EL Mini TOP VIEW LED
65-11-IB0100L-AM

Features

- Package：PLCC 2 package
- Color：Ice Blue
- Typ. Luminance Intensity：355 mcd @ 10mA
- Viewing angle：120º
- ESD：8KV
- MSL：2
- Typ.color coordinates : (0.18,0.23)
- Qualified AEC-Q101
- Compliance with RoHS and REACH

Applications

- Automotive Interior Lighting
- Switches
- Cluster

Contents

1. Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Current		I_F	2	10	20	mA	---
Luminous Intensity		I_V	140	355	560	mcd	I_F=10mA
Forward Voltage		V_F	2.75	3.1	3.75	V	I_F=10mA
Viewing Angle		φ	---	120	---	deg	I_F=10mA
Color		CIE x	---	0.18	---		I_F=10mA
Color		CIE y	---	0.23	---	---	I_F=10mA
Thermal Resistance (Junction to Solder)	Real	$R_{th\,JS\,real}$	---	---	120	K/W	I_F=10mA
	Electrical	$R_{th\,JS\,el}$	---	---	95		

Notes:
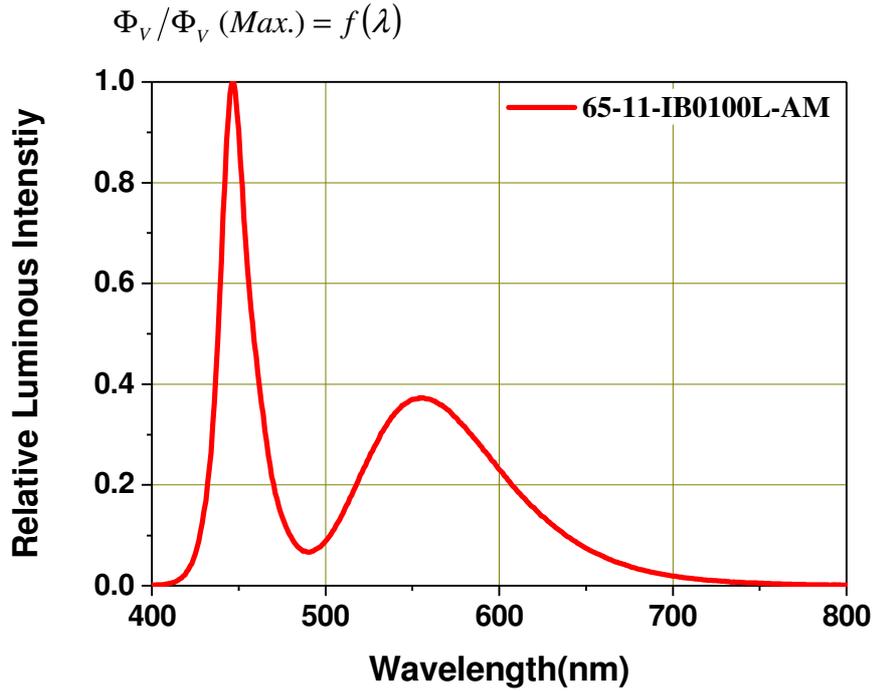
1. Luminous Flux measurement tolerance: ±8%.

2. The data of Luminous Flux measured at thermal pad=25℃

3. Forward voltage measurement tolerance: ±0.05V

4. The V_F range shown in the table above indicates 99% output.

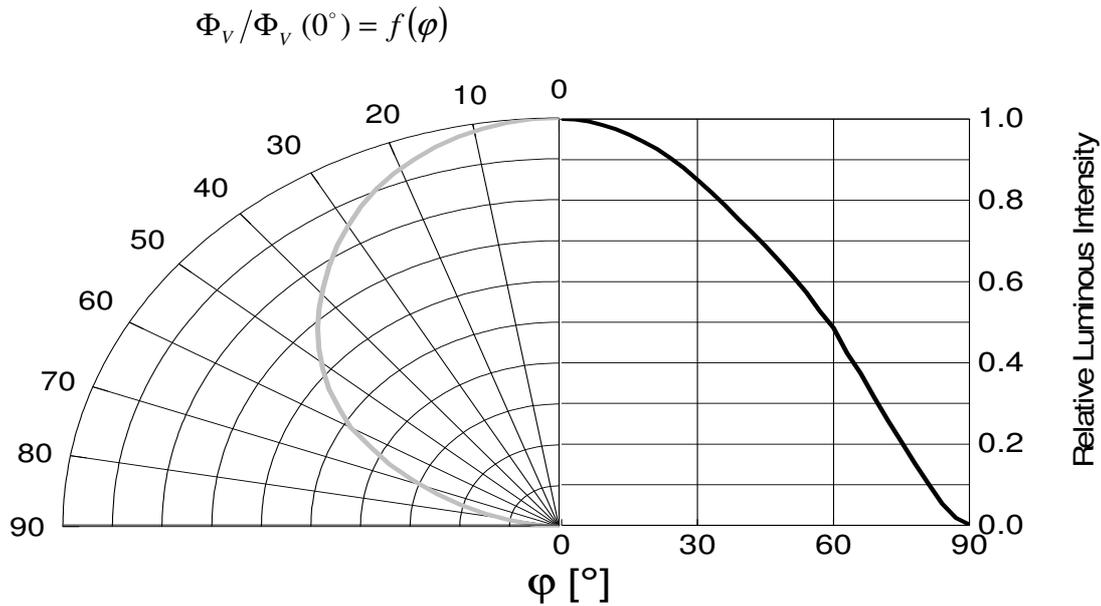5. Tolerance of Chromaticity Coordinates x,y：±0.005

2. Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Power Dissipation	P_d	75	mW
Forward Current	I_F	20	mA
Surge Current (t<=10 µs; D=0.005; T_s=25 ℃)	I_{FM}	300	mA
Reverse Voltage	V_R	Not designed for reverse operation	V
Junction Temperature	T_J	125	℃
Operating Temperature	T_{opr}	-40 ~ +110	℃
Storage Temperature	T_{stg}	-40 ~ +110	℃
ESD Sensitivity (R=1.5kΩ, C= 100pF)	ESD_{HBM}	8	kV
Soldering Temperature	Reflow	260℃ for 30sec	℃

