

EL Power TOP VIEW LED

67-41-UY0501H-AM



Features

- Package : PLCC 4 package.
- Color : Yellow.
- Typ. Luminance Intensity : 2300 mcd @ 50mA.
- Viewing angle : 120°.
- ESD : 2KV.
- MSL : 2.
- Qualified AEC-Q102.
- Sulfur robustness : Class A1.
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free (Br <900 ppm, Cl <900 ppm, Br+Cl < 1500 ppm).
-

Applications

- Automotive exterior lighting.
- Automotive interior lighting.

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1.Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Current		I_F	5	50	70	mA	---
Luminous Intensity ^{[1][2][5]}		I_v	1800	2300	4500	mcd	$I_F=50\text{mA}$
Forward Voltage ^{[3][5]}		V_F	2.00	2.20	2.75	V	$I_F=50\text{mA}$
Viewing Angle		ϕ	---	120	---	deg	$I_F=50\text{mA}$
Dominant Wavelength ^{[4][5]}		λ_d	585	591	594	nm	$I_F=50\text{mA}$
Thermal Resistance (Junction to Solder)	Real	$R_{th JS \text{ real}}$	---	70	95	K/W	$I_F=50\text{mA}$
	Electrical	$R_{th JS \text{ el}}$	---	50	67		

Notes:

1. Luminous Flux measurement tolerance: $\pm 8\%$
2. The data of Luminous Flux measured at thermal pad=25°C
3. Forward voltage measurement tolerance: $\pm 0.05\text{V}$
4. Tolerance of Dominant Wavelength : $\pm 1\text{nm}$
5. Current pulse time: 26ms for flux and color, 1ms for voltage

2. Absolute Maximum Ratings

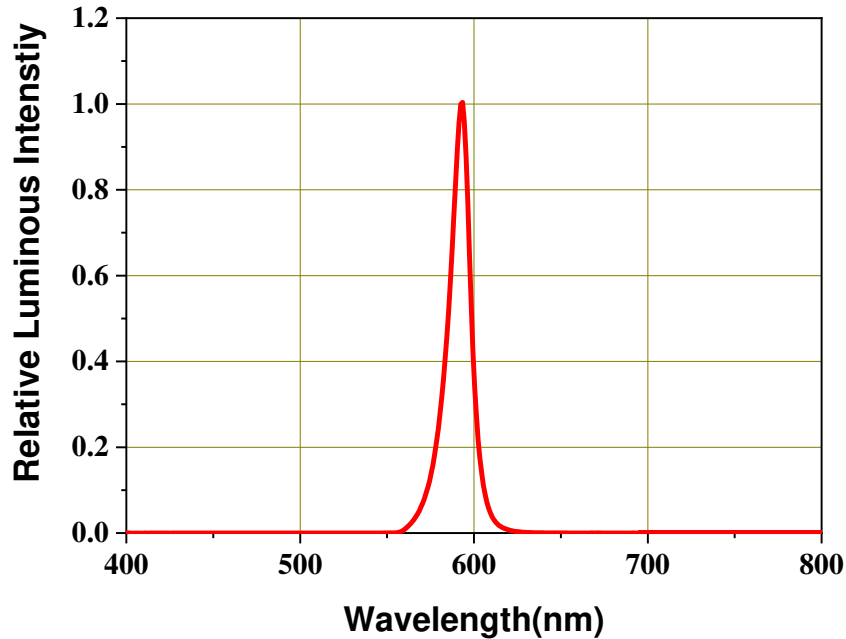
Parameter	Symbol	Ratings	Unit
Power Dissipation	P_d	192.5	mW
Forward Current	I_F	70	mA
Surge Current ($t \leq 10 \mu s$; $D=0.005$; $T_s=25^\circ C$)	I_{FM}	100	mA
Reverse Voltage	V_R	Not designed for reverse operation	V
Junction Temperature	T_J	125	$^\circ C$
Operating Temperature	T_{opr}	-40 ~ +110	$^\circ C$
Storage Temperature	T_{stg}	-40 ~ +110	$^\circ C$
ESD Sensitivity ($R=1.5k\Omega$, $C=100pF$)	ESD_{HBM}	2	kV
Soldering Temperature	Reflow	260 $^\circ C$ for 30sec	$^\circ C$

