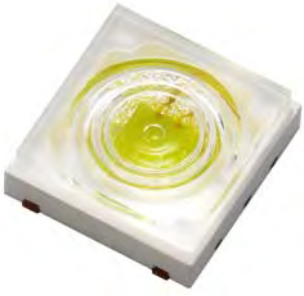
EVERLIGHT AMERICAS

DATASHEET

EAFL4039W22A0



Features

• Feature of the device：small package with high efficiency

• ESD protection up to 8KV

• Soldering methods：SMT

• Grouping parameter：total luminous flux, color coordinates

• Typ illuminance：150 lx @ 1000 mA

• The product itself will remain within RoHS compliant version

Applications

• Mobile phone & tablet PC flash light appliance.

• Decorative and Entertainment Lighting

• System appliances, measuring instruments Signal and Symbol Luminaries for orientation maker lights (e.g. steps, exit ways, etc.)

• Exterior and Interior lighting of Automotive

Device Selection Guide

Chip Materials	Emitted Color
InGaN	White

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
DC Forward Current (mA)	I_F	350	mA
Peak Pulse Current (mA)	I_{Pulse}	1200	mA
ESD Resistance	V_B	8000	V
Reverse Voltage	V_R	[1]	V
Junction Temperature	T_j	150	℃
Operating Temperature	T_{opr}	-30 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +110	℃
Power Dissipation (Pulse Mode)	Pd	4.38	W

Notes:

1. The CUI series LEDs are not designed for reverse bias used.
2. Avoid operating CUI series LEDs at maximum operating temperature exceed 1 hour.
3. All reliability items are tested under good thermal management with 1.0 × 1.0 cm^2 MCPCB.

Electro-Optical Characteristics (Ts=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Flux(1)	Iv	220	260	----	lm	I_F=1000mA
Illuminance	----	----	150	----	lux	
Forward Voltage(2)	V_F	2.95	----	3.95	V	
View Angle	$2\theta_{1/2}$	----	80 / 80 (H /V)	----	deg	
Color Temperature	CCT	5000	----	6000	K	

Bin Range of Forward Voltage

Bin	Symbol	Min.	Typ.	Max.	Unit	Condition
2932	V_F	2.95	----	3.25	V	I_F=1000mA
3235	V_F	3.25	----	3.55		
3538	V_F	3.55	----	3.85		
3841	V_F	3.85	----	4.15		