3. Characteristics Graph

Wavelength Characteristics Relative Spectral Distribution
@ Ts = 25℃, I_F=10mA

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

Relative Luminous Intenstiy

Wavelength(nm)

Legend: 65-11-IB0100L-AM

Typical Diagram Characteristics of Radiation

$$\Phi_V / \Phi_V \, (0°) = f(\varphi)$$

Relative Luminous Intensity
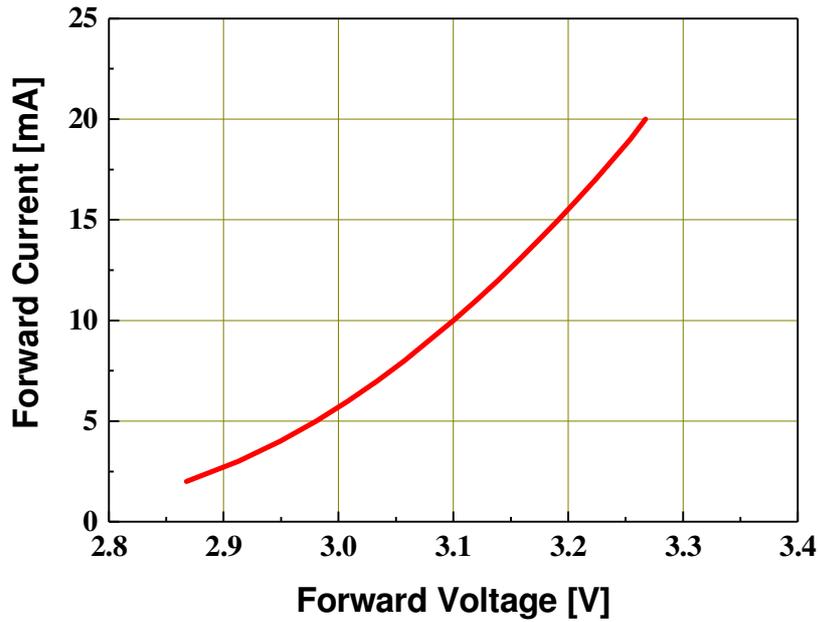
$\varphi \, [°]$

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 ℃

$$I_F = f(V_F)$$

Forward Current [mA]

Forward Voltage [V]

Relative Luminous Intensity vs. Forward Current
@ Ts = 25 ℃

$$\Phi_V / \Phi_V (10mA) = f(I_F)$$

Relative Luminous Intensity
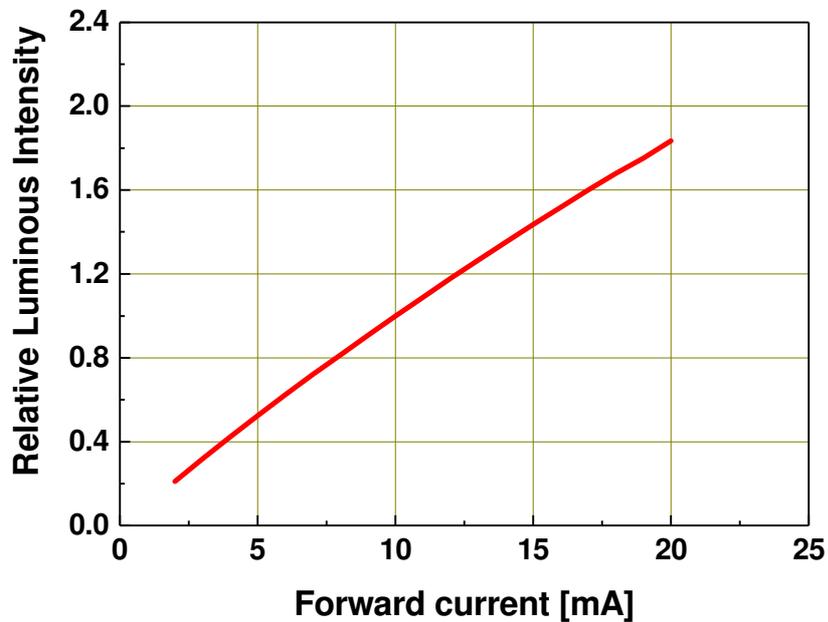
Forward current [mA]

Chromaticity Coordinates Shift vs. Forward Current
@ Ts = 25℃

$$\triangle CIE\ x, \triangle CIE\ y = f(I_F)$$
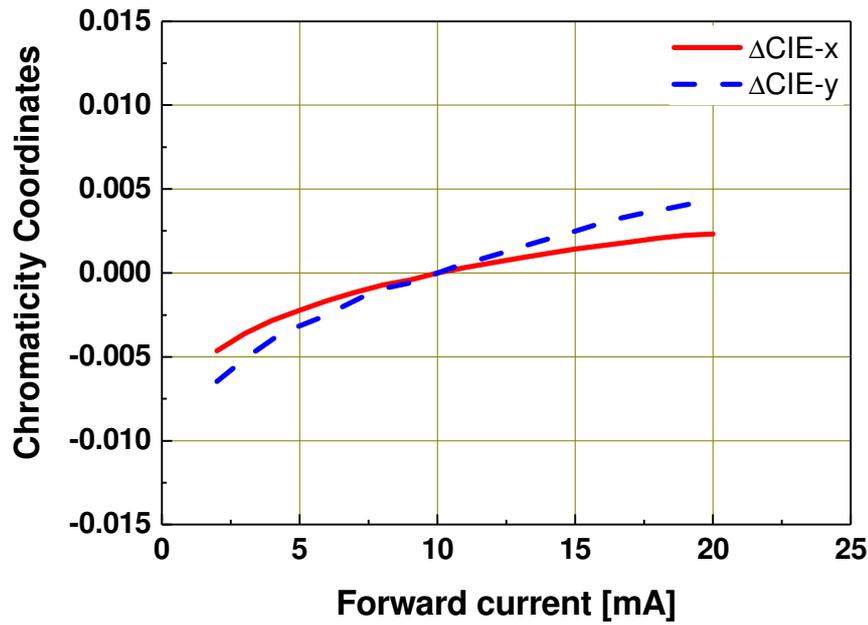
Relative Forward Voltage vs. Junction Temperature
@ I_F=10mA

