Product Number Explanation

62–217D / XK 2 C - S XX XX XX XX XX Z15/ 2T

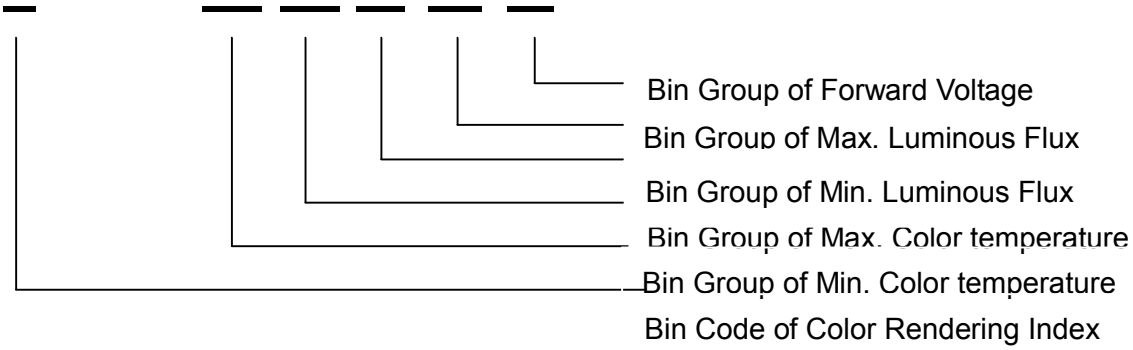


Table of Color Rendering Index

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

Notes:
Tolerance of Color Rendering Index: ±2

Table of Forward Current Index

Symbol	Description
Z15	I_F:150mA

Example:
62-217D/QK2C-S5757R1R3B42Z15/2T

CRI	75(Min.)
CCT	5700K
Flux	50~65lm
V_F	2.8V~3.5V
I_F	150mA

Mass Production List for CRI>80

Product	CRI Min.(1)	CCT(K)	Φ(lm) Min. (2)	Φ(lm) Max. (2)
62-217D/KK2C-S2727PBR1B42Z15/2T	80	2700K	40	55
62-217D/KK2C-S3030QAR2B42Z15/2T	80	3000K	45	60
62-217D/KK2C-S3035QAR3B42Z15/2T	80	3300K	45	65
62-217D/KK2C-S3535QAR2B42Z15/2T	80	3500K	45	60
62-217D/KK2C-S4040QAR2B42Z15/2T	80	4000K	45	60
62-217D/KK2C-S4045QAR3B42Z15/2T	80	4300K	45	65
62-217D/KK2C-S4545QAR2B42Z15/2T	80	4500K	45	60
62-217D/KK2C-S5050R1R3B42Z15/2T	80	5000K	50	65
62-217D/KK2C-S5353R1R4B42Z15/2T	80	5300K	50	70
62-217D/KK2C-S5757R1R3B42Z15/2T	80	5700K	50	65
62-217D/KK2C-S6565R1R3B42Z15/2T	80	6500K	50	65

Mass Production List for CRI>75

Product	CRI Min.(1)	CCT(K)	Φ(lm) Min. (2)	Φ(lm) Max. (2)
62-217D/QK2C-S5050R1R3B42Z15/2T	75	5000K	50	65
62-217D/QK2C-S5757R1R3B42Z15/2T	75	5700K	50	65
62-217D/QK2C-S6565R1R3B42Z15/2T	75	6500K	50	65

Notes:

1. Tolerance of Color Rendering Index: ±2
2. Tolerance of Luminous flux: ±11%.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Cool White Neutral White Warm White	Water Clear

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

Parameter	Symbol	Rating	Unit
Forward Current	I_F	180	mA
Peak Forward Current (Duty 1/10 @10ms)	I_{FP}	300	mA
Power Dissipation	P_d	630	mW
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +100	℃
Thermal Resistance (Junction / Soldering point)	$R_{th\ J\text{-}S}$	21	℃/W
Junction Temperature	T_j	115	℃
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Flux(1)	Φ	40	-----	70	lm	I_F=150mA
Forward Voltage(2)	V_F	2.8	-----	3.5	V	I_F=150mA
Color Rendering Index(3)	Ra	75	-----	-----		I_F=150mA
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	I_F=150mA
Reverse Current	I_R	-----	-----	50	μA	V_R =5V

Notes:
1. Tolerance of Luminous flux: ±11%.
2. Tolerance of Forward Voltage : ±0.1V.
3. Tolerance of Color Rendering Index: ±2.