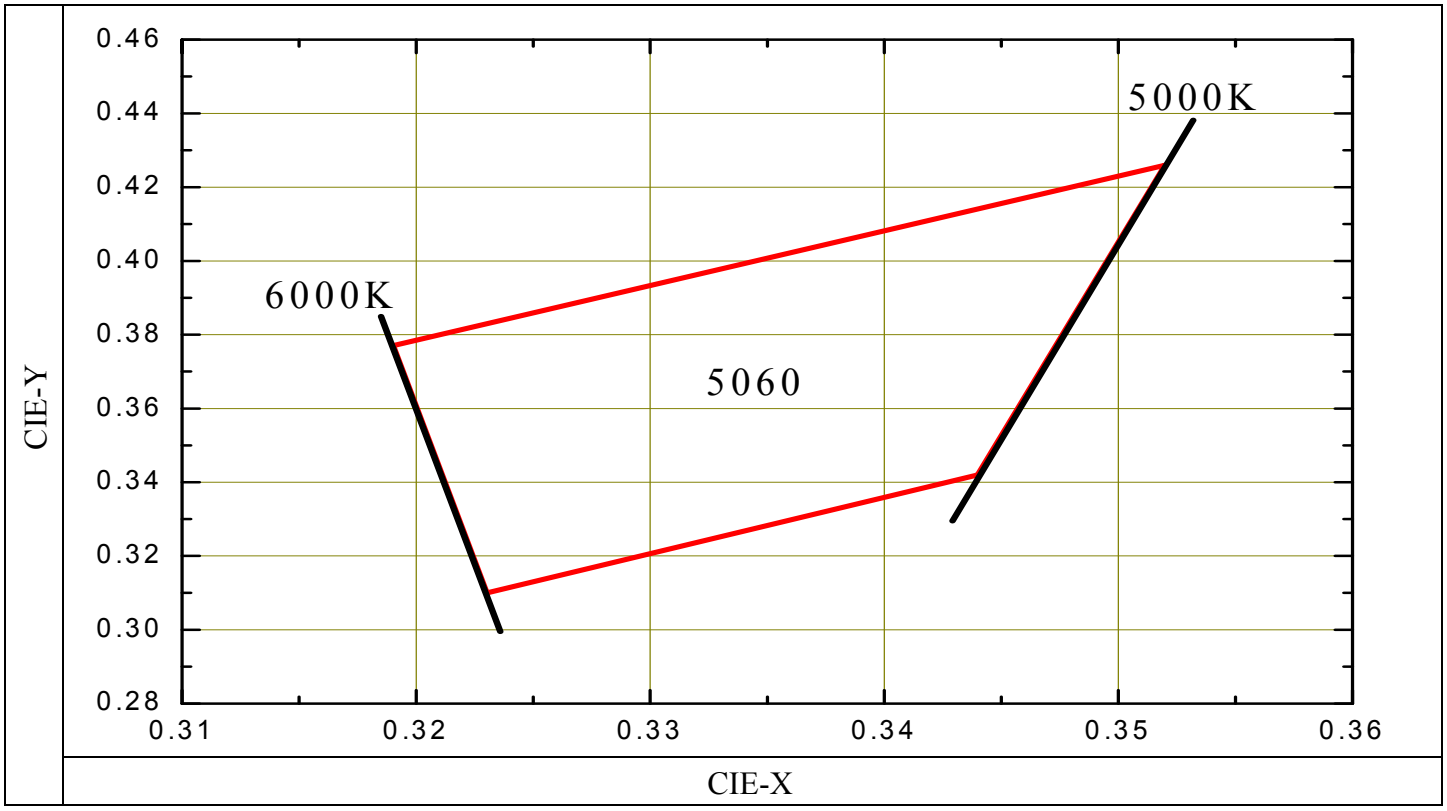
Bin Range of Luminous Intensity

Bin	Symbol	Min.	Typ.	Max.	Unit	Condition
J6	Iv	220	----	250	lm	I_F=1000mA
J7	Iv	250	----	300		
J8	Iv	300	----	350		

Notes:

1. Luminous Flux, illuminance measurement tolerance：±10%
2. Forward voltage measurement tolerance：±0.1V
3. Electric and optical data is tested at 50 ms pulse condition.
4. Temperature of solder pad：25℃
5. Illuminance is measurement at 1 meter.