$$\Delta V_F = V_F - V_F(25^\circ C) = f(T_j)$$
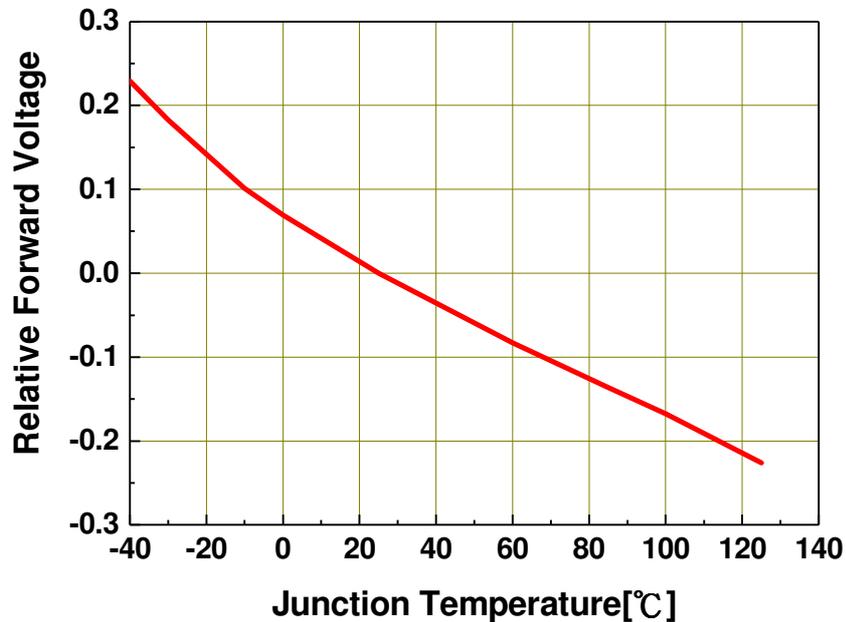
Relative Luminous Intensity vs. Junction Temperature

@ I_F=10mA

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

Relative Luminous Intensity vs. Junction Temperature[℃]
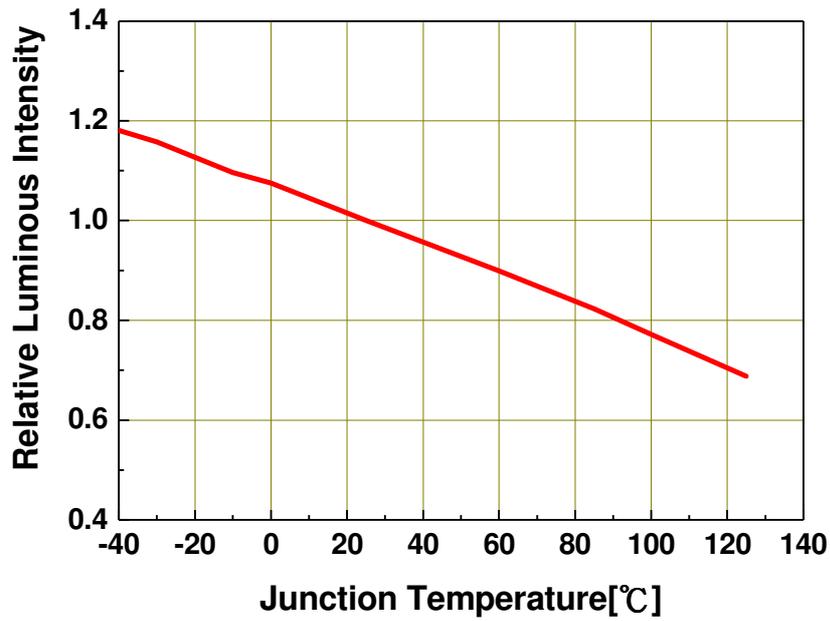
Chromaticity Coordinates Shift vs. Junction Temperature

@ I_F=10mA

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

Chromaticity Coordinates vs. Junction Temperature[℃]

ΔCIE-x
ΔCIE-y
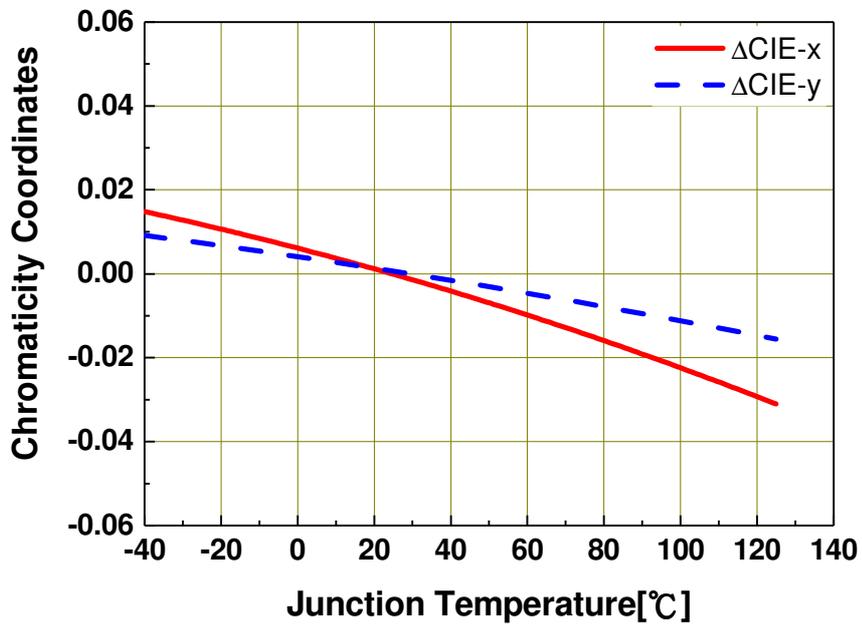
Forward Current Derating Curve

