



DATASHEET

ELEM-NB5060J6J8293910-F3C

Received	
<input type="checkbox"/>	MASS PRODUCTION
<input checked="" type="checkbox"/>	PRELIMINARY
<input type="checkbox"/>	CUSTOMER DESIGN
DEVICE NO. : DHE-000XXXX	
PAGE : 13	

Revised record		
REV.	DESCRIPTION	RELEASE DATE
1	New create	Jul.30.2019

ELEM-NB5060J6J8293910-F3C

PRELIMINARY



Features

- Small & compact package and with high efficiency
- Typical luminous flux: 260lm @ 1000mA
- Typical color temperature: 5500K@1000mA
- ESD protection up to 8KV
- Grouping parameter: total luminous flux, color coordinates.
- RoHS compliant & Pb free.
- Compliance with EU REACH.
- Compliance halogen free (Br <900ppm, Cl <900ppm, Br+Cl <1500ppm)

Applications

- Mobile Phone Camera Flash(Camera flash light /strobe light for mobile devices)
- Torch light for DV(Digital Video) application
- Indoor lighting applications
- Signal and symbol luminaries for orientation maker lights (e.g. steps, exit ways, etc.)
- TFT backlighting
- Exterior and interior illumination applications
- Decorative and Entertainment Lighting
- Exterior and interior automotive illumination

Device Selection Guide

Chip Materials	Emitted Color
InGaN	White

Absolute Maximum Ratings (T_{solder pad} =25°C)

Parameter	Symbol	Rating	Unit
DC Forward Current (mA)	I _F	350	mA
Peak Pulse Current (mA) (400ms : ON , 3600ms : OFF)	I _{Pulse}	1000	mA
ESD Resistance	V _B	8000	V
Reverse Voltage	V _R	Note 1	V
Junction Temperature	T _J	115	°C
Operating Temperature	T _{Opr}	-40 ~ +85	°C
Storage Temperature	T _{Stg}	-40 ~ +85	°C
Power Dissipation (Pulse Mode)	P _d	3.95	W
Soldering Temperature	T _{Sol}	245	°C
Allowable Reflow Cycles	n/a	2	cycles
Viewing Angle ₍₂₎	2θ _{1/2}	120	deg

Note:

1. The ELEM series LEDs are not designed for reverse bias used.
2. View angle tolerance is ± 5°
3. Avoid operating ELEM series LEDs at maximum operating temperature exceed 1 hour.
4. All specification are assured by reliability test for 1000hr, IV degradation less than 30%.
5. All reliability items are tested under good thermal management with 1.0x 1.0 cm² MCPCB.
6. Peak pulse current shall be applied under conditions as max duration time 400ms and max duty cycle 10%.
7. Operate LED component at maximum rating conditions continuously will cause possible permanent damage and de-rating parameters. Exercise multiple maximum rating parameters simultaneously should not be allowed. When maximum rating parameters are applied over a long period will result potential reliability issue.

Electro-Optical Characteristics (T_{solder pad} =25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Flux ⁽¹⁾	Φ _v	240	260	----	lm	I _F =1000mA
Forward Voltage ^{(2) (3)}	V _F	2.95	3.3	3.95	V	
Correlated Color Temperature	CCT	5000	----	6000	K	

Note:

1. Luminous flux measurement tolerance: ±10%
2. Forward voltage measurement tolerance: ±0.1V
3. Electric and optical data is tested at 50 ms pulse condition.
4. The data of luminous flux measured at thermal pad=25°C

