DATASHEET

SMD ▪ Low Power LED
67-211/LK2C-BXXXXXXXXXX/2T(GC)

Features

- PLCC-2 package
- Top view white LED
- High luminous intensity output
- Wide viewing angle
- Pb-free
- RoHS compliant

Description

The Everlight 67-211 package has high efficacy, high CRI, low power consumption, wide viewing angle and a compact form factor. These features make this package an ideal LED for all lighting applications.

Applications

- General lighting
- Decorative and Entertainment Lighting
- Indicators
- Illumination
- Switch lights

Product Number Explanation

67-211 / X K 2 C – B XX XX XX XX XX / 2T

- Bin Group of Forward Voltage
- Bin Group of Max. Luminous Intensity
- Bin Group of Min. Luminous Intensity
- Max. Color temperature
- Min. Color temperature
- Bin Code of Color Rendering Index

Table of Color Rendering Index

Symbol	Description
M	CRI(Min.) : 60
N	CRI(Min.) : 65
L	CRI(Min.) : 70
Q	CRI(Min.) : 75
K	CRI(Min.) : 80
H	CRI(Min.) : 90

Note:
Tolerance of Color Rendering Index: ±2

Production list

Product	CRI min	CCT(K) Typ.	IV(lm) min	IV(lm) Typ.	IV(lm) max
67-211/LK2C-B5663B4B9B2/2T(GC)	70	5650-6300	7	-	10

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	White	Water Clear

Absolute Maximum Ratings ($T_{Soldering}$=25℃)

Parameter	Symbol	Rating	Unit
Forward Current	I_F	30	mA
Peak Forward Current (Duty 1/10 @10ms)	I_{FP}	100	mA
Power Dissipation	P_d	110	mW
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +100	℃
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Note:
The products are sensitive to static electricity and must be carefully taken when handling products

Electro-Optical Characteristics ($T_{Soldering}$=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Flux	Φ	7	-----	10	lm	I_F=20mA
Forward Voltage	V_F	2.9	-----	3.6	V	I_F=20mA
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	I_F=20mA
Correlated color temperature	CCT	5650	-----	6300	k	I_F=20mA
Reverse Current	I_R	-----	-----	50	μA	V_R =5V

Notes:
1. Tolerance of Forward Voltage : ±0.05V.

Bin Range of Luminous Flux

Bin Code	Min.	Max.	Unit	Condition
B4	7.00	7.50	Lm	I_F=20mA
B5	7.50	8.00		
B6	8.00	8.50		
B7	8.50	9.00		
B8	9.00	9.50		
B9	9.50	10.00		

