DATASHEET

EVERLIGHT AUTOMOTIVE

EL 3030E

Preliminary

XI3030-UR2501M-AM

Features

- Package: SMD EMC package
- Typical Dominant Wavelength: 618 nm
- Typical Luminous Flux: 31 lm @ 250mA
- Viewing angle: 120º
- ESD : 2KV
- MSL : 2
- Qualifications : According to AEC-Q102
- Compliance with RoHS and REACH
- Sulfur robustness
- Compliance Halogen Free. (Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm).

Applications

- Automotive Exterior Lighting
- Stop Light
- Tail Light

Contents

1. Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Current		I_F	50	250	350	mA	---
Luminous Flux[1][2]		I_V	27	31	39	lm	I_F=250mA
Forward Voltage[3][4]		V_F	2.0	2.6	3.0	V	I_F=250mA
Viewing Angle		φ	---	120	---	deg	I_F=250mA
Dominant Wavelength[5]		λ_D	606	618.5	621	nm	I_F=250mA
Thermal Resistance (Junction to Solder)	Real	$R_{th\ JS\ real}$	---	28	40	K/W	I_F=250mA
	Electrical	$R_{th\ JS\ el}$	---	22	30		

Notes:

1. Luminous Flux measurement tolerance: ±8%.
2. The data of Luminous Flux measured at thermal pad=25°C
3. Forward voltage measurement tolerance: ±0.05V
4. The V_F range shown in the table above indicates 99% output.
5. Tolerance of Dominant Wavelength：±1nm.

2. Absolute Maximum Ratings

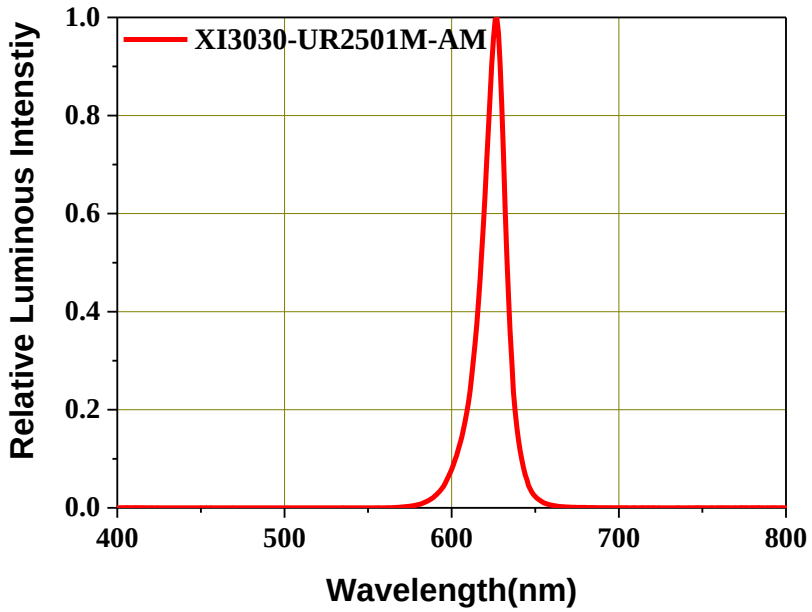
Parameter	Symbol	Ratings	Unit
Power Dissipation	P_d	1050	mW
DC Forward Current	I_F	350	mA
Surge Current (t<=10 μs; D=0.005; T_s=25 ℃)	I_{FM}	1000	mA
Reverse Voltage	V_R	Not designed for reverse operation	V
Junction Temperature	T_J	150	°C
Operating Temperature	T_{opr}	-40 ~ +125	°C
Storage Temperature	T_{stg}	-40 ~ +125	°C
ESD Sensitivity (R=1.5kΩ, C= 100pF Condition)	ESD_{HBM}	2	kV
Soldering Temperature	Reflow	260°C for 30 sec	°C