$$I_F = f(T_S)$$

Y-axis: **Forward Current [mA]**

X-axis: **Solder Pad Temperature[℃]**

T_S **(110, 20)**

Ts temp. solder point

Do not use current below 2mA
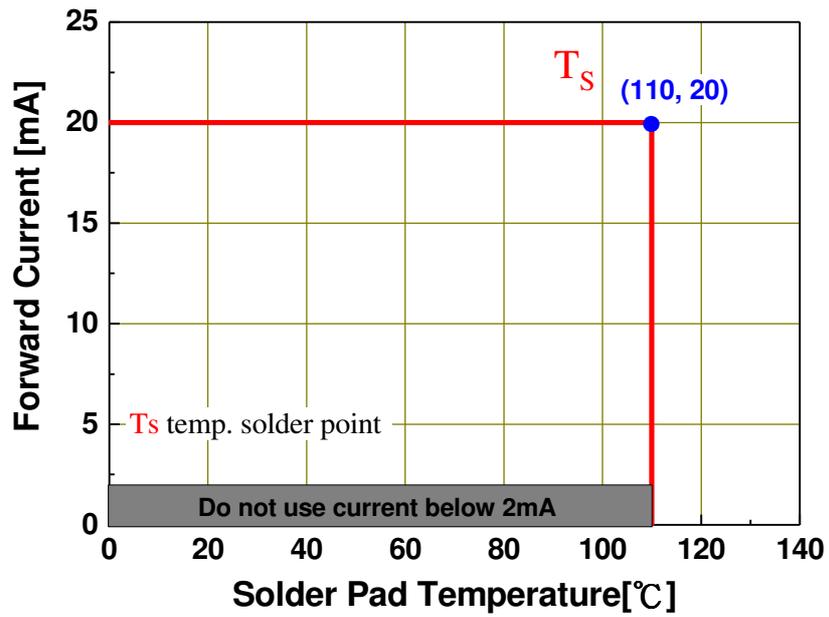
Permissible Pulse Handling Capability

D=Duty cycle , Ts = 25℃

Y-axis: **IF A**

X-axis: **t_p**

$D = t_p/T$

D=
1
0.5
0.2
0.1
0.05
0.02
0.01
0.005
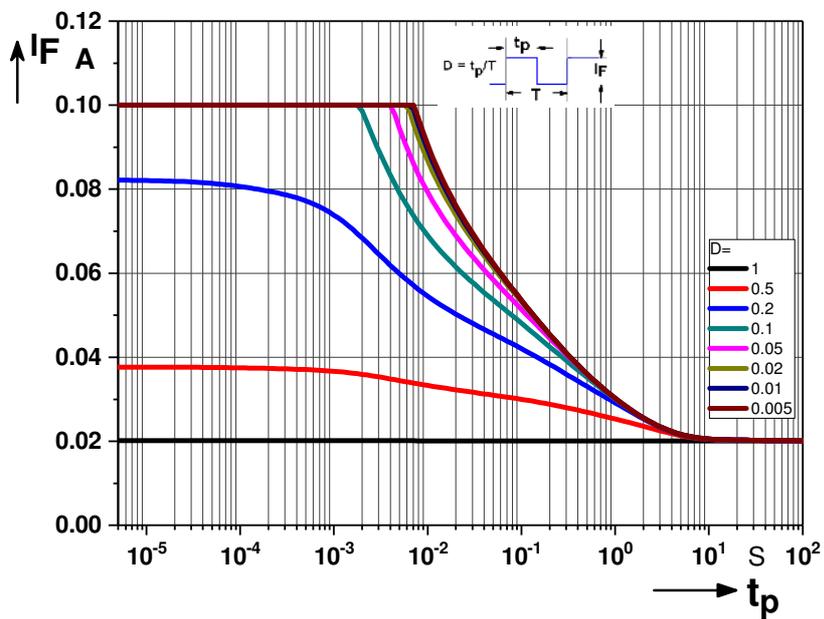
4. Binning Information

Luminous Intensity Bins

Group Bin	Minimum Luminous Intensity (mcd)	Maximum Luminous Intensity (mcd)
L1	11.2	14
L2	14	18
M1	18	22.4
M2	22.4	28
N1	28	35.5
N2	35.5	45
P1	45	56
P2	56	71
Q1	71	90
Q2	90	112
R1	112	140
R2	140	180
S1	180	224
S2	224	280
T1	280	355
T2	355	450
U1	450	560
U2	560	710
V1	710	900
V2	900	1120
AA	1120	1400
AB	1400	1800
BA	1800	2240
BB	2240	2800
CA	2800	3550
CB	3550	4500
DA	4500	5600
DB	5600	7100
EA	7100	9000
EB	9000	11200
FA	11200	14000
FB	14000	18000
GA	18000	22400

Notes:

1. Luminous flux measurement tolerance: ±8%.

2. Highlighted Black Box is possible output bins.

Standard Ice Blue Color Bin Structure
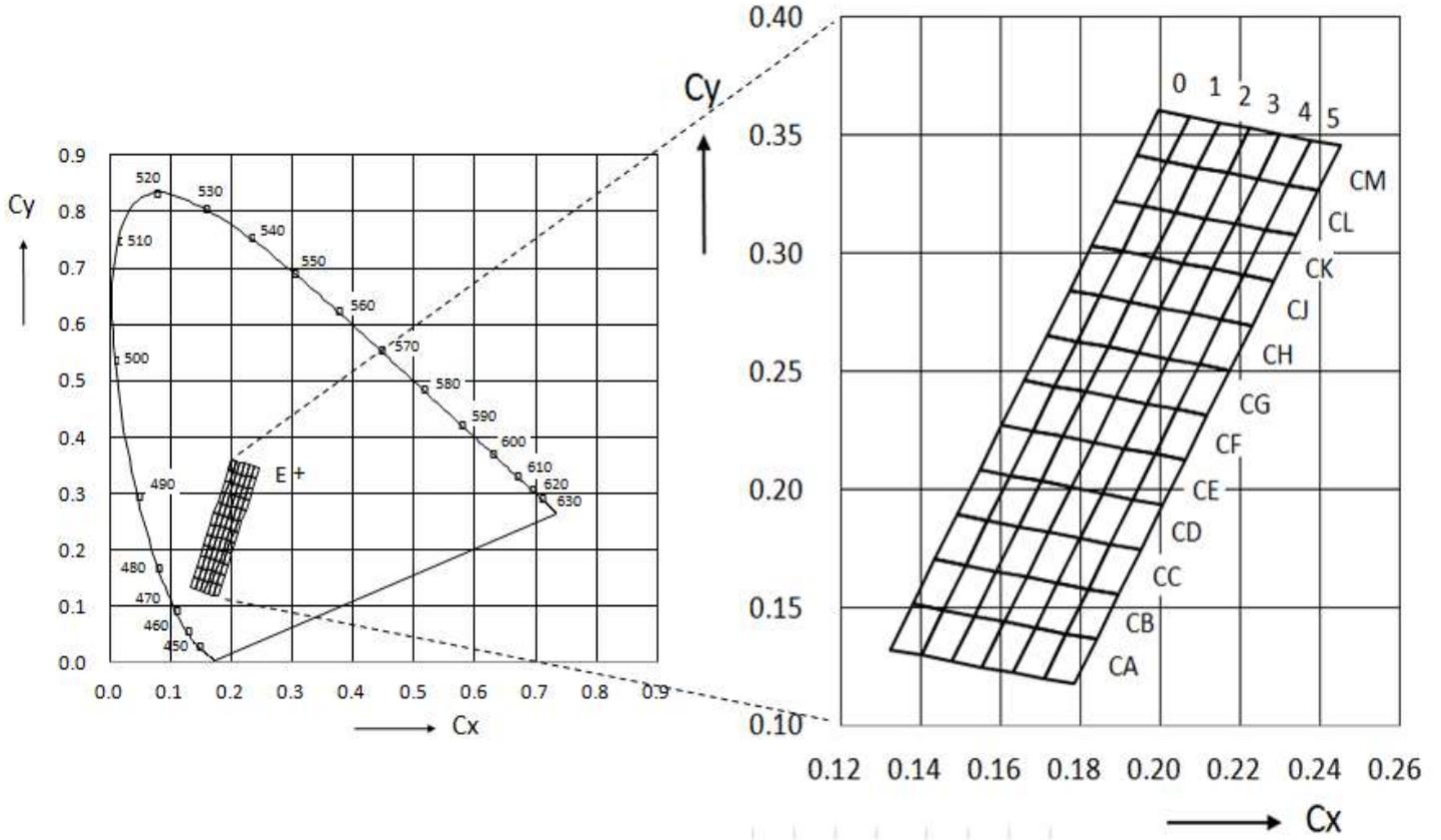
Ice Blue Bin Coordinates

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
CM0	0.1940	0.3415	CL3	0.2112	0.3151
	0.1996	0.3605		0.2168	0.3341
	0.2072	0.3580		0.2244	0.3316
	0.2016	0.3390		0.2188	0.3126
CM1	0.2016	0.3390	CL4	0.2188	0.3126
	0.2072	0.3580		0.2244	0.3316
	0.2148	0.3556		0.2319	0.3291
	0.2092	0.3366		0.2264	0.3101
CM2	0.2092	0.3366	CL5	0.2264	0.3101
	0.2148	0.3556		0.2319	0.3291
	0.2224	0.3531		0.2395	0.3267
	0.2168	0.3341		0.2340	0.3077
CM3	0.2168	0.3341	CK0	0.1828	0.3035
	0.2224	0.3531		0.1884	0.3225
	0.2299	0.3506		0.1960	0.3200
	0.2244	0.3316		0.1904	0.3010
CM4	0.2244	0.3316	CK1	0.1904	0.3010
	0.2299	0.3506		0.1960	0.3200
	0.2375	0.3481		0.2036	0.3176
	0.2319	0.3291		0.1980	0.2986
CM5	0.2319	0.3291	CK2	0.1980	0.2986
	0.2375	0.3481		0.2036	0.3176
	0.2451	0.3457		0.2112	0.3151
	0.2395	0.3267		0.2056	0.2961
CL0	0.1884	0.3225	CK3	0.2056	0.2961
	0.1940	0.3415		0.2112	0.3151
	0.2016	0.3390		0.2188	0.3126
	0.1960	0.3200		0.2132	0.2936
CL1	0.1960	0.3200	CK4	0.2132	0.2936
	0.2016	0.3390		0.2188	0.3126
	0.2092	0.3366		0.2264	0.3101
	0.2036	0.3176		0.2208	0.2911
CL2	0.2036	0.3176	CK5	0.2208	0.2911
	0.2092	0.3366		0.2264	0.3101
	0.2168	0.3341		0.2340	0.3077
	0.2112	0.3151		0.2284	0.2887