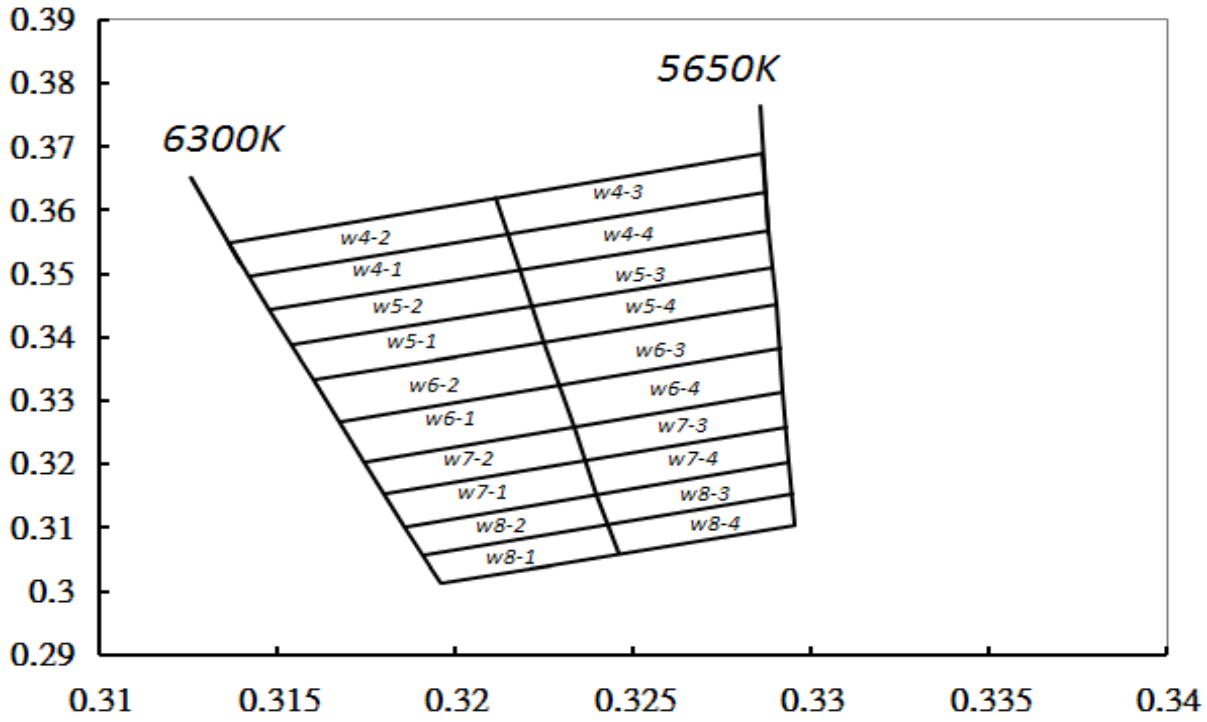
Note:
Tolerance of Luminous Intensity: ±11%

Bin Range of Forward Voltage

Group	Bin Code	Min.	Max.	Unit	Condition
B2	36	2.9	3.0	V	I_F=20mA
	37	3.0	3.1		
	38	3.1	3.2		
	39	3.2	3.3		
	40	3.3	3.4		
	41	3.4	3.5.		
	42	3.5	3.6		

Note:
Tolerance of Forward Voltage: ±0.05V.

The C.I.E. 1931 Chromaticity Diagram



Bin Range of Chromaticity Coordinates

CCT	Bin Code	CIE x	CIE y	Bin Code	CIE x	CIE y
5650-6300K	W4-1	0.3142	0.3497	W4-3	0.3211	0.362
		0.3215	0.3563		0.3286	0.369
		0.3218	0.3507		0.3287	0.3629
		0.3148	0.3444		0.3215	0.3563
	W4-2	0.3136	0.355	W4-4	0.3215	0.3563
		0.3211	0.362		0.3287	0.3629
		0.3215	0.3563		0.3288	0.3569
		0.3142	0.3497		0.3218	0.3507
	W5-1	0.3160	0.3330	W5-3	0.3223	0.3448
		0.3155	0.3385		0.3220	0.3505
		0.3223	0.3448		0.3290	0.3570
		0.3225	0.3390		0.3290	0.3510
	W5-2	0.3155	0.3385	W5-4	0.3225	0.3390
		0.3150	0.3440		0.3223	0.3448
		0.3220	0.3505		0.3290	0.3510
		0.3223	0.3448		0.3290	0.3450

