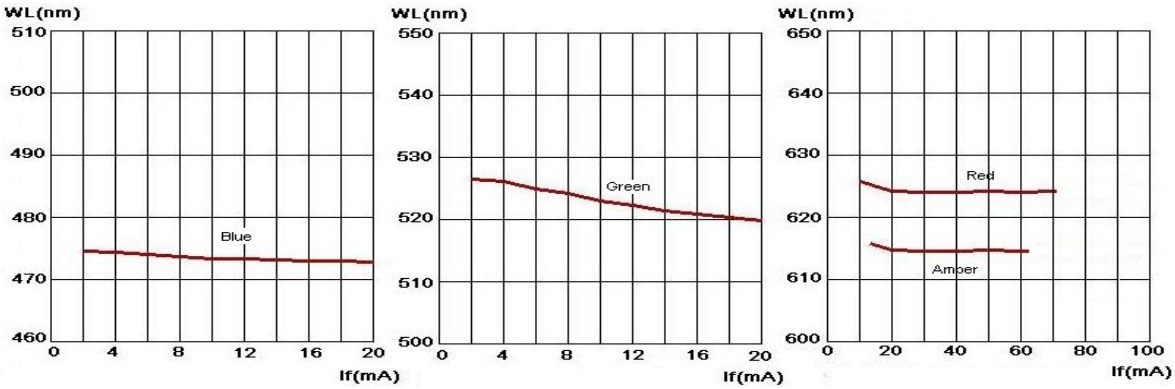
Color	BinCode	Spec.Range
Red	F5	2.0 -2.2V
	F6	2.2 -2.4V
	G5	2.4 -2.6V
Green	H7	2.9 -3.1V
	H8	3.1 -3.3V
	J7	3.3 -3.5V
Blue	H7	2.9 -3.1V
	H8	3.1 -3.3V
	J7	3.3 -3.5V