Ice Blue Bin Coordinates

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
CJ0	0.1772	0.2845	CH3	0.1945	0.2581
	0.1828	0.3035		0.2000	0.2771
	0.1904	0.3010		0.2077	0.2746
	0.1848	0.2820		0.2021	0.2556
CJ1	0.1848	0.2820	CH4	0.2021	0.2556
	0.1904	0.3010		0.2077	0.2746
	0.1980	0.2986		0.2153	0.2721
	0.1924	0.2796		0.2097	0.2531
CJ2	0.1924	0.2796	CH5	0.2097	0.2531
	0.1980	0.2986		0.2153	0.2721
	0.2056	0.2961		0.2229	0.2697
	0.2000	0.2771		0.2173	0.2507
CJ3	0.2000	0.2771	CG0	0.1660	0.2465
	0.2056	0.2961		0.1716	0.2655
	0.2132	0.2936		0.1792	0.2630
	0.2077	0.2746		0.1736	0.2440
CJ4	0.2077	0.2746	CG1	0.1736	0.2440
	0.2132	0.2936		0.1792	0.2630
	0.2208	0.2911		0.1869	0.2606
	0.2153	0.2721		0.1813	0.2416
CJ5	0.2153	0.2721	CG2	0.1813	0.2416
	0.2208	0.2911		0.1869	0.2606
	0.2284	0.2887		0.1945	0.2581
	0.2229	0.2697		0.1889	0.2391
CH0	0.1716	0.2655	CG3	0.1889	0.2391
	0.1772	0.2845		0.1945	0.2581
	0.1848	0.2820		0.2021	0.2556
	0.1792	0.2630		0.1965	0.2366
CH1	0.1792	0.2630	CG4	0.1965	0.2366
	0.1848	0.2820		0.2021	0.2556
	0.1924	0.2796		0.2097	0.2531
	0.1869	0.2606		0.2043	0.2341
CH2	0.1869	0.2606	CG5	0.2043	0.2341
	0.1924	0.2796		0.2097	0.2531
	0.2000	0.2771		0.2173	0.2507
	0.1945	0.2581		0.2118	0.2317

Ice Blue Bin Coordinates

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
CF0	0.1604	0.2275	CE3	0.1777	0.2011
	0.1660	0.2465		0.1833	0.2201
	0.1736	0.2440		0.1909	0.2176
	0.1680	0.2250		0.1854	0.1986
CF1	0.1680	0.2250	CE4	0.1854	0.1986
	0.1736	0.2440		0.1909	0.2176
	0.1813	0.2416		0.1986	0.2151
	0.1757	0.2226		0.1930	0.1961
CF2	0.1757	0.2226	CE5	0.1930	0.1961
	0.1813	0.2416		0.1986	0.2151
	0.1889	0.2391		0.2062	0.2127
	0.1833	0.2201		0.2007	0.1937
CF3	0.1833	0.2201	CD0	0.1492	0.1895
	0.1889	0.2391		0.1548	0.2085
	0.1965	0.2366		0.1624	0.2060
	0.1909	0.2176		0.1568	0.1870
CF4	0.1909	0.2176	CD1	0.1568	0.1870
	0.1965	0.2366		0.1624	0.2060
	0.2043	0.2341		0.1701	0.2036
	0.1986	0.2151		0.1645	0.1846
CF5	0.1986	0.2151	CD2	0.1645	0.1846
	0.2043	0.2341		0.1701	0.2036
	0.2118	0.2317		0.1777	0.2011
	0.2062	0.2127		0.1721	0.1821
CE0	0.1548	0.2085	CD3	0.1721	0.1821
	0.1604	0.2275		0.1777	0.2011
	0.1680	0.2250		0.1854	0.1986
	0.1624	0.2060		0.1798	0.1796
CE1	0.1624	0.2060	CD4	0.1798	0.1796
	0.1680	0.2250		0.1854	0.1986
	0.1757	0.2226		0.1930	0.1961
	0.1701	0.2036		0.1875	0.1771
CE2	0.1701	0.2036	CD5	0.1875	0.1771
	0.1757	0.2226		0.1930	0.1961
	0.1833	0.2201		0.2007	0.1937
	0.1777	0.2011		0.1951	0.1747

Ice Blue Bin Coordinates

Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
CC0	0.1436	0.1705	CB3	0.1610	0.1441
	0.1492	0.1895		0.1666	0.1631
	0.1568	0.1870		0.1742	0.1606
	0.1513	0.1680		0.1687	0.1416
CC1	0.1513	0.1680	CB4	0.1687	0.1416
	0.1568	0.1870		0.1742	0.1606
	0.1645	0.1846		0.1819	0.1581
	0.1589	0.1656		0.1764	0.1391
CC2	0.1589	0.1656	CB5	0.1764	0.1391
	0.1645	0.1846		0.1819	0.1581
	0.1721	0.1821		0.1896	0.1557
	0.1666	0.1631		0.1840	0.1367
CC3	0.1666	0.1631	CA0	0.1324	0.1325
	0.1721	0.1821		0.1380	0.1515
	0.1798	0.1796		0.1457	0.1490
	0.1742	0.1606		0.1401	0.1300
CC4	0.1742	0.1606	CA1	0.1401	0.1300
	0.1798	0.1796		0.1457	0.1490
	0.1875	0.1771		0.1533	0.1466
	0.1819	0.1581		0.1477	0.1276
CC5	0.1819	0.1581	CA2	0.1477	0.1276
	0.1875	0.1771		0.1533	0.1466
	0.1951	0.1747		0.1610	0.1441
	0.1896	0.1557		0.1554	0.1251
CB0	0.1380	0.1515	CA3	0.1554	0.1251
	0.1436	0.1705		0.1610	0.1441
	0.1513	0.1680		0.1687	0.1416
	0.1457	0.1490		0.1631	0.1226
CB1	0.1457	0.1490	CA4	0.1631	0.1226
	0.1513	0.1680		0.1687	0.1416
	0.1589	0.1656		0.1764	0.1391
	0.1533	0.1466		0.1708	0.1201
CB2	0.1533	0.1466	CA5	0.1708	0.1201
	0.1589	0.1656		0.1764	0.1391
	0.1666	0.1631		0.1840	0.1367
	0.1610	0.1441		0.1785	0.1177

Forward Voltage Bins

Bin code	Min Forward Voltage [V]	Max Forward Voltage [V]
1012	1.00	1.25
1215	1.25	1.50
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 = 10mA operation.

5. Part Number

65-11-IB0100L-AM

Part number is designated with below details.

65-11 = Product family name.

