

EL 2835 67-11S-C80600H-AM



Features

- Package: Cool White LED with 2835 package
- Emitted Color: Cool White
- Typ. Luminance Intensity: 9400 mcd @ 60mA
- Typ. Luminous Flux: 28 lm @ 60mA
- Viewing angle: 120°
- ESD: up to 8KV
- MSL: 2
- Preconditioning: According to JEDEC J-STD 020D Level 2
- Qualifications: According to AEC-Q101
- Compliance with RoHS and REACH

Applications

- Automotive Interior Lighting, Dashboard, Switch, Reading lamp, Audio and Car Infotainment, etc
- Backlight: LCD, switches, symbol, mobile phone and illuminated advertising.
- Optical indicator.
- General applications.

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1. Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Current	Cool White	I_F	10	60	80	mA	---
Luminous Flux ^{[1][2][3]}	Cool White	Φ_v	24	28	40	lm	$I_F=60mA$
Forward Voltage ^{[4][5]}	Cool White	V_F	2.5	2.8	3.5	V	$I_F=60mA$
Viewing Angle	Cool White	ϕ	---	120	---	deg	$I_F=60mA$
Chromaticity coordinates ^[6]	Cool White	CIE x	---	0.3292	---	---	$I_F=60mA$
		CIE y	---	0.3424	---	---	$I_F=60mA$
Color Rendering Index	Cool White	Ra	80	---	---	---	$I_F=60mA$
Thermal Resistance (Junction to Solder)	Real	$R_{th JS real}$	---	100	---	K/W	$I_F=60mA$
	Electrical	$R_{th JS el}$	---	50	---		

Notes:

1. Luminous Flux measurement tolerance: $\pm 8\%$.
2. The data of Luminous Flux measured at thermal pad=25°C.
3. Typical Luminous Flux or light output performance is operated within the condition guided by this datasheet.
4. Forward Voltage measurement tolerance: $\pm 0.05V$.
5. The V_F range shown in the table above indicates 99% output.
6. Tolerance of Chromaticity Coordinates x,y: ± 0.005 .

2. Absolute Maximum Ratings

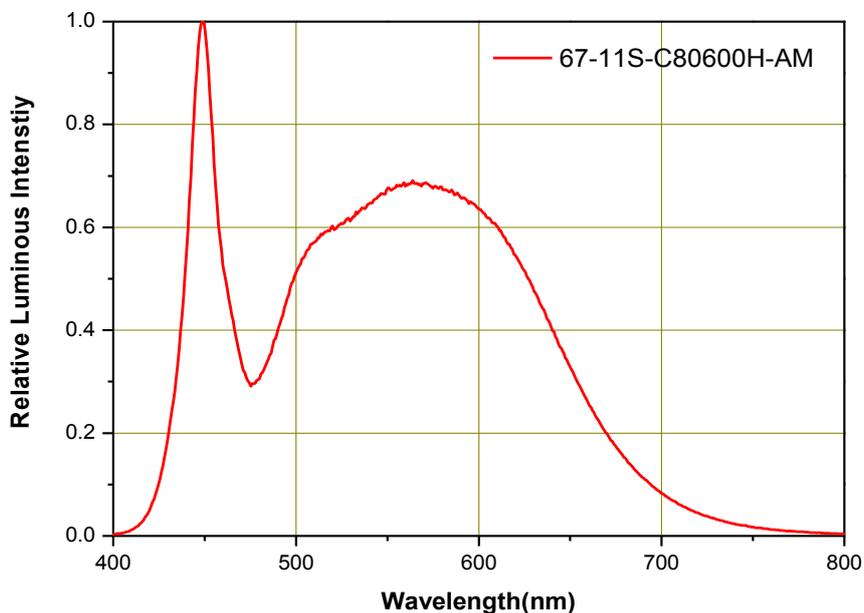
Parameter	Symbol	Ratings	Unit
Power Dissipation	P_d	280	mW
Forward Current	I_F	10 ~ 80	mA
Surge Current	I_{FM}	1500	mA
Reverse Voltage	V_R	Not designed for reverse operation	V
Junction Temperature	T_J	125	°C
Operating Temperature	T_{opr}	-40 ~ +110	°C
Storage Temperature	T_{stg}	-40 ~ +110	°C
ESD Sensitivity (R=1.5kΩ, C= 100pF)	ESD_{HBM}	8	kV
Soldering Temperature	Reflow	260°C for 30sec	---

3. Characteristics Graph

Wavelength Characteristics Relative Spectral Distribution

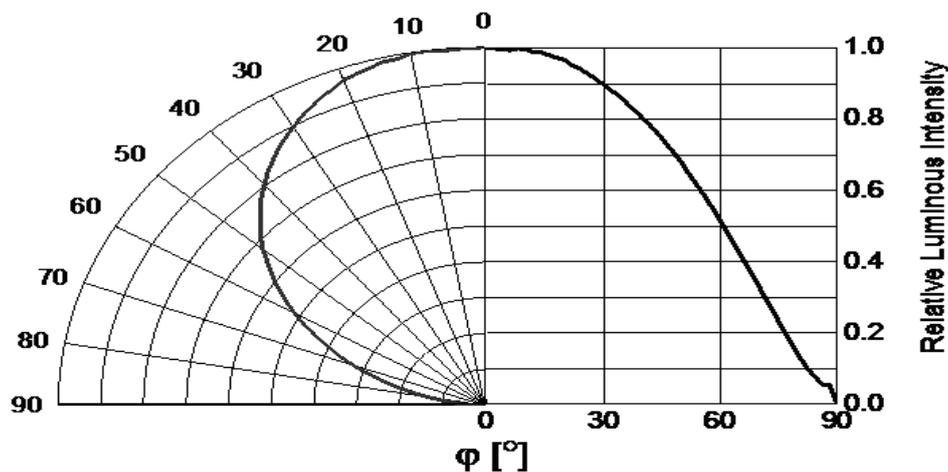
@ $T_s = 25^\circ\text{C}$, $I_F = 60\text{mA}$, $RH = 30\%$

