

EL MULTI COLOR TOP VIEW

3735-C0PA1501H-AM



Features

Package : PLCC 4 package

Typ. Luminous Flux Cool White : 47.0 lm @ 150mA

Typ. Luminous Flux PC Amber : 27.0 lm @ 150mA

Viewing angle : 120°

ESD : 8KV

MSL : 2

Qualifications : According to AEC-Q102

Compliance with RoHS & REACH

Compliance Halogen Free. (Br<900ppm, Cl<900ppm, Br+Cl<1500ppm)

Sulfur robustness

Applications

Automotive Exterior Lighting

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1. Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition ^[1]
Forward Current	CW / PA	I _F	5	150	200	mA	---
Luminous Flux ^{[2][3]}	Cool White	Φ _v	39	47	70	lm	I _F =150mA
	PC Amber	Φ _v	20	27	39	lm	I _F =150mA
Forward Voltage ^{[4][5]}	Cool White	V _F	2.75	3.00	3.50	V	I _F =150mA
	PC Amber						
Viewing Angle	Cool White	φ	---	120	---	deg	I _F =150mA
	PC Amber						
Chromaticity Coordinates ^[6]	Cool White	CIE _x	0.3127	0.325	0.3355	---	I _F =150mA
		CIE _y	0.3093	0.335	0.3633		
	PC Amber	CIE _x	0.5557	0.570	0.5901		
		CIE _y	0.4075	0.420	0.4315		
Thermal Resistance (Junction to Solder)	CW / PA	R _{th JS real}	---	40	---	K/W	I _F =150mA
		R _{th JS el}	---	30	---		

Notes:

1. Forward conditon by each of LED.
2. Luminous flux measurement tolerance: ±8%.
3. The data of luminous flux measured at thermal pad=25°C
4. Forward voltage measurement tolerance: ±0.05V
5. Tolerance of Chromaticity coordinates x,y : ±0.005

2. Absolute Maximum Ratings

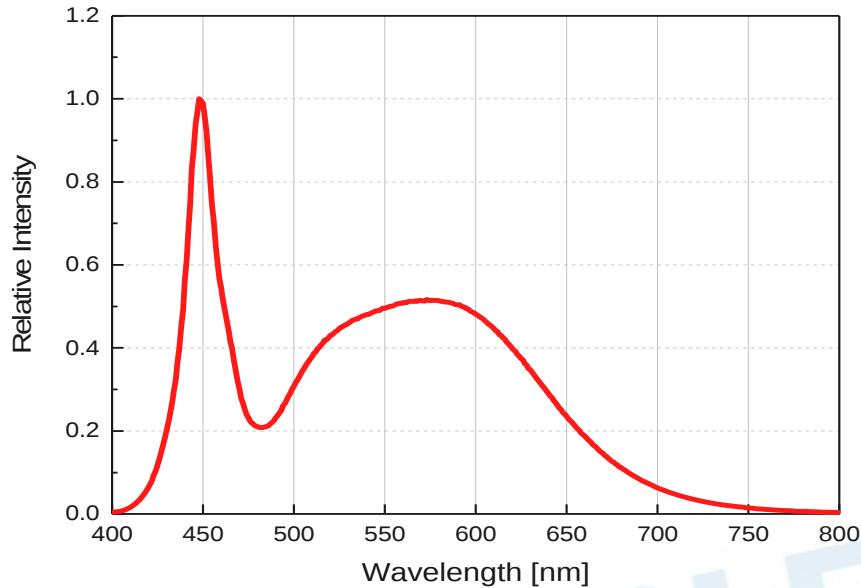
Parameter	Symbol	Ratings	Unit
Power Dissipation	P_d	700	mW
Forward Current	I_F	200	mA
Reverse Voltage	V_R	Not designed for reverse operation	V
Junction Temperature	T_J	150	°C
Operating Temperature	T_{opr}	-40 ~ +125	°C
Storage Temperature	T_{stg}	-40 ~ +125	°C
ESD Sensitivity (R=1.5kΩ, C= 100pF)	ESD_{HBM}	8	KV
Soldering Temperature	Reflow	260°C for 30sec	°C

EVERLIGHT

3. Characteristics Graph

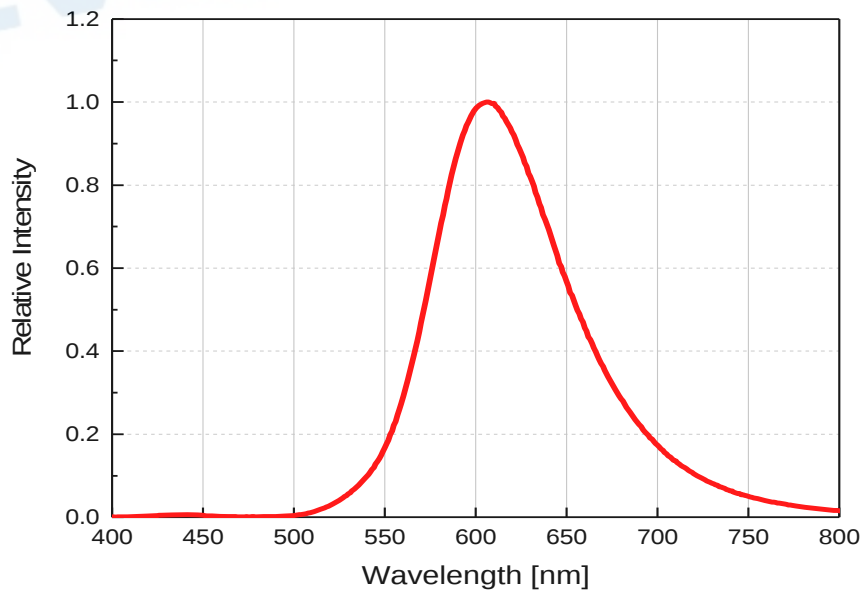
Wavelength Characteristics Relative Spectral Distribution @ $T_S = 25^\circ\text{C}$ 、 $I_F = 150\text{mA}$ (CW)