5650-6300K	W6-1	0.3170	0.3200	W6-3	0.3228	0.3323
		0.3165	0.3265		0.3225	0.3390
		0.3228	0.3323		0.3290	0.3450
		0.3230	0.3255		0.3290	0.3380
	W6-2	0.3165	0.3265	W6-4	0.3230	0.3255
		0.3160	0.3330		0.3228	0.3323
		0.3225	0.3390		0.3290	0.3380
		0.3228	0.3323		0.3290	0.3310
	W7-1	0.318	0.3153	W7-3	0.3233	0.3259
		0.3237	0.3205		0.3292	0.3313
		0.324	0.3152		0.3293	0.3258
		0.3186	0.3102		0.3237	0.3205
	W7-2	0.3175	0.3204	W7-4	0.3237	0.3205
		0.3233	0.3259		0.3294	0.3202
		0.3237	0.3205		0.324	0.3152
		0.318	0.3153		0.318	0.3153
	W8-1	0.3196	0.3013	W8-3	0.3240	0.3152
		0.3243	0.3106		0.3294	0.3202
		0.3246	0.3059		0.3295	0.3154
		0.3191	0.3058		0.3243	0.3106
	W8-2	0.3186	0.3102	W8-4	0.3191	0.3058
		0.3240	0.3152		0.3243	0.3106
		0.3243	0.3106		0.3246	0.3059
		0.3191	0.3058		0.3196	0.3013

Note: Tolerance of Chromaticity Coordinates: ±0.01

Typical Electro-Optical Characteristics Curves

Fig.1 - Forward Voltage Shift vs. Junction Temperature

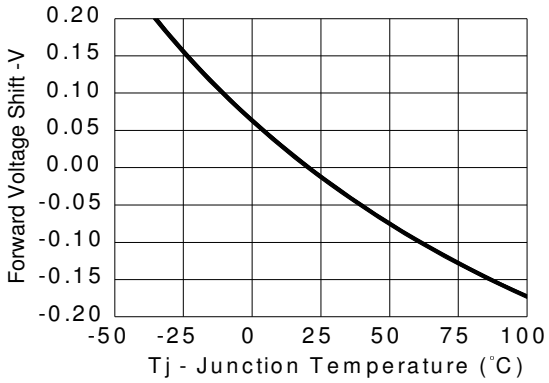
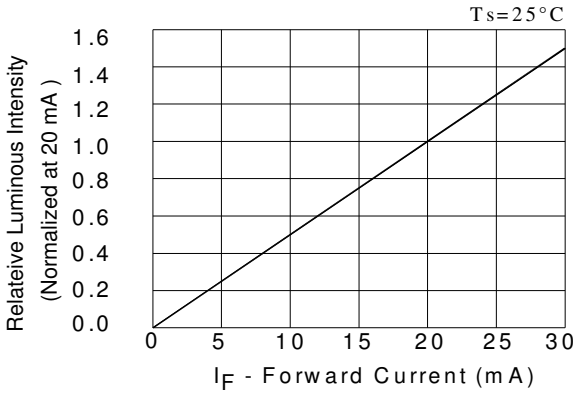