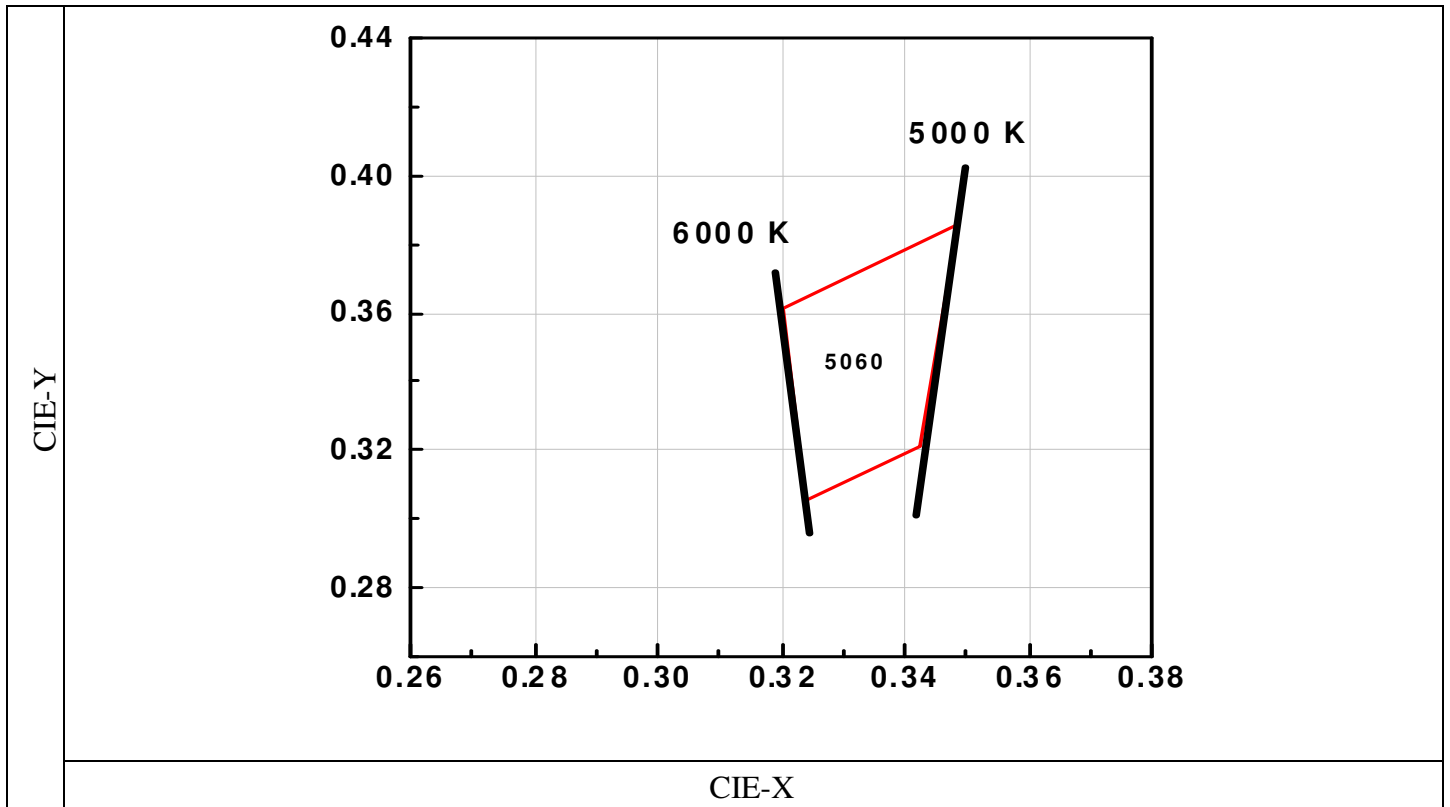
Bin Range of Forward Voltage Binning

Bin Code	Min.	Typ.	Max.	Unit	Condition
2935	2.95	----	3.55	V	I _F =1000mA
3539	3.55	----	3.95		

Bin Range of Luminous Intensity

Bin Code	Min.	Typ.	Max.	Unit	Condition
J6	240	----	250	lm	I _F =1000mA
J7	250	----	300		
J8	300	----	330		