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

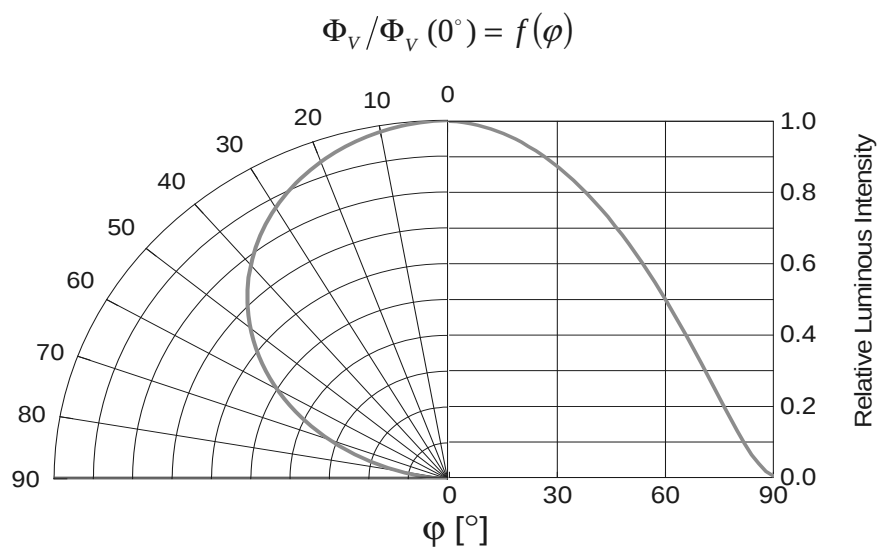


Wavelength Characteristics Relative Spectral Distribution @ $T_S = 25^\circ\text{C}$ 、 $I_F = 150\text{mA}$ (PC Amber)

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



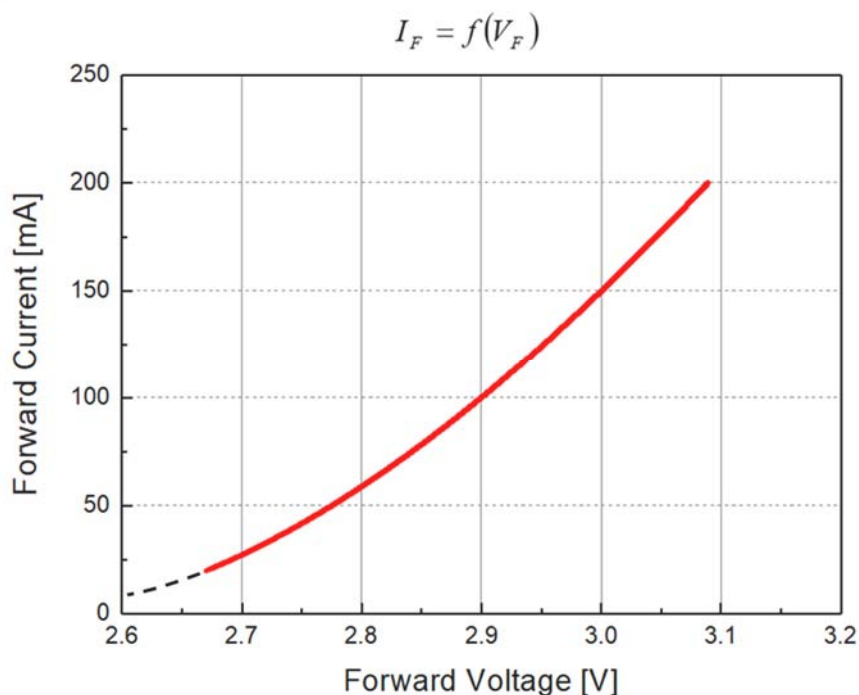
Typical Diagram Characteristics of Radiation (CW / PA)



Notes:

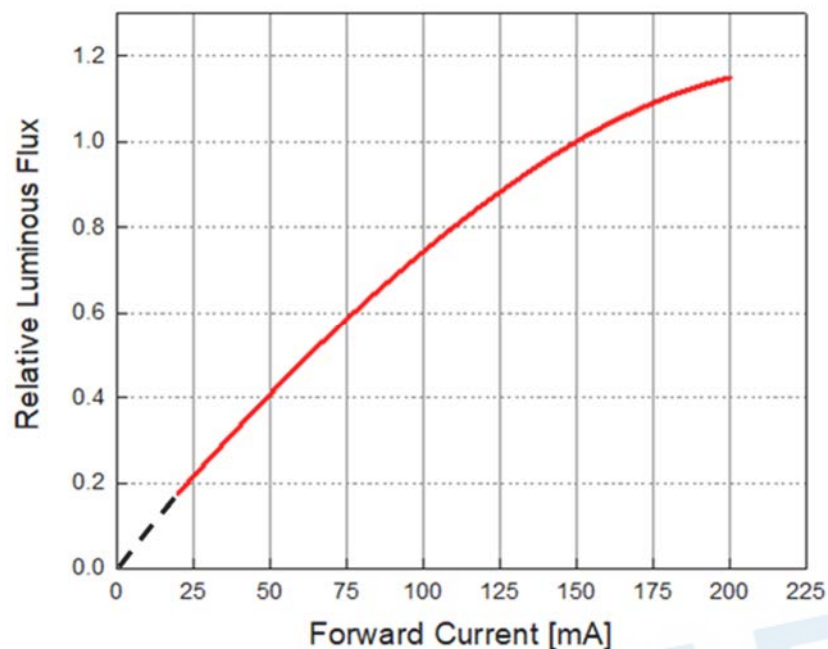
1. φ is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.
2. View angle tolerance is $\pm 5^\circ$

Forward Current vs. Forward Voltage @ $T_s = 25^\circ\text{C}$ (CW / PC amber)