Fig.2 - Relative Luminous Intensity vs. Forward Current



Typical Electro-Optical Characteristics Curves

Fig.3 - Relative Luminous Intensity vs. Junction Temperature

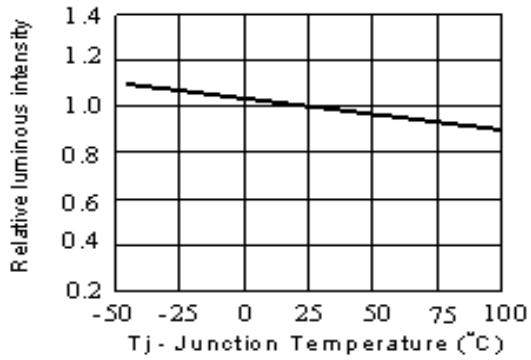


Fig.4 - Forward Current vs. Forward Voltage

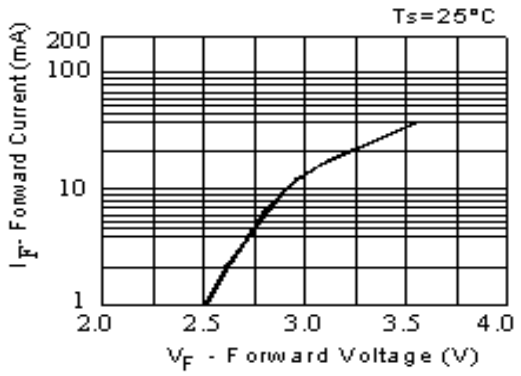


Fig.5 - Max. Driving Forward Current vs. Soldering Temperature

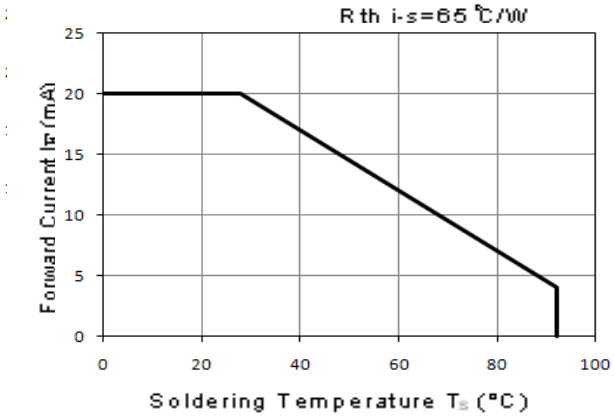
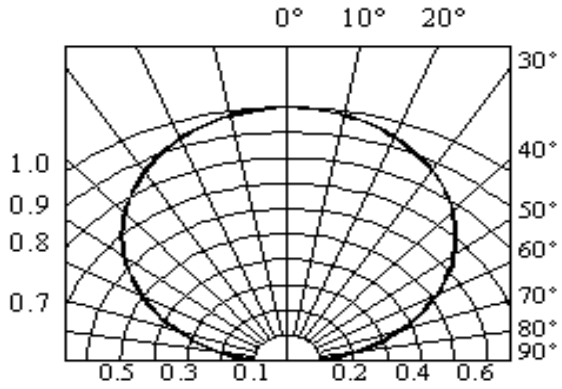
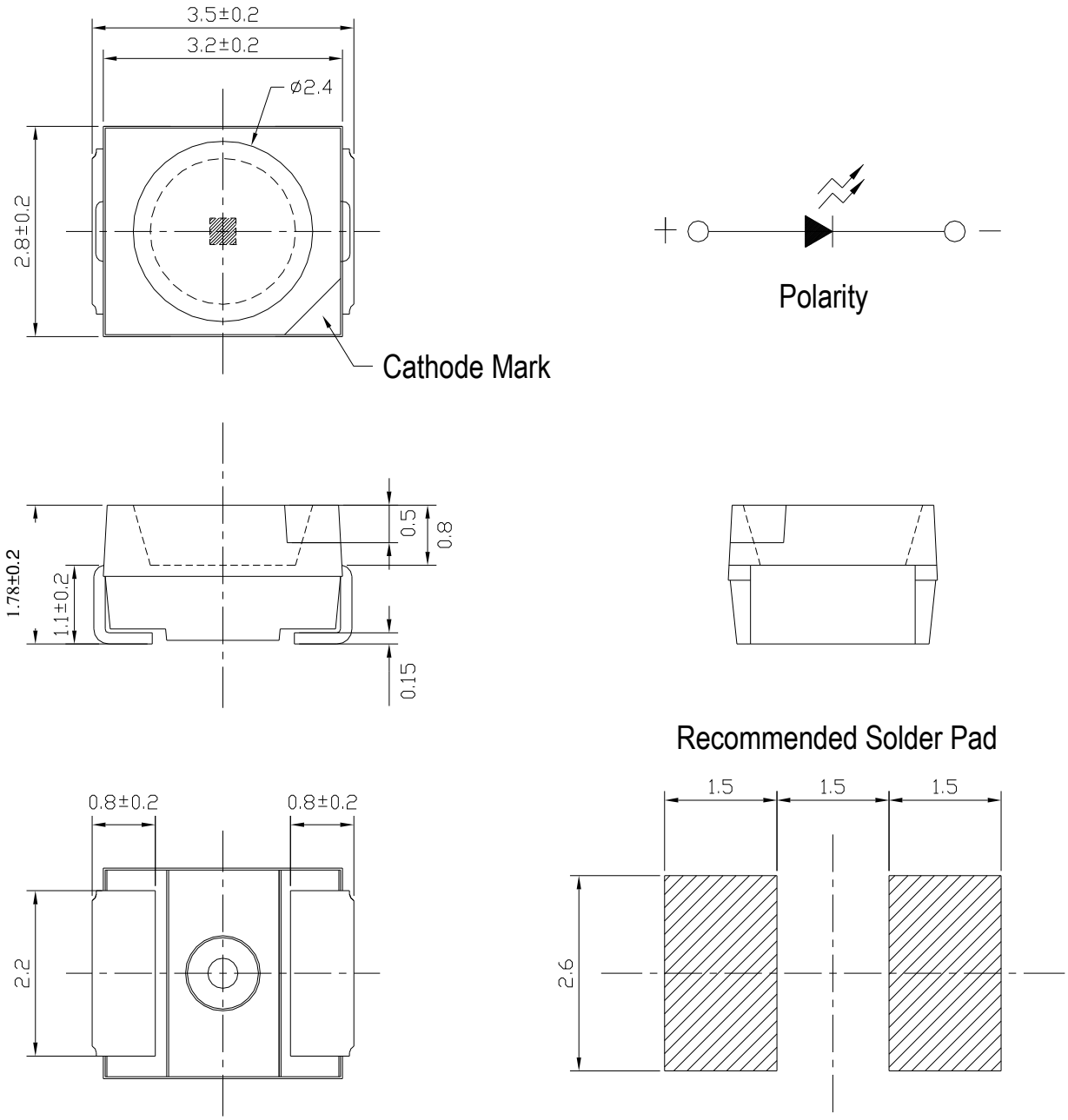