3. Characteristics Graph

Wavelength Characteristics Relative Spectral Distribution

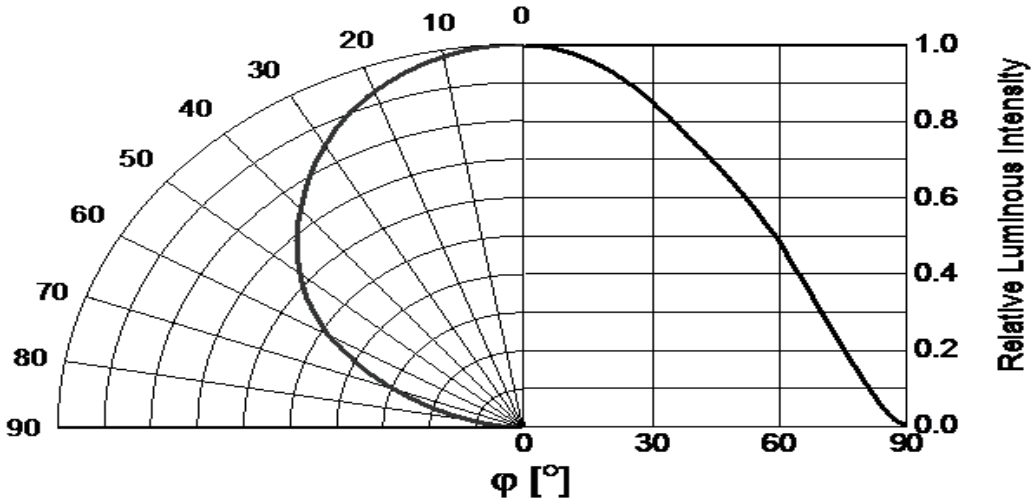
@ Ts = 25°C, I_F=250mA

$$\Phi_V/\Phi_V\,(Max.) = f(\lambda)$$



Typical Diagram Characteristics of Radiation

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



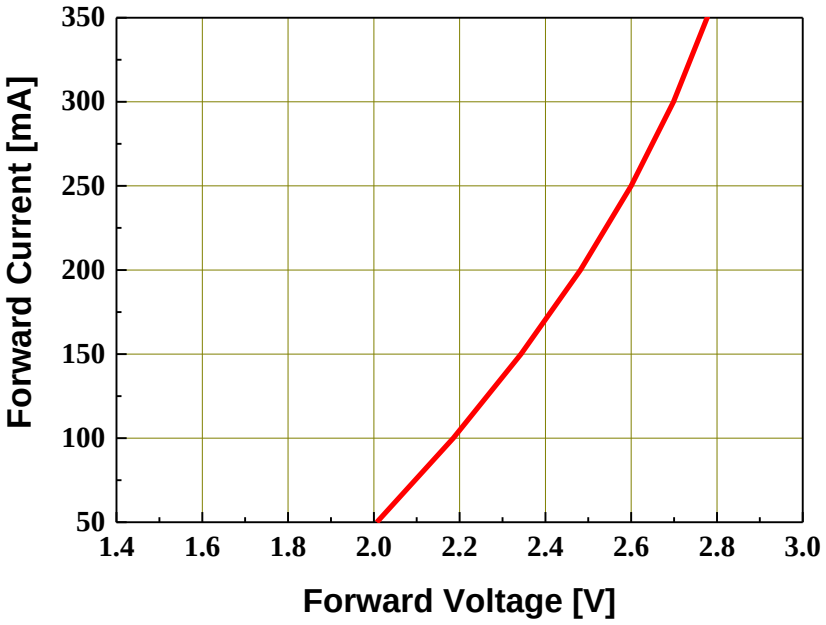
Notes:

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 ± 5°.