3. Characteristics Graph

Wavelength Characteristics Relative Spectral Distribution

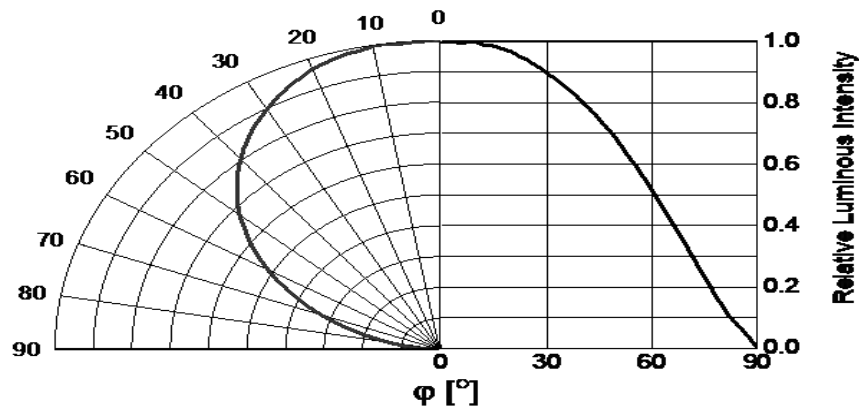
@ $T_s = 25^\circ\text{C}$, $I_F = 50\text{mA}$

$$\Phi_V / \Phi_V(\text{Max.}) = f(\lambda)$$



Typical Diagram Characteristics of Radiation

$$\Phi_V / \Phi_V(0^\circ) = f(\varphi)$$



Notes:

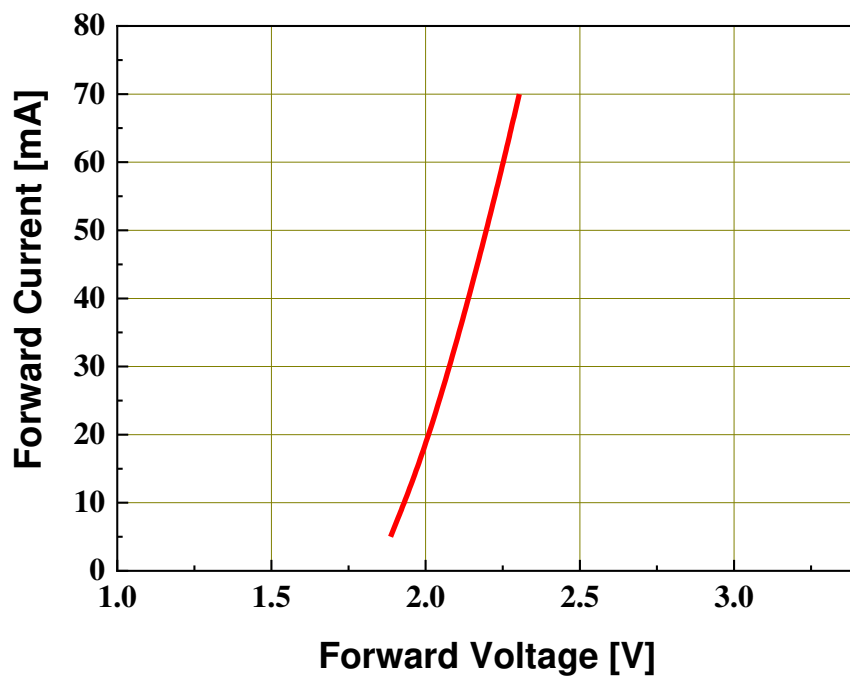
1. φ is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.