White Bin Structure



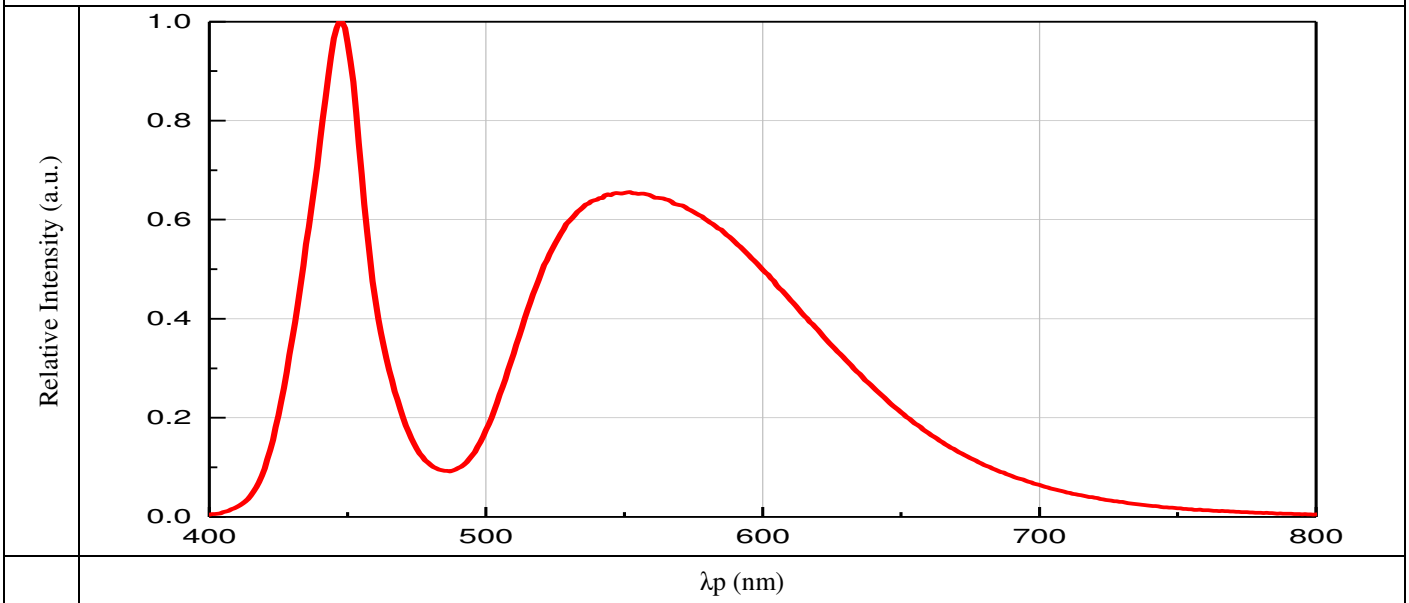
Bin	CIE-X	CIE-Y	Reference Range
5060	0.3200	0.3613	5000K ~ 6000K
	0.3482	0.3856	
	0.3424	0.3211	
	0.3238	0.3054	

Note:

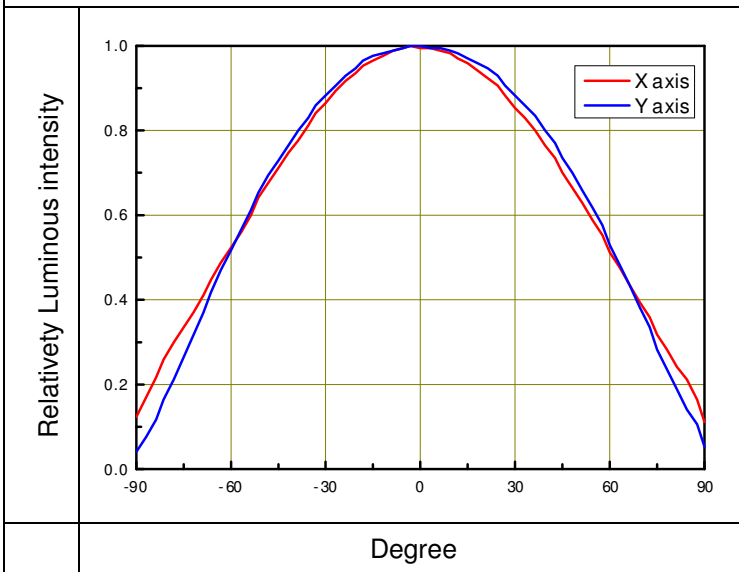
1. Color coordinates measurement allowance : ± 0.01
2. Color bins are defined at $I_F=100\text{mA}$ and 50ms pulse operation condition.