Bin Range of Luminous Flux

Bin Code	Min.	Max.	Unit	Condition
PB	40	45	lm	I_F=150mA
QA	45	50		
R1	50	55		
R2	55	60		
R3	60	65		
R4	65	70		

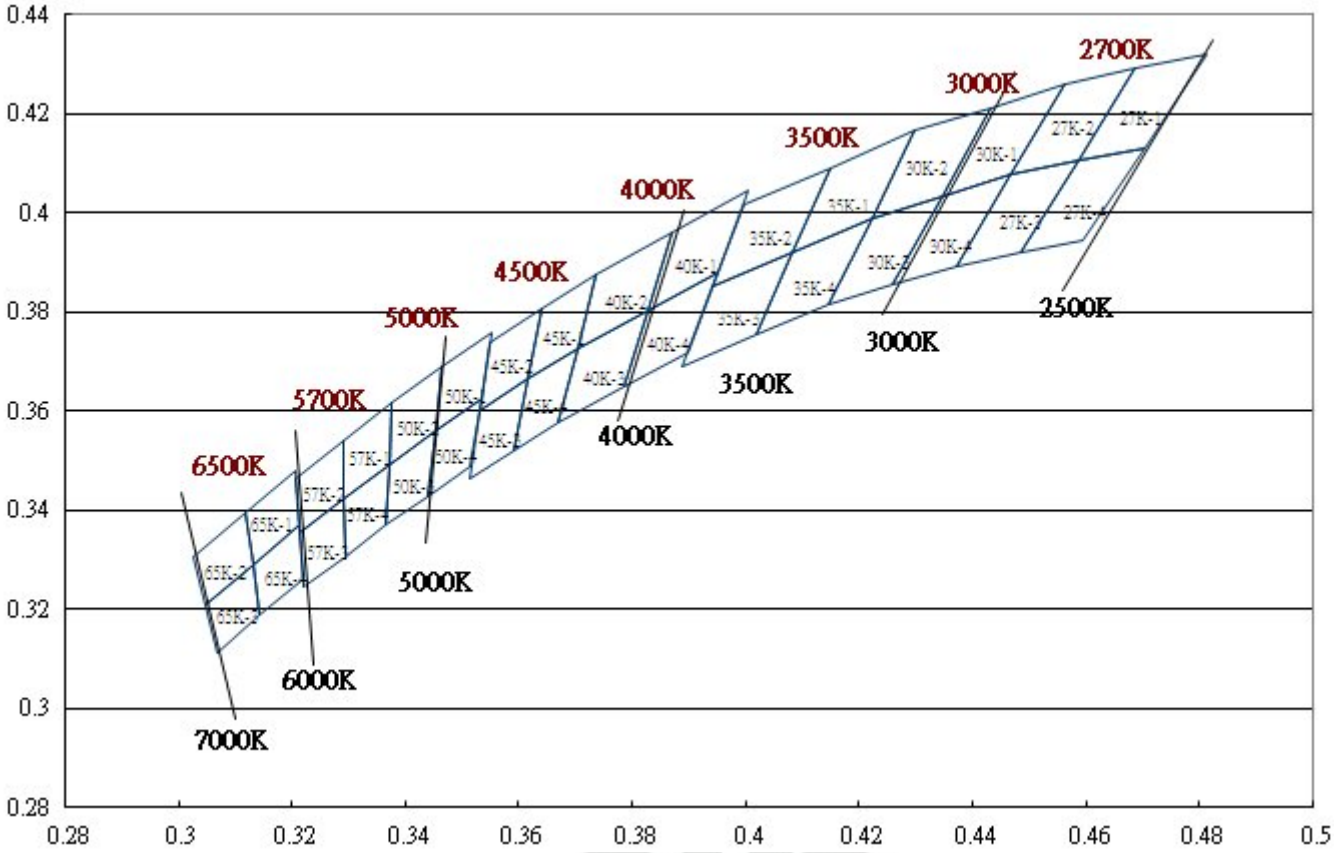
Notes:
Tolerance of Luminous flux: ±11%

Bin Range of Forward Voltage

Group	Bin Code	Min.	Max.	Unit	Condition
B42	35	2.8	2.9	V	I_F=150mA
	36	2.9	3.0		
	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		

Notes:
Tolerance of Forward Voltage : ±0.1V.

