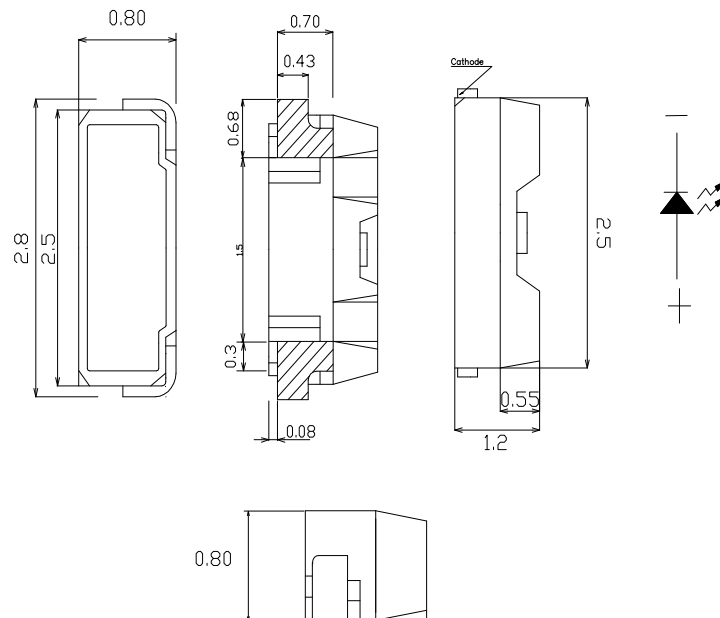


**Features**

- Package in 12mm tape on 7" diameter reels.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow solder process.
- I.C. compatible
- Meet green product and Pb-free(According to RoHS)
- Package : 2000pcs/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 indication, not as a basis for the actual structure.



FSL-2812080R-AST2V2KYY

### Selection Guide

Part No	Lens Type	Dice	Emitted Color
FSL-2812080R-AST2V2KYY	Water Clear	AllnGap	Red

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Iv	Luminous Intensity	360	720	1125	mcd	IF=20mA
2θ1/2	Viewing Angle		110		deg	
λ Peak	Peak Emission Wavelength		631		nm	IF=20mA
λ d	Dominant Wavelength	615.0	625.5	630.0	nm	IF=20mA
Δλ	Spectral Line Half-Width		20		nm	IF=20mA
VF	Forward Voltage	1.6	2.0	2.4	V	IF=20mA
IR	Reverse Current			100	uA	VR=5V

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.

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

Parameter	Red	Unit
Power Dissipation	75	mW
Peak Forward Current (1/10 Duty Cycle @ 0.1ms)	60	mA
Continuous Forward Current	25	mA
Reverse Voltage	5	V
Electrostatic Discharge Threshold(HBM)	2000	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**

