



Features

Emitting Color: deep red

Lens Type: Water Clear

Device Outline: 3.5x2.8x0.8 mm

High power wattage output

High reliability package due to silicone encapsulation

Exact colors/spectrum for photosynthesis

. RoHS compliant

Compatible lead-free reflow soldering process

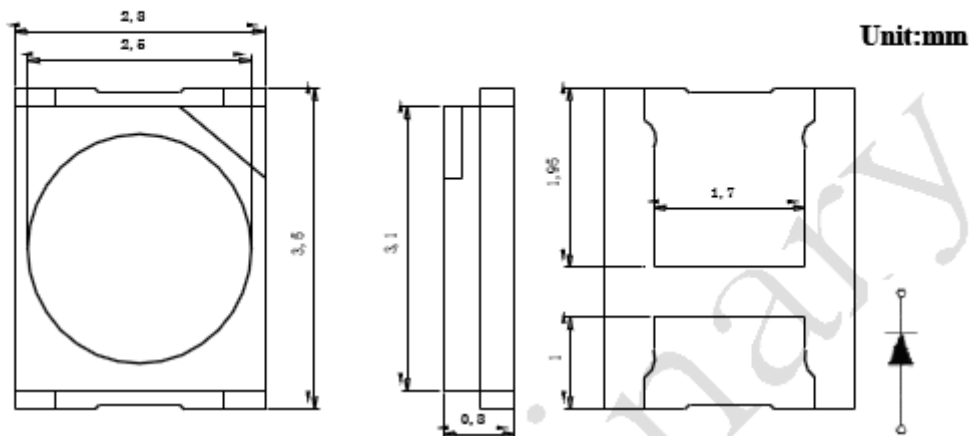
Low power consumption

JEDEC MSL 2a

**Applications –**

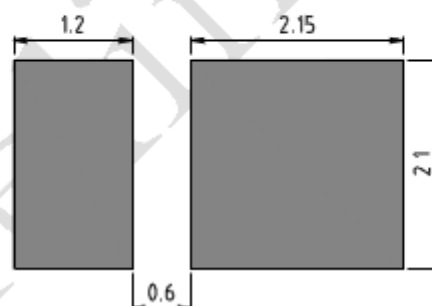
- 1. Plant growth lighting module
- 2. Green-house lighting
- 3. Commercial plant growing

**■ Package Outline Dimensions –**



Notice: Tolerance of measurement of Dimension:  $\pm 0.2\text{mm}$

**■ Recommended Soldering Pad Pattern**





**SPECIFICATION** (Ta=25°C)

MODEL			
<b>Absolute Maximum Ratings</b>	Power Dissipation (Pd), mW	360	
	Forward Current (Ifm), mA	150	
	Pulse Forward Current (If), mA	200	
	Reverse Voltage, (VR	>5	
	Operating Temperature (Topr), °C	up -40 to +85	
	Storage Temperature (Tstg), °C	up -40 to +100	
<b>Electro-Optical Characteristics</b>	Forward Voltage (IF=150mA), V	Min.	-
		Typ.	2.02
		Max.	-
	Reverse Current , IR , μ A	Min.	-
		Max.	10
Half Intensity Angle (IF=150mA), deg.	120		
<b>Color, Luminous flux</b>	Emitted color	Deep red	
	Dominate Wavelength, nm	660	
	Power , mW (IF=150mA )	Min.	
		Typ.	85
Max.		-	

■ **Typical Electrical / Optical Characteristics Curves –**  
(Ta = 25°C Unless Otherwise Noted)