Typical Electro-Optical Characteristics Curves

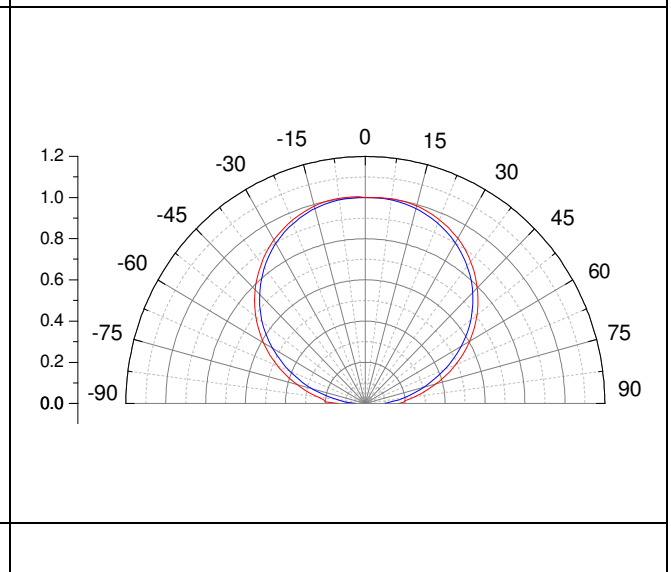
Relative Spectral Distribution , $I_F=1000\text{mA}$ @ 50ms , $T_{\text{solder pad}}=25^\circ\text{C}$



Typical Radiation Patterns



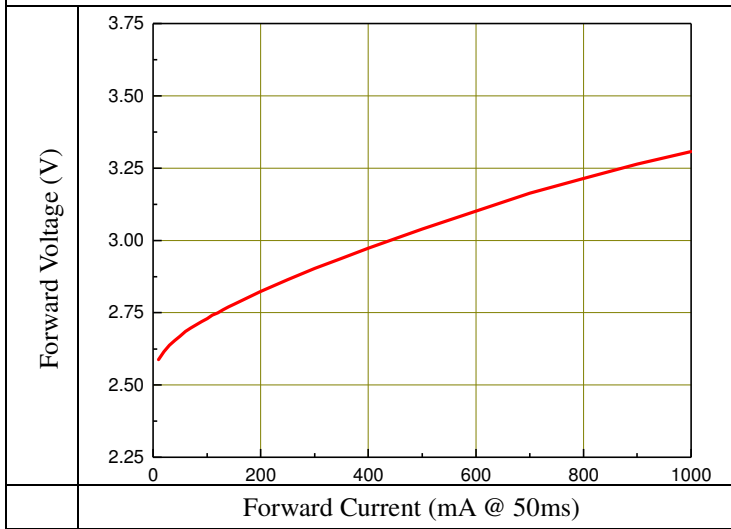
Typical Polar Radiation Pattern for Lambertian



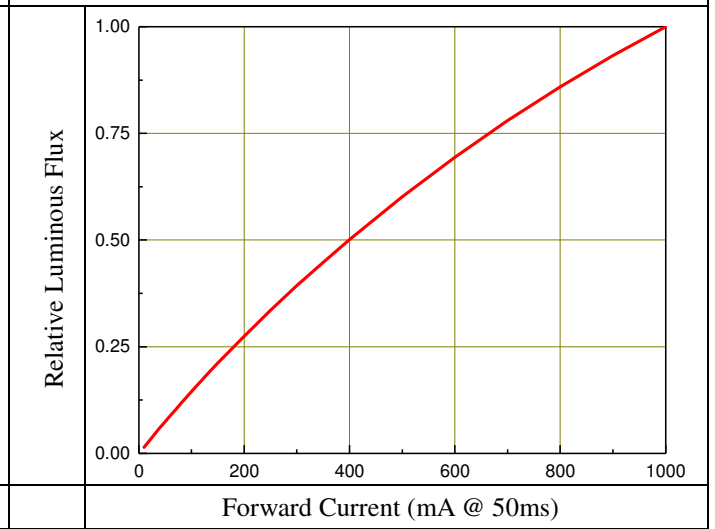
Note:

- $2\theta_{1/2}$ is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.
- View angle tolerance is $\pm 5^\circ$.