The C.I.E. 1931 Chromaticity Diagram



Bin Range of Chromaticity Coordinate

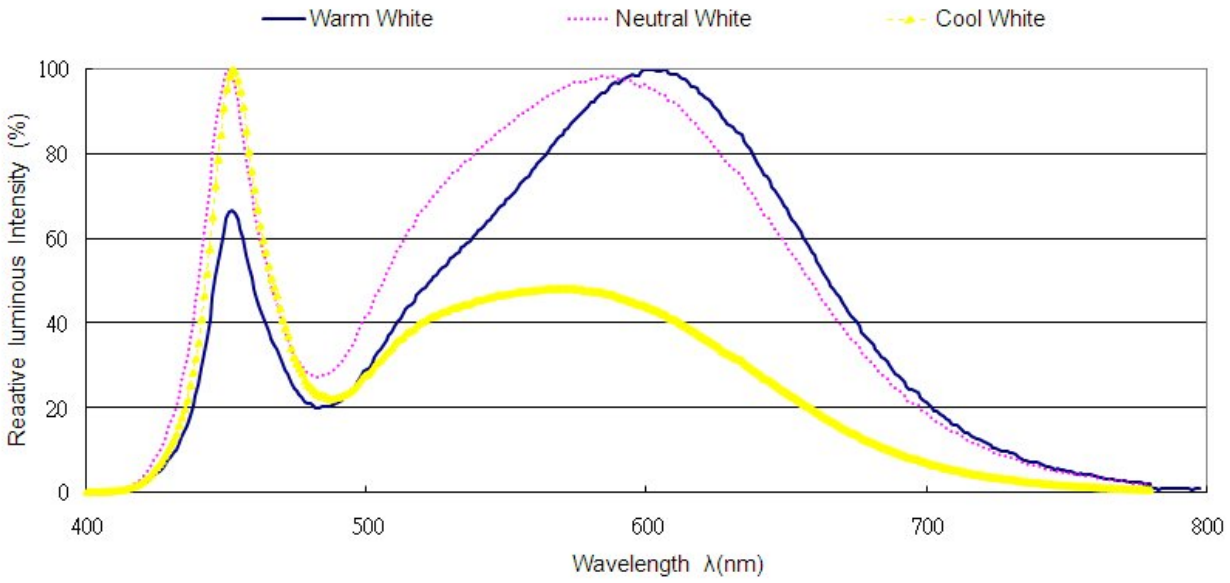
CCT	Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
2700K	27K-1	0.4813	0.4319	27K-2	0.4688	0.4290
		0.4688	0.4290		0.4562	0.4260
		0.4585	0.4104		0.4468	0.4077
		0.4703	0.4132		0.4585	0.4104
	27K-4	0.4703	0.4132	27K-3	0.4585	0.4104
		0.4585	0.4104		0.4468	0.4077
		0.4483	0.3919		0.4373	0.3893
		0.4593	0.3944		0.4483	0.3919
	Reference Range: 2580K~2700K			Reference Range: 2700K~2870K		
3000K	30K-1	0.4562	0.4260	30K-2	0.4431	0.4213
		0.4431	0.4213		0.4299	0.4165
		0.4345	0.4033		0.4223	0.3990
		0.4468	0.4077		0.4345	0.4033
	30K-4	0.4468	0.4077	30K-3	0.4345	0.4033
		0.4345	0.4033		0.4223	0.3990
		0.4260	0.3854		0.4147	0.3814
		0.4373	0.3893		0.4260	0.3854
	Reference Range: 2870K~3000K			Reference Range: 3000K~3220K		
3035K	30K-2	0.4431	0.4213	35K-1	0.430	0.417
		0.4299	0.4165		0.415	0.409
		0.4223	0.3990		0.408	0.392
		0.4345	0.4033		0.422	0.399
	30K-3	0.4345	0.4033	35K-4	0.422	0.399
		0.4223	0.3990		0.408	0.392
		0.4147	0.3814		0.402	0.375
		0.4260	0.3854		0.415	0.381
	Reference Range: 3000K~3220K			Reference Range: 3220K~3500K		
3500K	35K-1	0.430	0.417	35K-2	0.415	0.409
		0.415	0.409		0.400	0.402
		0.408	0.392		0.394	0.385
		0.422	0.399		0.408	0.392
	35K-4	0.422	0.399	35K-3	0.408	0.392
		0.408	0.392		0.394	0.385
		0.402	0.375		0.389	0.369
		0.415	0.381		0.402	0.375
	Reference Range: 3220K~3500K			Reference Range: 3500K~3710K		

