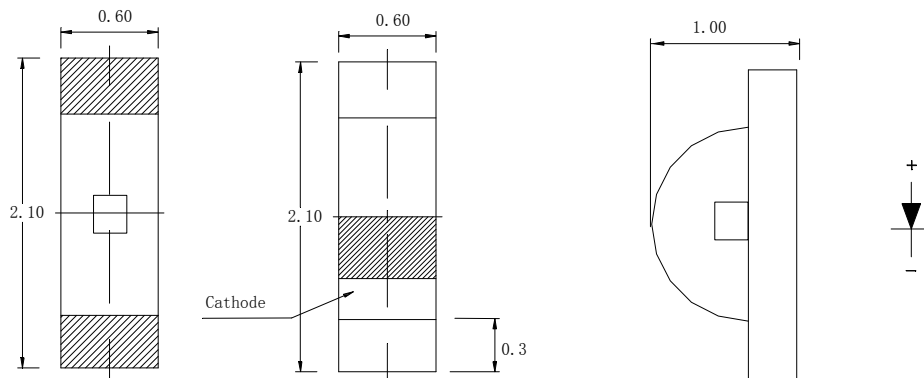


**Features**

- 2.1mm\*1.0mm SMT LED, Super thin (0.6H 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

**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	Source Color
FSL-2110060W-SYJY	Yellow	InGaN White

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Iv	Luminous Intensity	350	500	800	mcd	IF=20mA
2θ1/2	Viewing Angle		140		deg	
x	Chromaticity Coordinates		0.290		nm	IF=20mA
y			0.280		nm	IF=20mA
VF	Forward Voltage	3.0		3.5	V	IF=20mA

Note:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 optical centerline value
2. The chromaticity coordinates(x,y) is derived from 1931 CIE chromaticity diagram.
3. The chromaticity coordinates(x,y) guarantee should be added±0.01 tolerance.

**Absolute Maximum Ratings At Ta=25°C**

Parameter	White	Unit
Power Dissipation	110	mW
Peak Forward Current (1/10 Duty Cycle @ 0.1ms)	100	mA
Continuous Forward Current	25	mA
Reverse Voltage	5	V
Electrostatic Discharge Threshold(HBM)	300	V
Operating Temperature Range	-30°C to + 85°C	
Storage Temperature Range	-40°C to + 100°C	
Soldering Condition	260°C For 10 Seconds	

