

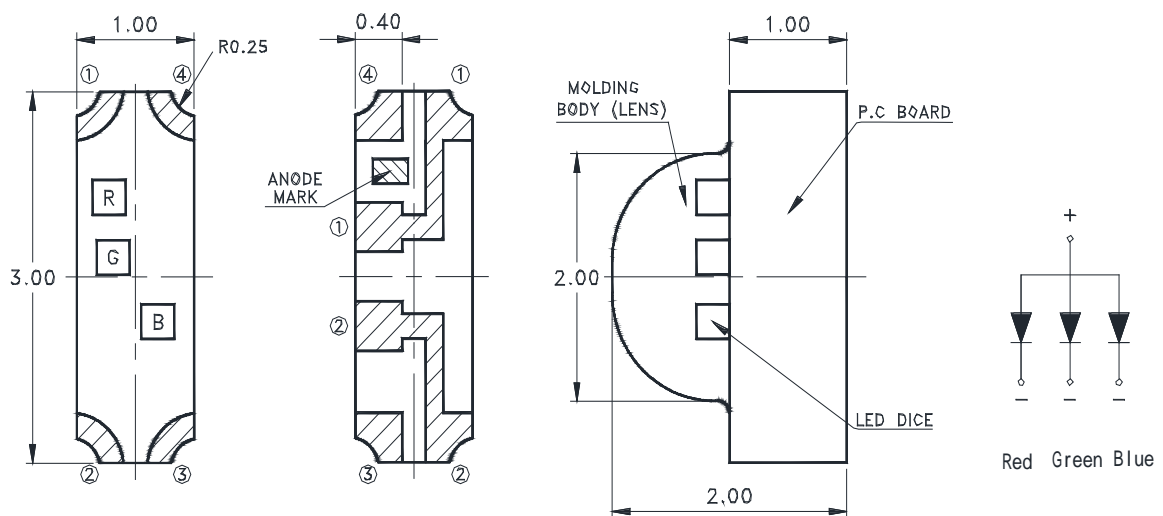
**Features**

- 3.0mm\*2.0mm SMT LED, Side View, Super thin (1.00H 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 reference, not as a basis for the actual structure.



**Selection Guide**

Part No	Lens Type	Dice	Emitted Color
FSL-3020100RPGB-KAN4SCTHH	Water Clear	InGaN	Pure Green
		AlInGaP	Red
		InGaN	Blue

**Electrical / Optical Characteristics At Ta=25 °C**

Symbol	Parameter		Red	Pure Green	Blue	Unit	Test Condition
Iv	Luminous Intensity	MIN.	180	245	112	mcd	R IF=20mA
		TYP.					G IF=20mA
		MAX	360	560	280		B IF=20mA
201/2	Viewing Angle	TYP.	130	130	130	deg	IF=20mA
λ Peak	Peak Emission Wavelength	TYP.	625	518	455	nm	R IF=20mA G IF=20mA B IF=20mA
λ d	Dominant Wavelength	TYP.	615	525	470	nm	R IF=20mA G IF=20mA B IF=20mA
Δλ	Spectral Line Half-Width	TYP.	20	35	35	nm	IF=20mA
VF	Forward Voltage	Min	1.8	2.7	2.7	V	R IF=20mA
		Max.	2.4	3.7	3.7		G IF=20mA B IF=20mA
IR	Reverse Current	MAX.	10	50	50	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 From 25 °C	0.4	0.5	0.25	mA/°C
Reverse Voltage	5	5	5	V
Electrostatic Discharge Threshold	2000	150	150	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:

**Electrical Optical Characteristics Curves At Ta=25 °C**

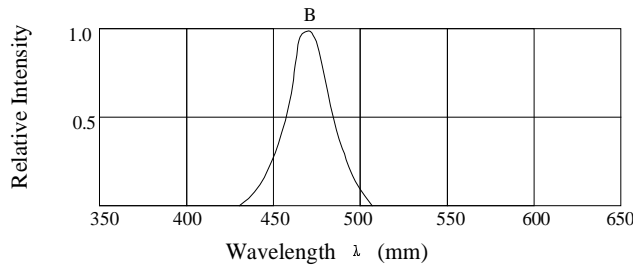


Fig.1 Relative Intensity vs. Wavelength

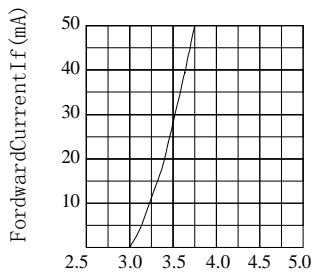


Fig.2 Forward Current VS. Forward Voltage

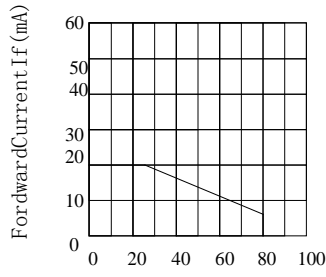


Fig.3 Forward Current Derating Curve

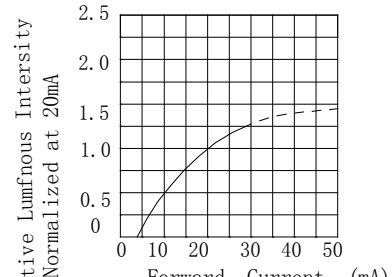


Fig.4 Relative Luminous Intensity VS. Forward Current

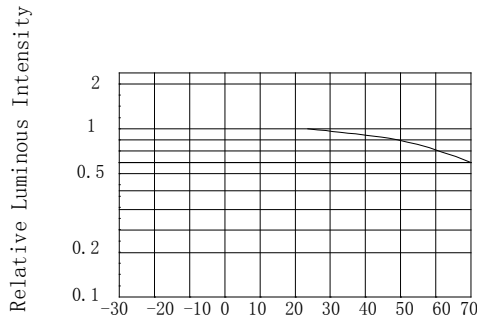


Fig.5 Luminous Intensity VS. Ambient Temperature TA

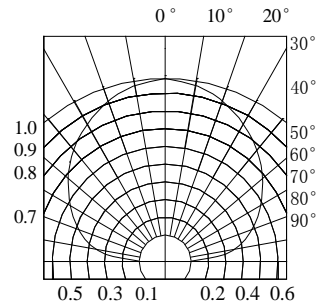


Fig.6 Spatial Distribution

**Electrical Optical Characteristics Curves At Ta=25 °C**

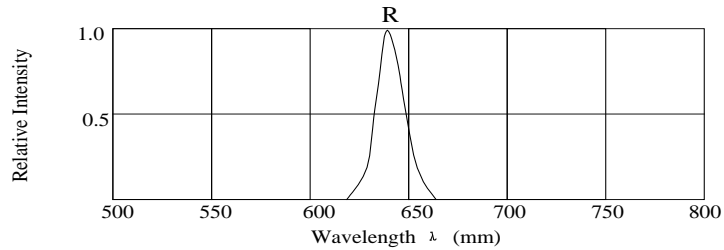


Fig.1 Relative Intensity vs. Wavelength

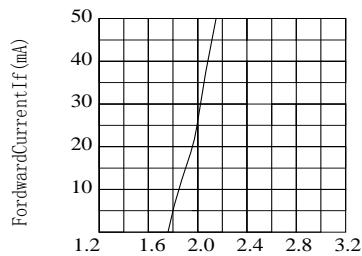


Fig.2 Forward Current VS. Forward Voltage

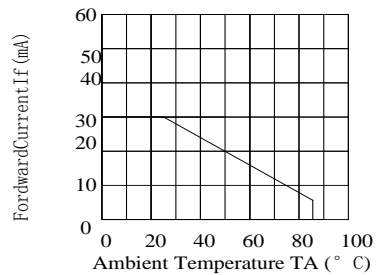


Fig.3 Forward Current Derating Curve

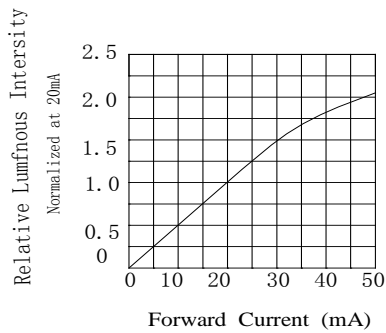


