

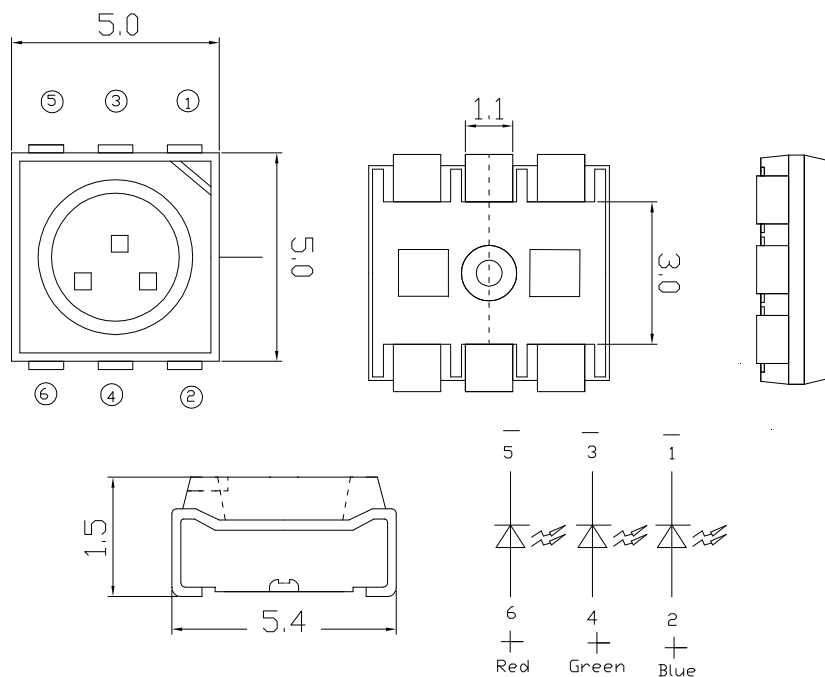
Features

- 5.0mm*5.0mm SMT LED, Side View, Super thin (1.5H mm)
- Low Power Consumption
- Wide Viewing Angle
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow and wave solder process.
- Meet ROHS Green Products

Applications

- Backlight and Indicator

Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.2\text{mm}$ (.0079") unless otherwise noted.
3. Specifications are subject to change without notice
4. This drawing is only for indication, not as a basis for the actual structure.



Selection Guide

Part No	Lens Type	Dice	Emitted Color
FSL-5050150BPGR-N6T20	Water Clear	InGaN	Pure Green
		AllInGaP	Red
		InGaN	Blue

Electrical / Optical Characteristics At Ta=25°C

Symbol	Parameter		Red	Pure Green	Blue	Unit	Test Condition
Iv	Luminous Intensity	MIN.	450	900	225	mcd	IF=20mA
		TYP.					
		MAX.	900	1800	450		
2θ1/2	Viewing Angle	TYP.	130	130	130	deg	IF=20mA
λ Peak	Peak Emission Wavelength	TYP.	632	518	468	nm	IF=20mA
λ d	Dominant Wavelength	TYP.	620	530	470	nm	IF=20mA
Δλ	Spectral Line Half-Width	TYP.	20	35	35	nm	IF=20mA
VF	Forward Voltage	TYP.	1.75	2.75	2.75	V	IF=20mA
		MAX.	2.55	3.65	3.65		
IR	Reverse Current	MAX.	10	10	10	uA	VR=5V

Note:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 optical centerline value

Absolute Maximum Ratings At Ta=25°C

Parameter	Red	Pure Green	Blue	Unit
Power Dissipation	60	110	110	mW
Peak Forward Current[1]	60	100	100	mA
Continuous Forward Current	25	25	25	mA
Dreading Linear From25°C	0.4	0.5	0.25	mA/°C
Reverse Voltage	5	5	5	V
Electrostatic Discharge Threshold	2000	1000	1000	V
Operating Temperature Range	-20°C to + 80°C			
Storage Temperature Range	-30°C to + 100°C			
Soldering Condition	260°C For 5 Seconds			

Note:

1. 1/10DutyCycle, 0.1msPulseWidth

Electrical Optical Characteristics Curves At Ta=25°C

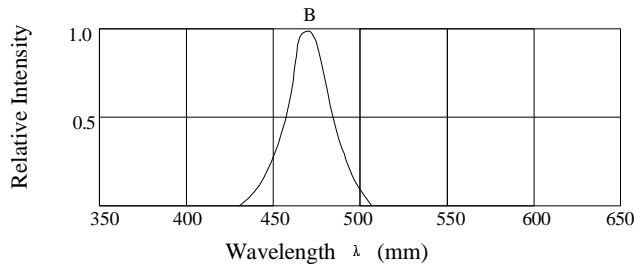


Fig.1 Relative Intensity vs. Wavelength

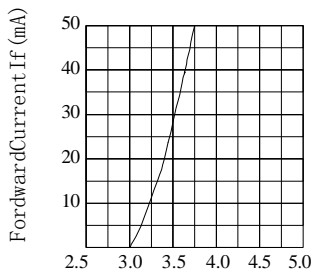


Fig.2 Forward Current VS. Forward Voltage

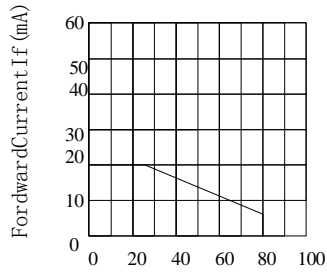


Fig.3 Forward Current Derating Curve

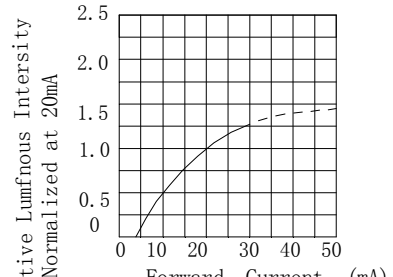


Fig.4 Relative Luminous Intensity VS. Forward Current

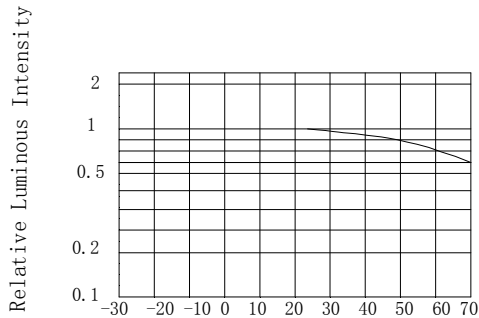


Fig.5 Luminous Intensity VS. Ambient Temperature TA

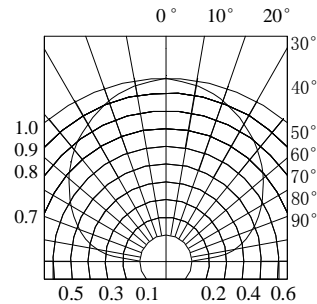


Fig.6 Spatial Distribution

Electrical Optical Characteristics Curves At Ta=25°C

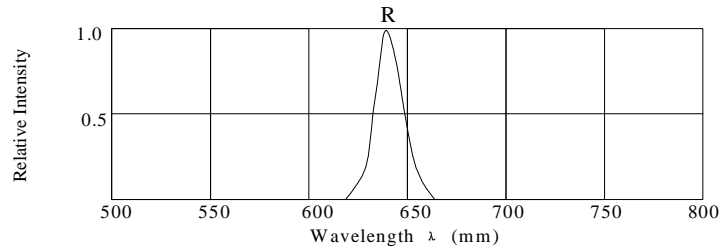


Fig.1 Relative Intensity vs. Wavelength

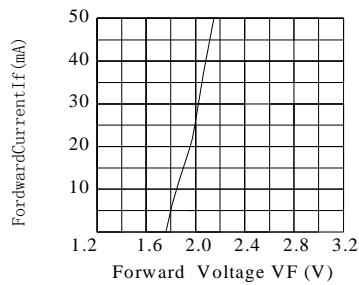


Fig.2 Forward Current VS. Forward Voltage

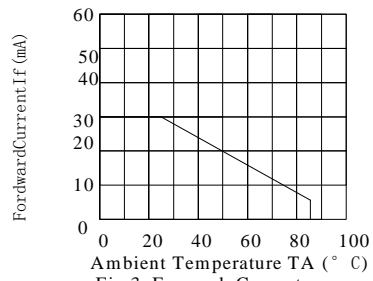


Fig.3 Forward Current Derating Curve

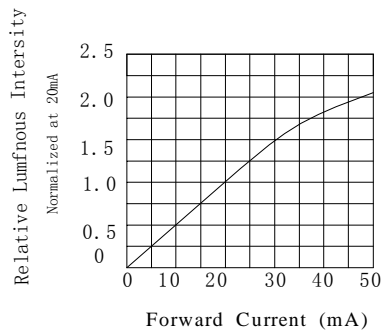


Fig.4 Relative Luminous Intensity vs. Forward Current

