

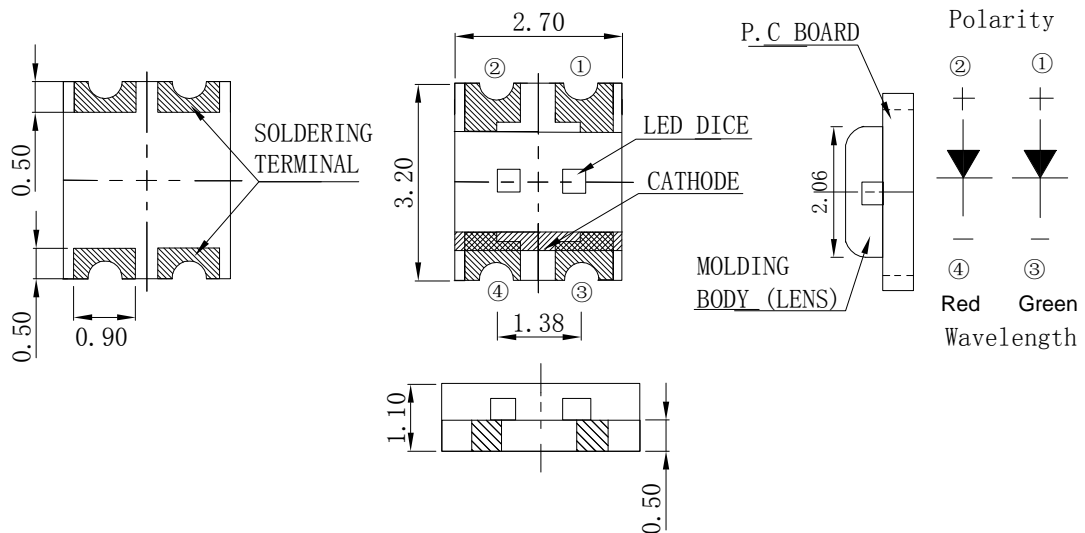
**Features**

- 3.2mm\*2.7mm SMT LED, Super thin (1.10H mm)
- Low Power Consumption
- Wide Viewing Angle
- Various Colors
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow and wave solder process.
- Meet ROHS Green Product.
- Package: 3000pcs/Reel

**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-3227110PGR-LBTNHQ	Water Clear	InGaN AlInGaP	Pure Green Red

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

Symbol	Parameter		Pure Green	Red	Unit	Test Condition
Iv	Luminous Intensity	MIN.	72	72	mcd	IF=20mA
		TYP.	180	130		
		MAX.	450	450		
2θ1/2	Viewing Angle	TYP.	130	130	deg	IF=20mA
λ Peak	Peak Emission Wavelength	TYP.	520	639	nm	IF=20mA
λ d	Dominant Wavelength	TYP.	525	631	nm	IF=20mA
Δλ	Spectral Line Half-Width	TYP.	15	20	nm	IF=20mA
VF	Forward Voltage	TYP.	3.3	2.0	V	IF=20mA
		MAX.	3.5	2.4		
IR	Reverse Current	MAX.	10	10	μ A	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	Pure Green	Red	Unit
Power Dissipation	75	75	mW
Peak Forward Current[1]	80	80	mA
Continuous Forward Current	30	30	mA
Dreading Linear From 30°C	0.4	0.4	mA/°C
Reverse Voltage	5	5	V
Electrostatic Discharge Threshold(HBM)	150	2000	V
Operating Temperature Range	-55°C to + 85°C		
Storage Temperature Range	-55°C to + 85°C		
Soldering Condition	260°C For 5 Seconds		

Note:

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

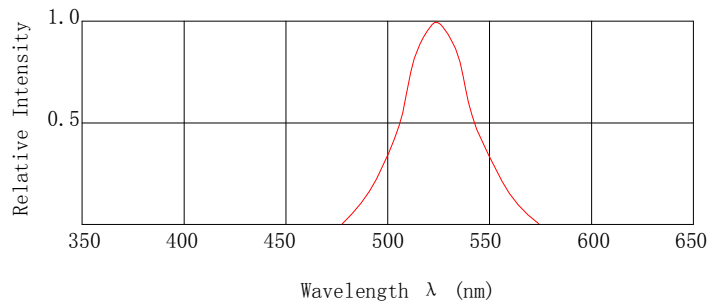


Fig.1 Relative Intensity vs. Wavelength

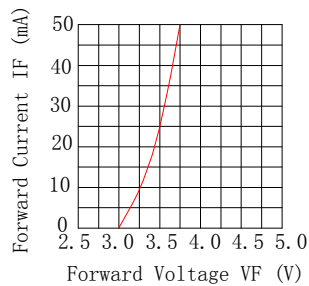


Fig.2 Forward Current VS. Forward Voltage

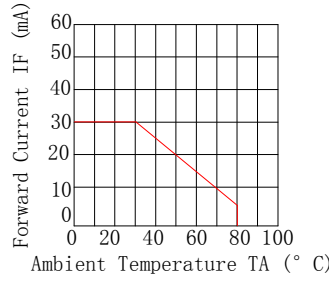


Fig.3 Forward Current Derating Curve

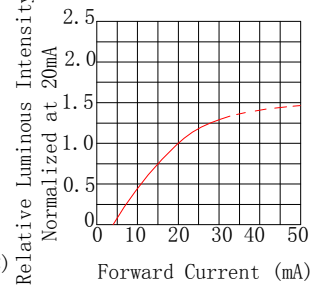


Fig.4 Relative Luminous Intensity VS. Forward Current

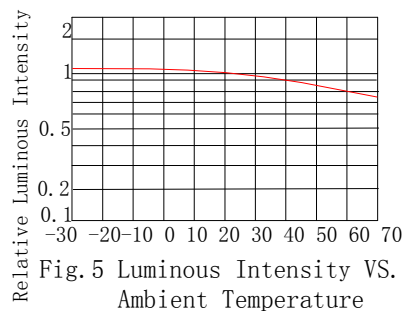


Fig.5 Luminous Intensity VS. Ambient Temperature

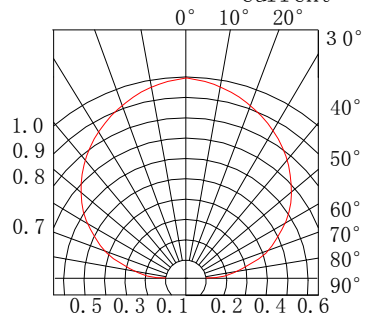


Fig.6 Spatial Distribution

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

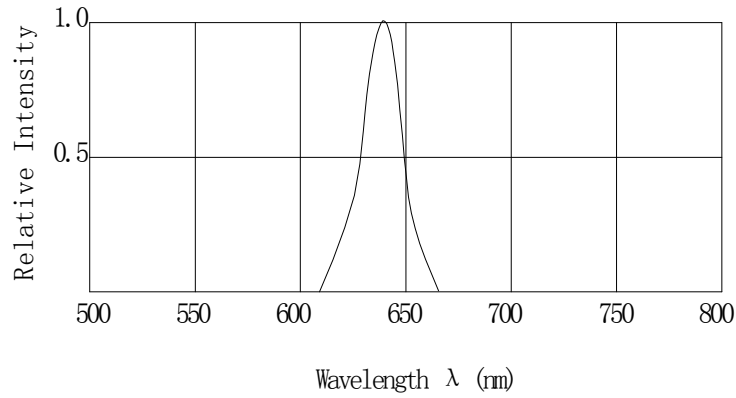


Fig. 1 Relative Intensity vs. Wavelength

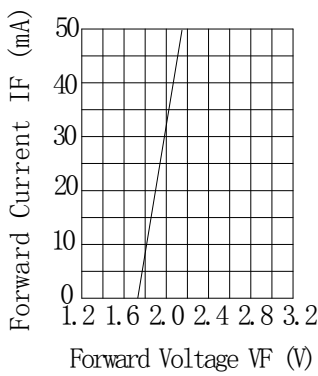


Fig. 2 Forward Current VS. Forward Voltage

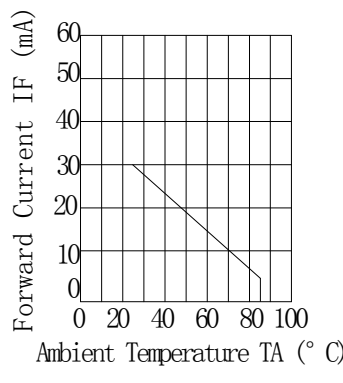


Fig. 3 Forward Current Derating Curve

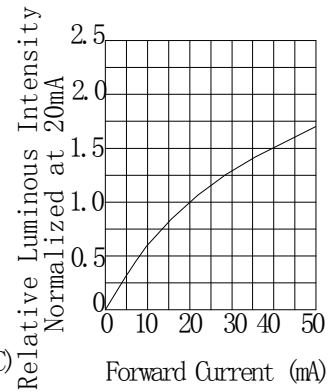


Fig. 4 Relative Luminous Intensity VS. Forward Current

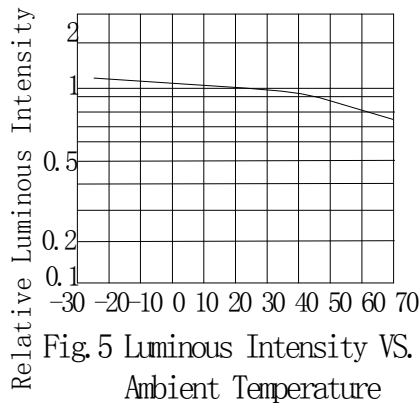


Fig. 5 Luminous Intensity VS. Ambient Temperature

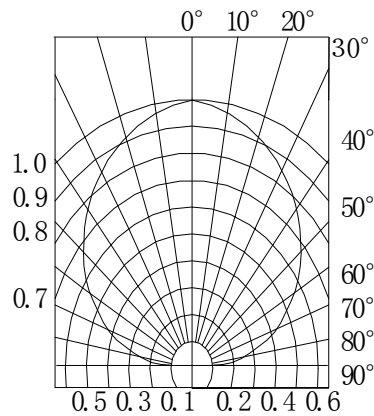


Fig. 6 Spatial Distribution

**Bin Range Of Luminous Intensity**

Symbol	Bin Code	Min.	Max.	Unit	Condition
Iv(PG)	Q	72	112	mcd	IF=20mA
	R	112	180		
	S	180	360		
	T	360	450		
Iv(R)	Q	72	112	mcd	IF=20mA
	R	112	180		
	S	180	360		
	T	360	450		