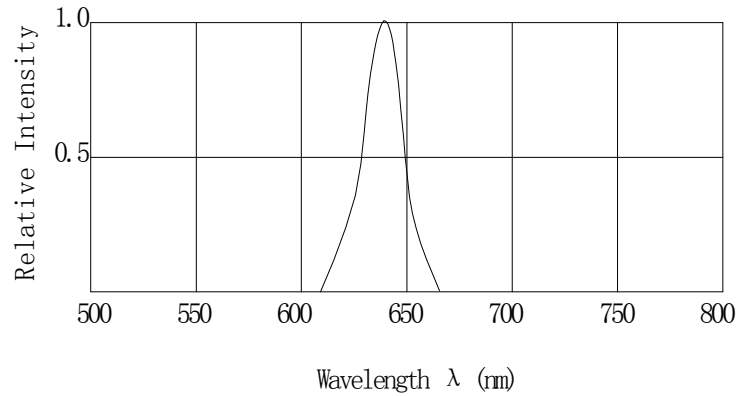


Fig. 1 Relative Intensity vs. Wavelength

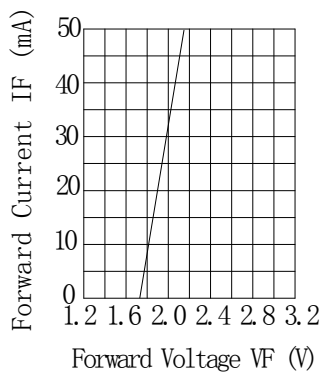


Fig. 2 Forward Current VS. Forward Voltage

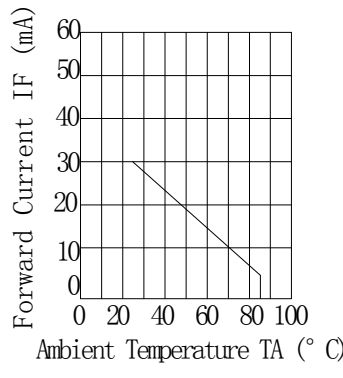


Fig. 3 Forward Current Derating Curve

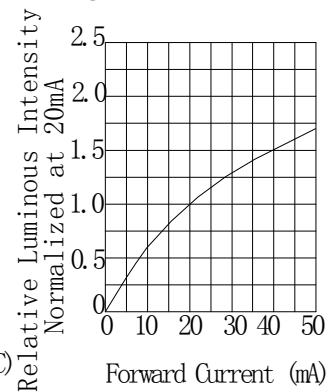


Fig. 4 Relative Luminous Intensity VS. Forward Current

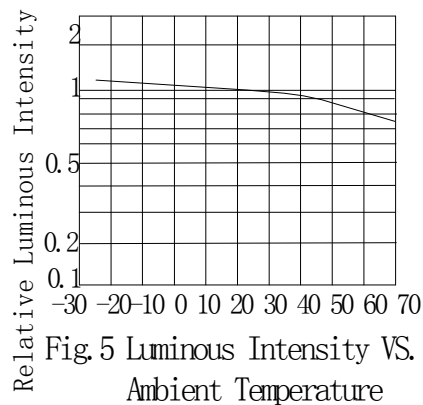


Fig. 5 Luminous Intensity VS. Ambient Temperature

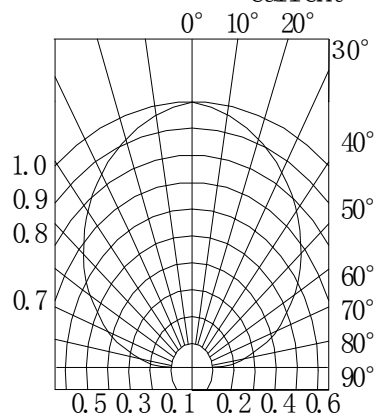


Fig. 6 Spatial Distribution

**Bin Range Of Luminous Intensity**

Symbol	Bin Code	Min.	Max.	Unit	Condition
I <sub>v</sub>	T2	360	450	mcd	I <sub>F</sub> =20mA
	U1	450	560		
	U2	560	720		
	V1	720	900		
	V2	900	1125		

**Bin Range Of Forward Voltage**

Symbol	Bin Code	Min.	Max.	Unit	Condition
V <sub>F</sub>	V2	1.6	1.8	V	I <sub>F</sub> =20mA
	V3	1.8	2.0		
	V4	2.0	2.2		
	V5	2.2	2.4		

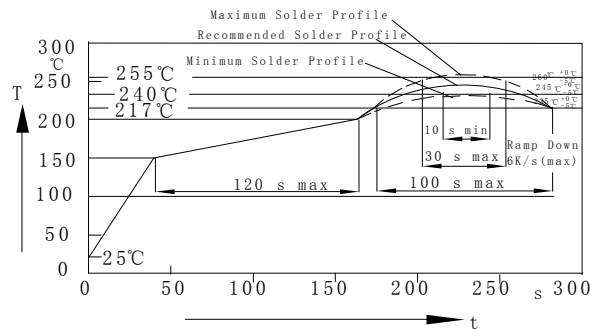
**Bin Range Of Dominate Wavelength**

Symbol	Bin Code	Min.	Max.	Unit	Condition
$\lambda_d$	D4	615	619	nm	I <sub>F</sub> =20mA
	D5	619	623		
	D6	623	627		
	D7	627	630		

## Notes:

1. Tolerance of Luminous Intensity +/-20%
2. Tolerance of Forward Voltage +/-0.2V
3. Tolerance of the Dominate Wavelength +/- 2nm

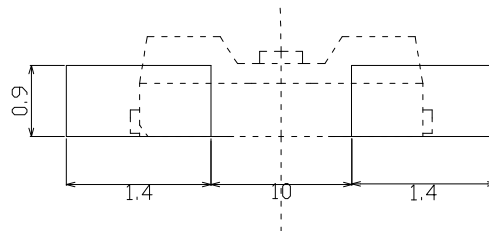
### SMT Reflow Soldering Instructions



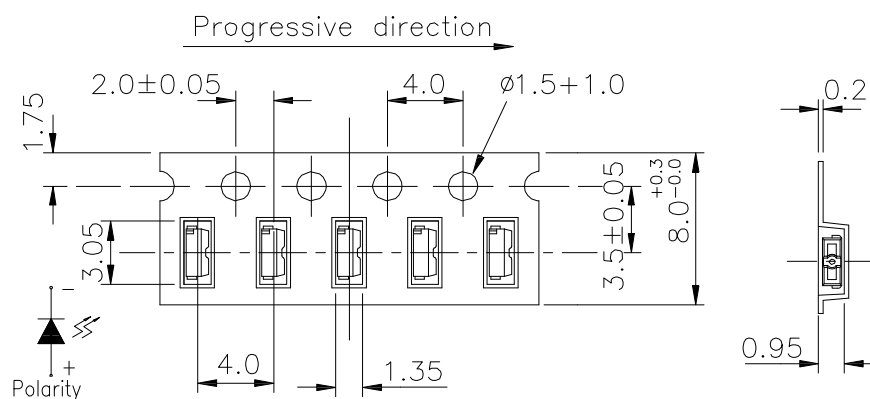
#### Notes:

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 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 $I_F=20\text{mA}$ $T_a=\text{Under room temperature}$	1000Hrs	0/20
	Hige Temperature High Humidity	$T_a=+65^{\circ}\text{C}\pm 5^{\circ}\text{C}$ $\text{RH}=90\%-95\%$	240Hrs	0/20
	Hige Temperature Storage	High $T_a=+85^{\circ}\text{C}\pm 5^{\circ}\text{C}$	1000Hrs	0/20
	Low Temperature Storage	Low $T_a=-35^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Test time=1000hrs	1000Hrs	0/20
Environmental Test	Temperature Cycling	$-45^{\circ}\text{C} \sim +105^{\circ}\text{C}$ 15min 5min 15min	300 Cycles	0/20
	Thermal Shock	$-35^{\circ}\text{C} \sim \pm 5^{\circ}\text{C} \sim +85^{\circ}\text{C} \sim \pm 5^{\circ}\text{C}$ 5min 10sec 5min	300 Cycles	0/20
	Solder Resistance	Preheating: $120^{\circ}\text{C}-150^{\circ}\text{C}$ , within 2 minutes. Operation heating : $260^{\circ}\text{C}$ (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	$V_F(\text{V})$	$I_F=20\text{mA}$	Over $U \times 1.2$
Reverse current	$I_R(\mu\text{A})$	$V_R=5\text{V}$	Over $U \times 2$
Luminous intensity	$I_v(\text{mcd})$	$I_F=20\text{mA}$	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.