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



Typical Diagram Characteristics of Radiation

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

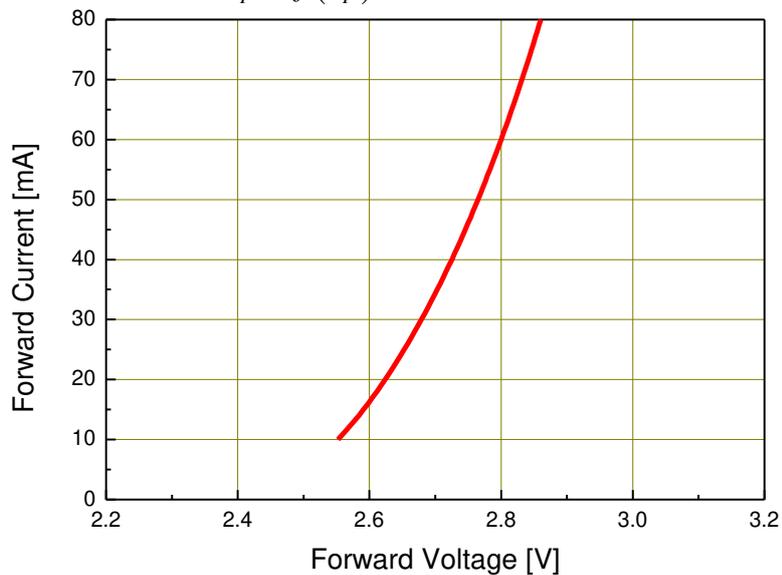


Notes:

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

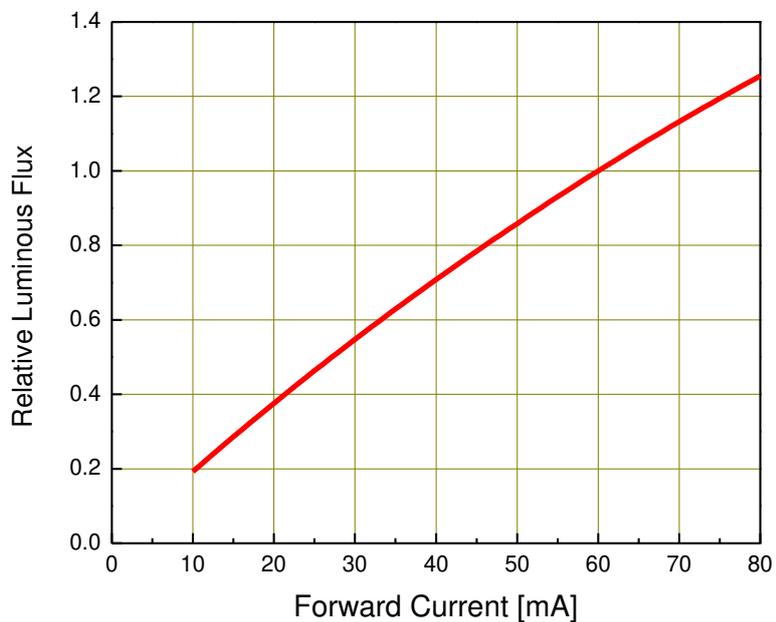
Forward Current vs. Forward Voltage @ Ts = 25°C

$$I_F = f(V_F)$$



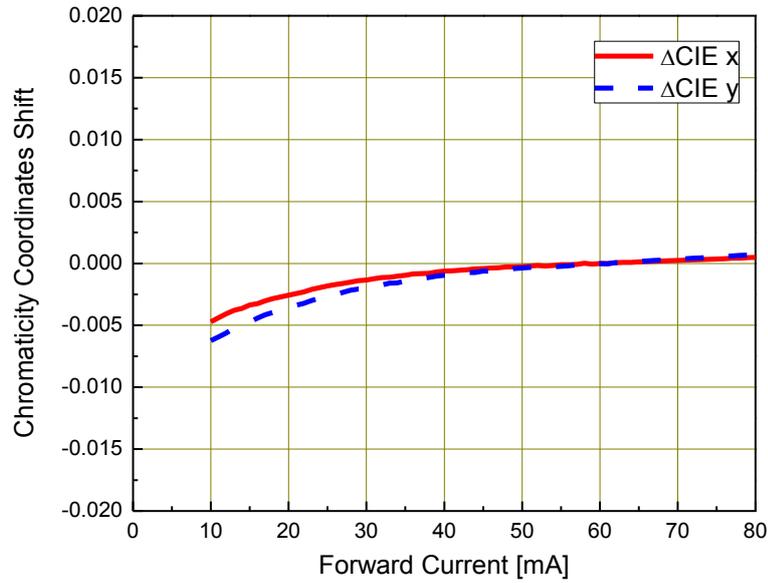
Relative Luminous Flux vs. Forward Current @ Ts = 25°C

$$\Phi_V / \Phi_V(60mA) = f(I_F)$$



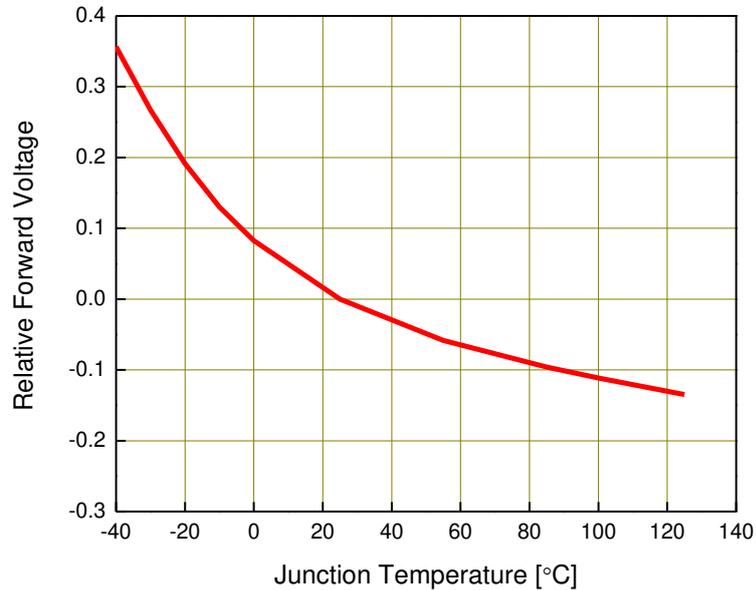
Chromaticity Coordinates Shift vs. Forward Current @ $T_s = 25^\circ\text{C}$