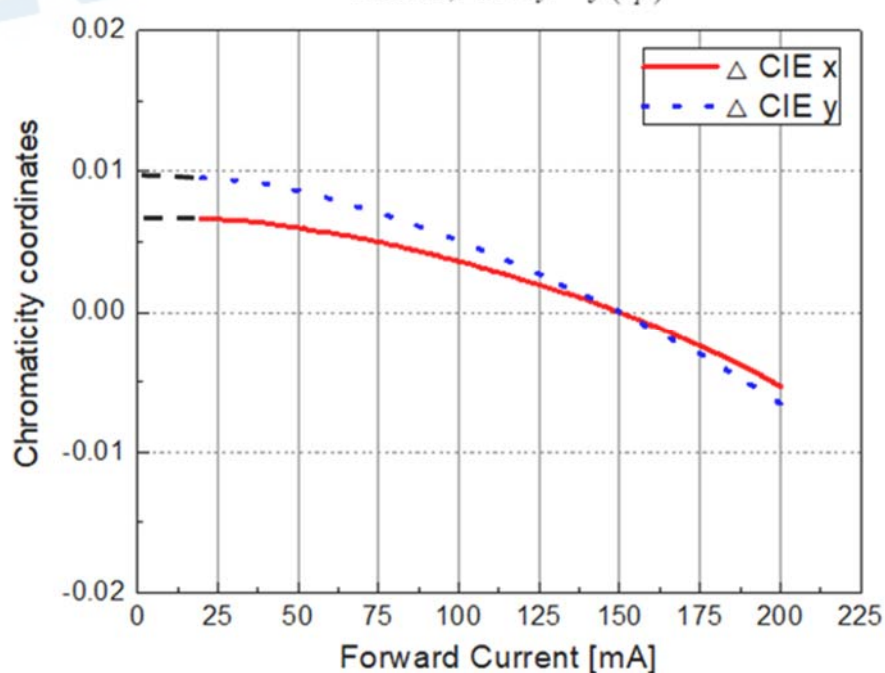
Relative Luminous Flux vs. Forward Current @ $T_s = 25^\circ\text{C}$ (CW / PA)

$$\Phi_V / \Phi_V(150\text{mA}) = f(I_F)$$

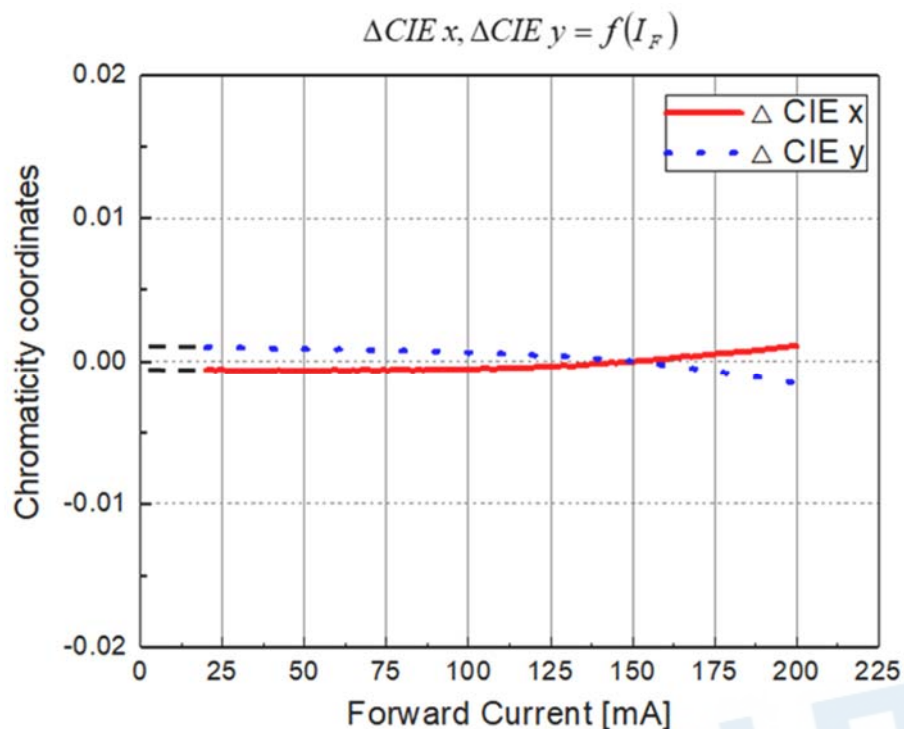


Chromaticity Coordinates vs. Forward Current @ $T_s = 25^\circ\text{C}$ (CW)

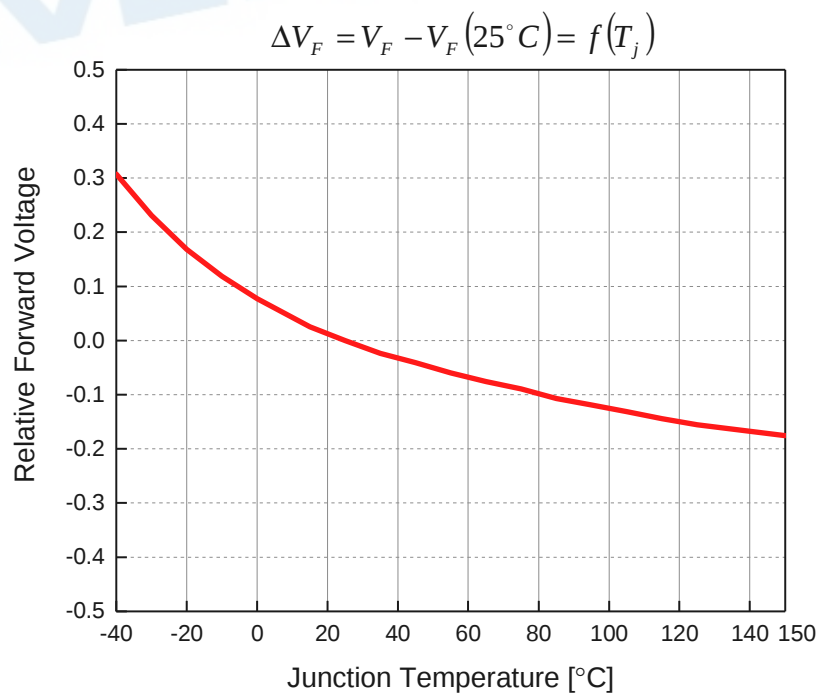
$$\Delta\text{CIE } x, \Delta\text{CIE } y = f(I_F)$$



Chromaticity Coordinates vs. Forward Current @ $T_S = 25^\circ\text{C}$ (PC Amber)