Fig.4 Relative Luminous Intensity vs. Forward Current

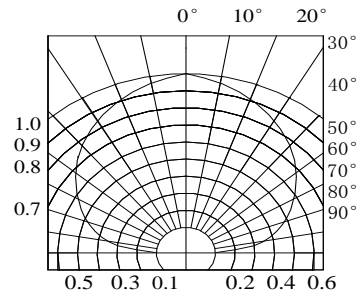


Fig.6 Spatial Distribution

**Electrical Optical Characteristics Curves At Ta=25°C**

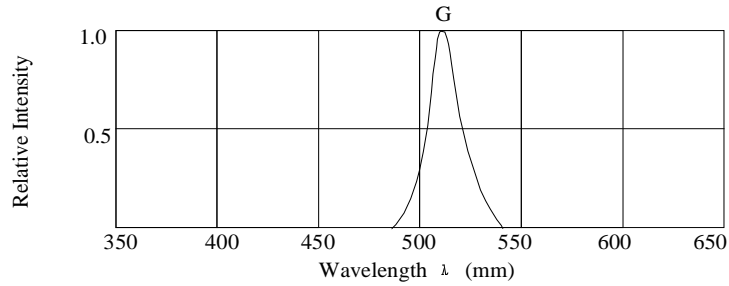


Fig.1 Relative Intensity vs. Wavelength

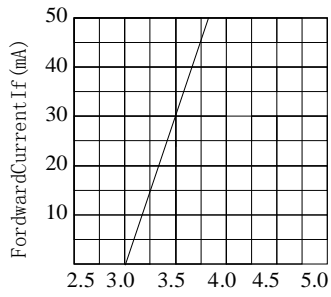


Fig.2 Forward Current VS. Forward Voltage

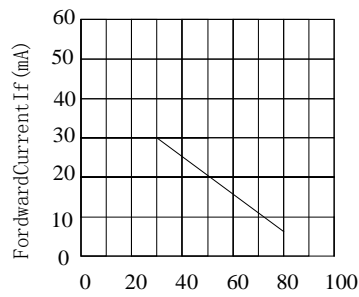


Fig.3 Forward Current Derating Curve

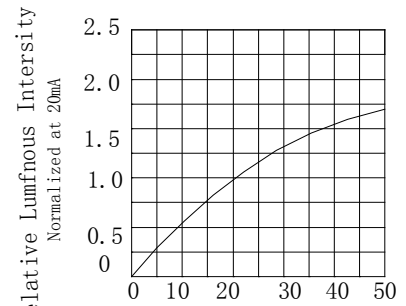
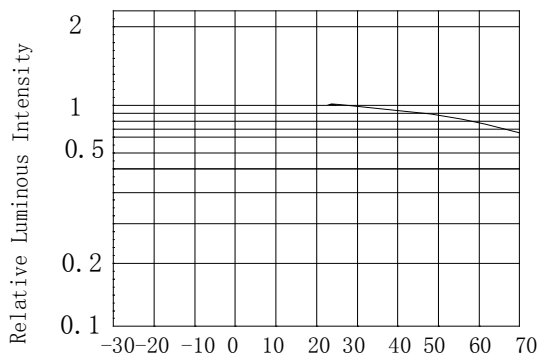


Fig.4 Relative Luminous Intensity vs. Forward Current



Ambient Temperature TA (°C)

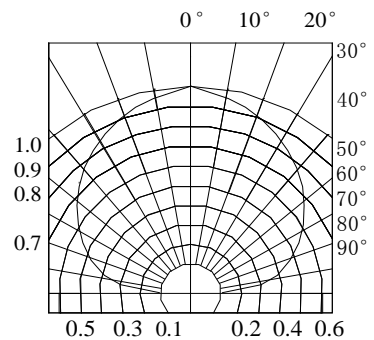


Fig.6 Spatial Distribution



**Bin Range Of Luminous Intensity (+/-15%)**

Symbol	Color	Bin Code	Min.	Max.	Unit	Condition
Iv	RED	RC	180	245	mcd	IF=20mA
		RD	245	360		
	Green	GB	245	280		
		GC	280	360		
		GD	360	560		
	Blue	BB	112	180		
BC		180	280			