$$\Delta CIE_x, \Delta CIE_y = f(I_F)$$



Relative Forward Voltage vs. Junction Temperature @ $I_F = 60\text{mA}$

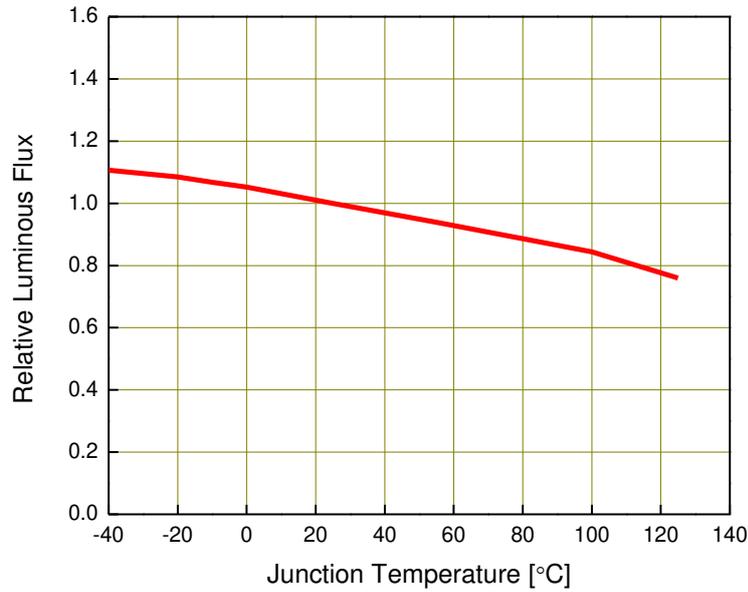
$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j)$$



Relative Luminous Flux vs. Junction Temperature

@ $I_F = 60\text{mA}$

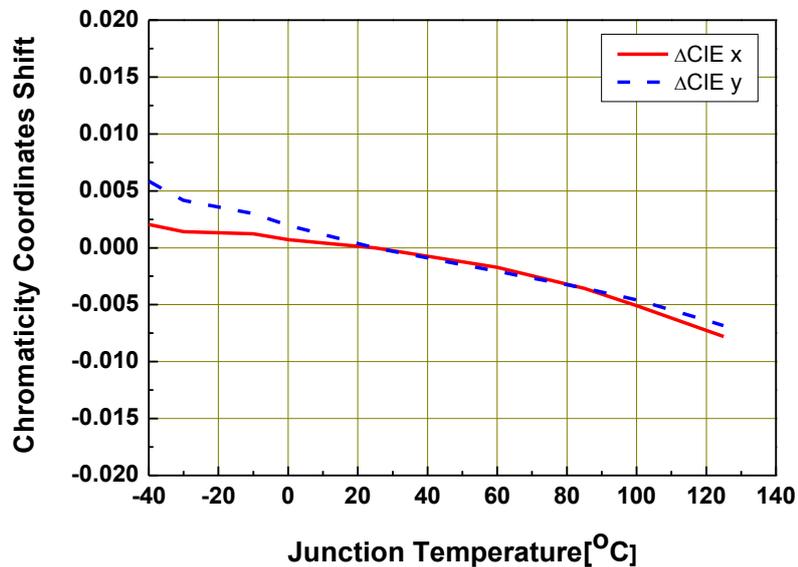
$$\Phi_V / \Phi_V(25^\circ\text{C}) = f(T_j)$$