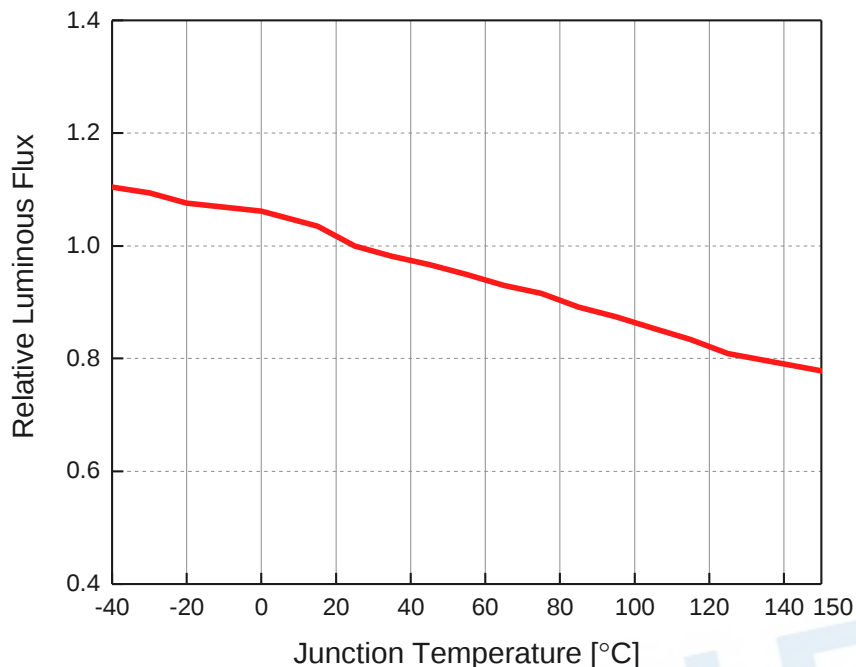


Relative Forward Voltage vs. Junction Temperature @ $I_F = 150\text{mA}$ (CW / PA)



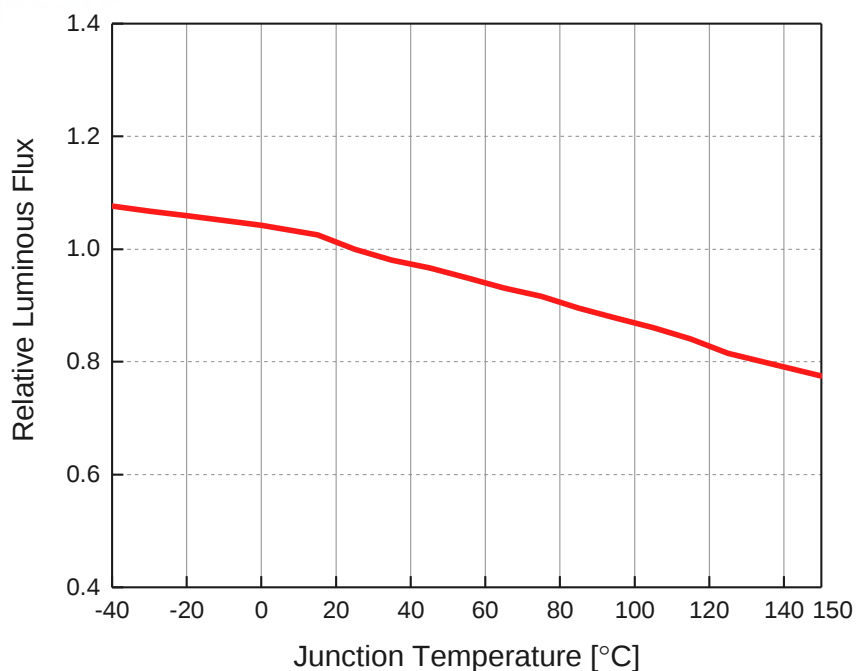
Relative Luminous Flux vs. Junction Temperature @ I_F = 150mA (CW)

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



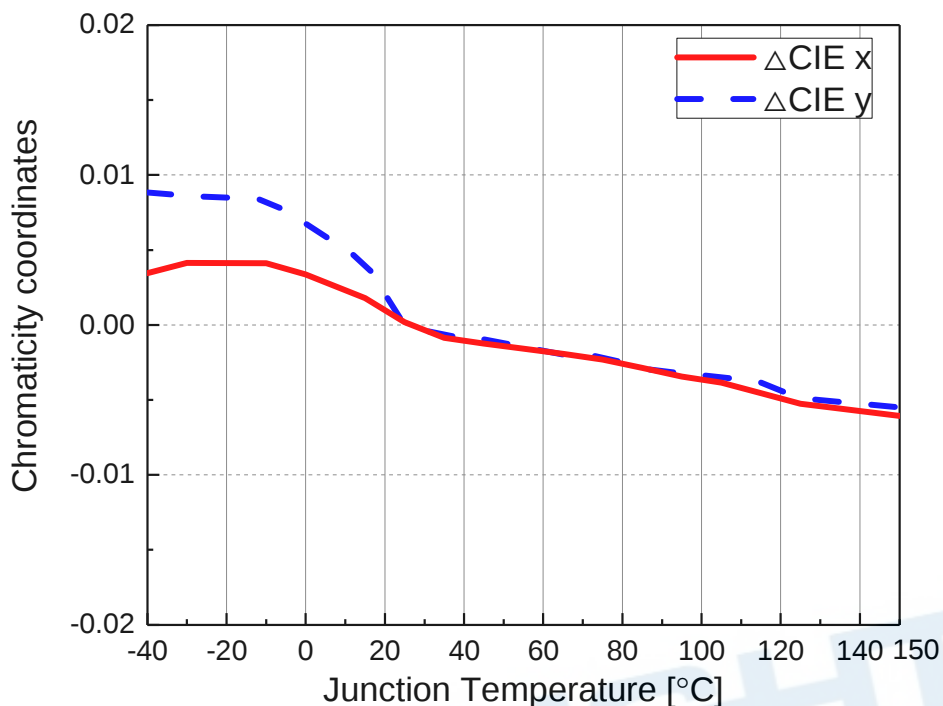
Relative Luminous Flux vs. Junction Temperature @ I_F = 150mA (PC Amber)