Fig.6 - Radiation Diagram



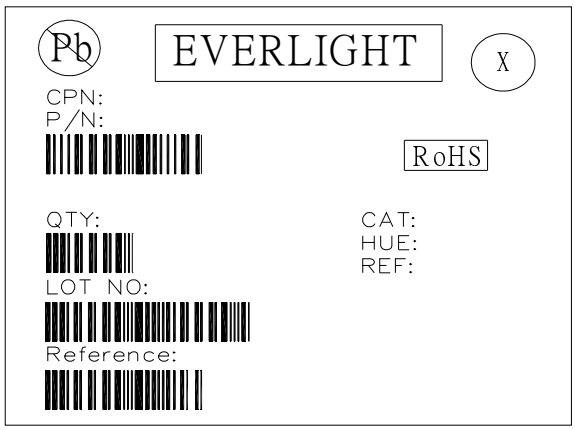
Package Dimension



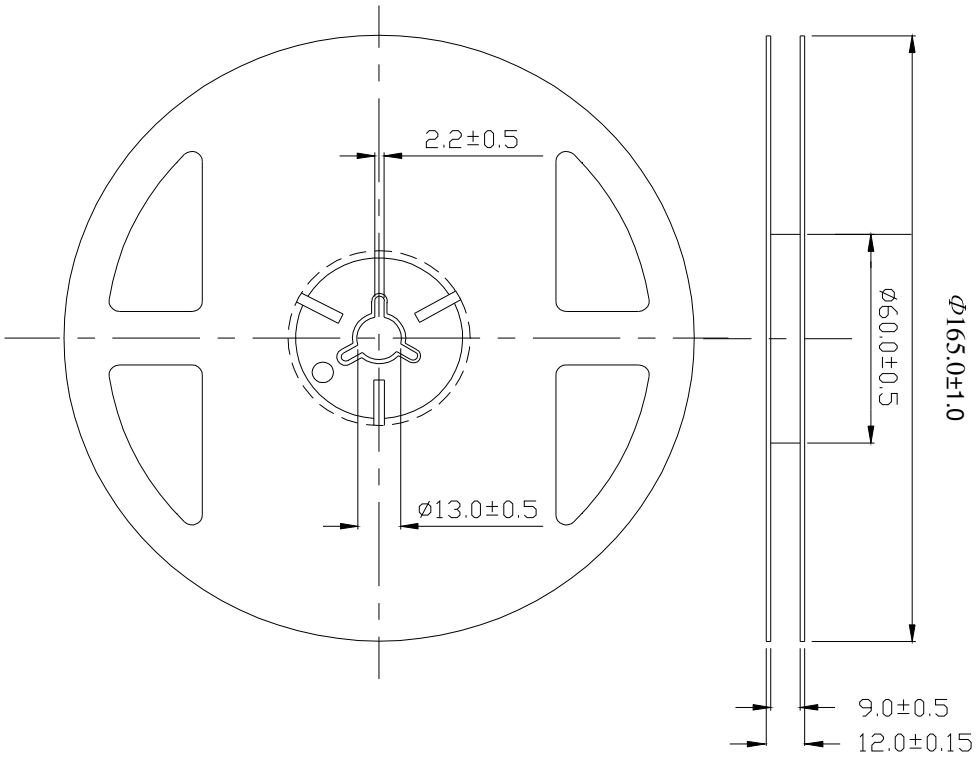
Note:
Tolerance unless mentioned is ±0.2mm; Unit = mm

Moisture Resistant Packing Materials

Label Explanation

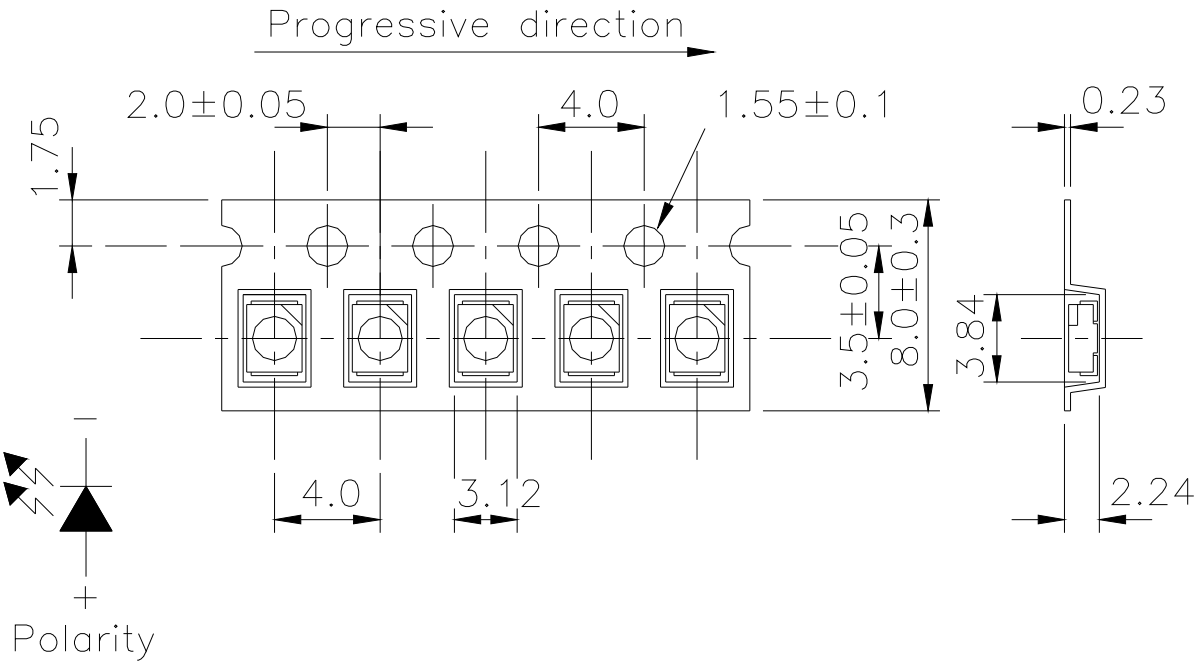


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Color Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number