Chromaticity Coordinates Shift vs. Junction Temperature

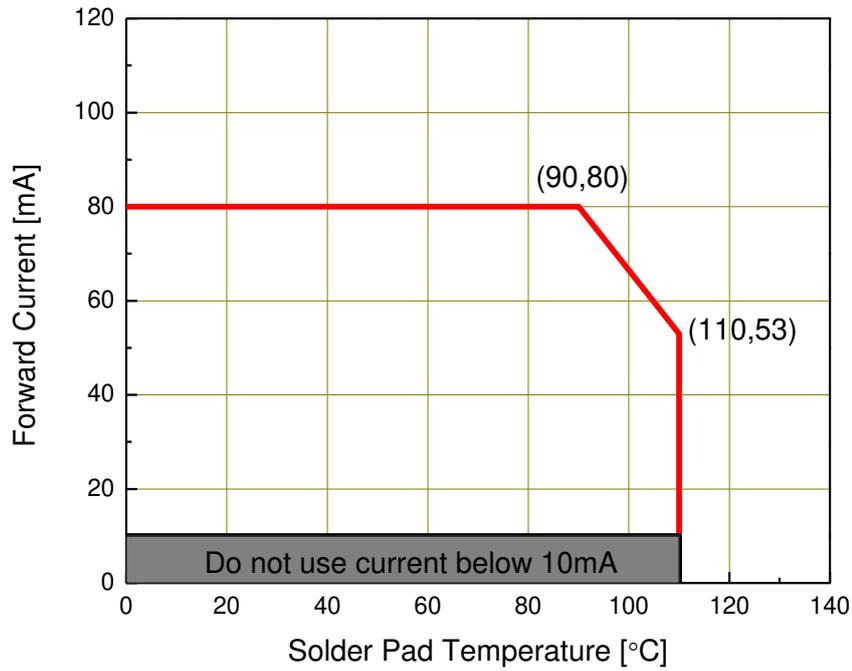
@ $I_F = 60\text{mA}$

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



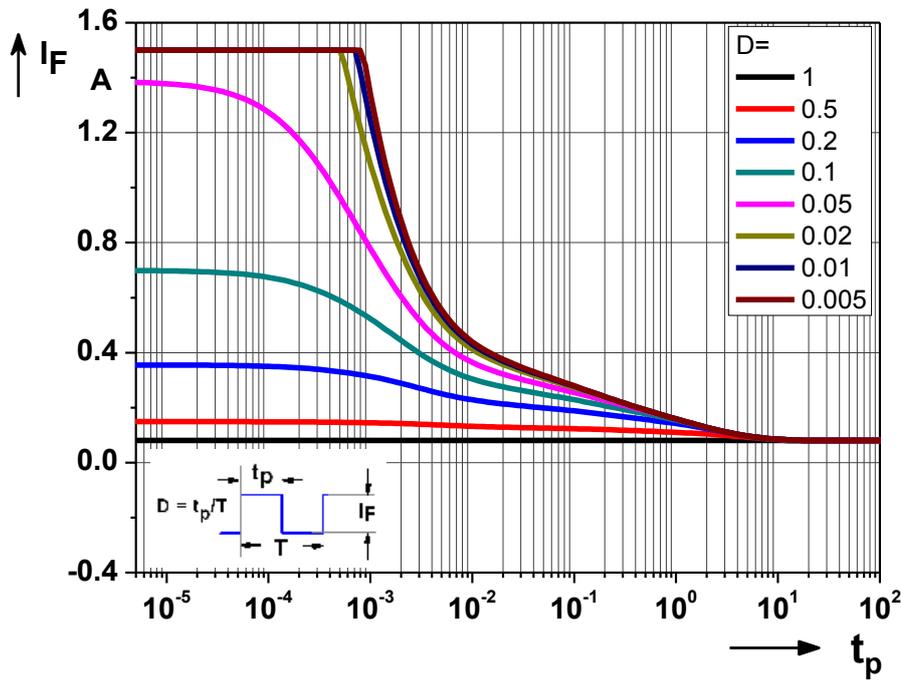
Forward Current Derating Curve

$$I_F = f(T_S)$$



Permissible Pulse Handling Capability

$$I_F = f(t_p); D = \text{Duty cycle}; T_A = 25^\circ C$$



4. Binning Information

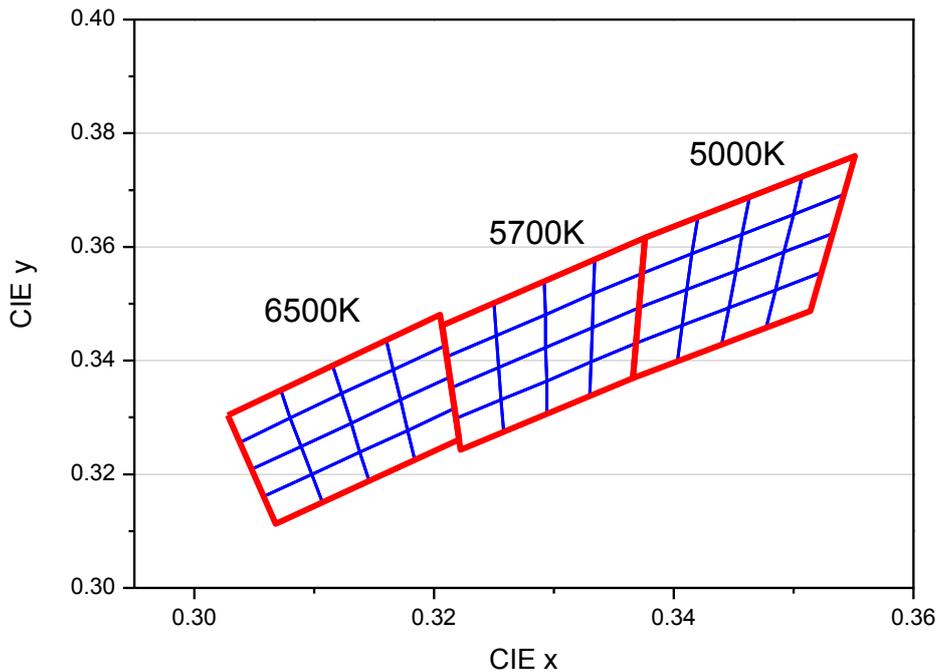
Luminous Flux and Intensity Bins

Group Bin	Minimum Luminous Flux (lm)	Maximum Luminous Flux (lm)	Minimum Luminous Intensity (mcd)	Maximum Luminous Intensity (mcd)
Z1	1	3	330	990
Z3	3	5	990	1650
Z5	5	7	1650	2310
Z7	7	9	2310	2970
Z9	9	12	2970	3960
A2	12	15	3960	4950
A5	15	18	4950	5940
A8	18	21	5940	6930
B1	21	24	6930	7920
B4	24	27	7920	8910
B7	27	30	8910	9900
C0	30	35	9900	11550
C5	35	40	11550	13200
D0	40	45	13200	14850
D5	45	50	14850	16500
E0	50	55	16500	18150
E5	55	60	18150	19800

Notes:

1. Luminous Flux measurement tolerance: $\pm 8\%$.
2. Highlighted Black Box is available bins.
3. The Luminous Flux table is only for reference.

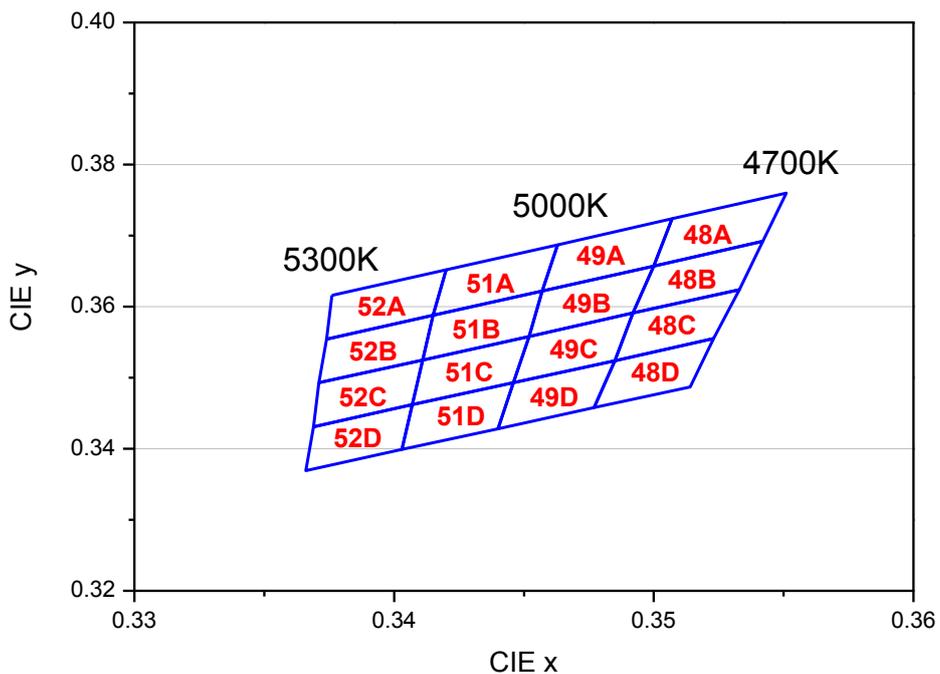
Color Bin Structure



Notes:

1. Tolerance of Chromaticity Coordinates x,y: ± 0.005 .

Color Bin Structure

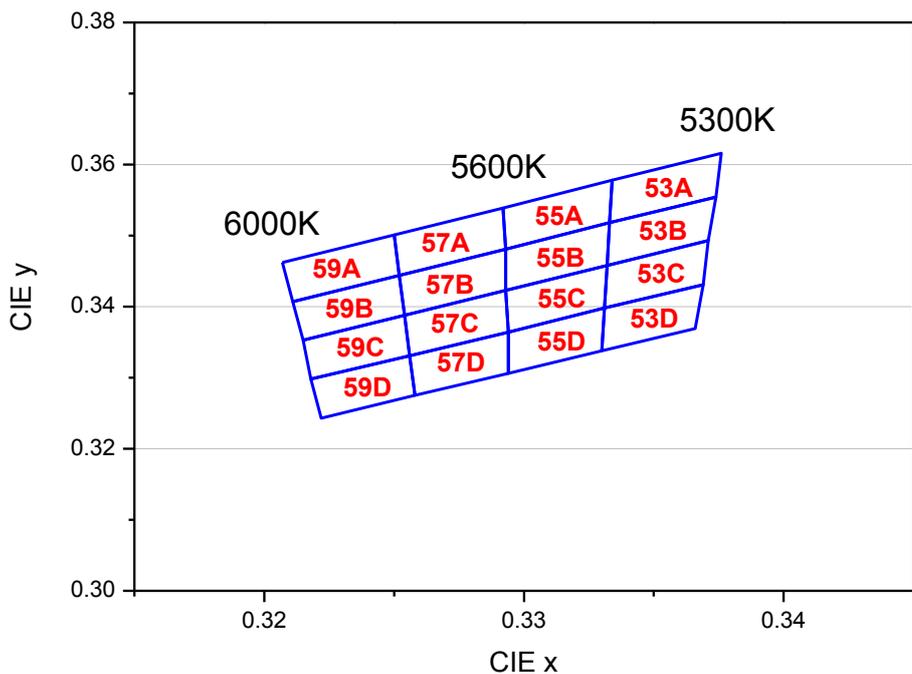


Color Bin Coordinates

CCT	Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
5000K	48A	0.3507	0.3724	48B	0.3500	0.3657
		0.3500	0.3657		0.3492	0.3591
		0.3542	0.3692		0.3533	0.3624
		0.3551	0.3760		0.3542	0.3692
	48C	0.3492	0.3591	48D	0.3485	0.3524
		0.3485	0.3524		0.3477	0.3458
		0.3523	0.3555		0.3514	0.3487
		0.3533	0.3624		0.3523	0.3555
	49A	0.3463	0.3687	49B	0.3457	0.3622
		0.3457	0.3622		0.3452	0.3558
		0.3500	0.3657		0.3492	0.3591
		0.3507	0.3724		0.3500	0.3657
	49C	0.3452	0.3558	49D	0.3446	0.3493
		0.3446	0.3493		0.3440	0.3428
		0.3485	0.3524		0.3477	0.3458
		0.3492	0.3591		0.3485	0.3524

CCT	Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
5000K	51A	0.3420	0.3652	51B	0.3415	0.3588
		0.3415	0.3588		0.3411	0.3525
		0.3457	0.3622		0.3452	0.3558
		0.3463	0.3687		0.3457	0.3622
	51C	0.3411	0.3525	51D	0.3407	0.3462
		0.3407	0.3462		0.3403	0.3399
		0.3446	0.3493		0.3440	0.3428
		0.3452	0.3558		0.3446	0.3493
	52A	0.3376	0.3616	52B	0.3374	0.3554
		0.3374	0.3554		0.3371	0.3493
		0.3415	0.3588		0.3411	0.3525
		0.3420	0.3652		0.3415	0.3588
	52C	0.3371	0.3493	52D	0.3369	0.3431
		0.3369	0.3431		0.3366	0.3369
		0.3407	0.3462		0.3403	0.3399
		0.3411	0.3525		0.3407	0.3462