CCT	Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
4000K	40K-1	0.4006	0.4044	40K-2	0.3871	0.3959
		0.3871	0.3959		0.3736	0.3874
		0.3828	0.3803		0.3703	0.3726
		0.3952	0.3880		0.3828	0.3803
	40K-4	0.3952	0.3880	40K-3	0.3828	0.3803
		0.3828	0.3803		0.3703	0.3726
		0.3784	0.3647		0.3670	0.3578
		0.3898	0.3716		0.3784	0.3647
	Reference Range: 3710K~3970K			Reference Range:3970K~4260K		
4045K	40K-2	0.3871	0.3959	45K-1	0.374	0.387
		0.3736	0.3874		0.364	0.381
		0.3703	0.3726		0.362	0.366
		0.3828	0.3803		0.370	0.373
	40K-3	0.3828	0.3803	45K-4	0.370	0.373
		0.3703	0.3726		0.362	0.366
		0.3670	0.3578		0.359	0.352
		0.3784	0.3647		0.367	0.358
	Reference Range:3970K~4260K			Reference Range: 4260K~4500K		
4500K	45K-1	0.374	0.387	45K-2	0.364	0.381
		0.364	0.381		0.355	0.374
		0.362	0.366		0.353	0.360
		0.370	0.373		0.362	0.366
	45K-4	0.370	0.373	45K-3	0.362	0.366
		0.362	0.366		0.353	0.360
		0.359	0.352		0.351	0.347
		0.367	0.358		0.359	0.352
	Reference Range: 4260K~4500K			Reference Range: 4500K~4745K		

CCT	Bin Code	CIE_x	CIE_y	Bin Code	CIE_x	CIE_y
5000K	50K-1	0.3551	0.3760	50K-2	0.3464	0.3688
		0.3464	0.3688		0.3376	0.3616
		0.3452	0.3558		0.3371	0.3493
		0.3533	0.3624		0.3452	0.3558
	50K-4	0.3533	0.3624	50K-3	0.3452	0.3558
		0.3452	0.3558		0.3371	0.3493
		0.3441	0.3428		0.3366	0.3369
		0.3515	0.3487		0.3441	0.3428
	Reference Range: 4745K~5000K			Reference Range: 5000K~5310K		
5300K	50K-2	0.3464	0.3688	57K-1	0.3376	0.3616
		0.3376	0.3616		0.3292	0.3539
		0.3371	0.3493		0.3293	0.3423
		0.3452	0.3558		0.3371	0.3493
	50K-3	0.3452	0.3558	57K-4	0.3371	0.3493
		0.3371	0.3493		0.3293	0.3423
		0.3366	0.3369		0.3294	0.3306
		0.3441	0.3428		0.3366	0.3369
	Reference Range: 5000K~5310K			Reference Range: 5310K~5700K		
5700K	57K-1	0.3376	0.3616	57K-2	0.3292	0.3539
		0.3292	0.3539		0.3207	0.3462
		0.3293	0.3423		0.3215	0.3353
		0.3371	0.3493		0.3293	0.3423
	57K-4	0.3371	0.3493	57K-3	0.3293	0.3423
		0.3293	0.3423		0.3215	0.3353
		0.3294	0.3306		0.3222	0.3243
		0.3366	0.3369		0.3294	0.3306
	Reference Range: 5310K~5700K			Reference Range: 5700K~6020K		
6500K	65K-1	0.3205	0.3481	65K-2	0.3117	0.3393
		0.3117	0.3393		0.3028	0.3304
		0.3131	0.3290		0.3048	0.3209
		0.3213	0.3371		0.3131	0.3290
	65K-4	0.3213	0.3371	65K-3	0.3131	0.3290
		0.3131	0.3290		0.3048	0.3209
		0.3145	0.3187		0.3068	0.3113
		0.3221	0.3261		0.3145	0.3187
	Reference Range: 6020K~6500K			Reference Range: 6500K~7050K		

Notes:
1. The value are based on driving current by 150mA.
2. Tolerance of Chromaticity Coordinates : ±0.01.

Spectrum Distribution



Typical Electro-Optical Characteristics Curves

Fig.1 – Forward Voltage Shift vs. Junction Temperature

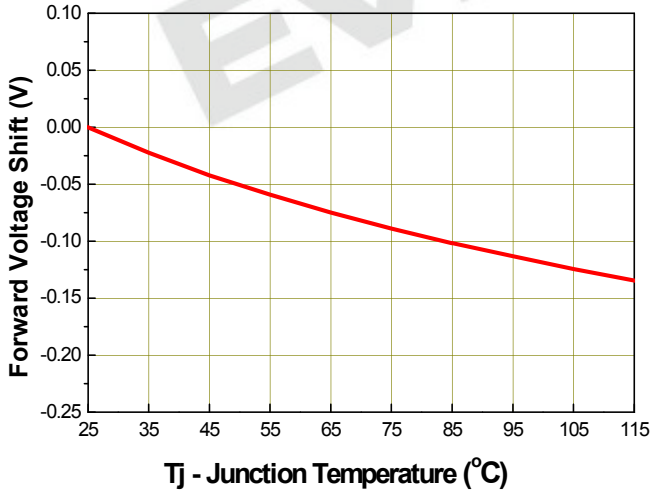
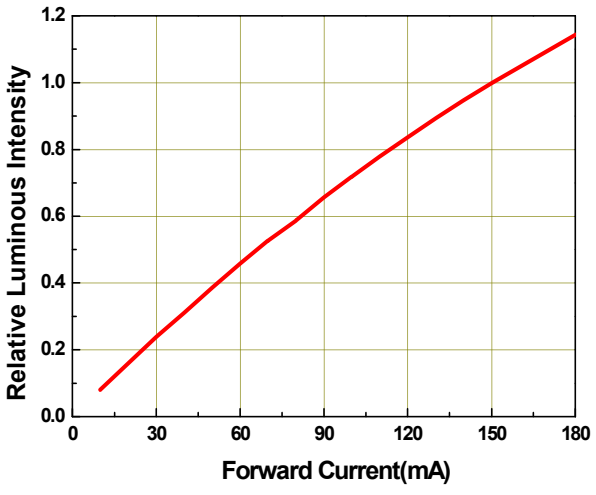