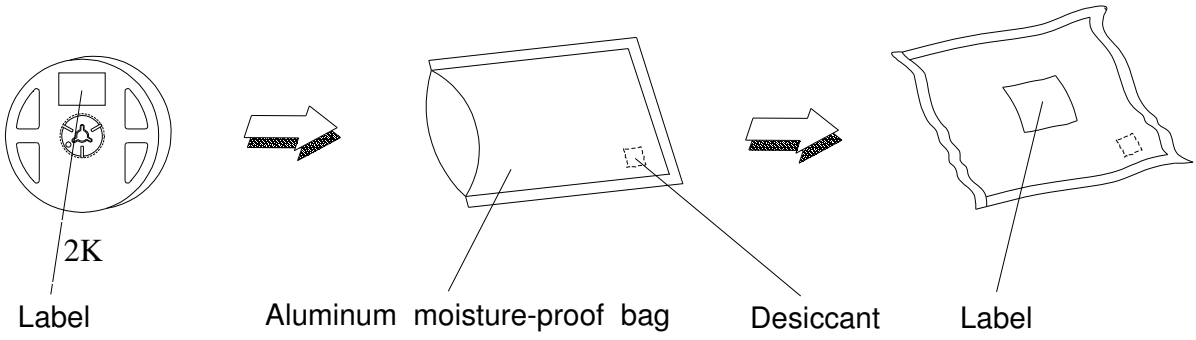
Note:
Tolerances unless mentioned ±0.1mm. Unit = mm

Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel



Note:
1.Tolerance unless mentioned is ±0.1mm; Unit = mm
2.Minimum packing amount is 250/500/1000/2000pcs per reel.

Moisture Resistant Packing Process



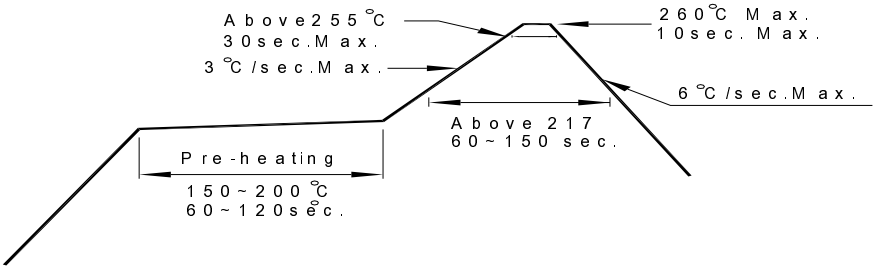
Reliability Test Items and Conditions

The reliability of products shall be satisfied with items listed below.
Confidence level：90%
LTPD：10%

No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260℃±5℃ Min. 5sec.	6 Min.	22 PCS.	0/1
2	Temperature Cycle	H : +100℃ 15min ∫ 5 min L : -40℃ 15min	300 Cycles	22 PCS.	0/1
3	Thermal Shock	H : +100℃ 5min ∫ 10 sec L : -10℃ 5min	300 Cycles	22 PCS.	0/1
4	High Temperature Storage	Temp. : 100℃	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp. : -40℃	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life	I_F = 20 mA	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85℃/ 85%RH	1000 Hrs.	22 PCS.	0/1

Precautions 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. Storage
   2.1 Do not open moisture proof bag before the products are ready to use.
   2.2 Before opening the package: The LEDs should be kept at 30℃ or less and 90%RH or less.
   2.3 After opening the package: The LED's floor life is 168 Hrs under 30℃ or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.
   2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.
   Baking treatment: 60±5℃ for 24 hours.
3. Soldering Condition
   3.1 Pb-free solder temperature profile



   3.2 Reflow soldering should not be done more than two times.
   3.3 When soldering, do not put stress on the LEDs during heating.
   3.4 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.