White Bin Structure



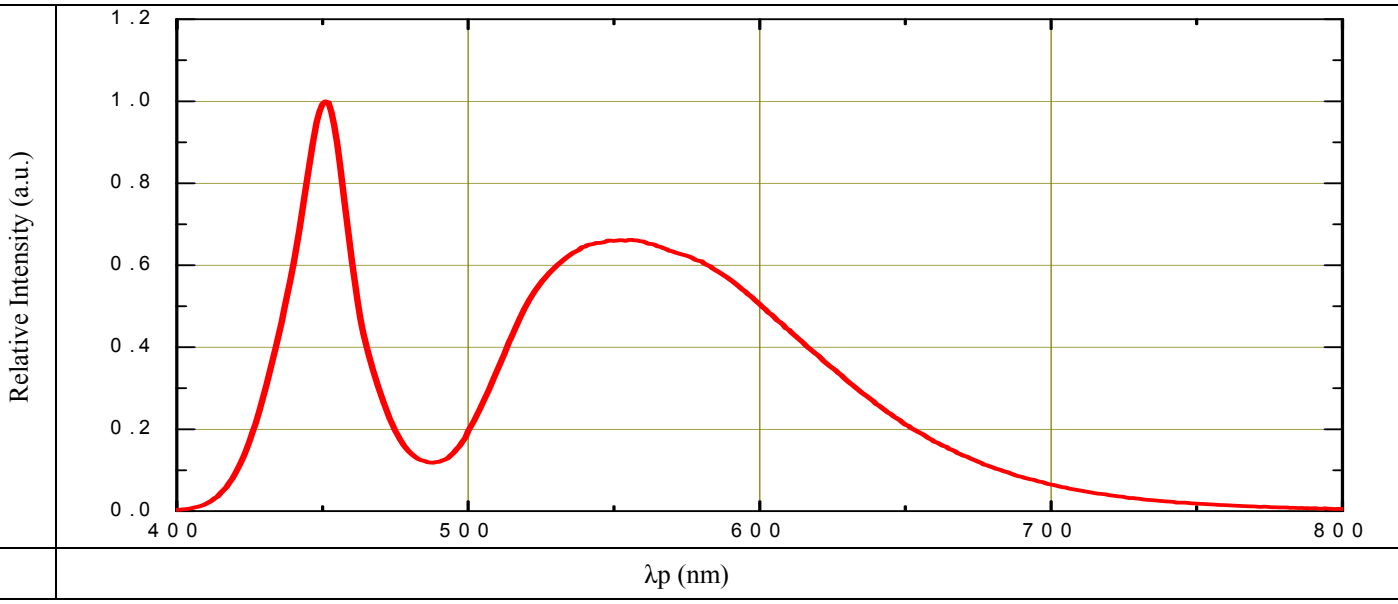
Bin	CIE-X	CIE-Y	Reference Range
5060	0.3520	0.4260	5000 ~ 6000K
	0.3440	0.3420	
	0.3230	0.3100	
	0.3190	0.3770	

Notes:

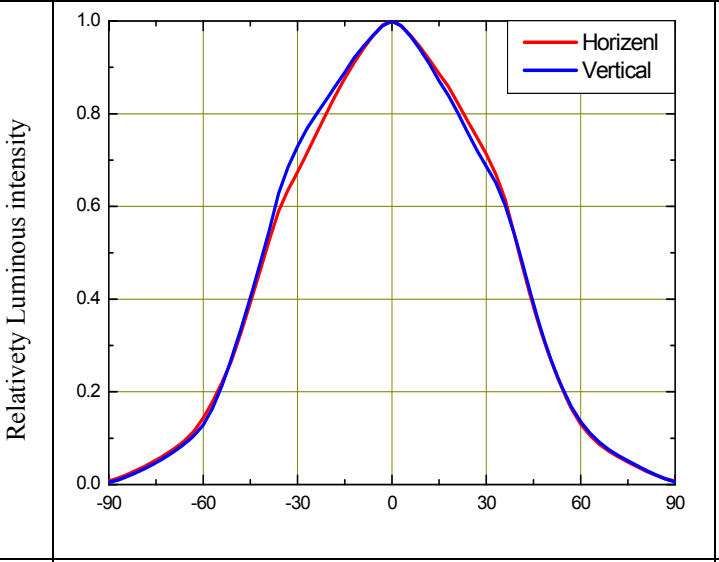
1. Color coordinates measurement allowance：±0.01
2. Color bins are defined at I_F=1000mA operation.