Forward Current vs. Forward Voltage

@ Ts = 25°C

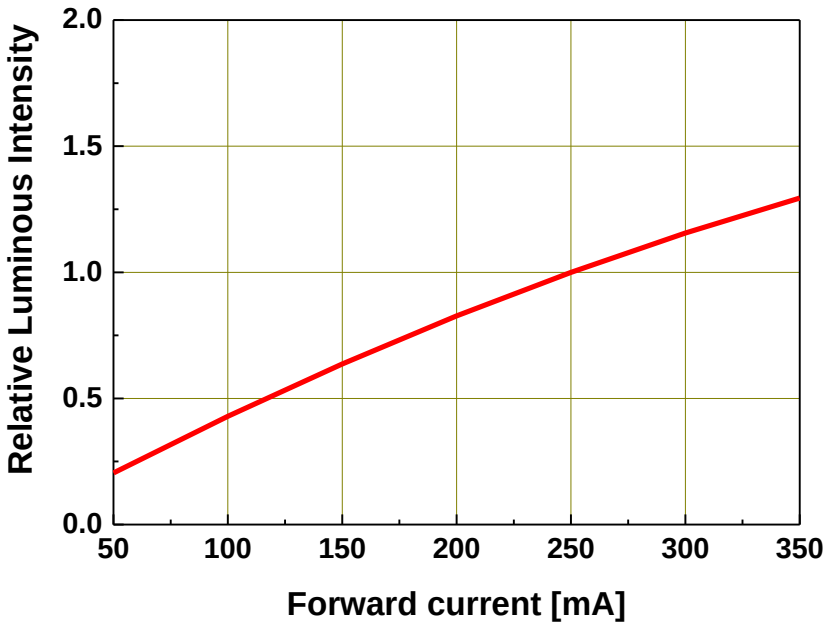
$I_F = f(V_F)$



Relative Luminous Flux vs. Forward Current

@ Ts = 25°C

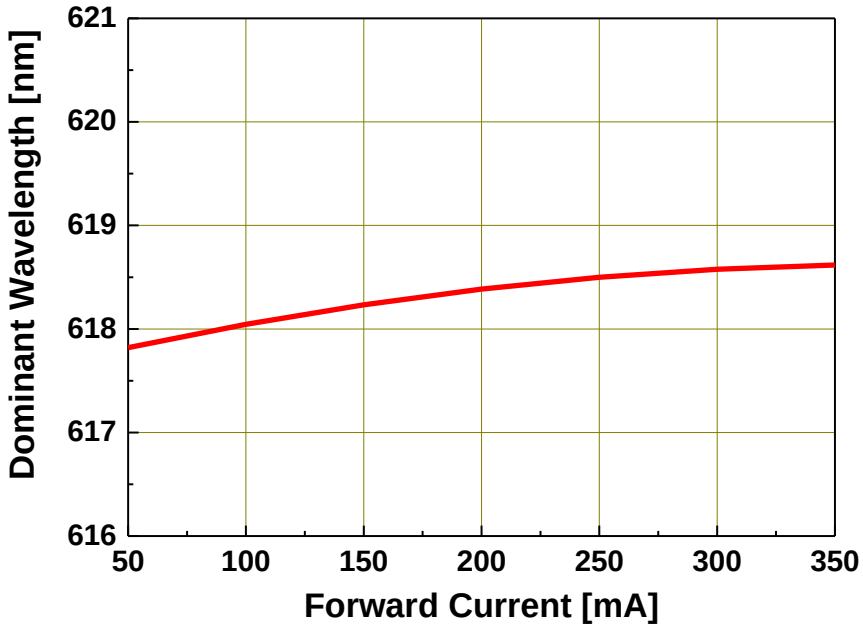
$\Phi_V / \Phi_V(150mA) = f(I_F)$