**Figure1. Forward Current VS. Forward Voltage**

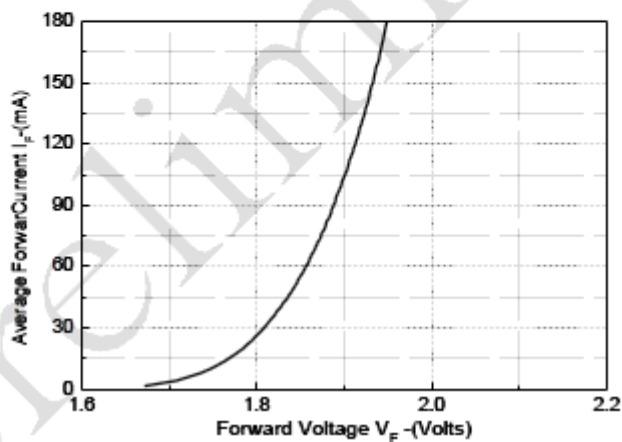




Figure2. Power VS. Forward Current

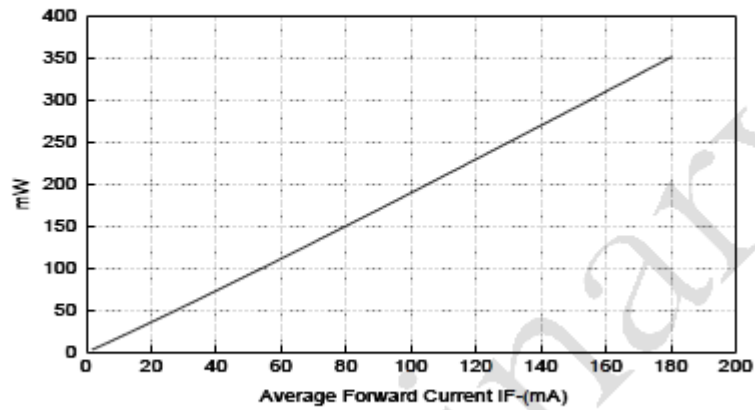


Figure3. Relative Spectral Power Distribution VS. Wavelength

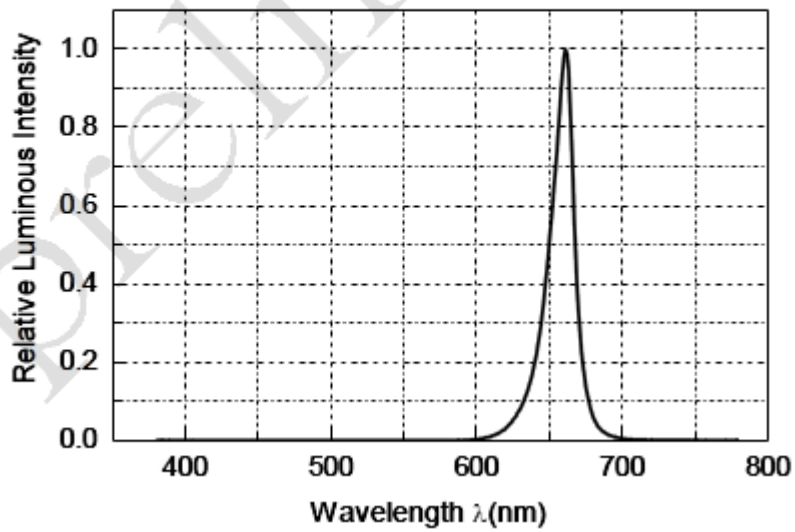
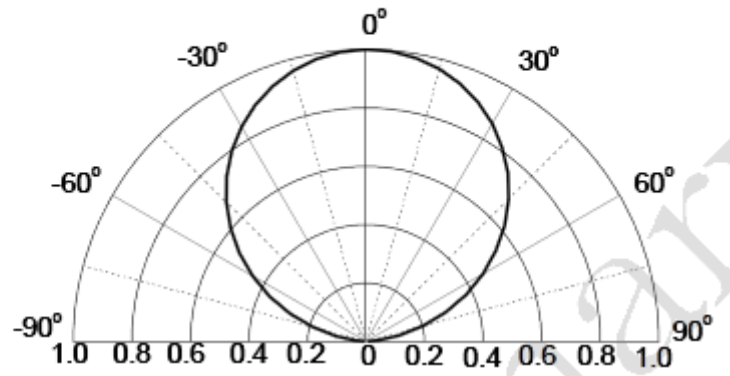