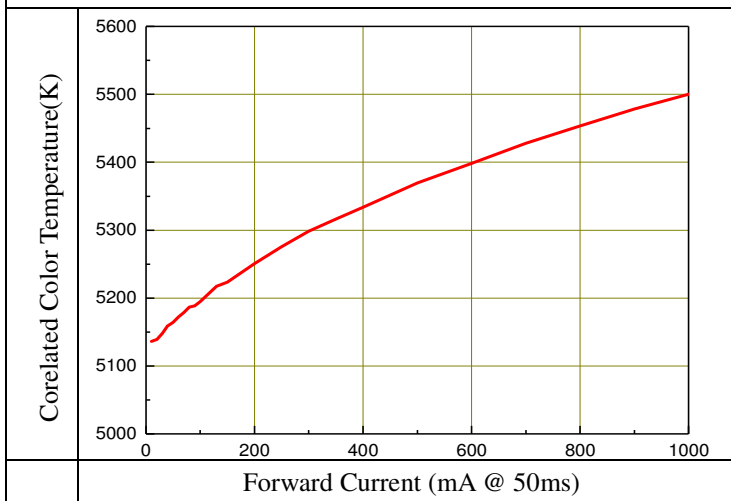
Forward Voltage vs. Forward Current ($T_{\text{solder pad}}=25^{\circ}\text{C}$)



Relative Luminous Flux vs. Forward Current ($T_{\text{solder pad}}=25^{\circ}\text{C}$)



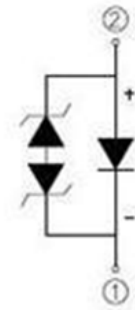
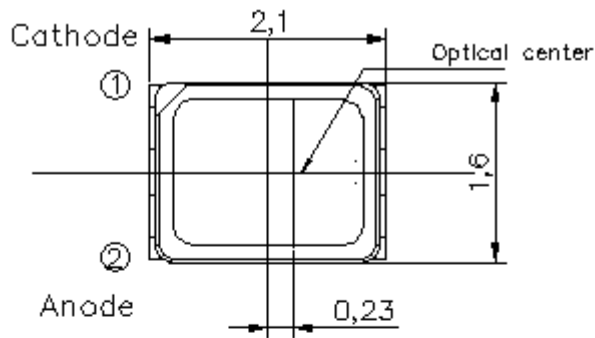
CCT vs. Forward Current ($T_{\text{soldering pad}}=25^{\circ}\text{C}$)



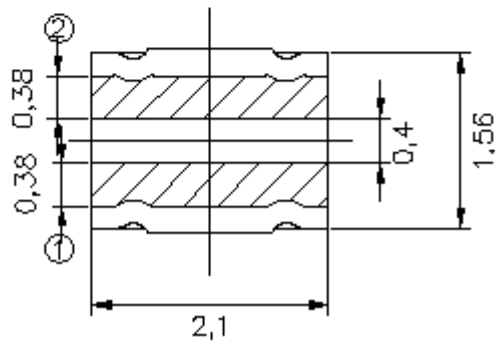
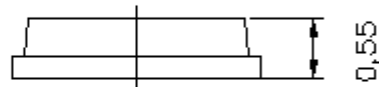
Note:

1. All correlation data is tested under superior thermal management with 1.0x 1.0 cm² MCPCB

Package Dimension



Polarity



Note:

1. Dimensions are in millimeters.
2. Tolerances unless mentioned are $\pm 0.1\text{mm}$.
3. The thermal pad is electrically unity from the Anode and contact pads.
4. Do not handle the device by the lens. Incorrect force applied to the lens may lead to the failure of devices.