Fig.2 - Relative Luminous Intensity vs. Forward Current



Typical Electro-Optical Characteristics Curves

Fig.3 - Relative Luminous Intensity vs. Junction Temperature

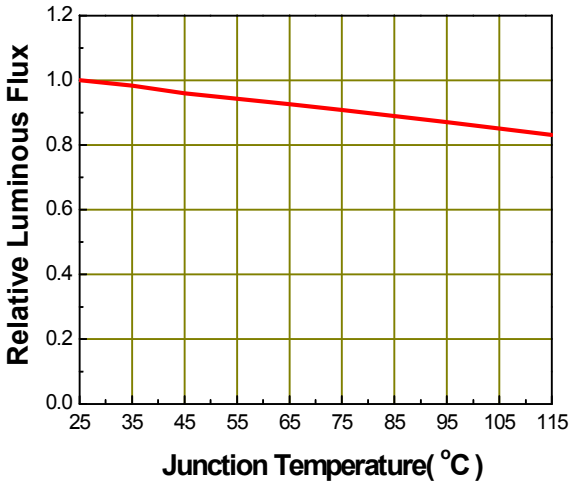


Fig.4 - Forward Current vs. Forward Voltage

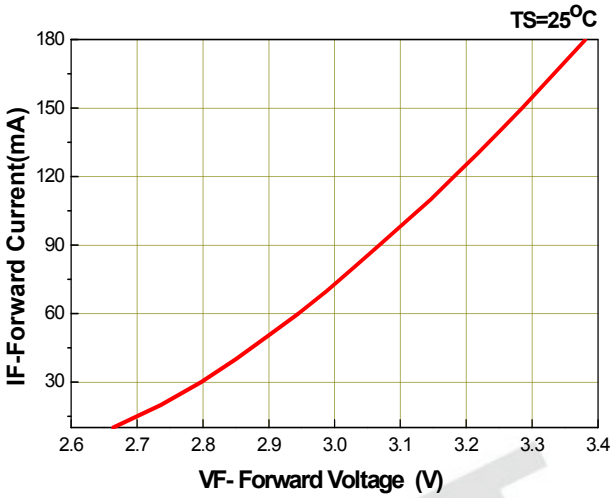


Fig.5 – Max. Driving Forward Current vs. Soldering Temperature

Rth j-s=21C/W

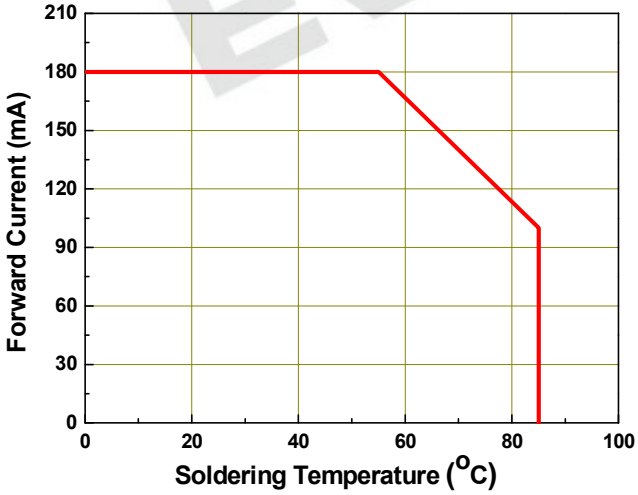
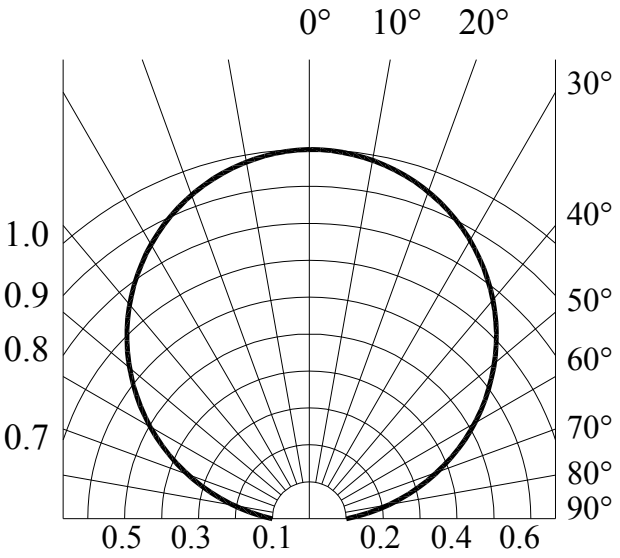
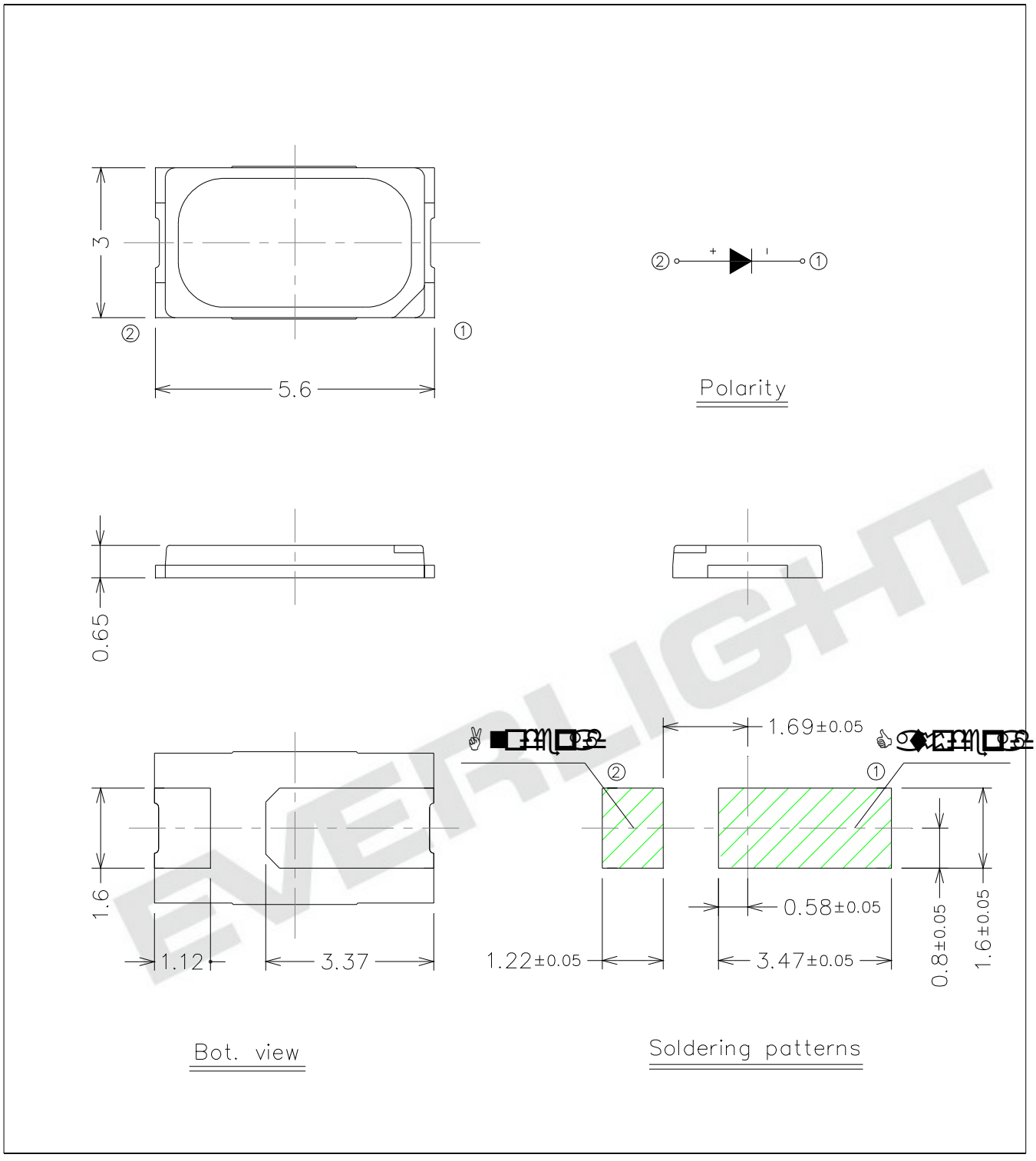