2. View angle tolerance is $\pm 5^\circ$.

Forward Current vs. Forward Voltage

@ Ts = 25°C

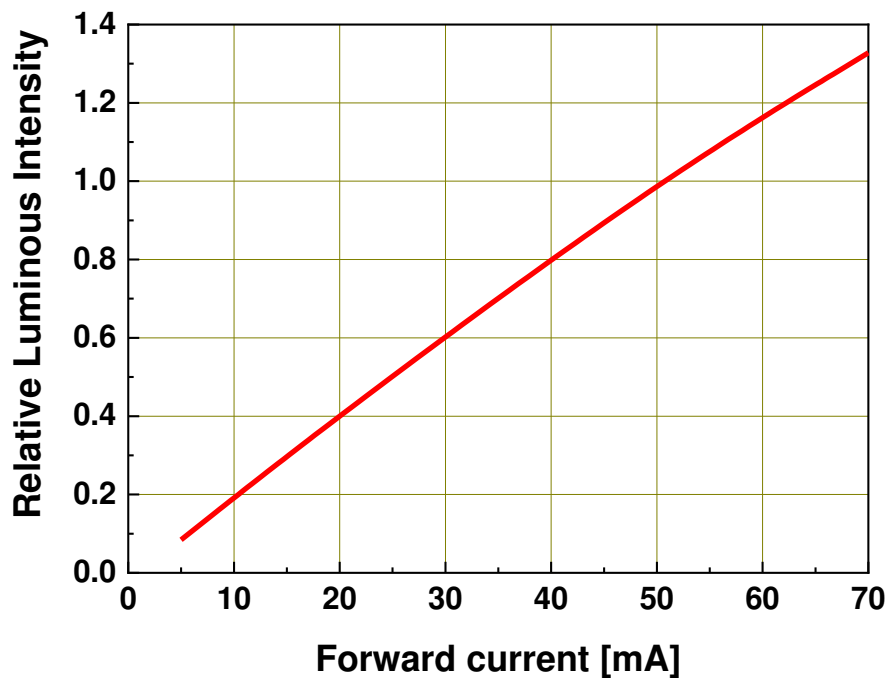
$$I_F = f(V_F)$$



Relative Luminous Intensity vs. Forward Current

@ Ts = 25°C

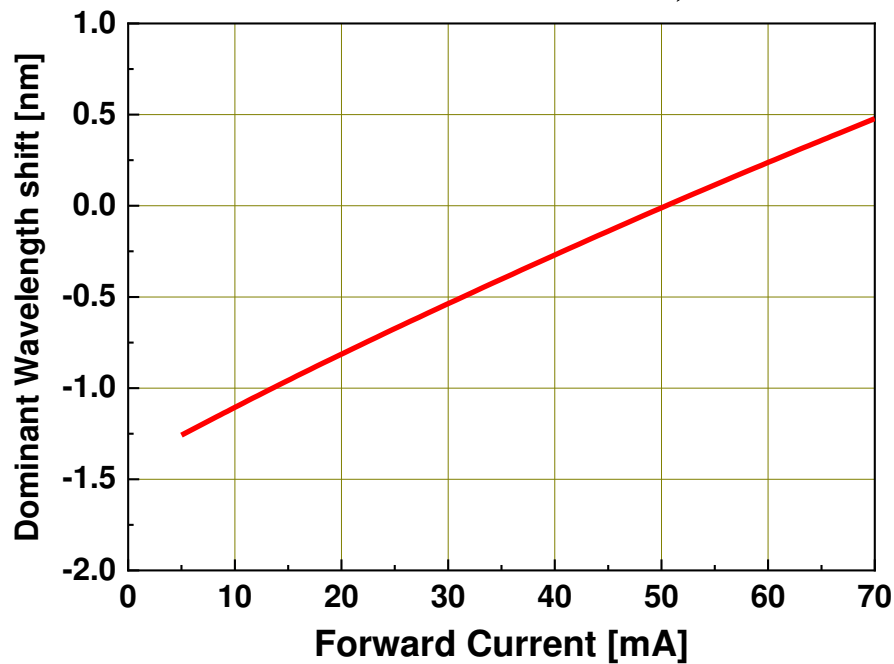
$$\Phi_v / \Phi_v(50mA) = f(I_F)$$



Dominant Wavelength shift vs. Forward Current

@ $T_s = 25^\circ\text{C}$

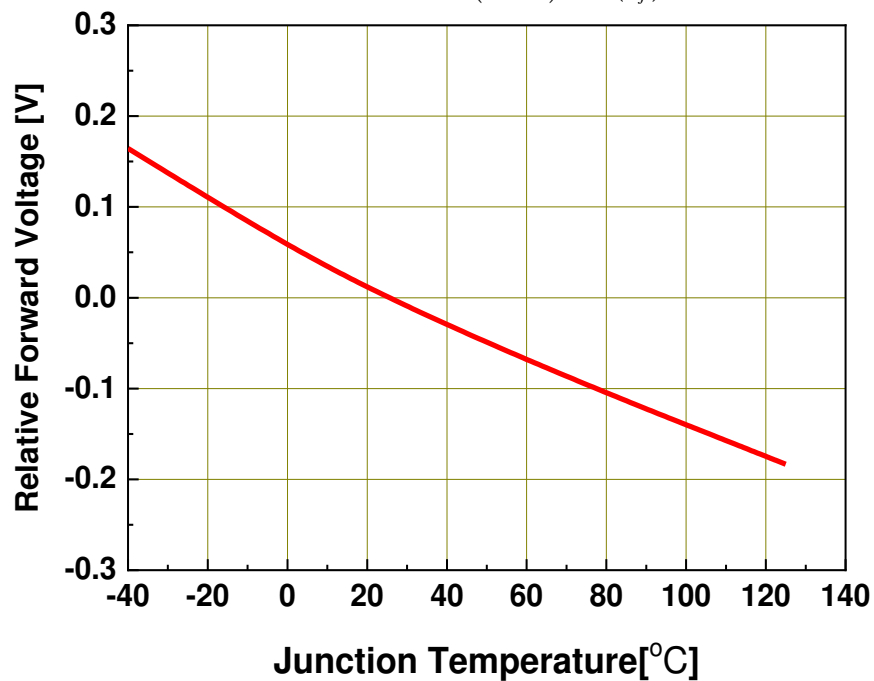
$$\Delta\lambda_d = \lambda_d - \lambda_d(50\text{mA}) = f(I_F)$$