Typical Electro-Optical Characteristics Curves

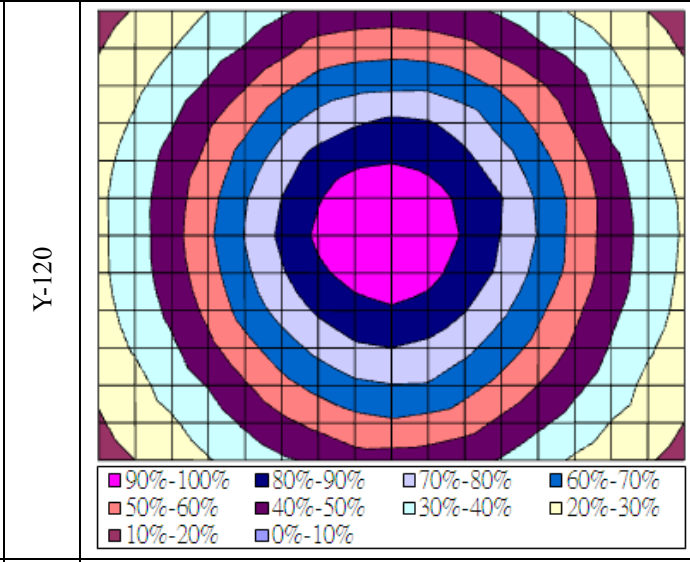
Relative Spectral Distribution , I_F=1000mA @ 50ms, $T_{solder\ pad}$**=25**℃



Typical Radiation Patterns



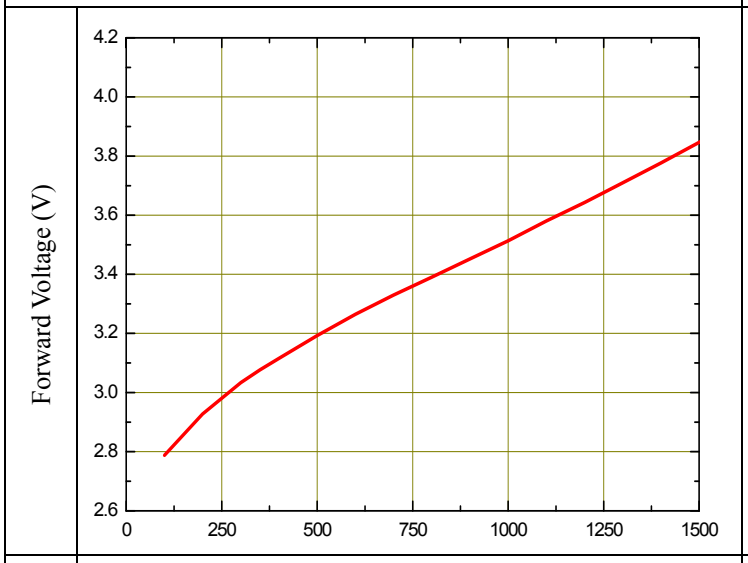
Illumination Pattern of Target area (1)



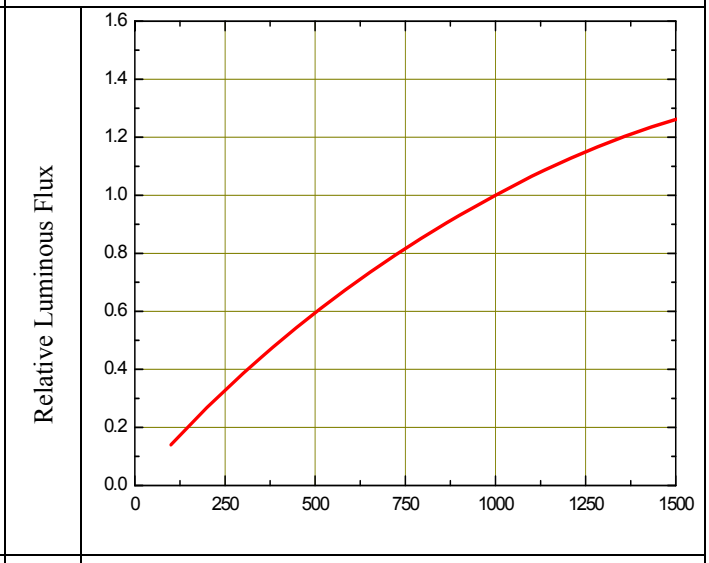
Notes:

1. $2\theta_{1/2}$ is the off axis from lamp centerline where the luminous intensity is 1/2 of the peak value.
2. View angle tolerance is ± 5°
3. The module is for image field FOV75°, corner typ. 30%

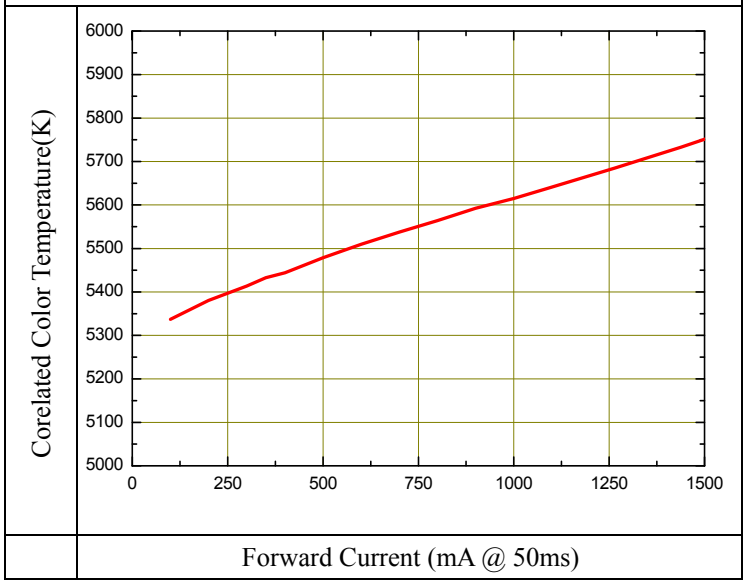
Forward Voltage vs. Forward Current ($T_{solder\ pad}$=25℃)



Relative Luminous Flux vs. Forward Current ($T_{solder\ pad}$=25℃)



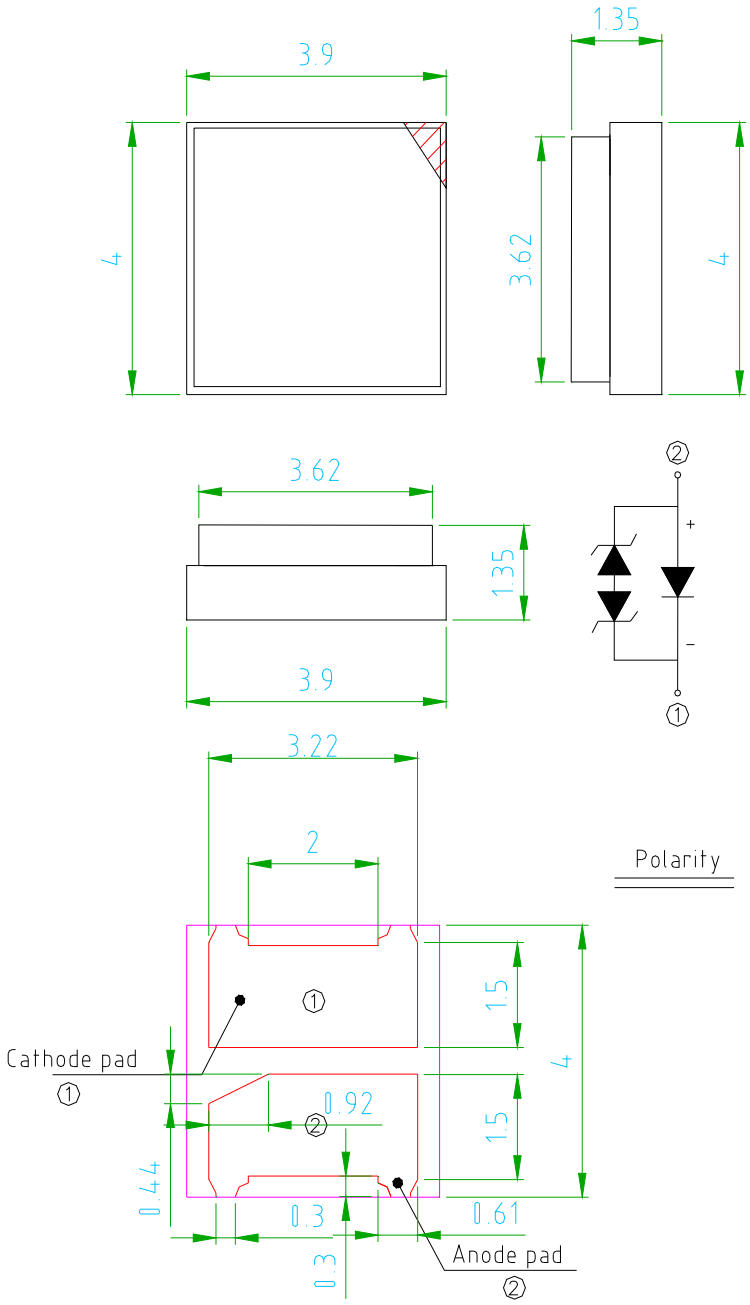
CCT vs. Forward Current ($T_{soldering\ pad}$=25℃)