Color Bin Structure

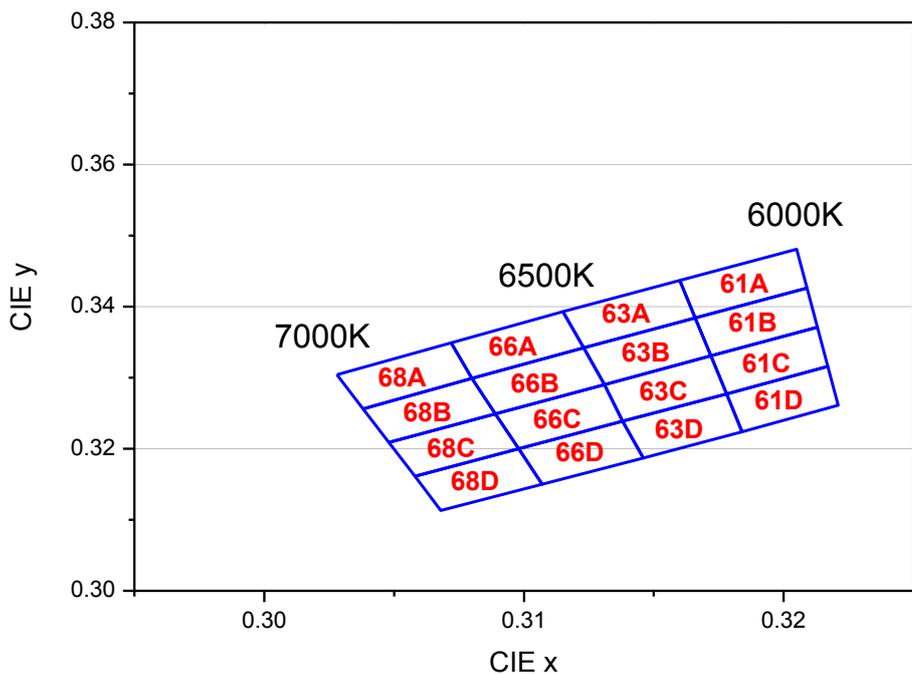


Color Bin Coordinates

CCT	Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
5700K	53A	0.3334	0.3578	53B	0.3333	0.3518
		0.3333	0.3518		0.3332	0.3458
		0.3374	0.3554		0.3371	0.3493
		0.3376	0.3616		0.3374	0.3554
	53C	0.3332	0.3458	53D	0.3331	0.3398
		0.3331	0.3398		0.3330	0.3338
		0.3369	0.3431		0.3366	0.3369
		0.3371	0.3493		0.3369	0.3431
	55A	0.3292	0.3539	55B	0.3293	0.3481
		0.3293	0.3481		0.3293	0.3423
		0.3333	0.3518		0.3332	0.3458
		0.3334	0.3578		0.3333	0.3518
	55C	0.3293	0.3423	55D	0.3294	0.3364
		0.3294	0.3364		0.3294	0.3306
		0.3331	0.3398		0.3330	0.3338
		0.3332	0.3458		0.3331	0.3398

CCT	Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
5700K	57A	0.3250	0.3501	57B	0.3252	0.3444
		0.3252	0.3444		0.3254	0.3388
		0.3293	0.3481		0.3293	0.3423
		0.3292	0.3539		0.3293	0.3481
	57C	0.3254	0.3388	57D	0.3256	0.3331
		0.3256	0.3331		0.3258	0.3275
		0.3294	0.3364		0.3294	0.3306
		0.3293	0.3423		0.3294	0.3364
	59A	0.3207	0.3462	59B	0.3211	0.3407
		0.3211	0.3407		0.3215	0.3353
		0.3252	0.3444		0.3254	0.3388
		0.3250	0.3501		0.3252	0.3444
	59C	0.3215	0.3353	59D	0.3218	0.3298
		0.3218	0.3298		0.3222	0.3243
		0.3256	0.3331		0.3258	0.3275
		0.3254	0.3388		0.3256	0.3331

Color Bin Structure



Color Bin Coordinates

CCT	Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
6500K	61A	0.3160	0.3437	61B	0.3166	0.3384
		0.3166	0.3384		0.3172	0.3331
		0.3209	0.3426		0.3213	0.3371
		0.3205	0.3481		0.3209	0.3426
	61C	0.3172	0.3331	61D	0.3178	0.3277
		0.3178	0.3277		0.3184	0.3224
		0.3217	0.3316		0.3221	0.3261
		0.3213	0.3371		0.3217	0.3316
	63A	0.3115	0.3393	63B	0.3123	0.3342
		0.3123	0.3342		0.3131	0.3290
		0.3166	0.3384		0.3172	0.3331
		0.3160	0.3437		0.3166	0.3384
	63C	0.3131	0.3290	63D	0.3138	0.3239
		0.3138	0.3239		0.3146	0.3187
		0.3178	0.3277		0.3184	0.3224
		0.3172	0.3331		0.3178	0.3277

CCT	Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
6500K	66A	0.3072	0.3349	66B	0.3080	0.3299
		0.3080	0.3299		0.3089	0.3249
		0.3123	0.3342		0.3131	0.3290
		0.3115	0.3393		0.3123	0.3342
	66C	0.3089	0.3249	66D	0.3098	0.3200
		0.3098	0.3200		0.3107	0.3150
		0.3138	0.3239		0.3146	0.3187
		0.3131	0.3290		0.3138	0.3239
	68A	0.3028	0.3304	68B	0.3038	0.3256
		0.3038	0.3256		0.3048	0.3209
		0.3080	0.3299		0.3089	0.3249
		0.3072	0.3349		0.3080	0.3299
	68C	0.3048	0.3209	68D	0.3058	0.3161
		0.3058	0.3161		0.3068	0.3113
		0.3098	0.3200		0.3107	0.3150
		0.3089	0.3249		0.3098	0.3200

Notes:

1. Tolerance of Chromaticity Coordinates x,y: ± 0.005 .

Forward Voltage Bins

Bin code	Forward Voltage [V]
10	1.00
12	1.25
15	1.50
17	1.75
20	2.00
22	2.25
25	2.50
27	2.75
30	3.00
32	3.25
35	3.50
37	3.75
40	4.00
42	4.25
45	4.50
47	4.75
50	5.00
52	5.25
55	5.50
57	5.75
60	6.00
62	6.25
65	6.50
67	6.75
70	7.00

Notes:

1. Forward Voltage measurement tolerance: $\pm 0.05\text{V}$.
2. Forward Voltage bins are defined at $I_F = 60\text{mA}$ operation.

5. Part Number

67-11S-C80600H-AM

Part number is designated with below details.

67-11S = Product family name.

C = Color ^[1]

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

060 = Test current [mA]

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

H = Brightness Level (H=High; 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
UG	Green
UY	Yellow
UA	Amber
UR	Red
SR	Super Red
RGB	RGB-Color

6. Ordering Information

67-11S-C80600H-ABCDEFGHIJLMNOP-QR-AM

Part Number of the 67-11S	Order Code
67-11S-C80600H-AM	67-117S-C80600H-48A68DB4C52535-2T-AM

Order code contains information with below details :