Figure4. Relative Luminosity VS. Radiation Angle





## ■ Reliability-

### ● Tests and Results

NO.	Test Item	Standard Test Method	Test Conditions	Test Duration	Failure Criteria #	Units Failed/Tested
1	Resistance to Soldering Heat (Reflow Soldering)	JEITA ED-4701 300 301	Tsld=260°C, 10sec,reflows Pretreatment30°C,70%,168hrs		#1	0/20
2	Solderability (Reflow Soldering)	JEITA ED-4701 300 303A	Tsld=245±5°C,5sec. Lead-free Solder(Sn-3.0Ag-0.5Cu)		#3	0/20
3	Thermal Shock	JEITA ED-4701 300 307	-40°C~110°C 10min dwell, 10sec transfer, Pretreatment:30°C,70%,168hrs	100cycles	#1	0/20
4	Temperature Cycle	JEITA ED-4701 100 105	-40°C (30min) ~25°C (5min) ~ 110°C (30min) ~25°C (5min)	100cycles	#1	0/20
5	High Temperature Storage	JEITA ED-4701 200 201	Ta=110°C	1000hrs.	#1	0/20
6	Temperature Humidity Storage	JEITA ED-4701 100 103	Ta=60°C, RH=90%	1000hrs.	#1	0/20
7	Low Temperature Storage	JEITA ED-4701 200 202	Ta=-40°C	1000hrs.	#1	0/20
8	Room Temperature Operating life		Ta=25°C, IF=150mA	1000 hrs.	#2	0/20
9	Low Temperature Operating life		Ta=-40°C, IF=150mA	1000hrs.	#2	0/20

#### Notes:

Measurements are performed after allowing the LEDs to return to room temperature.

### ● Failure Criteria

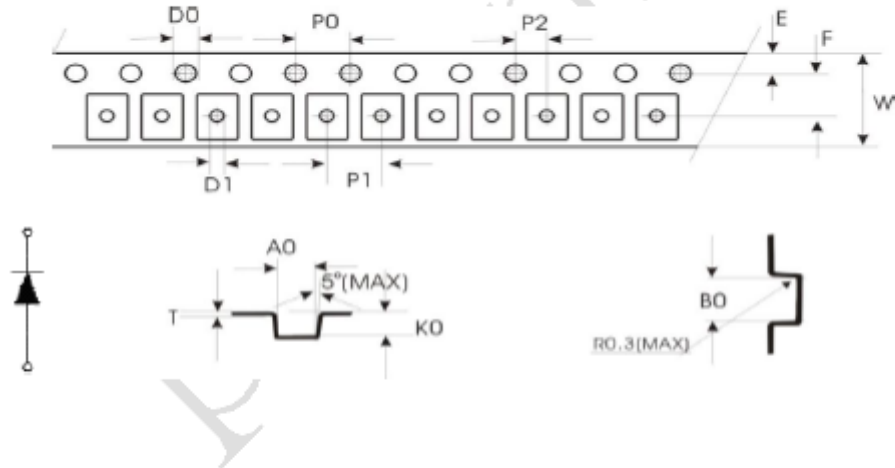
Criteria #	Items	Conditions	Failure Criteria
#1	Forward Voltage(VF)	IF=150mA	>U.S.L.X1.1
	Luminous Intensity(IV)	IF=150mA	<L.S.L.X0.7
#2	Forward Voltage(VF)	IF=150mA	>U.S.L.X1.1
	Luminous Intensity(IV)	IF=150mA	<L.S.L.X0.5
#3	Solderability		Less than 95% solder coverage

U.S.L.: Upper Specification limit L.S.L.: Lower Specification Limit



■ Package –

1. Tape Dimension



Unit: mm

Symbol	A0	B0	K0	P0	P1	P2	T
Spec	3.00±0.1	3.80±0.1	1.00±0.1	4.00±0.1	4.00±0.1	2.00±0.1	0.22±0.05
Symbol	E	F	D0	D1	W	10P0	
Spec	1.75±0.1	3.50±0.05	1.50±0.1	1.00±0.1	8.00±0.1	40.00±0.2	