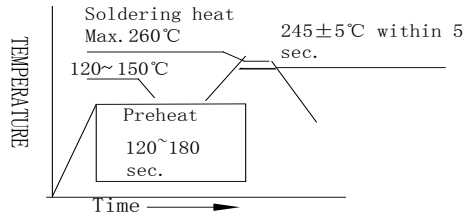
**Bin Range Of Forward Voltage (+/-0.1)**

Symbol	Color	Bin Code	Min.	Max.	Unit	Condition
VF	RED	RV1	1.8	2.1	V	IF=20mA
		RV2	2.1	2.4		
	Green	GV1	2.7	3.2		
		GV2	3.2	3.7		
	Blue	BV1	2.7	3.2		
		BV2	3.2	3.7		

**Bin Range Of Dominate Wavelength**

Symbol	Color	Bin Code	Min.	Max.	Unit	Condition
λ d	RED	DR1	610	625	nm	IF=20mA
	Green	DG1	520	530	nm	IF=20mA
		DG2	530	540		
	Blue	DB1	455	465	nm	IF=20mA
DB2		465	475			

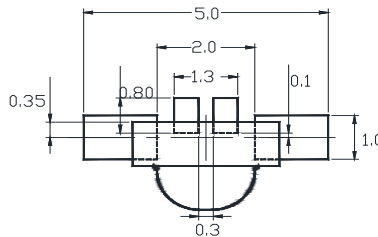
**SMT Reflow Soldering Instructions**



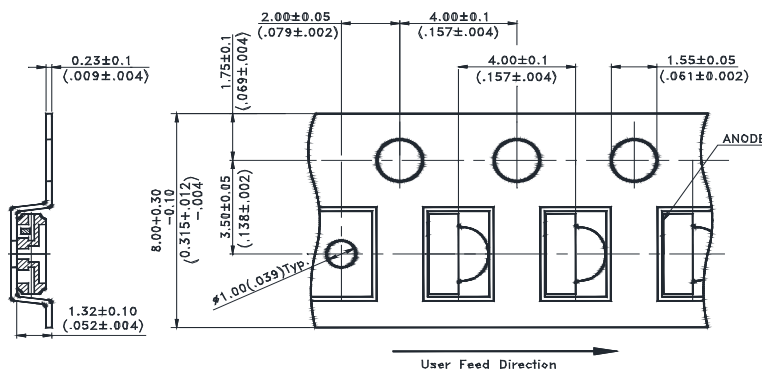
Notes:

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	Operation Life	Connect with a power $I_F=20mA$ $T_a$ =Under room temperature	1000Hrs	0/20
	High Temperature High Humidity	$T_a=+65^{\circ}C \pm 5^{\circ}C$ RH=90%-95%	240Hrs	0/20
	High Temperature Storage	High $T_a=+85^{\circ}C \pm 5^{\circ}C$	1000Hrs	0/20
	Low Temperature Storage	Low $T_a=-35^{\circ}C \pm 5^{\circ}C$ Test time=1000hrs	1000Hrs	0/20
Environmental Test	Temperature Cycling	$-45^{\circ}C \sim +105^{\circ}C$ 15min 5min 15min	300 Cycles	0/20
	Thermal Shock	$-35^{\circ}C \sim \pm 5^{\circ}C \sim +85^{\circ}C \sim \pm 5^{\circ}C$ 5min 10sec 5min	300 Cycles	0/20
	Solder Resistance	Preheating: $120^{\circ}C-150^{\circ}C$ , within 2 minutes. Operation heating : $260^{\circ}C$ (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 $U \times 1.2$
Reverse 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.Measurement shall be taken between 2 hours after the test pieces have been returned to normal ambient conditions after completion of each test.