Relative Forward Voltage vs. Junction Temperature

@ $I_F = 50\text{mA}$

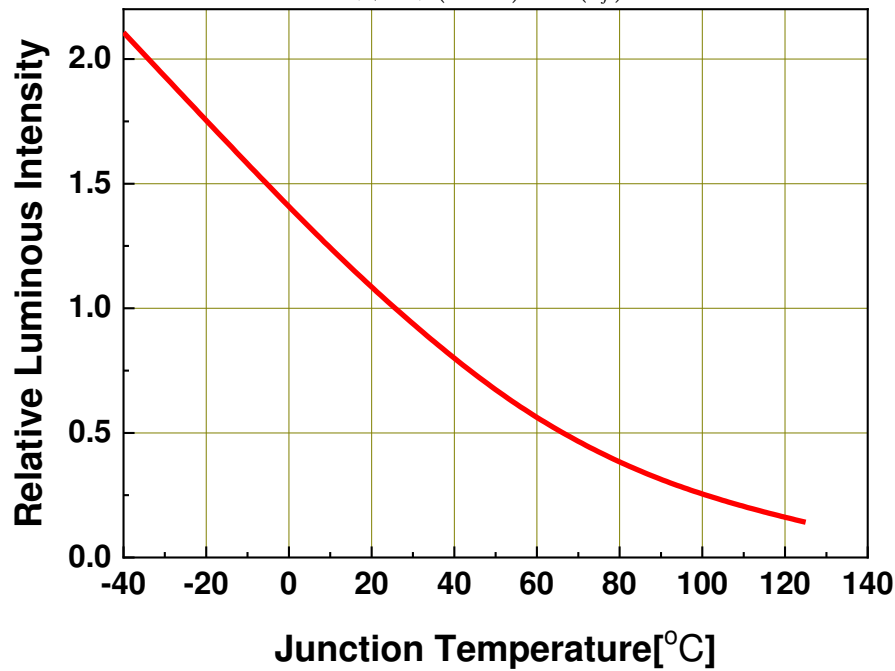
$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j)$$



Relative Luminous Intensity vs. Junction Temperature

@ $I_F=50\text{mA}$

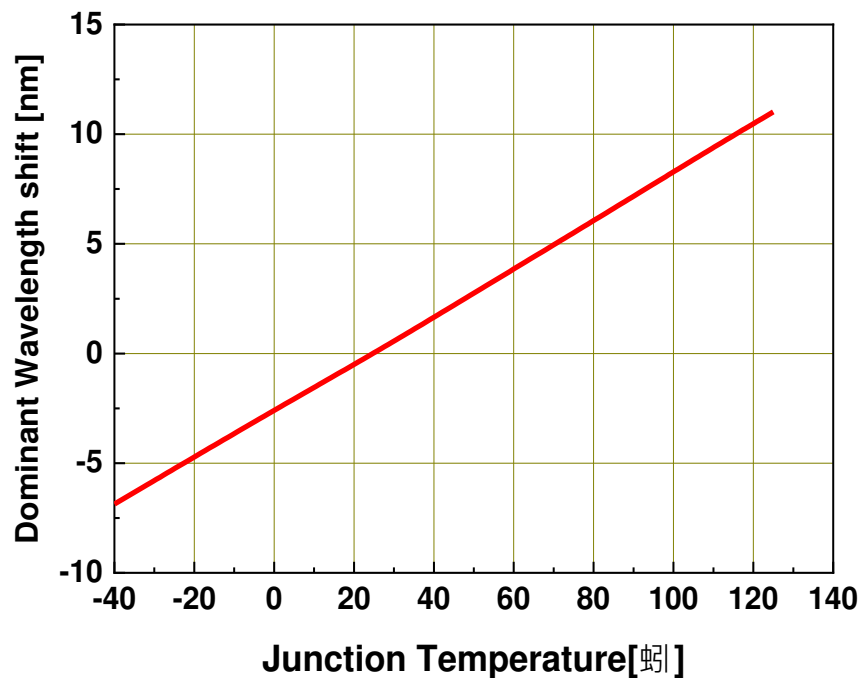
$$\Phi_V / \Phi_V(25^\circ\text{C}) = f(T_j)$$