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



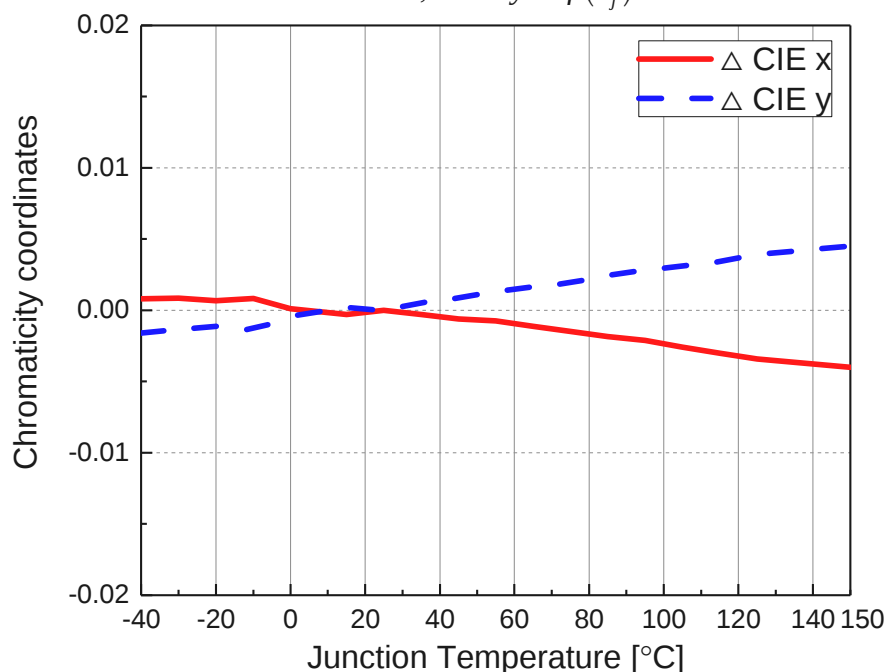
Chromaticity Coordinates Shift vs. Junction Temperature @ $I_F = 150\text{mA}$ (CW)

$$\Delta CIE\ x, \Delta CIE\ y = f(T_j)$$



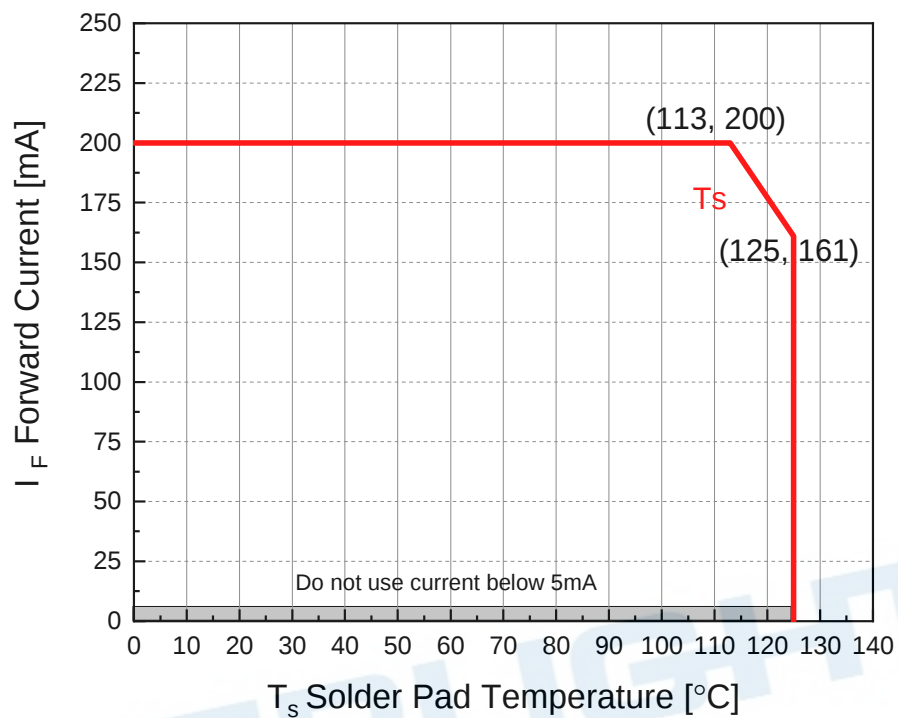
Chromaticity Coordinates Shift vs. Junction Temperature @ $I_F = 150\text{mA}$ (PC Amber)

$$\Delta CIE\ x, \Delta CIE\ y = f(T_j)$$



Forward Current Derating Curve (CW / PA)

$$I_F = f(T_s)$$



4. Binning Information

Luminous Flux Bins

[Cool White]			
Group	Bin	Minimum Photometric Flux (lm)	Maximum Photometric Flux (lm)
F	2	33	39
	3	39	45
	4	45	52
	5	52	60
	6	60	70
	7	70	80
	8	80	90
	9	90	100
J	1	100	110

[PC Amber]			
Group	Bin	Minimum Photometric Flux (lm)	Maximum Photometric Flux (lm)
E	8	20	23
	9	23	27
F	1	27	33
	2	33	39
	3	39	45
	4	45	52
	5	52	60
	6	60	70
	7	70	80

Notes:

1. Luminous flux measurement tolerance: $\pm 8\%$.
2. Highlighted Black Box is available bins.

Forward Voltage Bins

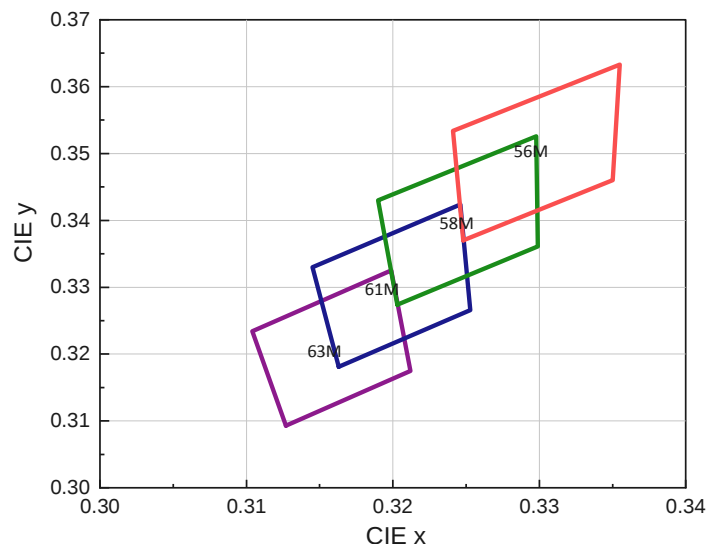
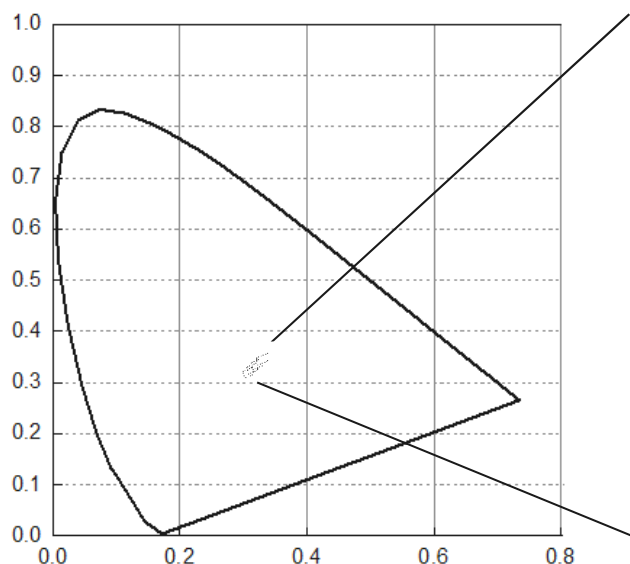
Bin	Minimum Forward Voltage [V]	Maximum Forward Voltage [V]
1012	1.00	1.25
1215	1.25	1.75
1517	1.50	1.75
1720	1.75	2.00
2022	2.00	2.25
2225	2.25	2.50
2527	2.50	2.75
2730	2.75	3.00
3032	3.00	3.25
3235	3.25	3.50
3537	3.50	3.75
3740	3.75	4.00
4042	4.00	4.25
4245	4.25	4.50
4547	4.50	4.75
4750	4.75	5.00
5052	5.00	5.25
5255	5.25	5.50
5557	5.50	5.75
5760	5.75	6.00
6062	6.00	6.25
6265	6.25	6.50
6567	6.50	6.75
6770	6.75	7.00