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

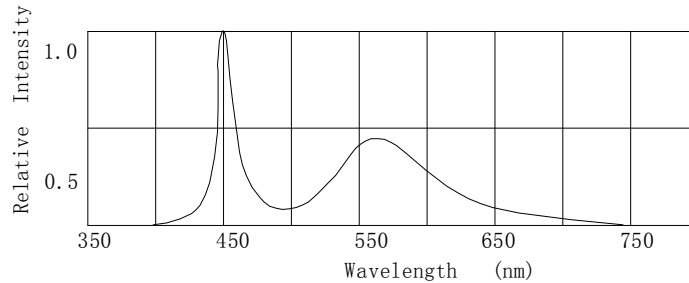


Fig.1 Relative Intensity VS. Wavelength

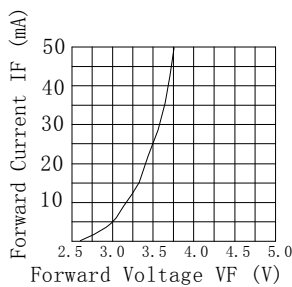


Fig.2 Forward Current vs. Forward Voltage

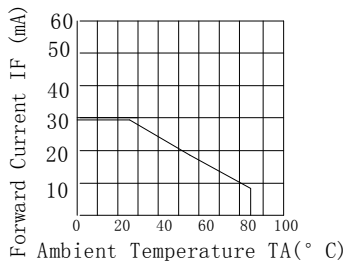


Fig.3 Forward Current Derating Curve

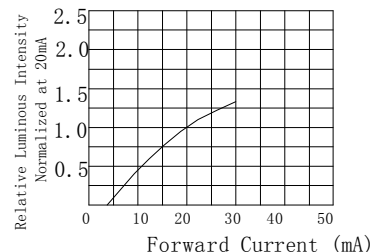


Fig.4 Relative Luminous Intensity vs. Forward Current

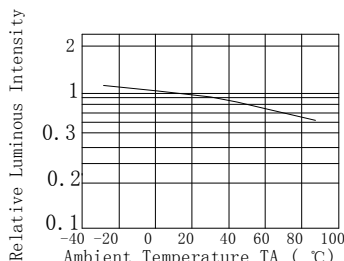


Fig.5 Luminous Intensity vs. Ambient Temperature

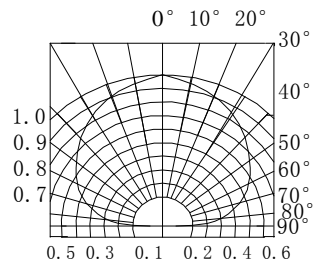


Fig.6 Spatial Distribution

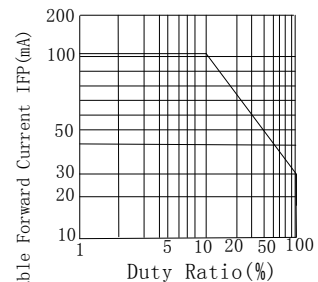


Fig.7 Duty Ratio vs. Allowable Forward Current

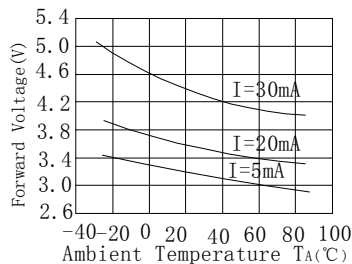


Fig.8 Ambient Temperature vs. Forward Voltage

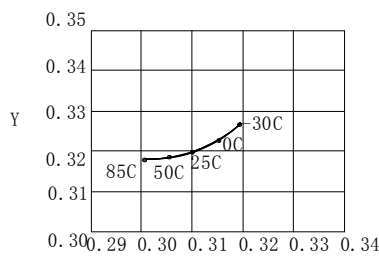


Fig.9 Ambient Temperature TA (°C) vs. Chromaticity Coordinate

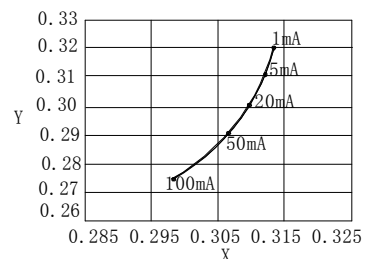


Fig.10 Forward Current VS. Chromaticity Coordinate



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

Symbol	Bin Code	Min.	Max.	Unit	Condition
Iv	LA	350	500	mcd	IF=20mA
	LB	500	650		
	LC	650	800		

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

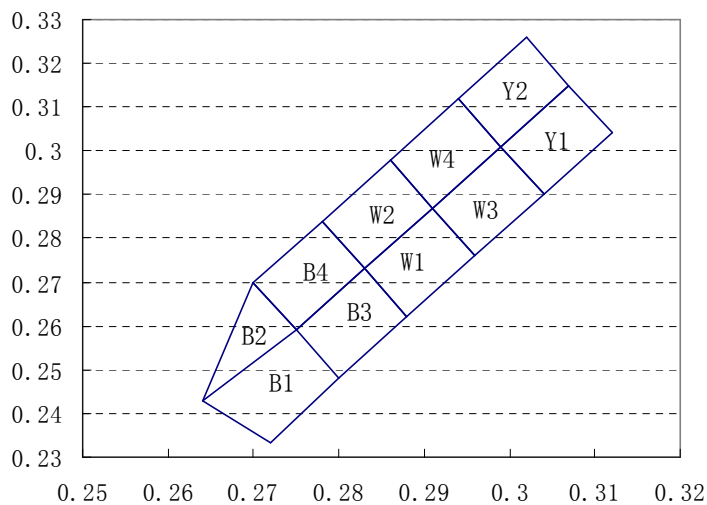
Symbol	Bin Code	Min.	Max.	Unit	Condition
VF	V1	3.0	3.1	V	IF=20mA
	V2	3.1	3.2		
	V3	3.2	3.3		
	V4	3.3	3.4		
	V5	3.4	3.5		

**Chromaticity Coordinates Specifications for Bin Grading (+/-0.02)**

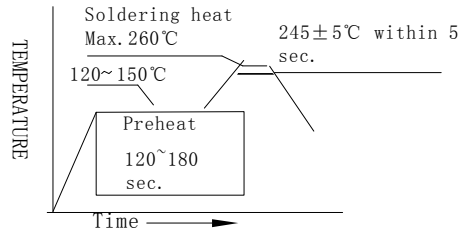
IF=20mA

Bin	CIE_x	CIE_y	Bin	CIE_x	CIE_y	Bin	CIE_x	CIE_y	Bin	CIE_x	CIE_y	Bin	CIE_x	CIE_y
B1	0.275	0.259	B2	0.264	0.243	B3	0.28	0.248	B4	0.275	0.259	Y1	0.304	0.29
	0.264	0.243		0.27	0.27		0.275	0.259		0.27	0.27		0.299	0.301
	0.272	0.234		0.275	0.259		0.283	0.273		0.278	0.284		0.307	0.315
	0.28	0.248					0.288	0.262		0.283	0.273		0.312	0.304
W1	0.288	0.262	W2	0.286	0.298	W3	0.296	0.276	W4	0.291	0.287	Y2	0.299	0.301
	0.283	0.273		0.278	0.284		0.291	0.287		0.286	0.298		0.294	0.312
	0.291	0.287		0.283	0.273		0.299	0.301		0.294	0.312		0.302	0.326
	0.296	0.276		0.291	0.287		0.304	0.29		0.299	0.301		0.307	0.315

**CIE Chromaticity Diagram(+/-0.02)**



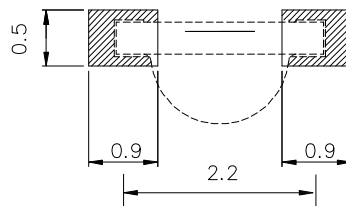
**SMT Reflow Soldering Instructions**



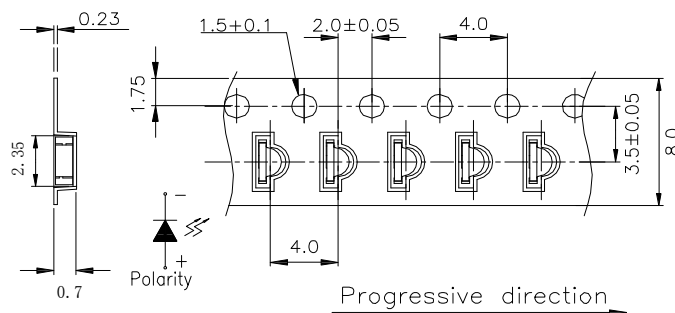
Notes:

1. Selles 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 in 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 if=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 fialure for the reliability**

Measuring items	Symbol	Measuring conditions	Judement criteria for failure
Forward voltage	V <sub>F</sub> (V)	I <sub>F</sub> =20mA	Over U×1.2
Rvevrse current	I <sub>R</sub> (μA)	V <sub>R</sub> =5V	Over U×2
Luminous intensity	I <sub>v</sub> (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 returnde to normal ambient cnditions after completion of each test.