IB= Color [1]

010 = Test current [mA]

0 = Lead Frame Type

L = Chip Code

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

65-11-IB0100L-ABCDEFGHJKLMNO-PQ-AM

Part Number of the 65-11	Order Code
65-11-IB0100L-AM	65-11-IB0100L-ABCDEFGHJKLMNO-PQ-AM

Order code contains information with below details：
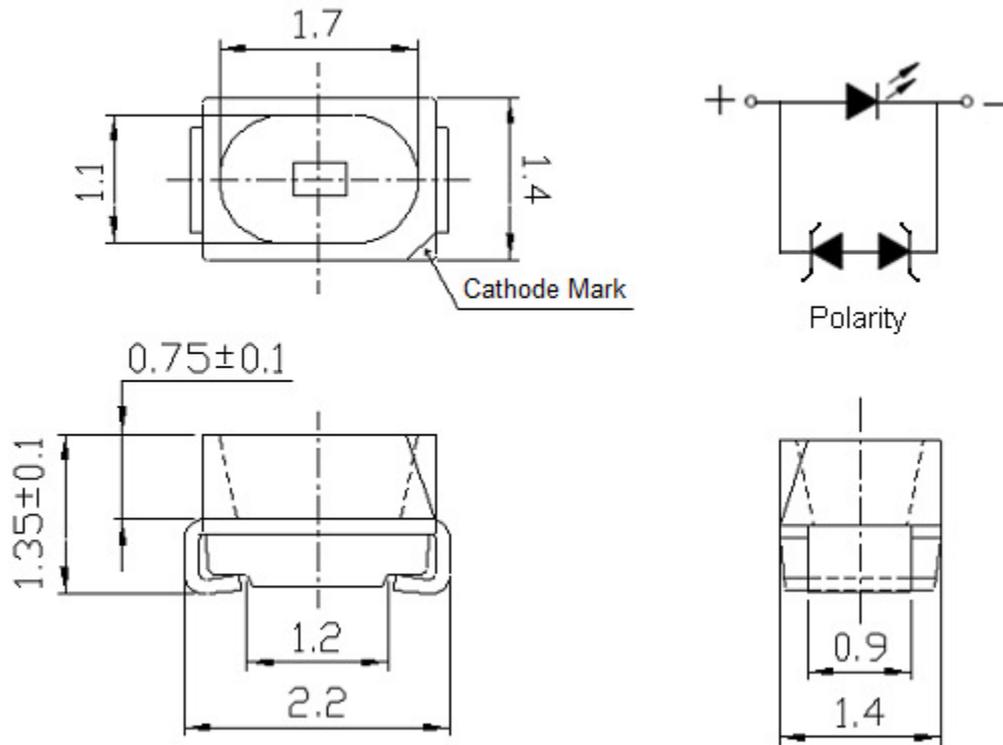
ABCDEF = min/max wavelength or CCT

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

LMNO = min./max. forward voltage
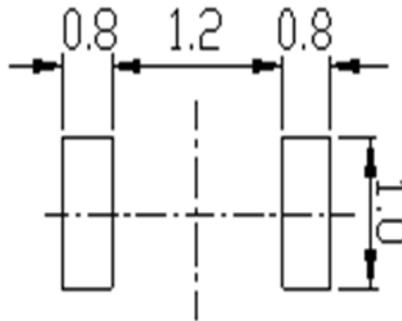
PQ = internal code

AM = Automotive Application

7. Mechanical Dimension
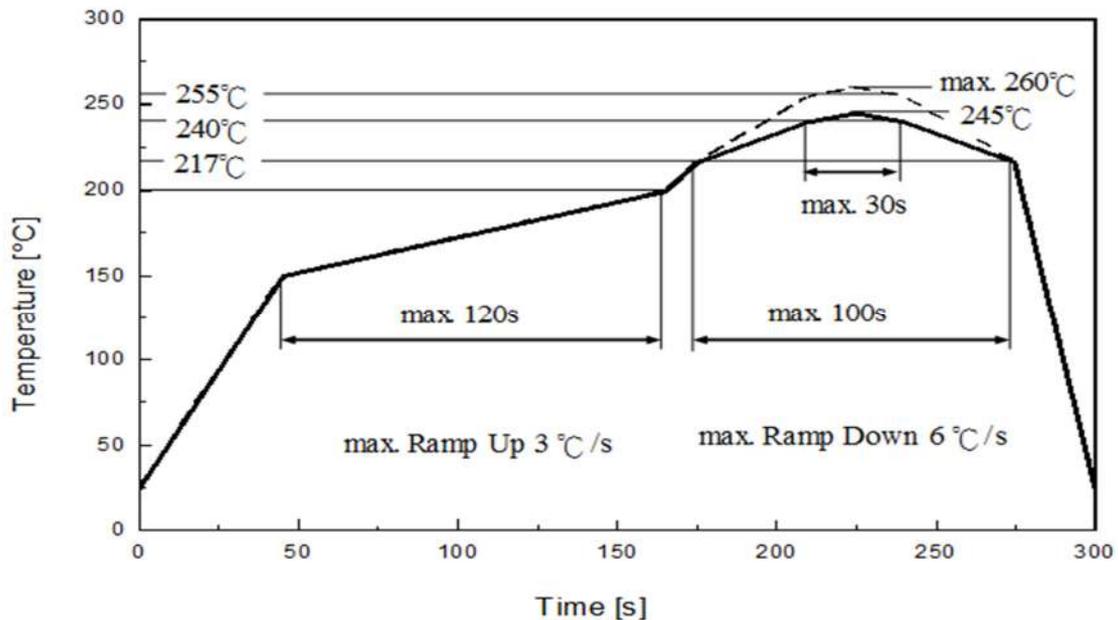

Cathode Mark

Polarity

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
Ramp-up rate to preheat 25 ℃ to 150 ℃	3	℃ /sec
Time of soaking zone 150 ℃ to 200 ℃	120	sec
Ramp-up rate to peak	3	℃ /sec
Liquidus temperature	217	℃
Time above liquidus temperature	100	sec
Peak temperature (max.)	260	℃
Time within 5 ℃ of the specified peak temperature	30	sec
Ramp-down Rate (max.)	6	℃ /sec