Dominant Wavelength shift vs. Junction Temperature

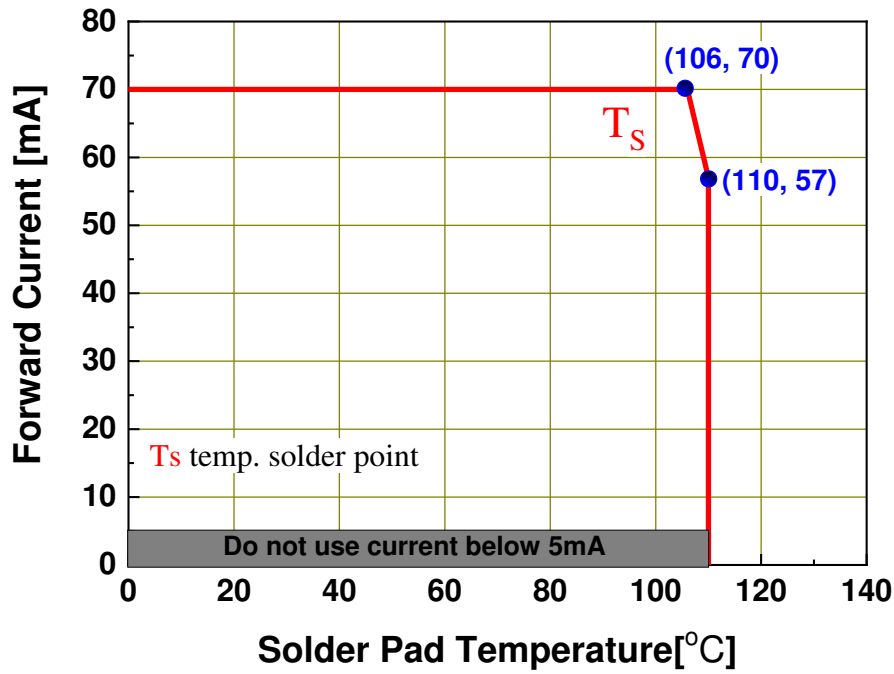
@ $I_F=50\text{mA}$

$$\Delta\lambda_d = \lambda_d - \lambda_d(25^\circ\text{C}) = f(T_j)$$



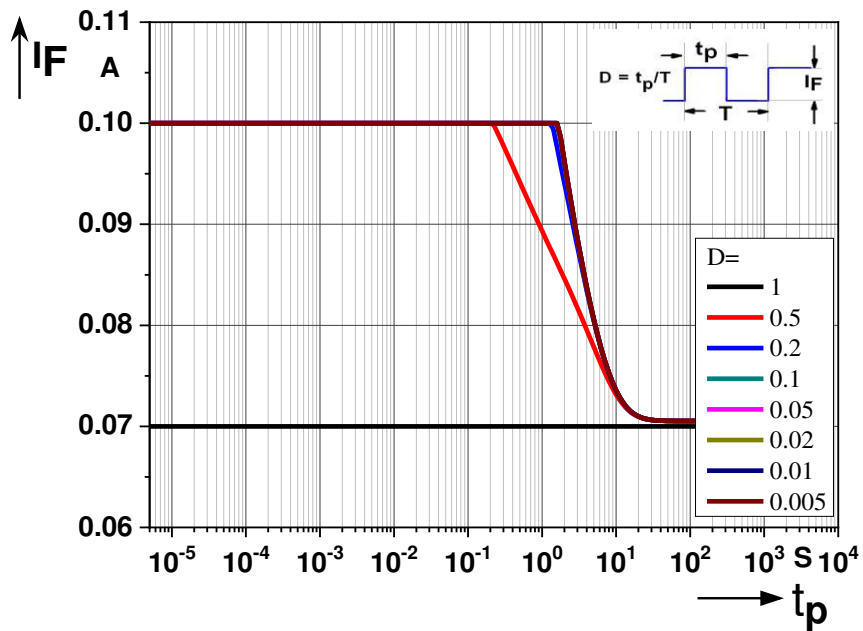
Forward Current Derating Curve

$$I_F = f(T_s)$$



Permissible Pulse Handling Capability

D=Duty cycle , $T_s = 25^\circ\text{C}$



4. Binning Information

Luminous Intensity Bins

Bin Code	Luminous Intensity (mcd)		Luminous flux (lm)(for reference)	
	Min.	Max.	Min.	Max.
BA	1800	2240	5.66	7.04
BB	2240	2800	7.04	8.81
CA	2800	3550	8.81	11.2

Notes:

1. Luminous flux measurement tolerance: $\pm 8\%$
2. Test current: Typical forward current

Dominant Wavelength Bins

Bin Code	Minimum Dominant Wavelength [nm]	Maximum Dominant Wavelength [nm]
8588	585	588
8891	588	591
9194	591	594

Notes:

1. Tolerance of Dominant Wavelength : $\pm 1\text{nm}$
2. Test current: Typical forward current

Forward Voltage Bins

Bin code	Min Forward Voltage [V]	Max Forward Voltage [V]
1720	1.75	2.00
2022	2.00	2.25
2225	2.25	2.50
2527	2.50	2.75

Notes:

1. Forward voltage measurement tolerance: $\pm 0.05\text{V}$
2. Test current: Typical forward current

5. Part Number

67-41-UY0501H-AM

Part number is designated with below details.