Wavelength Characteristics vs. Forward Current

@ Ts = 25°C

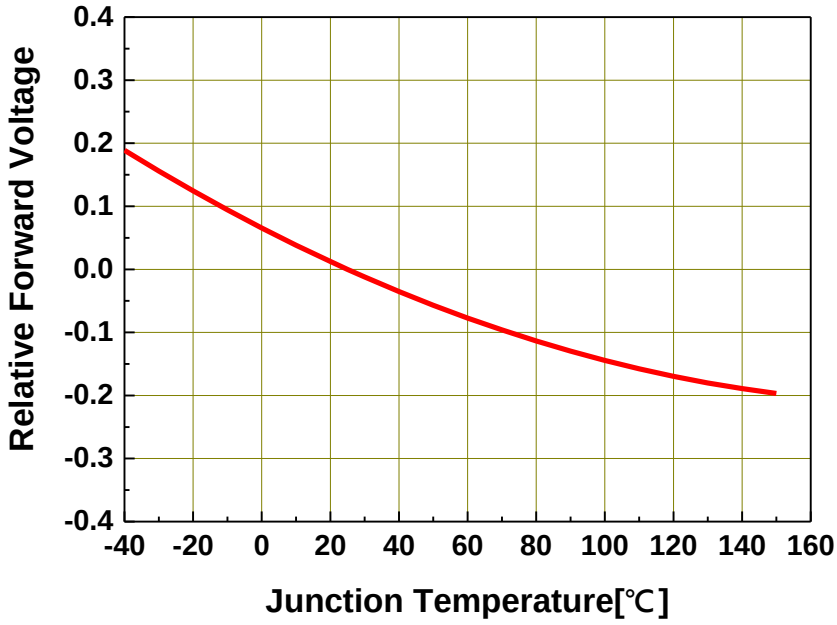
$$\lambda_d = f(I_F)$$



Relative Forward Voltage vs. Junction Temperature

@ IF=250mA

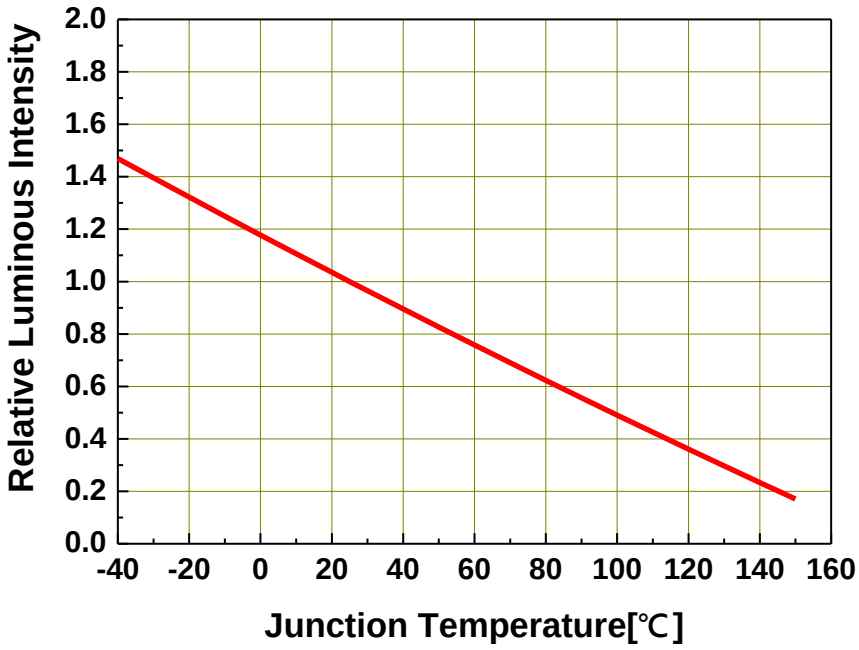
$$\Delta V_F = V_F - V_F(25^\circ C) = f(T_j)$$