Notes:

1. All correlation data is tested under superior thermal management with 1 x 1 cm^2 MCPCB.

Package Dimension

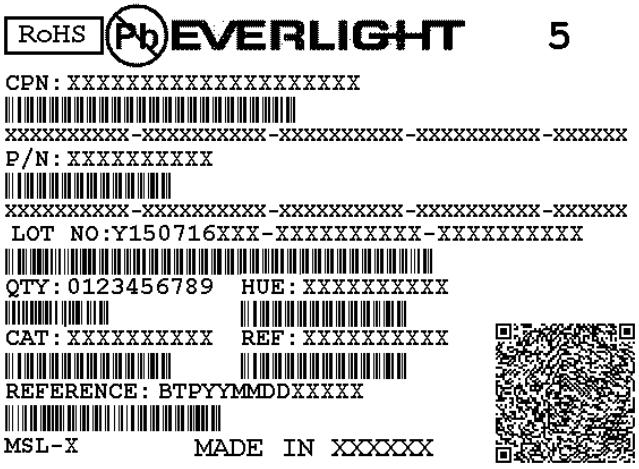


Notes:

1. Dimensions are in millimeters.
2. Tolerances unless mentioned are ± 0.1mm.

Moisture Resistant Packing Materials

Product Labeling

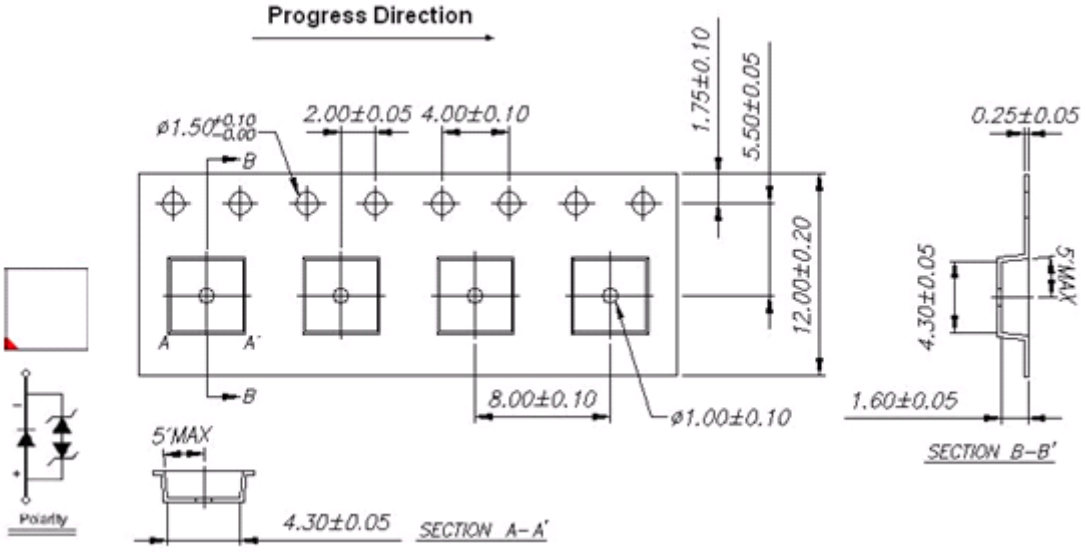


- CPN：Customer's Product Number
- P/N ：Everlight Product Number
- QTY ：Packing Quantity
- CAT ：Luminous Flux (Brightness) Bin
- HUE ：Color Bin
- REF ：Forward Voltage Bin
- L O T NO：Lot Number
- REFERENCE：reference
- MSL-X：MSL level

Carrier Tape Dimensions: Loaded Quantity 800 pcs Per Reel