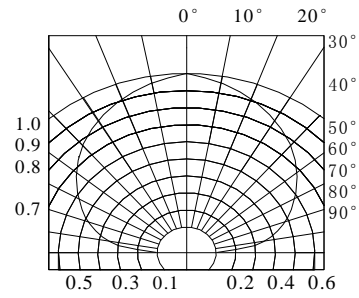


Fig.6 Spatial Distribution

Electrical Optical Characteristics Curves At Ta=25°C

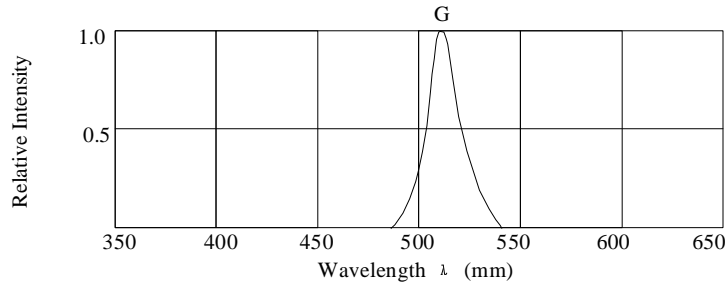


Fig.1 Relative Intensity vs. Wavelength

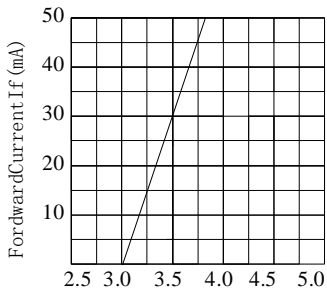


Fig.2 Forward Current VS. Forward Voltage

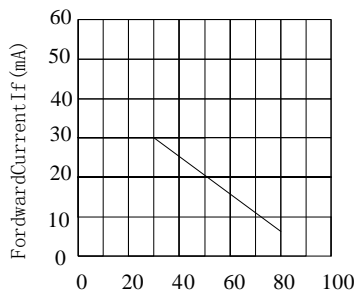


Fig.3 Forward Current Derating Curve

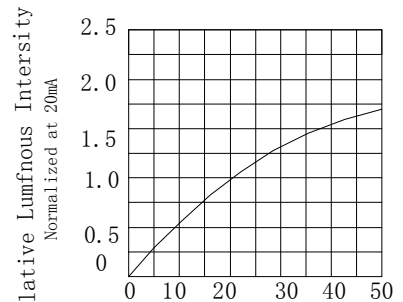
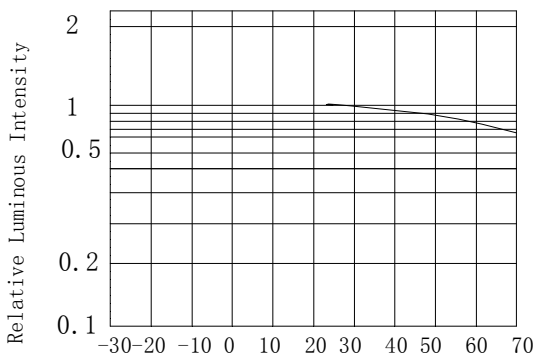


Fig.4 Relative Luminous Intensity vs. Forward Current



Ambient Temperature TA (°C)

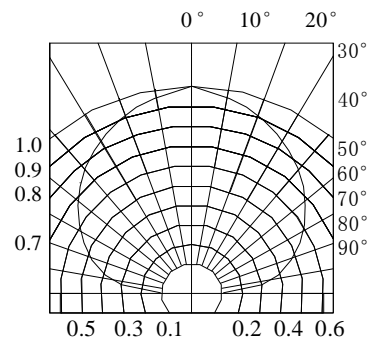


Fig.6 Spatial Distribution



Bin Range Of Luminous Intensity (+/-20%)

Symbol	Color	Bin	Min.	Max.	Unit	Condition
Iv	Red	L1	450	565	mcd	IF=20mA
		L2	565	715		
		L3	715	900		
	Pure Green	L4	900	1120		
		L5	1120	1420		
		L6	1420	1800		
	Blue	L7	225	285		
		L8	285	360		
		L9	360	450		

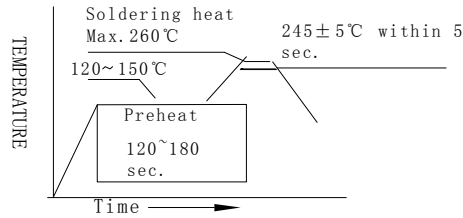
Bin Range Of Forward Voltage (+/-0.15)