Notes:

1. Forward voltage measurement tolerance: $\pm 0.05V$.
2. Forward voltage bins are defined at $I_F = 150mA$ operation.

Color Bin Structure

ECE Bin Structure



Cool White Bin Coordinates

Bin	CIE x	CIE y
63M	0.3127	0.3093
	0.3212	0.3175
	0.3199	0.3325
	0.3104	0.3234

Bin	CIE x	CIE y
61M	0.3163	0.3181
	0.3253	0.3266
	0.3246	0.3424
	0.3145	0.333

Bin	CIE x	CIE y
58M	0.3203	0.3274
	0.3299	0.3361
	0.3298	0.3526
	0.319	0.343

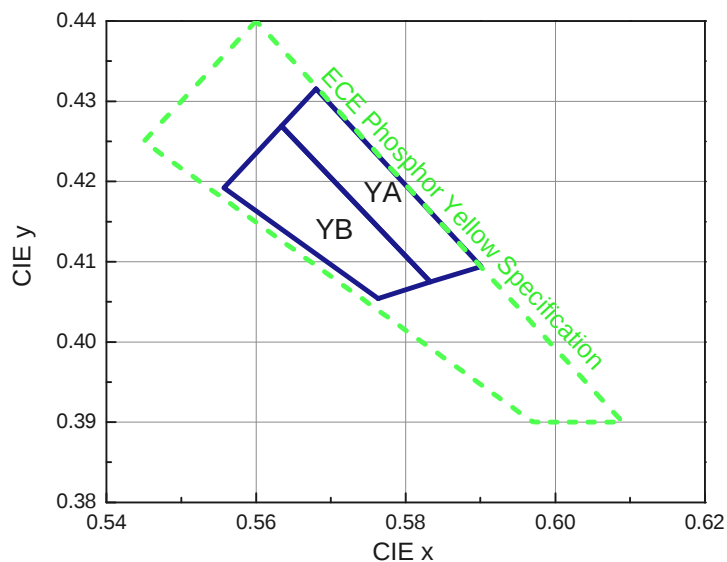
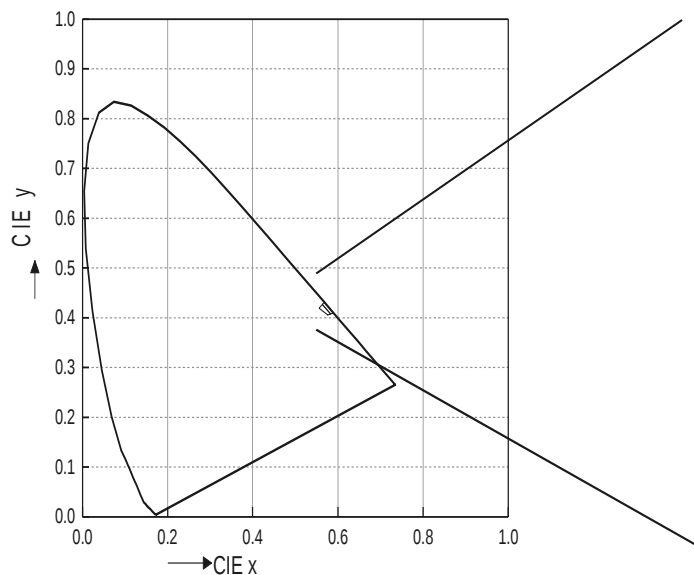
Bin	CIE x	CIE y
56M	0.3248	0.337
	0.335	0.346
	0.3355	0.3633
	0.3241	0.3534

Notes:

1. Color coordinates measurement tolerance: ± 0.005 .

Color Bin Structure

ECE Bin Structure



PC Amber Bin Coordinates

Bin	CIE x	CIE y
YA	0.5680	0.4315
	0.5634	0.4269
	0.5833	0.4075
	0.5901	0.4094

Bin	CIE x	CIE y
YB	0.5763	0.4054
	0.5833	0.4075
	0.5634	0.4269
	0.5557	0.4192

Notes:

1. Color coordinates measurement tolerance: ± 0.005 .

5. Part Number

3735-C8PA1501H-AM

Part number is designated with below details.

3735 = Product family name.