(Minimum Package Quantity : 200 PCS)

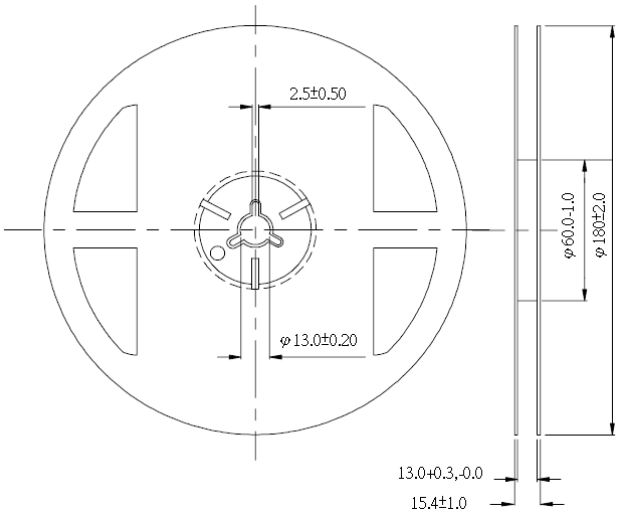
(200/300/400/500/600/700/800 pcs per reel is available)



Notes:

1. Dimensions are in millimeters.

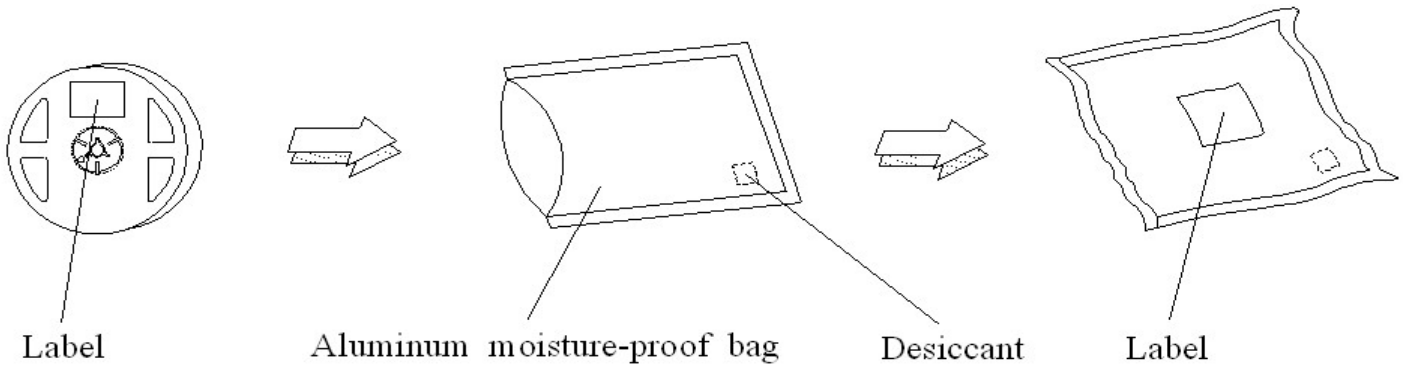
Emitter Reel Dimensions



Notes:

1. Dimensions are in millimeters.

Moisture Resistant Packing Process



Reflow Soldering Characteristics

Soldering and Handling

1. Over-current-proof

Though CUI series has conducted ESD protection mechanism, customers must not use the device in reverse and should apply resistors for extra protection. Otherwise, slight voltage shift may cause enormous current shift and burn out failure would happen.