Relative Luminous Flux vs. Junction Temperature

@ I_F=250mA

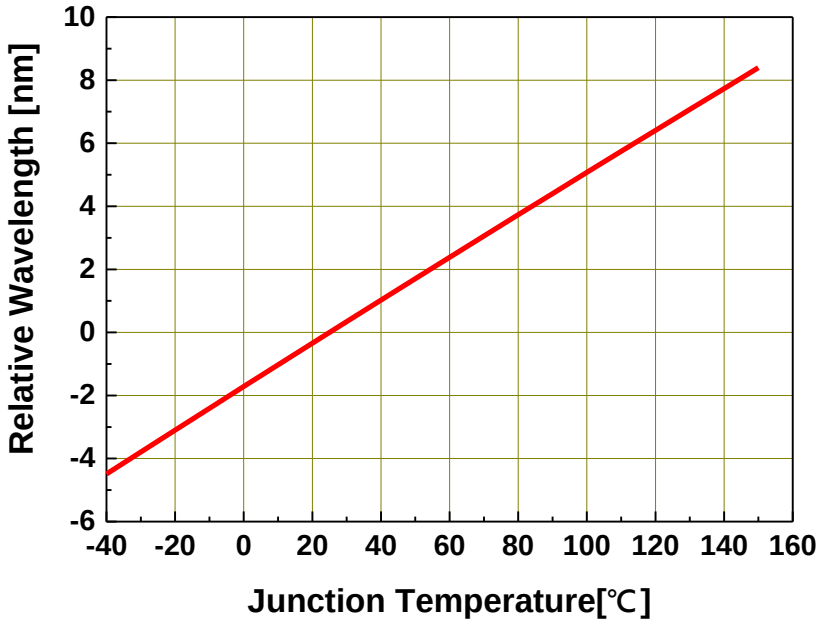
$$\lambda_d = f(T_j)$$



Wavelength Characteristics vs. Junction Temperature

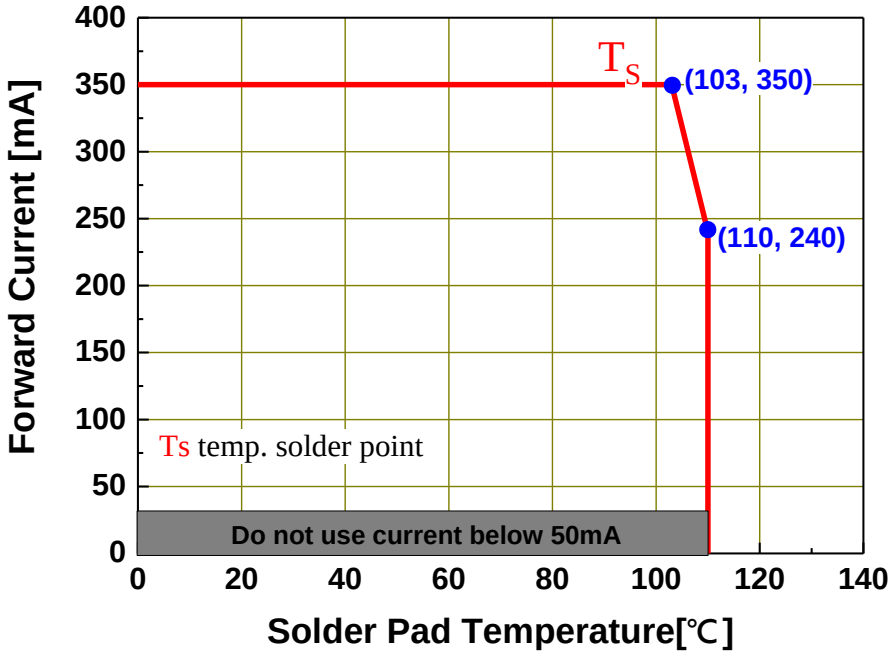
@ I_F=250mA

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



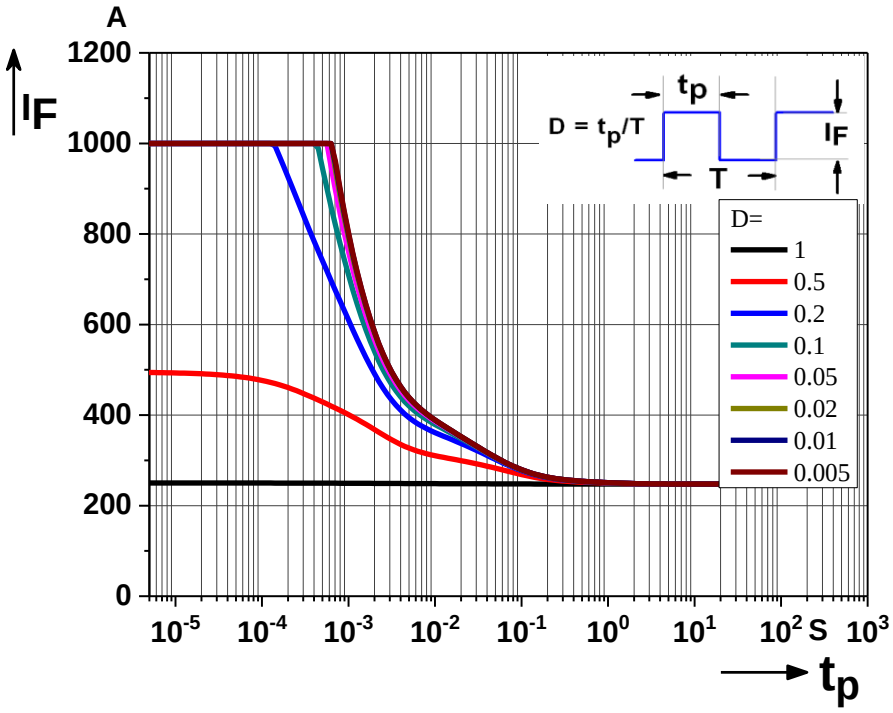
Forward Current Derating Curve

$I_F = f(T_S)$



Permissible Pulse Handling Capability

D=Duty cycle , T_s = 25℃



4. Binning Information

Luminous Flux Bins

Group	Bin	Minimum Photometric Flux (lm)	Maximum Photometric Flux (lm)
E	1	4	5
	2	5	6
	3	6	8
	4	8	10
	5	10	13
	6	13	17
	7	17	20
	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
	8	80	90
	9	90	100

Group	Bin	Minimum Photometric Flux (lm)	Maximum Photometric Flux (lm)
J	1	100	110
	2	110	120
	3	120	130
	4	130	140
	5	140	150
	6	150	160
	7	160	180
	8	180	200
	9	200	225
K	1	225	250
	2	250	275
	3	275	300
	4	300	325
	5	325	350
	6	350	375
	7	375	400
	8	400	425
	9	425	450

