

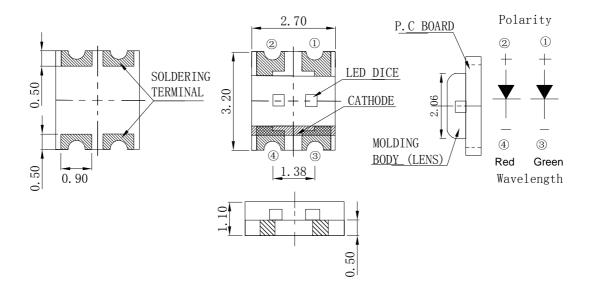
#### **Features**

- 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  $\pm 0.2$ 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.

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### FSL-3227110PGR-LBTNHQ

Cal	0.042.0-	Guide
Sel	lection	(+iiiide

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
		MIN.	72	72		
Iv	Luminous Intensity	TYP.	180	130	mcd	IF=20mA
		MAX.	450	450		
201/2	Viewing Angle	TYP.	130	130	deg	IF=20mA
入 Peak	Peak Emission Wavelength	TYP.	520	639	nm	IF=20mA
入 d	Dominant Wavelength	TYP.	525	631	nm	IF=20mA
$\triangle \lambda$	Spectral Line Half-Width	TYP.	15	20	nm	IF=20mA
VF	Forward Voltage	TYP.	3.3	2.0	V	IF=20mA
VГ		MAX.	3.5	2.4	V	II`–2UIIIA
IR	Reverse Current	MAX.	10	10	μА	VR 5V

Note:

# Absolute Maximum Ratings At Ta=25℃

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 From30°C	0.4	0.4	mA/℃	
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			

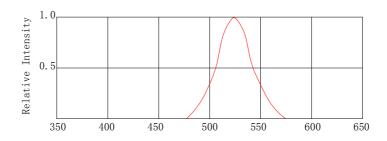
Note:

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 $<sup>1. \</sup>theta 1/2$  is the angle from optical centerline where the luminous intensity is 1/2 optical centerline value



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



 $\label{eq:wavelength} \begin{array}{c} \text{Wavelength } \lambda \quad \text{(nm)} \\ \text{Fig. 1 Relative Intensity vs. Wavelength} \end{array}$ 

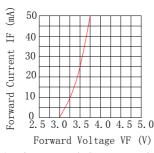


Fig. 2 Forward Current VS. Forward Voltage

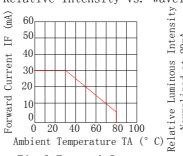


Fig. 3 Forward Current Derating Curve

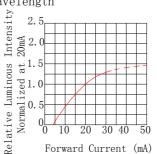
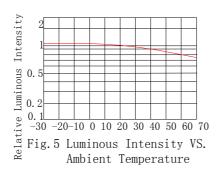
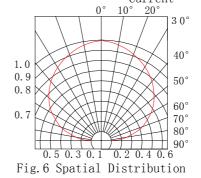


Fig. 4 Relative Luminous Intensity VS. Forward Current

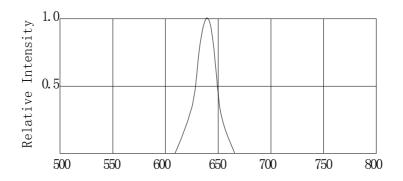




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#### Electrical Optical Characteristics Curves At Ta=25°C



Wavelength  $\lambda$  (nm)

Fig. 1 Relative Intensity vs. Wavelength

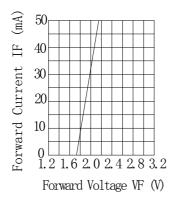


Fig. 2 Forward Current VS. Forward Voltage

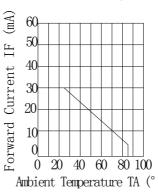
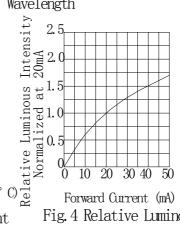
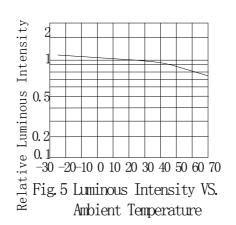


Fig. 3 Forward Current Derating Curve



Forward Current (mA)
Fig. 4 Relative Luminous
Intensity VS. Forward
Current



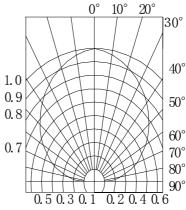


Fig. 6 Spatial Distribution

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### **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	II. 20 A
	R	112	180		
	S	180	360		IF=20mA
	Т	360	450		

## **Bin Range Of Forward Voltage**

Symbol	Bin Code	Min.	Max.	Unit	Condition
VF(PG)	-	2.7	3.5	V	IF=20mA
VF(R)	-	1.7	2.4	V	IF=20mA

### **Bin Range Of Dominate Wavelength**

Symbol	Bin Code	Min.	Max.	Unit	Condition
入 d(PG)	-	520.0	535.0	nm	IF=20mA
入 d(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
- 2. Tolerance of Forward Voltage +/-0.5
- 3. Tolerance of the Dominate Wavelength +/- 5nm

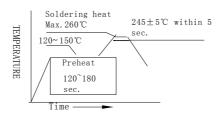
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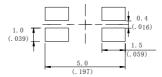
#### **SMT Reflow Soldering Instructions**



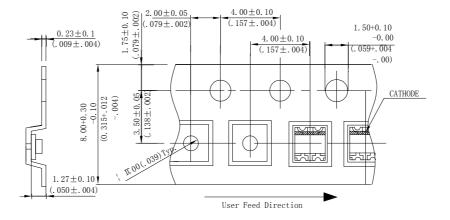
#### Notes:

- 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  $5\sim30\,^{\circ}\mathrm{C}$  and 60% RH for less.
- 3. The LEDs should be used within 24 hours, or else should be kept in 5~30°C and 30% RH or less. And LEDs should be used within 7 days after opening the package.

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### **Reliability Test Items Conditions**

Classification	Test Item	Test Conditions	Test hours	Result
	Opertion Life	Connect with a power IF=20mA Ta=Under room temperature	1000Hrs	0/20
F .	Hige Temperature High Humidity	Ta=+65°C±5°C RH=90%-95%	240Hrs	0/20
Endurance Test	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
	Temperature Cycling	-45°C∼+105°C 15min 5min 15min	300 Cycles	0/20
Environmental	Thermal Shock	-35°C∼±5°C∼+85°C∼±5°C 5min 10sec 5min	300 Cycles	0/20
Test	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 <sub>F</sub> (V)	IF=20mA	Over U×1.2
Reverse current	Ir(µA)	V <sub>R</sub> =5V	Over U×2
Luminous intensity	Iv(mcd)	I <sub>F</sub> =20mA	Below S×0.5

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

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

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