ABCDEF = min/max wavelength or CCT

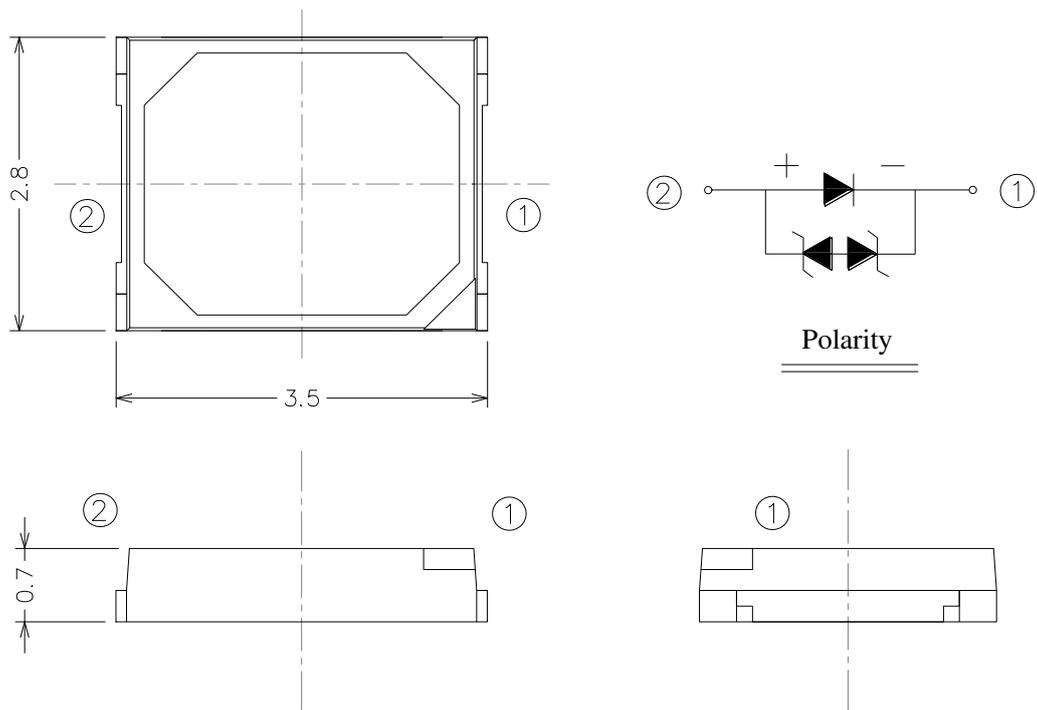
GHJL = min./max. Luminous Flux in [lm] or Luminous Intensity in [mcd]

MNOP = min./max. Forward Voltage

QR = internal code

AM = Automotive Application

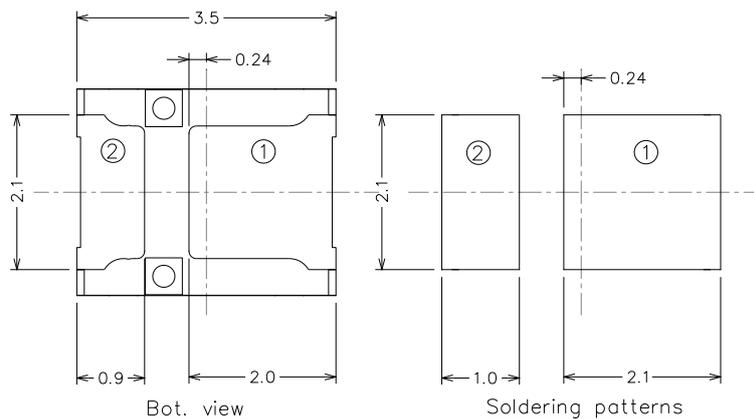
7. Mechanical Dimension



Notes:

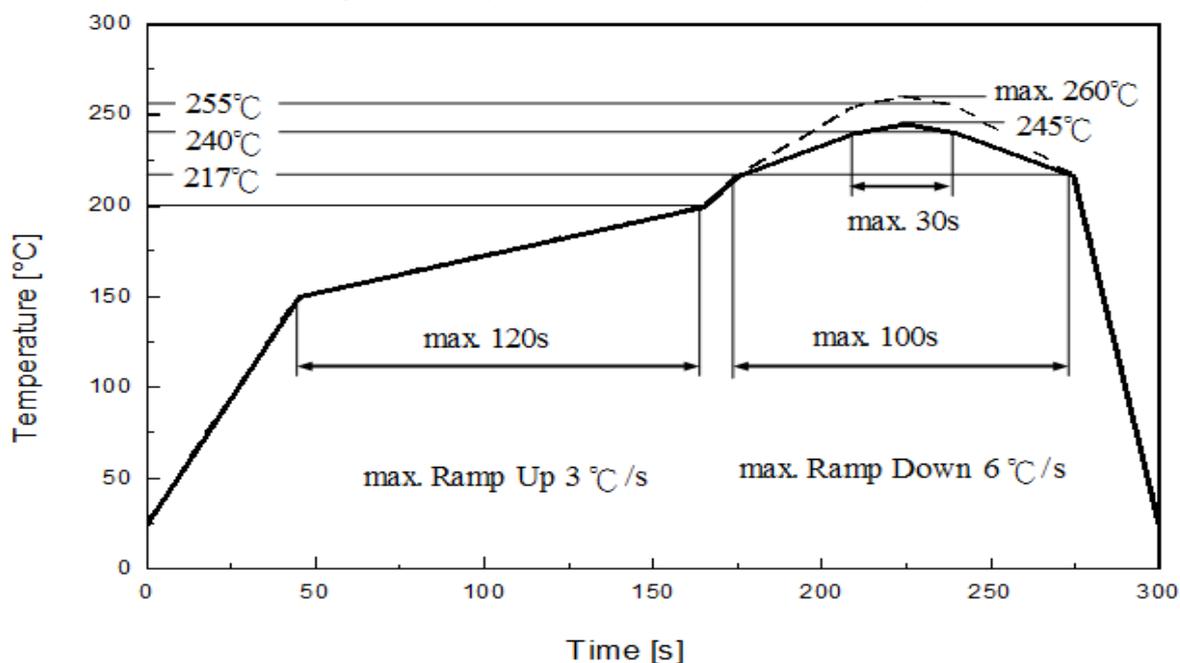
- 1. Dimensions are in millimeters.
- 2. Tolerances unless mentioned are ± 0.1 mm.