10. Packaging Information

● **Product Labeling**

```
RoHS  (Pb) EVERLIGHT          5
CPN: XXXXXXXXXXXXXXXXXXXX
|||||||||||||||||||||||||||||||||
XXXXXXXXX-XXXXXXXXX-XXXXXXXXX-XXXXXXXXX-XXXXX
P/N: XXXXXXXXX
||||||||||||||||||||||
XXXXXXXXX-XXXXXXXXX-XXXXXXXXX-XXXXXXXXX-XXXXX
 LOT NO:Y150716XXX-XXXXXXXXX-XXXXXXXXX
|||||||||||||||||||||||||||||||||
QTY:0123456789  HUE:XXXXXXXXX
||||||||||||||
CAT:XXXXXXXXX  REF:XXXXXXXXX
|||||||||||||||||    |||||||||||||||||
REFERENCE: BTPYYMMDDXXXXX
||||||||||||||||||||
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
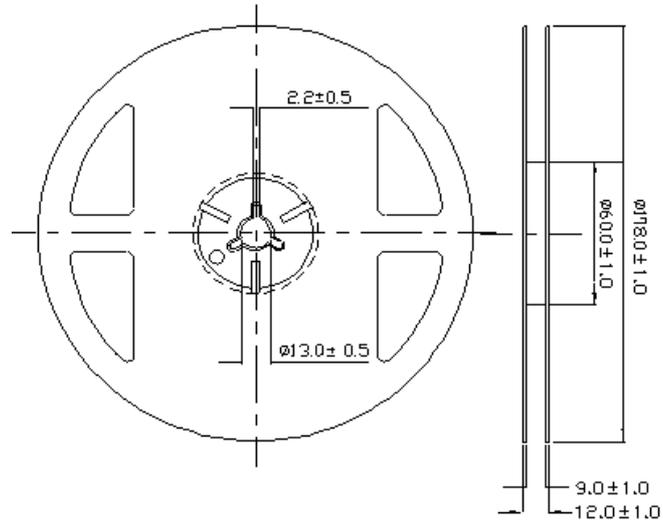
● **Packing: Loaded Quantity 2000 pcs Per Reel**
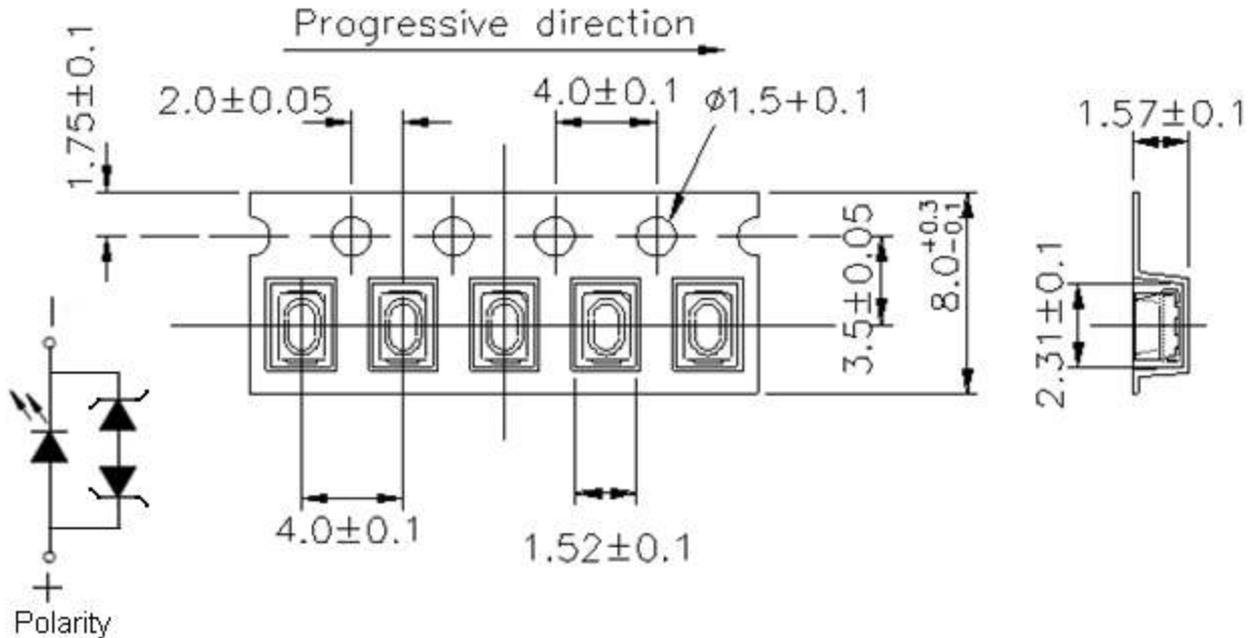
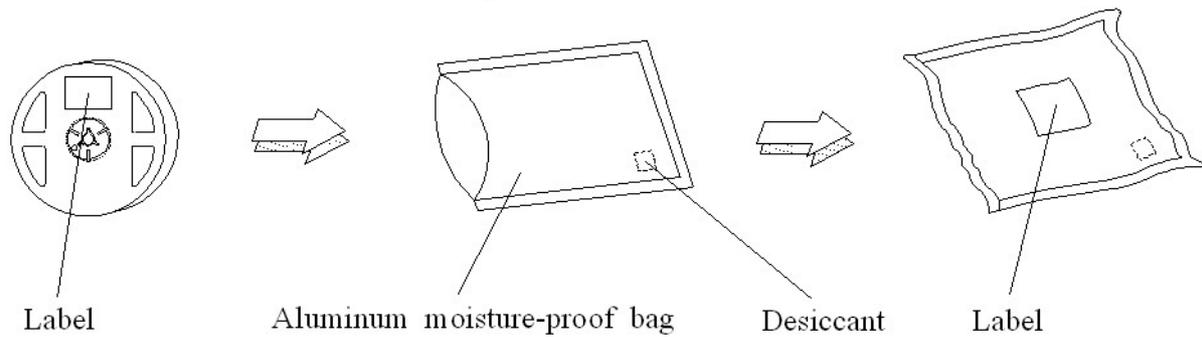**Notes:**

1. Dimensions are in millimeters.

- ## **Reel Dimensions**

Notes:

1. Dimensions are in millimeters.

- ## **Moisture Resistant Packing Process**

Label   Aluminum moisture-proof bag   Desiccant   Label

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.