Notes:

1. Luminous flux measurement tolerance: ±8%.

Dominant Wavelength Bin Structure

Color Bin Structure Bin	Minimum Dominant Wavelength [nm]	Maximum Dominant Wavelength [nm]
4751	447	451
5155	451	455
5559	455	459
5963	459	463
6367	463	467
6771	467	471
7175	471	475
1015	510	515
1520	515	520
2025	520	525
2530	525	530
3035	530	535
5861	558	561
6164	561	564
6467	564	567
6770	567	570
7073	570	573
7376	573	576
7679	576	579
7982	579	582
8285	582	585
8588	585	588
8891	588	591
9194	591	594
9497	594	597
9700	597	600
0003	600	603
0306	603	606
0609	606	609
0912	609	612
1215	612	615
1518	615	618
1821	618	621
2124	621	624
2427	624	627
2730	627	630
3033	630	633
3336	633	636
3639	636	639

Notes:

1. Dominant wavelength measurement tolerance: ±1nm

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: ±0.05V.
2. Forward voltage bins are defined at I_F = 250mA operation.

5. Part Number

XI3030-UR2501M-AM

Part number is designated with below details.

XI3030 = Product family name.

UR = Color [1]

250 = Test current [mA]

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

M = 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
US	Orange
UA	Amber
UR	Red
SR	Super Red
RGB	RGB – Color
RGBY	RGBY – Color

6. Ordering Information

Part Number of the EL 3030E	Order Code
XI3030-UR2501M-AM	XI3030-UR2501M-ABCDEFGHJKLM-NO-AM

Order code contains information with below details：

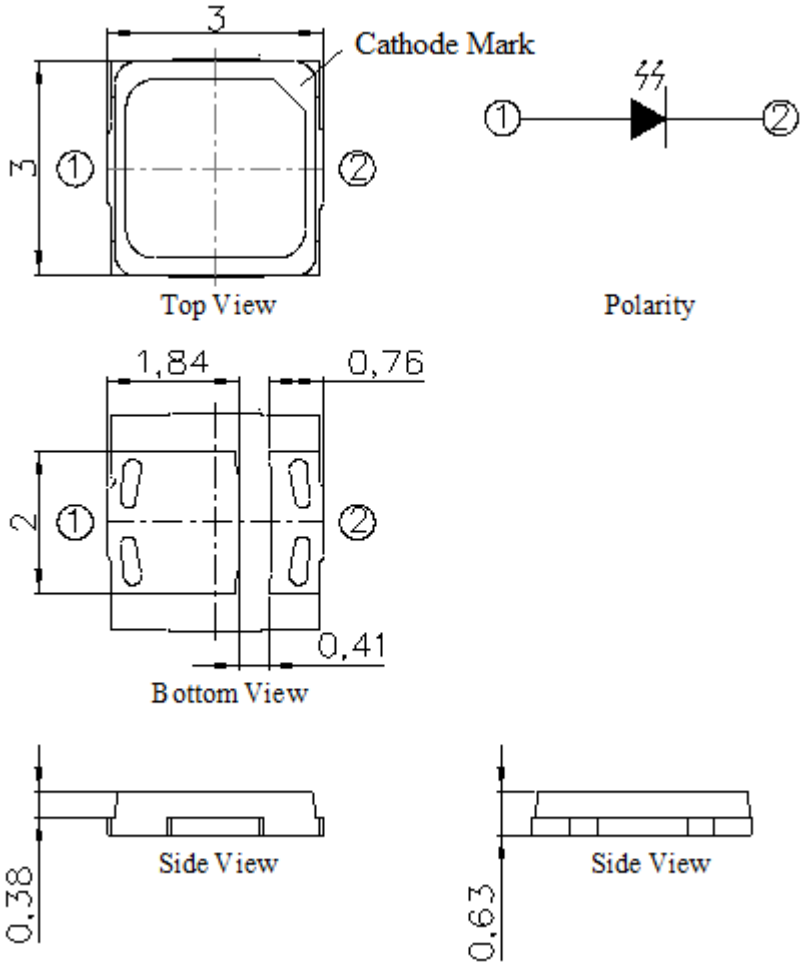
ABCD= min/max wavelength or CCT

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

JKLM = min./max. forward voltage

NO = internal code

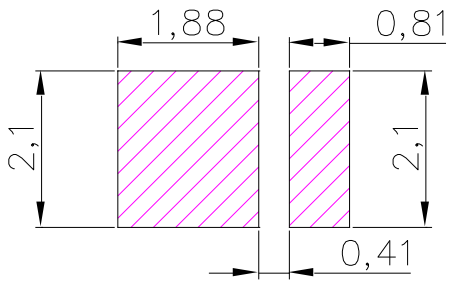
7. Mechanical Dimension



Notes:

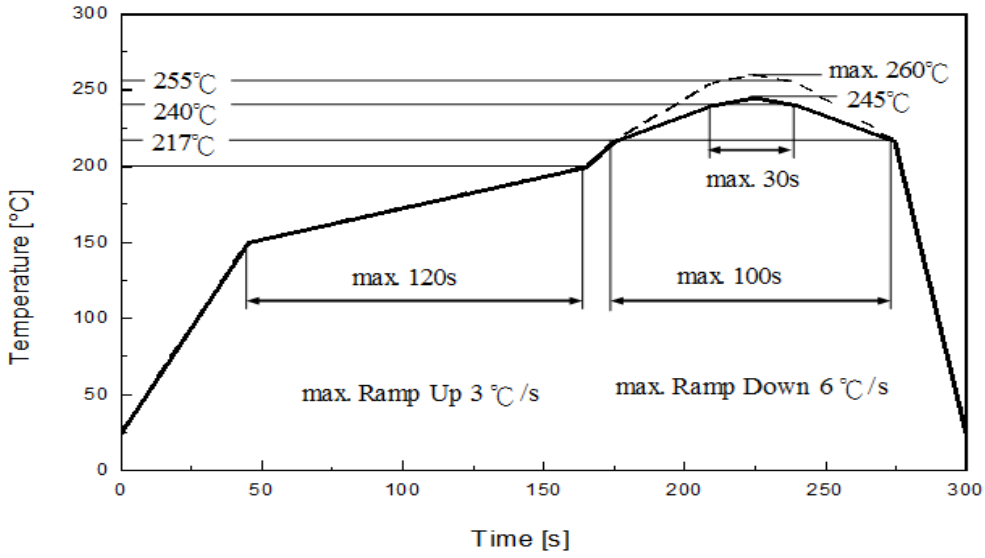
1. Dimensions are in millimeters.
2. Tolerances unless mentioned are ± 0.1mm.

8. Recommended Soldering Pad



9. Reflow Soldering Profile

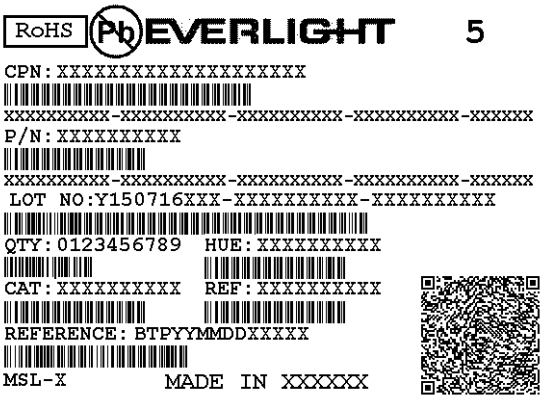
Soldering Condition (Reference: IPC/JEDEC J-STD-020D)



Profile Feature	Pb-Free Assembly Recommendation	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