C = Color ^[1]

8 = CRI (0=N/A ; >70=7 ; >80=8 ; >90=9)

PA= Color ^[1]

150 = Test current [mA]

1 = Lead frame type (0=Ag ; 1=Au ; 2=MLP)

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
UA	Amber
UR	Red
SR	Super Red
RGB	RGB-Color
PYG	Phosphor Converted Yellow Green

6. Ordering Information

3735-C0PA2501H- ABCDEFGHIJKLMNOPQRSTUW-WX-AM

Part Number of the 3735	Order Code
3735-C0PA2501H-AM	3735-C0PA2501H-ABCDEFGHIJKLMNQRSTUW-WX-AM

Order code contains information with below details :

ABCDEF = min/max wavelength or CCT for CW

GHIJ = min/max wavelength or CCT for PA

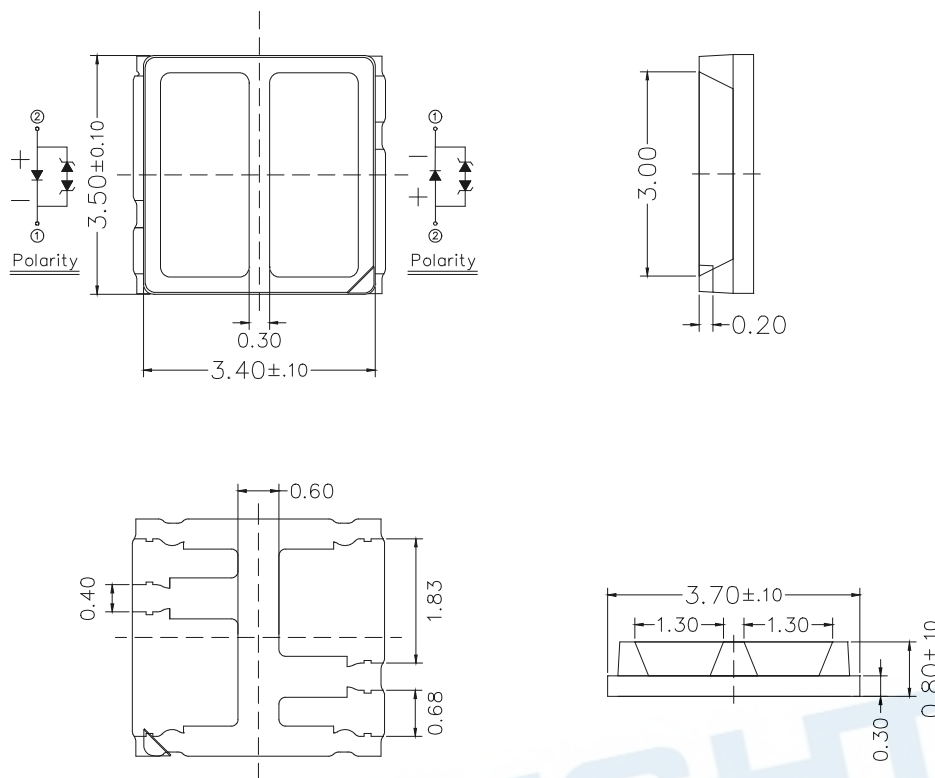
KLMN = min./max. luminous flux in [lm] or luminous intensity in [mcd] for CW

OPQR = min./max. luminous flux in [lm] or luminous intensity in [mcd] for PA

STUV = min./max. forward voltage

WX = internal code

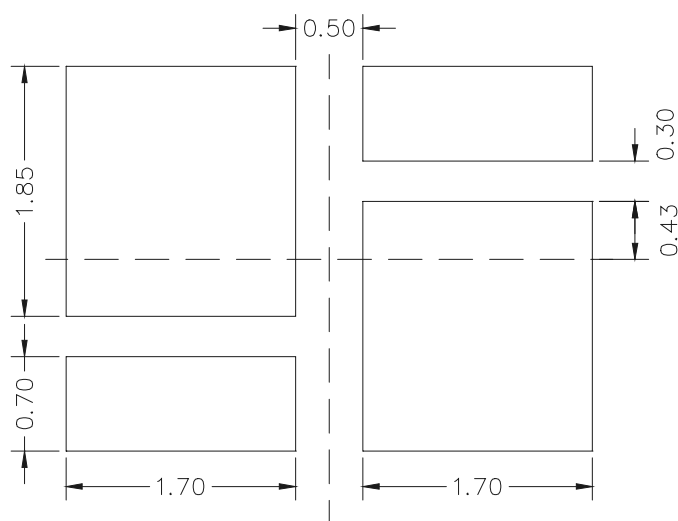
7. Mechanical Dimension



Notes:

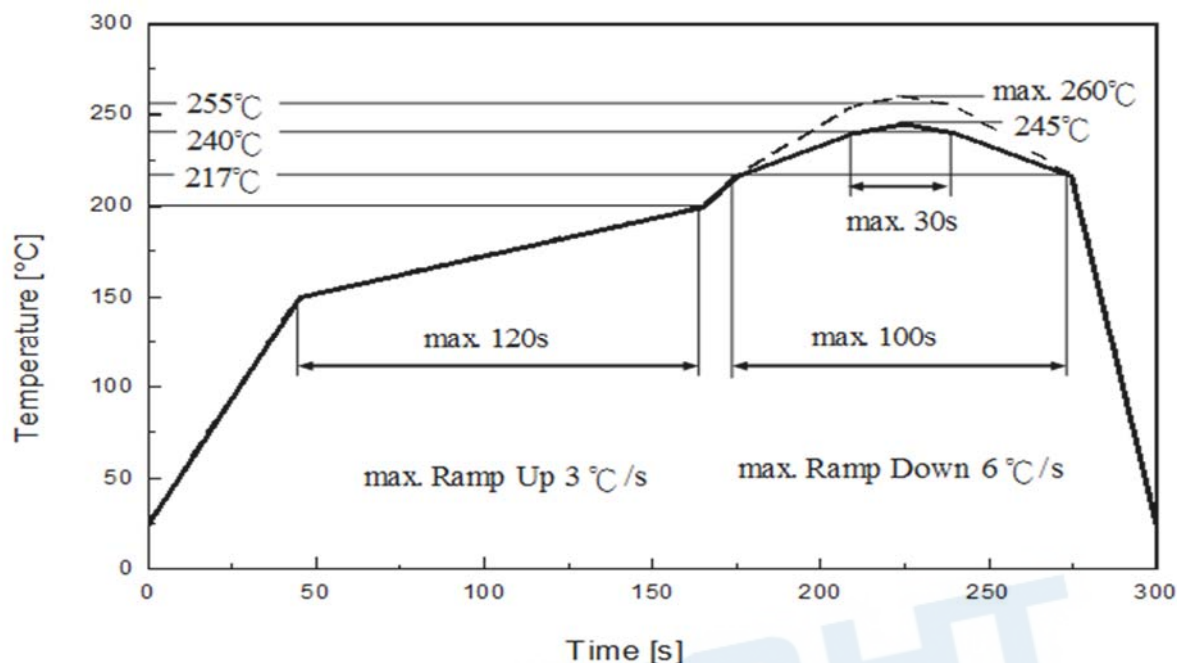
1. Dimensions are in millimeters.
2. Tolerances unless mentioned are $\pm 0.1\text{mm}$.