**Bin Range Of Forward Voltage**

Symbol	Bin Code	Min.	Max.	Unit	Condition
V <sub>F</sub> (PG)	-	2.7	3.5	V	IF=20mA
V <sub>F</sub> (R)	-	1.7	2.4	V	IF=20mA

**Bin Range Of Dominate Wavelength**

Symbol	Bin Code	Min.	Max.	Unit	Condition
λ <sub>d</sub> (PG)	-	520.0	535.0	nm	IF=20mA
λ <sub>d</sub> (R)	-	613.5	638.5	nm	IF=20mA

Notes:

1. Tolerance of Luminous Intensity +/-20%,the Luminous Intensity is measured with the led excluded the black lens cover.
2. Tolerance of Forward Voltage +/-0.5
3. Tolerance of the Dominate Wavelength +/- 5nm



**Reliability Test Items Conditions**

Classification	Test Item	Test Conditions	Test hours	Result
Endurance Test	Opertion Life	Connect with a power $I_F=20mA$ $T_a=$ Under room temperature	1000Hrs	0/20
	Hige Temperature High Humidity	$T_a=+65^{\circ}C\pm5^{\circ}C$ RH=90%-95%	240Hrs	0/20
	Hige Temperature Storage	High $T_a=+85^{\circ}C\pm5^{\circ}C$	1000Hrs	0/20
	Low Temperature Storage	Low $T_a=-35^{\circ}C\pm5^{\circ}C$ 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	$-35^{\circ}C\sim\pm5^{\circ}C\sim+85^{\circ}C\sim\pm5^{\circ}C$ 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.),within5 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.Measurment shall be taken between 2 hours after the test pieces have been returned to normal ambient conditions after completion of each test.