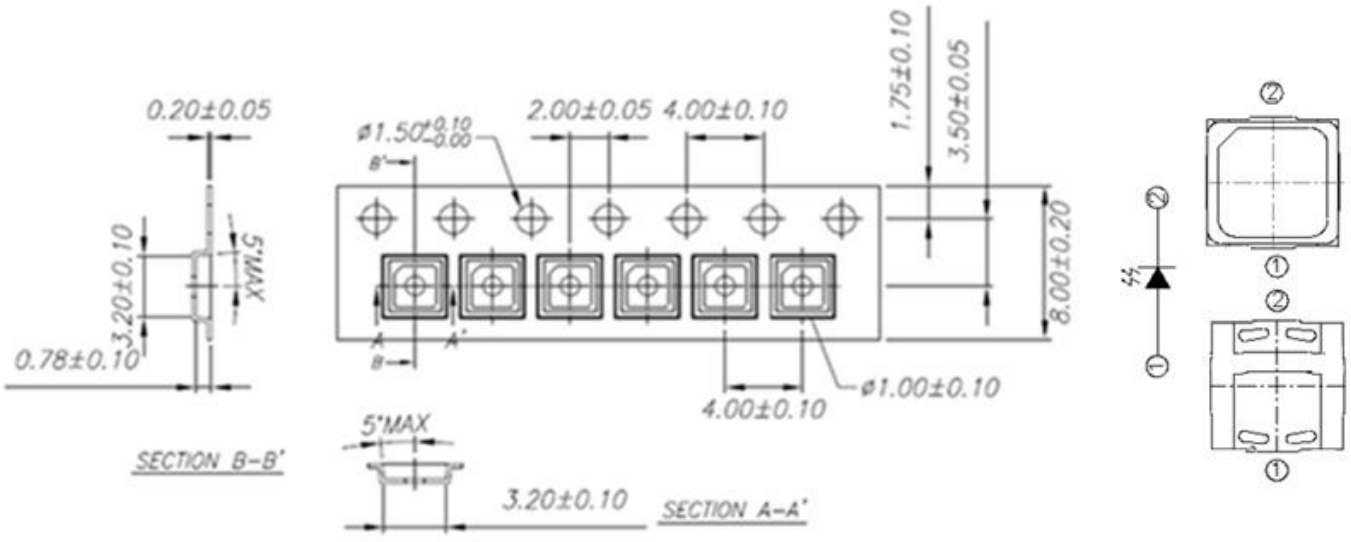
10.Packaging Information

● Product Labeling



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

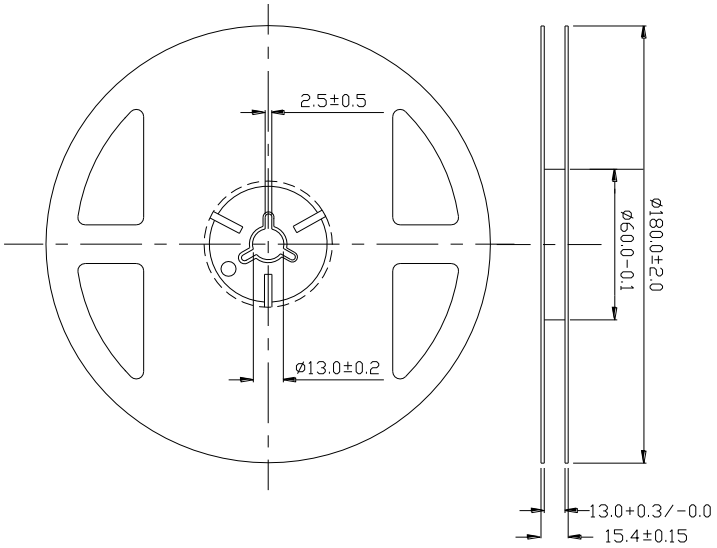
● Packing: Loaded Quantity 2000 pcs Per Reel



Notes:

1. Dimensions are in millimeters.

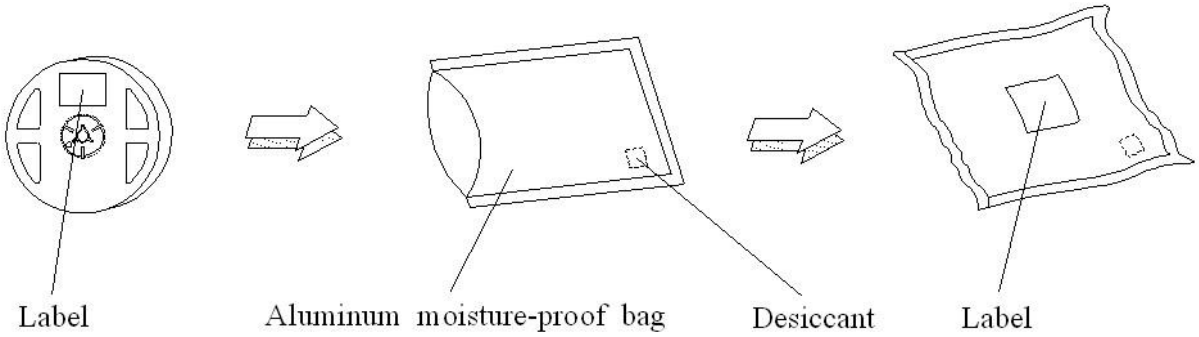
Reel Dimensions



Notes:

1. Dimensions are in millimeters.

• Moisture Resistant Packing Process



Notes:

1. Dimensions are in millimeters.

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℃ 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.