67-41 = Product family name.

UY = Color ^[1]

050 = Test current [mA]

1 = Lead Frame Type (0=Ag ; 1=Au)

H = Brightness Level (H=High ; M=Medium ; L=Low)

AM = Automotive application

Note

[1] Color :

Symbol	Description
C	Cool White
N	Neutral White
W	Warm White
PA	Phosphor Converted Amber
PR	Phosphor Converted Red
UB	Blue
IB	Ice Blue
SB	Sky Blue
UP	Purple
UG	Green
UY	Yellow
UYG	Brilliant Yellow Green
UPG	Pale Green
UA	Amber
UR	Red
SR	Super Red
RGB	RGB-Color
PYG	Phosphor Converted Yellow Green

6. Ordering Information

67-41-UY0501H- **ABCDEFGHJKLM-NO-AM**

Part Number of the 67-41	Order Code
67-41-UY0501H-AM	67-41-UY0501H-ABCDEFGHJKLM-NO-AM

Order code contains information with below details :

ABCD = min/max wavelength or CCT

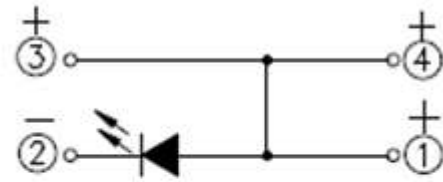
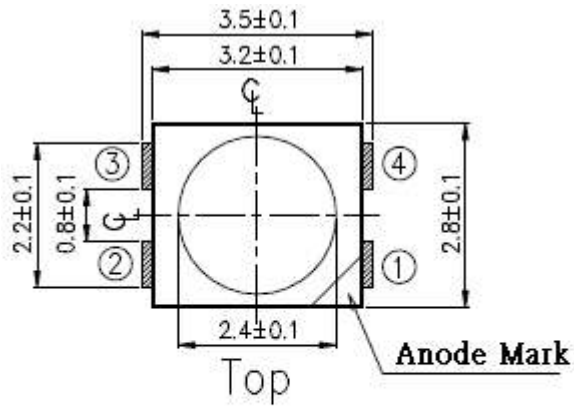
EFGH = min./max. luminous flux in [lm] or luminous intensity in [mcd]

JKLM = min./max. forward voltage

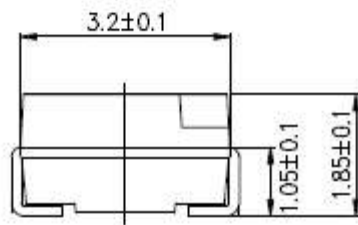
NO = internal code

AM = Automotive Application

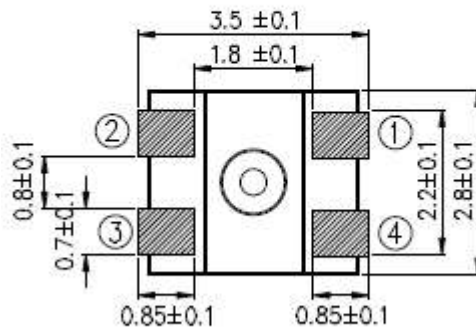
7. Mechanical Dimension



Polarity



Side

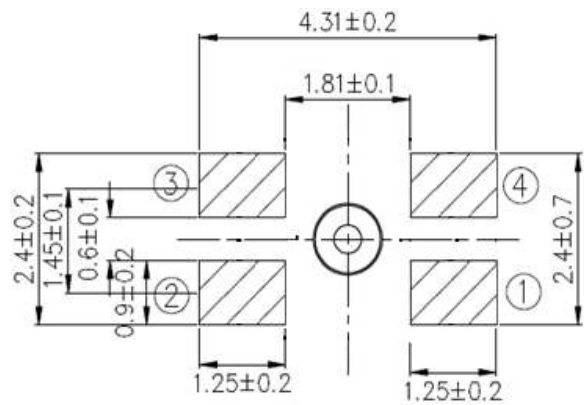


Bottom

Notes:

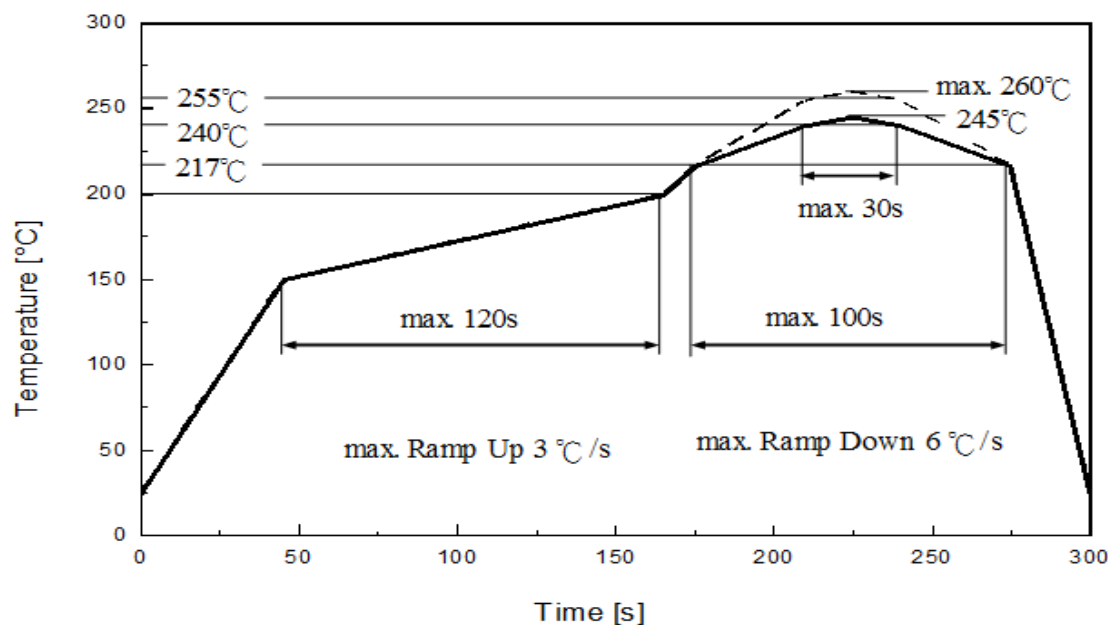
1. Dimensions are in millimeters.
2. Tolerances unless mentioned are ± 0.1 mm.

8. Recommended Soldering Pad



9. Reflow Soldering Profile

Soldering Condition (Reference: IPC/JEDEC J-STD-020D)



Profile Feature	Pb-Free Assembly	Unit
	Recommendation	
Ramp-up rate to preheat 25 °C to 150 °C	3	°C /sec
Time of soaking zone 150 °C to 200 °C	120	sec
Ramp-up rate to peak	3	°C /sec
Liquidus temperature	217	°C
Time above liquidus temperature	100	sec
Peak temperature (max.)	260	°C
Time within 5°C of the specified peak temperature	30	sec
Ramp-down Rate (max.)	6	°C /sec

10. Packaging Information

- Product Labeling

RoHS

Pb

EVERLIGHT

5

CPN : XXXXXXXXXXXXXXXXXXXX

XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX

P/N : XXXXXXXXXXXX

XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX

LOT No:Y150716XXX-XXXXXXXXXX-XXXXXXXXXX

QTY: 0123456789 HUE: XXXXXXXXXXXX

CAT: XXXXXXXXXXXX REF: XXXXXXXXXXXX

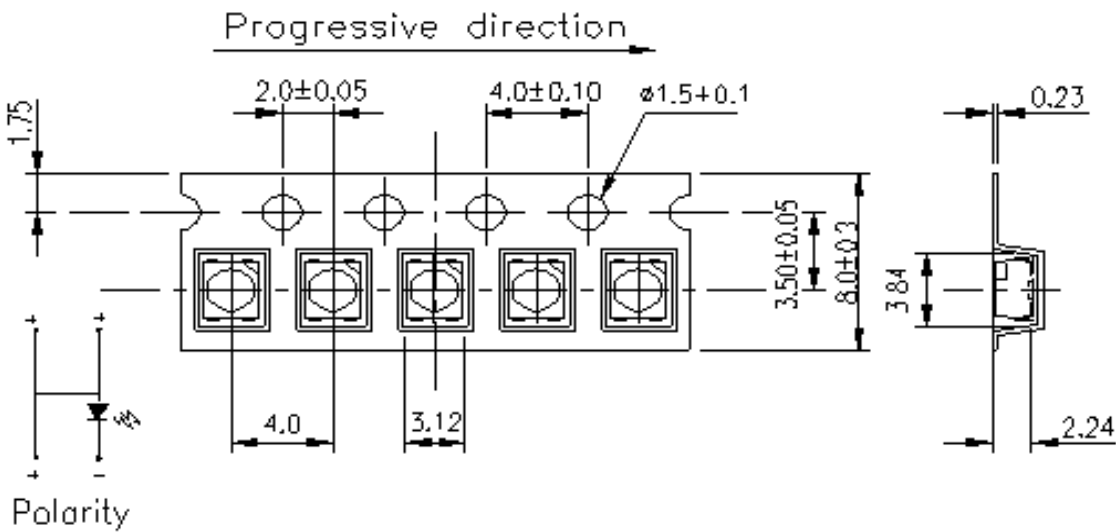
REFERENCE: BTPYYMDDXXXXX

MSL-X

MADE IN XXXXXX

- CPN : Customer’s Product Number
- P/N : Everlight Part Number
- QTY : Packing Quantity
- CAT : Luminous Flux (Brightness) Bin
- HUE : Color Bin
- REF : Forward Voltage Bin
- LOT No : Lot Number