8. Recommended Soldering Pad



9. Reflow Soldering Profile

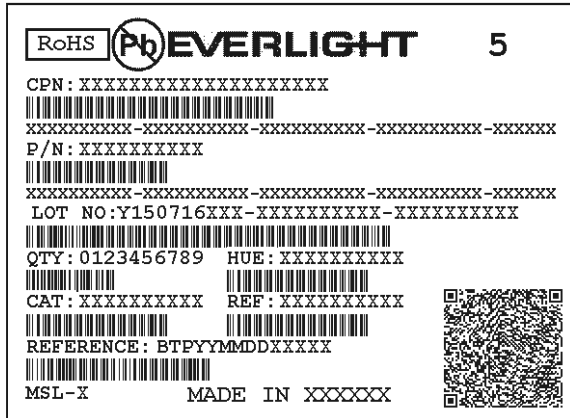
Soldering Condition (Reference: IPC/JEDEC J-STD-020D)



Profile Feature	Pb-Free Assembly	Unit Einheit
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

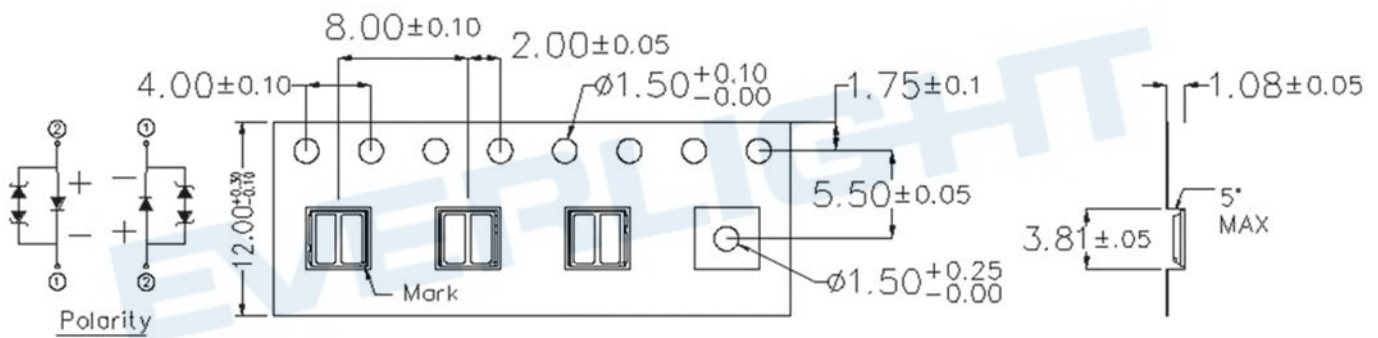
10. Packaging Information

• Product Labeling

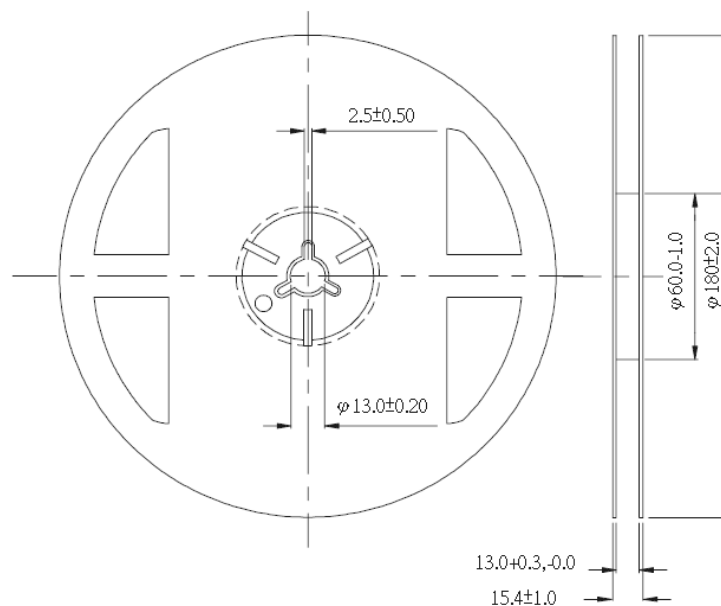


- CPN : Customer's Product Number
- P/N : Everlight Part Number
- LOT NO : Lot Number
- QTY : Packing Quantity
- HUE : Color Bin
- CAT : Luminous Flux (Brightness) Bin
- REF : Forward Voltage Bin

• Packing: Loaded Quantity 500 pcs Per Reel

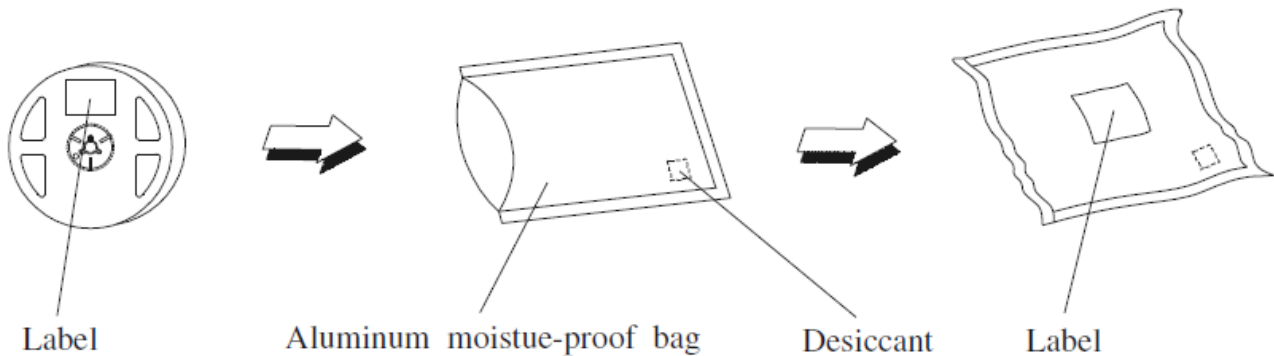


• Reel Dimensions



Notes: 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 (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.