Characteristics Curves



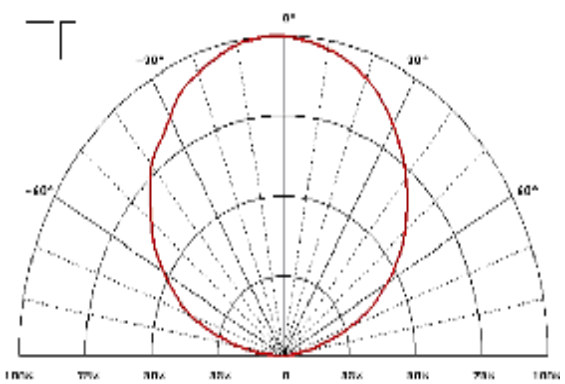




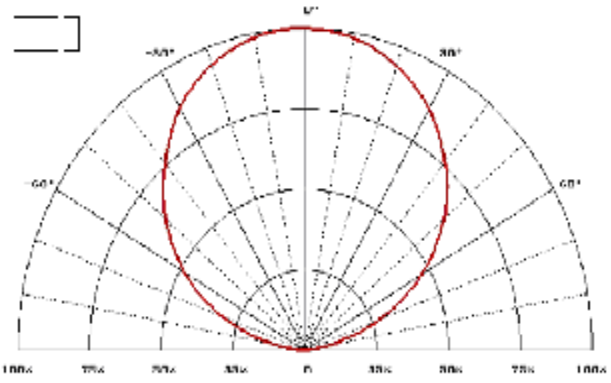


Wavelength vs. Forward Current

Directive Characteristics



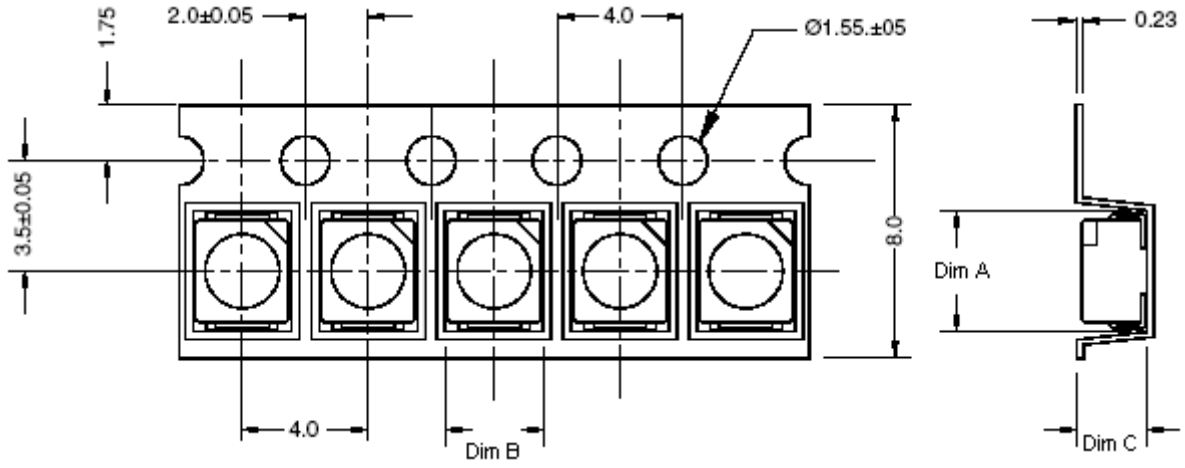
Directive Characteristics

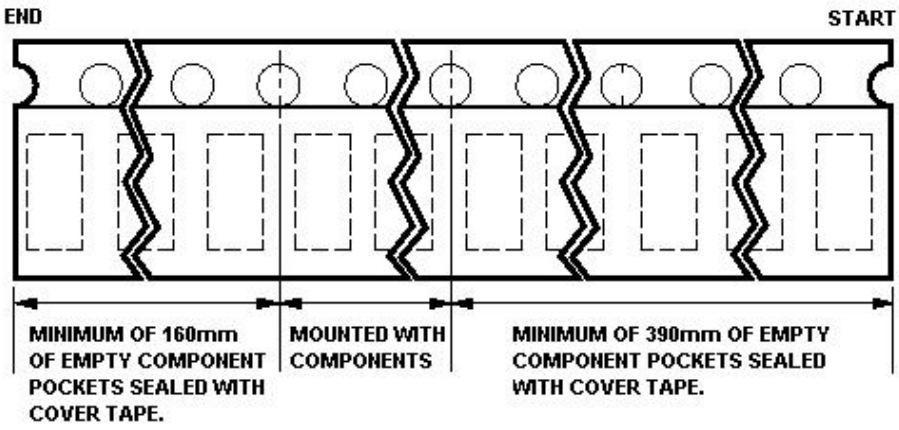


Packaging

Carrier Tape Dimensions: Loaded quantity 1000 PCS per reel.

Tape Dimension



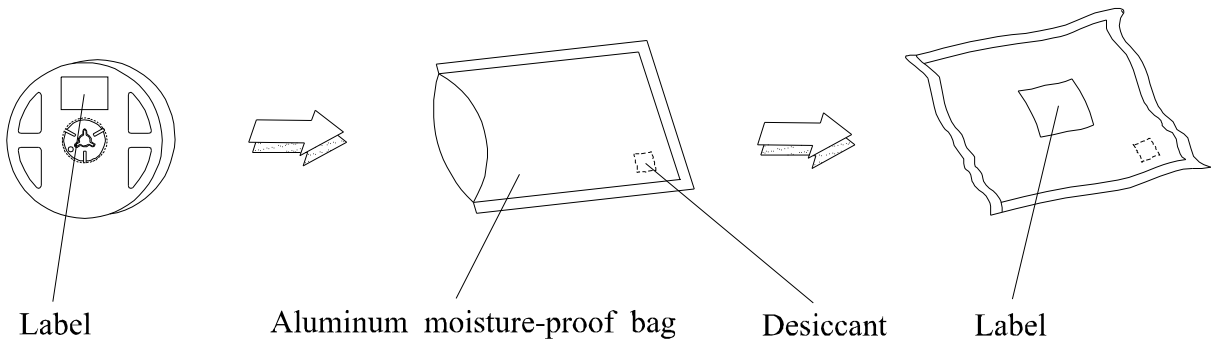


Dry Pack

All SMD optical devices are **MOISTURE SENSITIVE**. Avoid exposure to moisture at all times during transportation or storage. Every reel is packaged in a moisture protected anti-static bag. Each bag is properly sealed prior to shipment.

Upon request, a humidity indicator will be included in the moisture protected anti-static bag prior to shipment.

Moisture Resistant Packaging



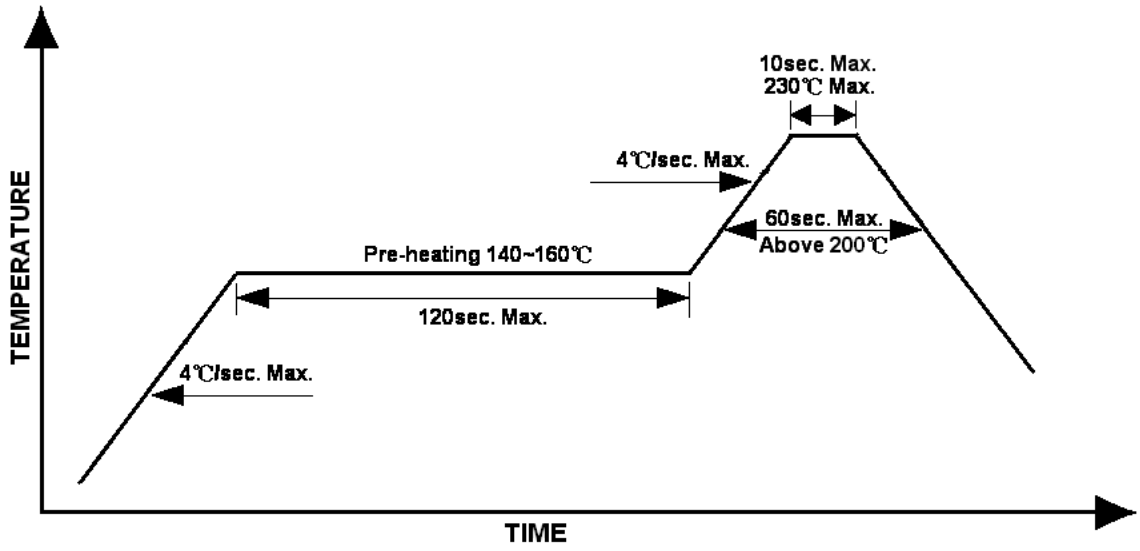
PRECAUTIONS

1. Avoid exposure to moisture at all times during transportation or storage.
2. Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the specified limit.
4. Avoid operation beyond the limits as specified by the absolute maximum ratings.

Reflow Soldering

- Recommended tin glue specifications: melting temperature in the range of 178~192 ^{O}C
- The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):

Lead Solder Profile



Lead-free Solder Profile