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
Liquefied temperature	217	°C
Time above liquefied 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

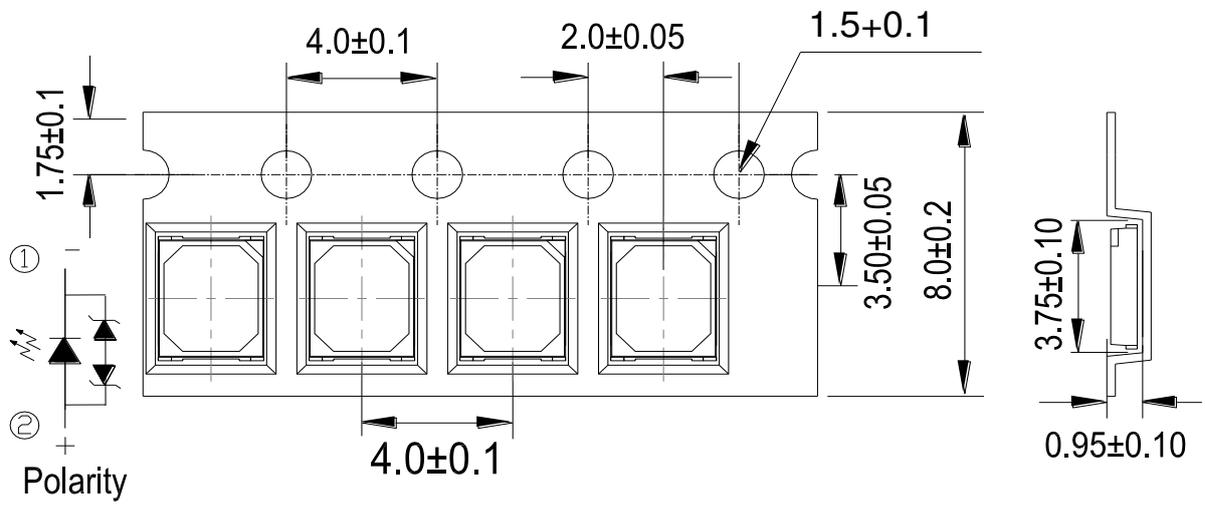
RoHS Pb **EVERLIGHT** **5**

CPN : XXXXXXXXXXXXXXXXXXXX
 P/N : XXXXXXXXXXXXXXXXXXXX
 P/N : XXXXXXXXXXXXXXXXXXXX
 LOT NO: Y150716XXX-XXXXXXXXXX-XXXXXXXXXX
 QTY : 0123456789 HUE : XXXXXXXXXXXX
 CAT : XXXXXXXXXXXX REF : XXXXXXXXXXXX
 REFERENCE: BTPYMMDDXXXXX
 MSL-X MADE IN XXXXXXXX



- 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

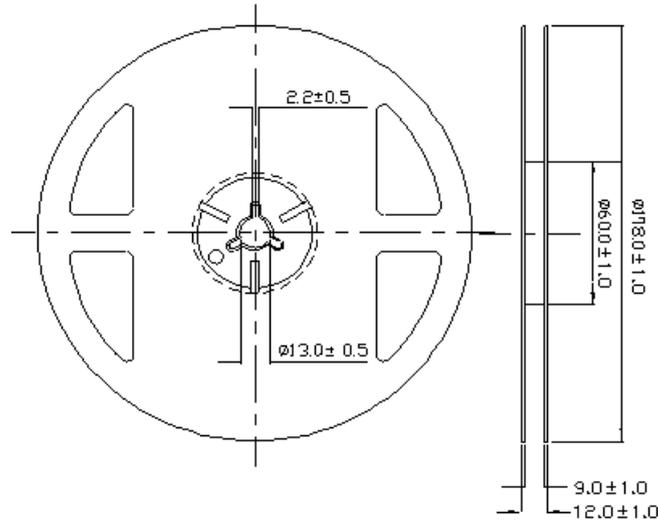
• Packing: Loaded Quantity 2000 pcs Per Reel



Notes:

1. Dimensions are in millimeters.
2. Tolerances for fixed dimensions are ± 0.2 mm.

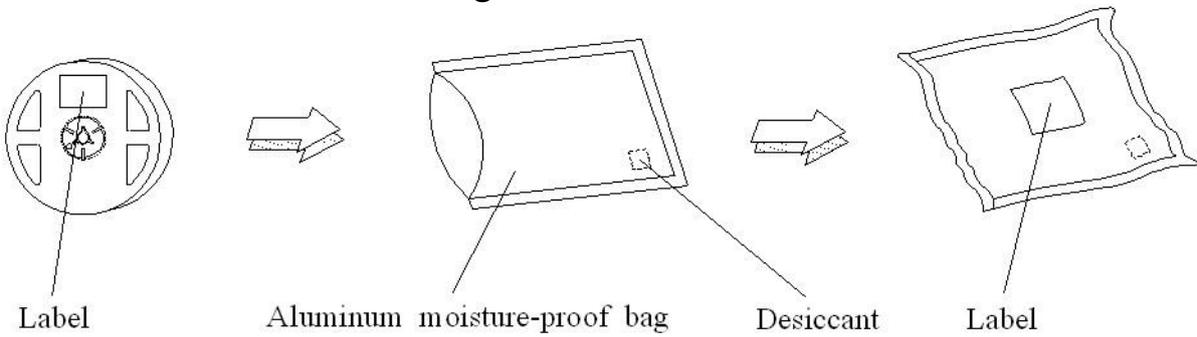
● Reel Dimensions



Notes:

1. Dimensions are in millimeters.
2. Tolerances unless mentioned are ± 0.2 mm.

● Moisture Resistant Packing Process



Notes:

1. Dimensions are in millimeters.
2. Tolerances unless mentioned are ± 0.2 mm.

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.

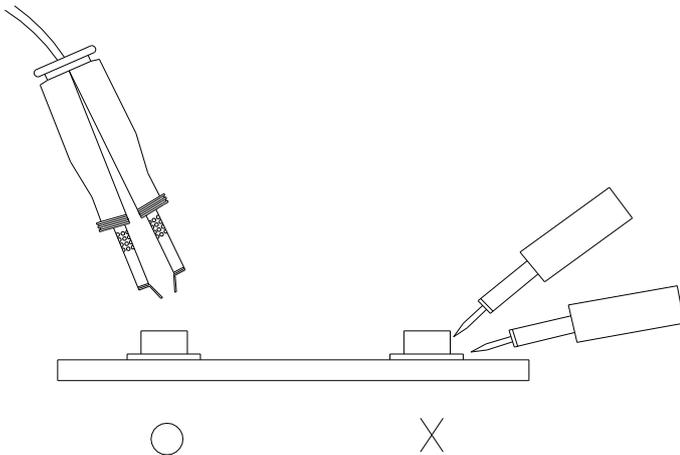
3.2 After soldering, do not warp the circuit board.

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.



Revision History

Current version: May.26.2017

Issue No:

Version: 1.0

Created by: Sherry Chen

Rev.	Subjects (major change in previous version)	Modified date
1.0	Standard data sheet	2017/05/26