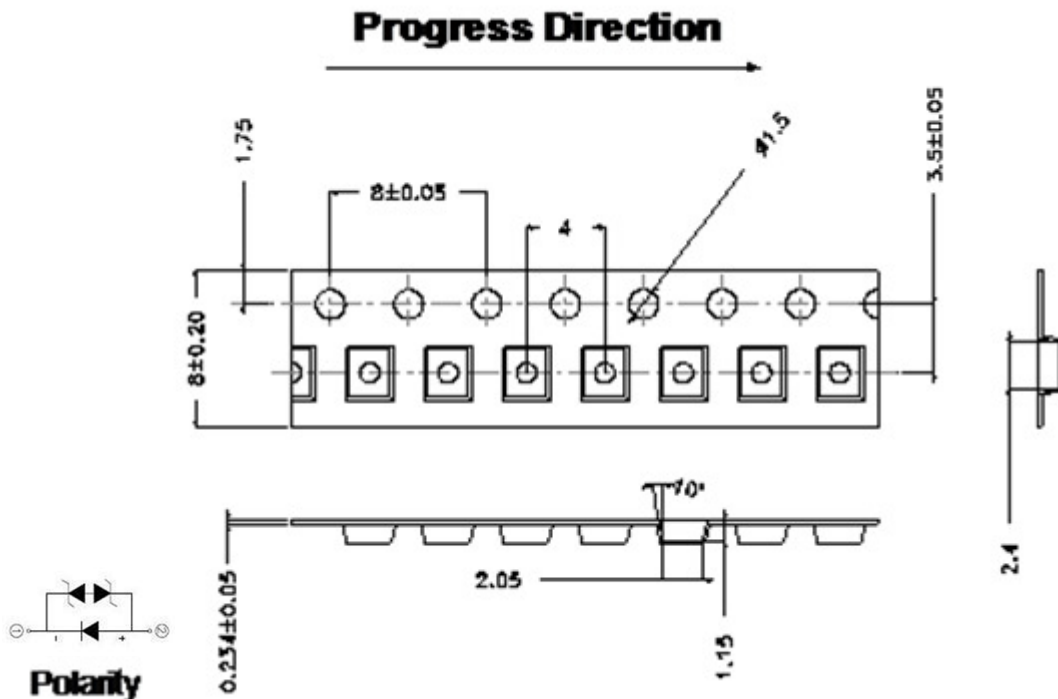
Moisture Resistant Packing Materials

Label Explanation



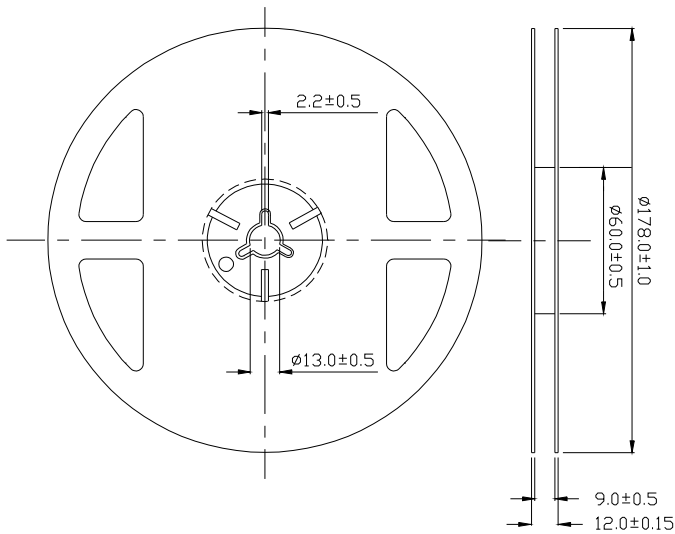
- CPN:Customer's Product Number
- P/N:Everlight Product Number
- LOT NO:Lot Number
- QTY:Packing Quantity
- CAT:Luminous Flux (Brightness) Bin
- HUE:Color Bin
- REF:Forward Voltage Bin
- REFERENCE:Reference
- MSL-X:MSL Level

Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel
(Minimum Package Quantity :1000 PCS)



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

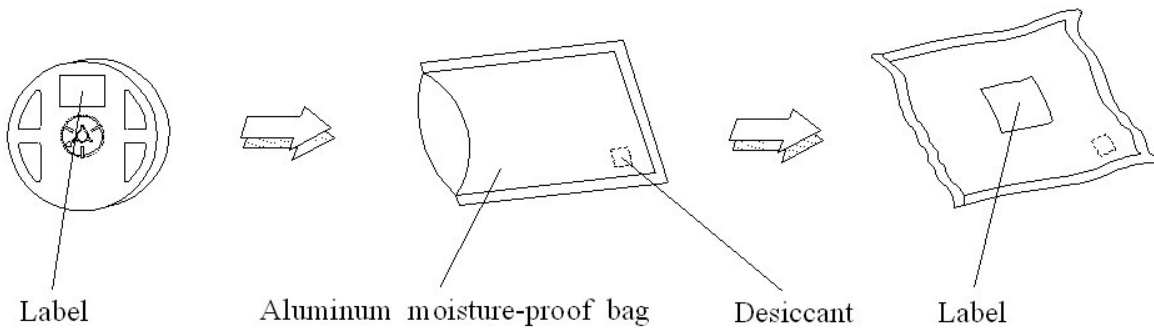
Reel Dimensions



Note:

1. Dimensions are in millimeters.
2. Tolerances for fixed dimensions are ± 0.1 mm.

Moisture Resistant Packing Process



Reflow Soldering Characteristics

Soldering and Handling

1. Over-current-proof

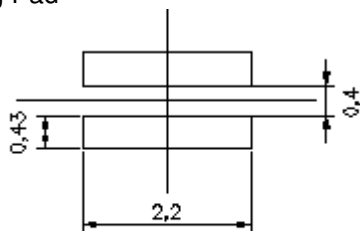
Customer must apply resistors for protection; otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

- i. Before the package is opened: The LEDs should be stored at 30°C or less and 50%RH or less after being shipped from Everlight. The storage life is 6 months. If the LEDs are to be stored for more than 6 months, they should be stored in a sealed container with a nitrogen atmosphere and moisture absorbent material.
- ii. After opening the package: The LED's should be stored under 30°C or less and 30%RH or less. The LED should be used within 168hrs (7days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages. After opening the package, the LEDs should be stored at temperature less than 30°C and relative humidity less than 85%.
- iii. Before using LEDs: The LEDs should be baked under the following conditions: pre-curing at 60±5°C for 24 hours
- iv. Do not stack assemblies containing Everlight ELEM LEDs to prevent damage to the optical surface of LEDs. Forces applied to the optical surface may result in the surface being damaged.

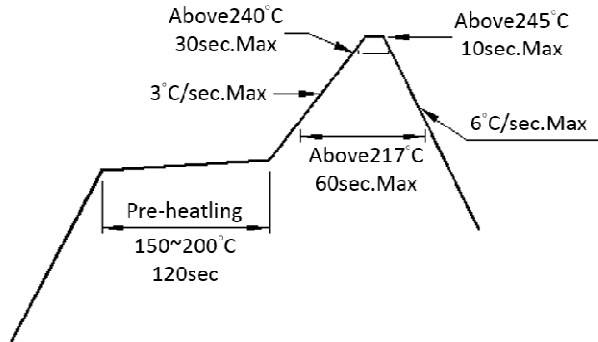
3. Soldering Condition

- i. Soldering Pad



Recommend solder pad

ii. Pb-free solder temperature profile



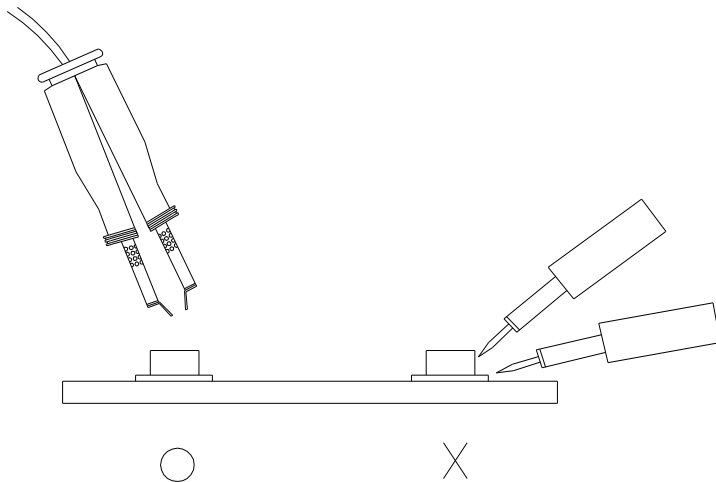
- iii. Reflow soldering should not be done more than two times.
- iv. When soldering, do not put stress on the LEDs during heating.
- v. After soldering, do not warp the circuit board.

4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 245°C for 3 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



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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