Symbol	Color	Bin	Min.	Max.	Unit	Condition
VF	Red	V1	1.75	1.95	V	IF=20mA
		V2	1.95	2.15		
		V3	2.15	2.35		
		V4	2.35	2.55		
	Pure Green	V5	2.75	3.05		
		V6	3.05	3.35		
		V7	3.35	3.65		
	Blue	V8	2.75	3.05		
		V9	3.05	3.35		
		V10	3.35	3.65		

Bin Range Of Dominate Wavelength

Symbol	Color	Bin	Min.	Max.	Unit	Condition
λ d	Red	W1	617.5	621.5	nm	IF=20mA
		W2	621.5	625.5		
		W3	625.5	629.5		
	Pure Green	W4	525	530		
		W5	530	535		
	Blue	W6	465	470		
		W7	470	475		

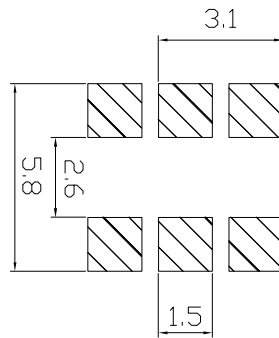
SMT Reflow Soldering Instructions



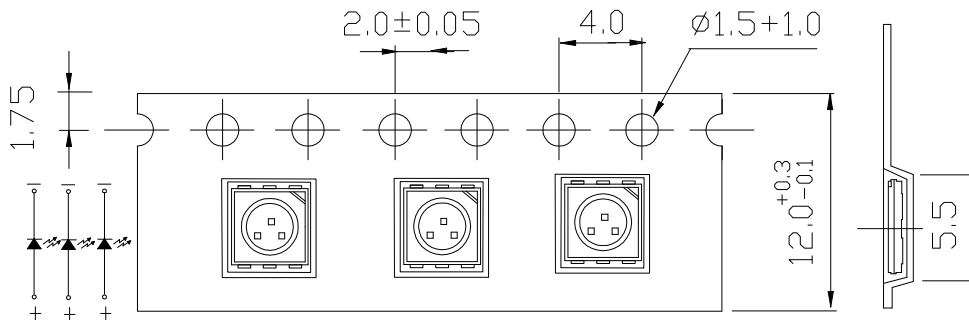
Notes:

1. Sells gives no other assurances regarding the ability of to withstand ESD. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.
2. Reflow soldering should not be done more than two times.
3. Do not stress LED when soldering, and do not warp the circuit board after soldering
4. While using Iron, Power dissipation of Iron should be smaller than 25W, and temperature should be controllable. The work should be finished within 2 sec under 320°C for once only.

Recommended Soldering Pad Dimensions



Package Specifications (Units: mm (inches))



Notes:

1. The LEDs should be used within a year.
2. The LEDs should be kept in 5~30°C and 60% RH for less.
3. The LEDs should be used within 24 hours, or else should be kept a 5~30°C and 30% RH or less. And LEDs should be used within 7 days after opening the package.

Reliability Test Items Conditions

Classification	Test Item	Test Conditions	Test hours	Result
Endurance Test	Opertion Life	Connect with a power $I_F=20mA$ Ta=Under room temperature	1000Hrs	0/20
	Hige Temperature High Humidity	Ta=+65°C±5°C RH=90%-95%	240Hrs	0/20
	Hige Temperature Storage	High Ta=+85°C±5°C	1000Hrs	0/20
	Low Temperature Storage	Low Ta=-35°C±5°C Test time=1000hrs	1000Hrs	0/20
Environmental Test	Temperature Cycling	-45°C ~ +105°C 15min 5min 15min	300 Cycles	0/20
	Thermal Shock	-35°C ~ ±5°C ~ +85°C ~ ±5°C 5min 10sec 5min	300 Cycles	0/20
	Solder Resistance	Preheating: 120°C-150°C, within 2 minutes. Operation heating : 260°C (Max.), within 5 seconds (Max.)	5Cycles	0/20

Judgment criteria of failure for the reliability

Measuring items	Symbol	Measuring conditions	Judgment criteria for failure
Forward voltage	$V_F(V)$	$I_F=20mA$	Over $U \times 1.2$
Rvevrse current	$I_R(\mu A)$	$V_R=5V$	Over $U \times 2$
Luminous intensity	$I_v(mcd)$	$I_F=20mA$	Below $S \times 0.5$

Note: 1.U means the upper limit of specified characteristics. S means initial value.

2.Measurment shall be taken between 2 hours after the test pieces have been returned to normal ambient conditions after completion of each test.