2. Storage

2.1 Do not open the moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDs should be stored at temperature less than 30°C and less and relative humidity less than 90%.

2.3 After opening the package, the LEDs should be stored at temperature less than 30°C and relative humidity less than 85%.

2.4 If the moisture absorbent material (silicone gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be implemented based on the following conditions: Pre-curing at 60±5°C for 24 hours.

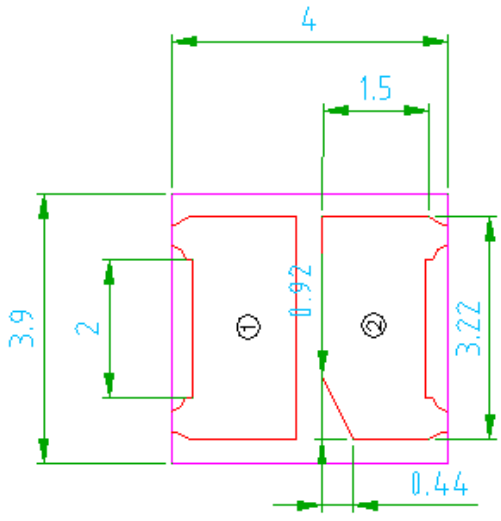
3. Thermal Management

3.1 For maintaining the high flux output and achieving reliability, CUI series LEDs should be mounted on a metal core printed circuit board (MCPCB), with proper thermal connection to dissipate approximately 1W to 5W of thermal energy under normal operation.

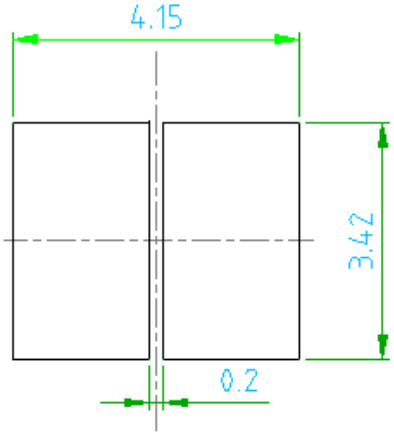
3.2 Sufficient thermal management must be conducted, or the die junction temperature will be over the limit under large electronic driving and LEDs lifetime will decrease critically.

4. Soldering Condition

4.1 Soldering Pad



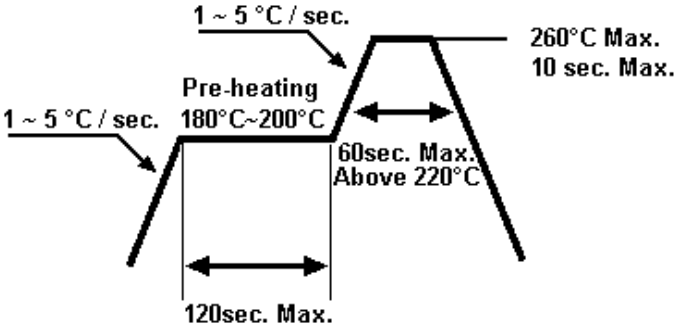
Component bottom view



Recommended soldering patterm layout

4.2For Reflow Process

4.2.1 Lead reflow soldering temperature profile



4.2.2 Reflow soldering should not be done more than two times.

4.2.3 While soldering, do not put stress on the LEDs during heating.

4.2.4 After soldering, do not warp the circuit board.

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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