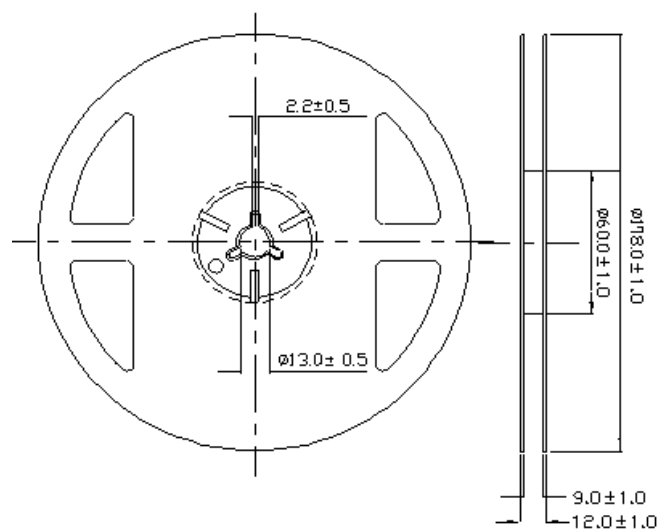
- Packing: Loaded Quantity 2000 pcs Per Reel



Notes:

1. Dimensions are in millimeters.

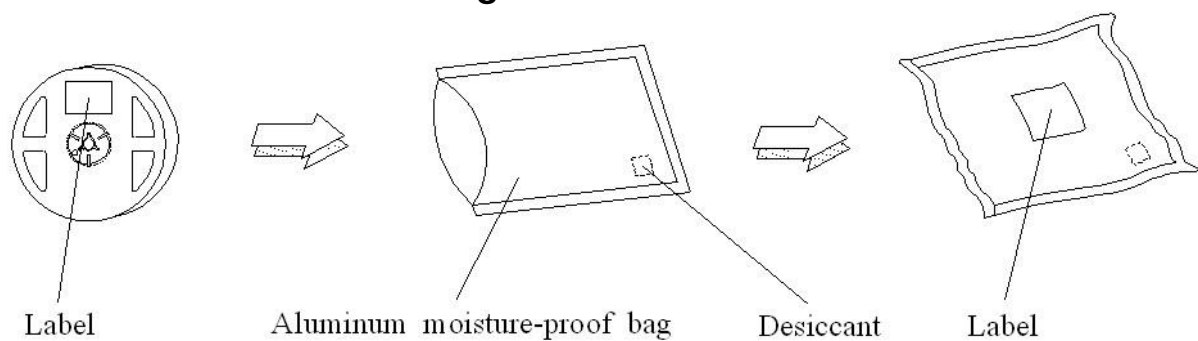
- Reel Dimensions



Notes:

1. Dimensions are in millimeters.

- Moisture Resistant Packing Process



11. Precaution for Use

1. Over-current-proof

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

2. Assemblies

Do not stack assemblies containing 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

3.1 When soldering, do not put stress on the LEDs during heating.

3.2 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 350°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. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

12. Sulfur Test Criteria

Products		Failure Criteria		
Exterior Lighting products		Luminous Flux +/-20%, forward voltage +/-10%, color coordinates x,y +/-0.01, color wavelength +/- 2 nm Visual defect issue following Everlight's inspection criteria		
Interior lighting products		Luminous Flux +/-30% or +/-50% for some application, forward voltage +/-10%, color coordinates x,y +/-0.02, color wavelength +/- 2 nm Visual defect issue following Everlight's inspection criteria		
Grade of H2S and FMG test		Please refer to the table as below. As for discolor, please refer to the Frame blackening after Grade of H2S and FMG test defect under Everlight's inspection criteria		
	Grade A0	Grade A1	Grade B0	Grade B1
C12 H2S Class A C13 FMG	No corrosion	Corrosion without the impact on reliability and life time, following AEC-Q102 rev. A		
C12 H2S Class B C13 FMG			No corrosion	Corrosion without the impact on reliability and life time, following AEC-Q102 rev. A
Class for H2S Test & FMG		Description		
		H2S	FMG	
Class A		15 ppm with duration 336 h at 40 °C and 90% RH.	Duration 500 h at 25 °C and 75% RH. H2S concentration: 10ppb SO2 concentration: 200ppb NO2 concentration: 200ppb Cl2 concentration: 10ppb	
Class B		10 ppm with duration 500 h at 25 °C and 75% RH.		
Class for H2S Test & FMG		Description		
0		No corrosion found		
1		Corrosion without the impact on reliability and life time, following AEC-Q102 rev. A		