Fig.6 – Radiation Diagram



Package Dimension



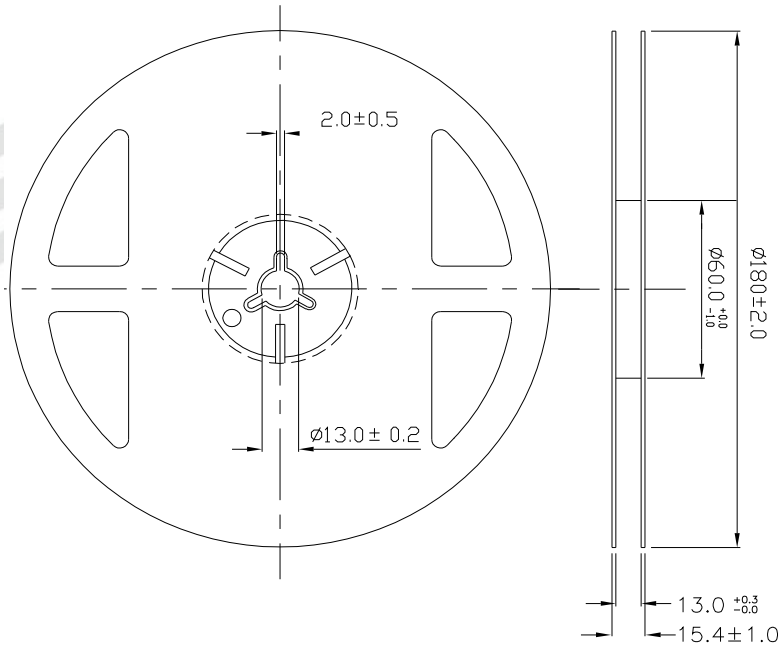
Note:
Tolerance unless mentioned is ±0.1mm; Unit = mm

Moisture Resistant Packing Materials

Label Explanation

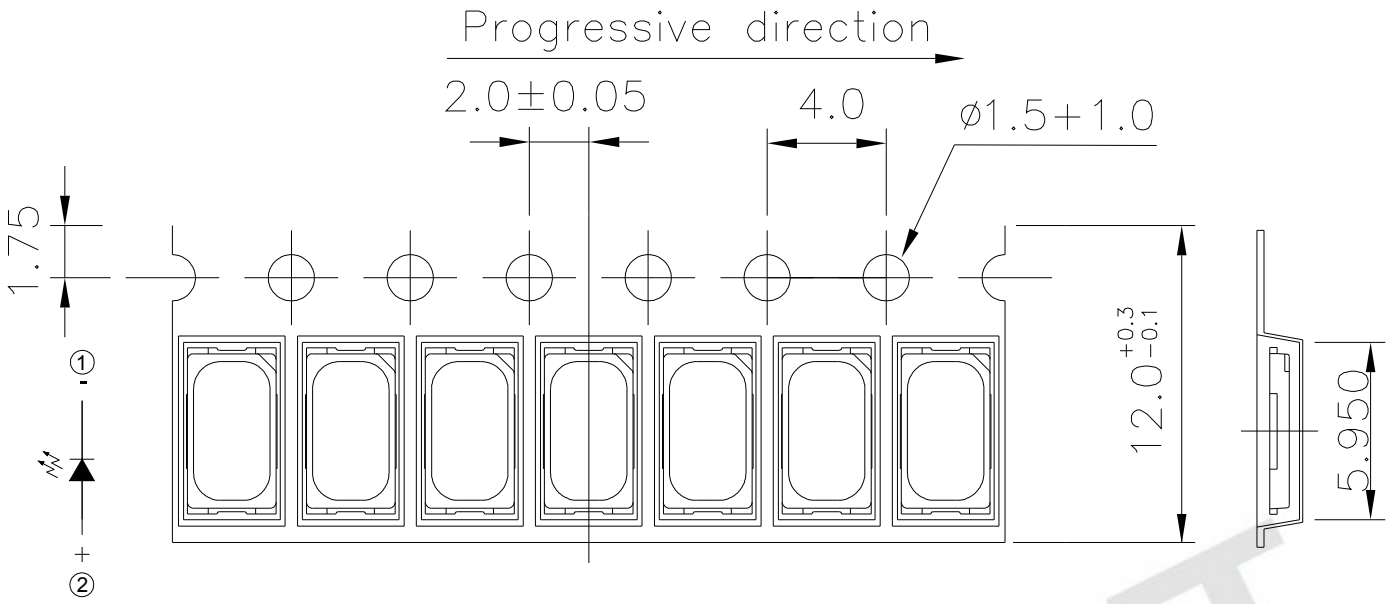
- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions



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

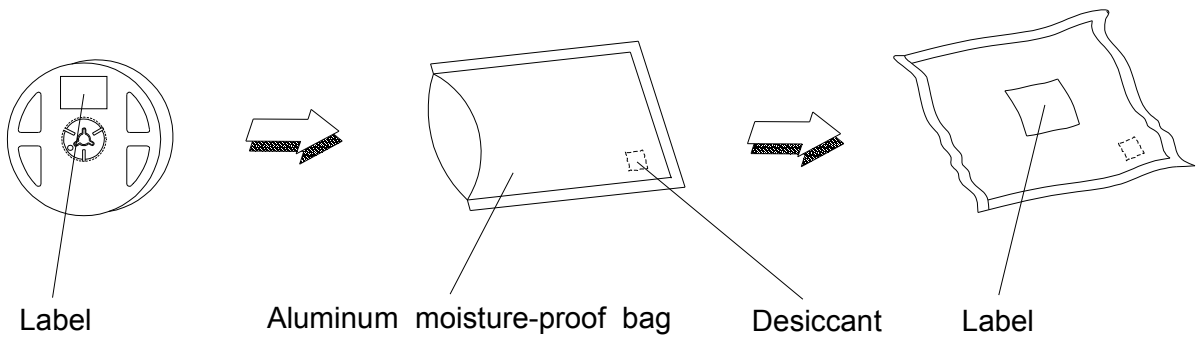
Carrier Tape Dimensions: Loaded Quantity 250 up/500/1000/2000 pcs. Per Reel



Polarity

Note:
1.Tolerance unless mentioned is ±0.1mm; Unit = mm

Moisture Resistant Packing Process



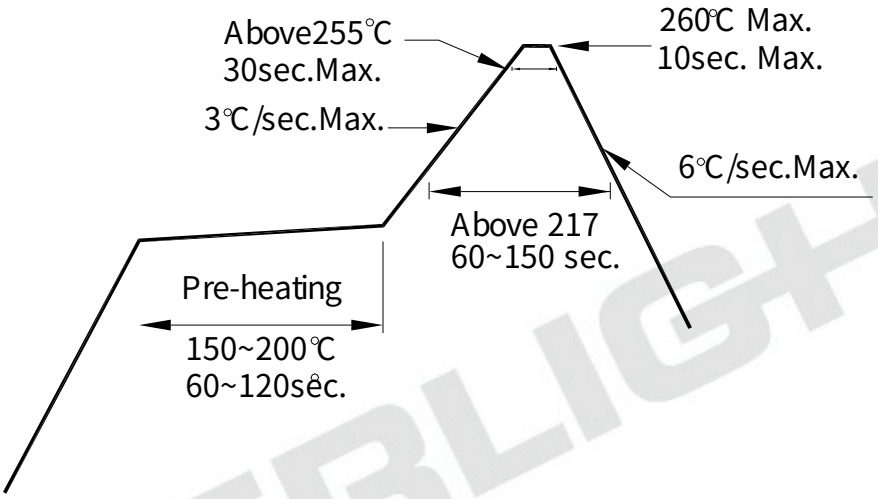
Reliability Test Items and Conditions

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°C/10sec.	6 Min.	22 PCS.	0/1
2	Thermal Shock	H : +100°C 20min ∫ 10 sec L : -10°C 20min	500 Cycles	22 PCS.	0/1
3	Temperature Cycle	H : +100°C 30min ∫ 5 min L : -40°C 30min	500 Cycles	22 PCS.	0/1
4	High Temperature/Humidity Storage	Ta=85°C,85%RH	1000 Hrs.	22 PCS.	0/1
5	High Temperature/Humidity Operation	Ta=85°C,85%RH, I_F = 100 mA	1000 Hrs.	22 PCS.	0/1
6	Low Temperature Storage	Ta=-40°C	1000 Hrs.	22 PCS.	0/1
7	High Temperature Storage	Ta=85°C	1000 Hrs.	22 PCS.	0/1
8	Low Temperature Operation Life	Ta=-40°C, I_F = 150 mA	1000 Hrs.	22 PCS.	0/1
9	High Temperature Operation/ Life#1	Ta=25°C, I_F = 150 mA	1000 Hrs.	22 PCS.	0/1
10	High Temperature Operation/ Life#2	Ta=55°C, I_F =150 mA	1000 Hrs.	22 PCS.	0/1
11	High Temperature Operation/ Life#3	Ta=85°C, I_F = 100 mA	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°C or less and 90%RH or less.
   2.3 After opening the package: The LED's floor life is 168 Hrs under 30°C 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°C 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.