

# SIDEVIEW LED - 3812

- CC - WX3810BXX - SX -



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC SENSITIVE DEVICES

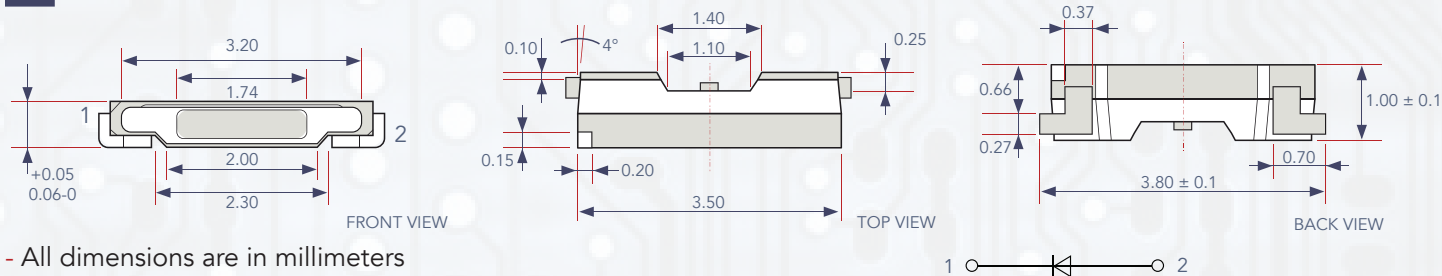
## FEATURES

- Viewing angle: 120 deg
- The materials of the LED dice is InGaN
- 3.80mm × 1.00mm × 0.60mm
- RoHS compliant led-free soldering compatible

## APPLICATIONS

- LCD Back Light
- Mobile phones
- Indicators
- Illuminations
- Switch Lights

## PACKAGE OUTLINE



- All dimensions are in millimeters
- Tolerances are ±0.1mm unless otherwise noted

## ABSOLUTE MAXIMUM RATINGS AT Ta - 25°C

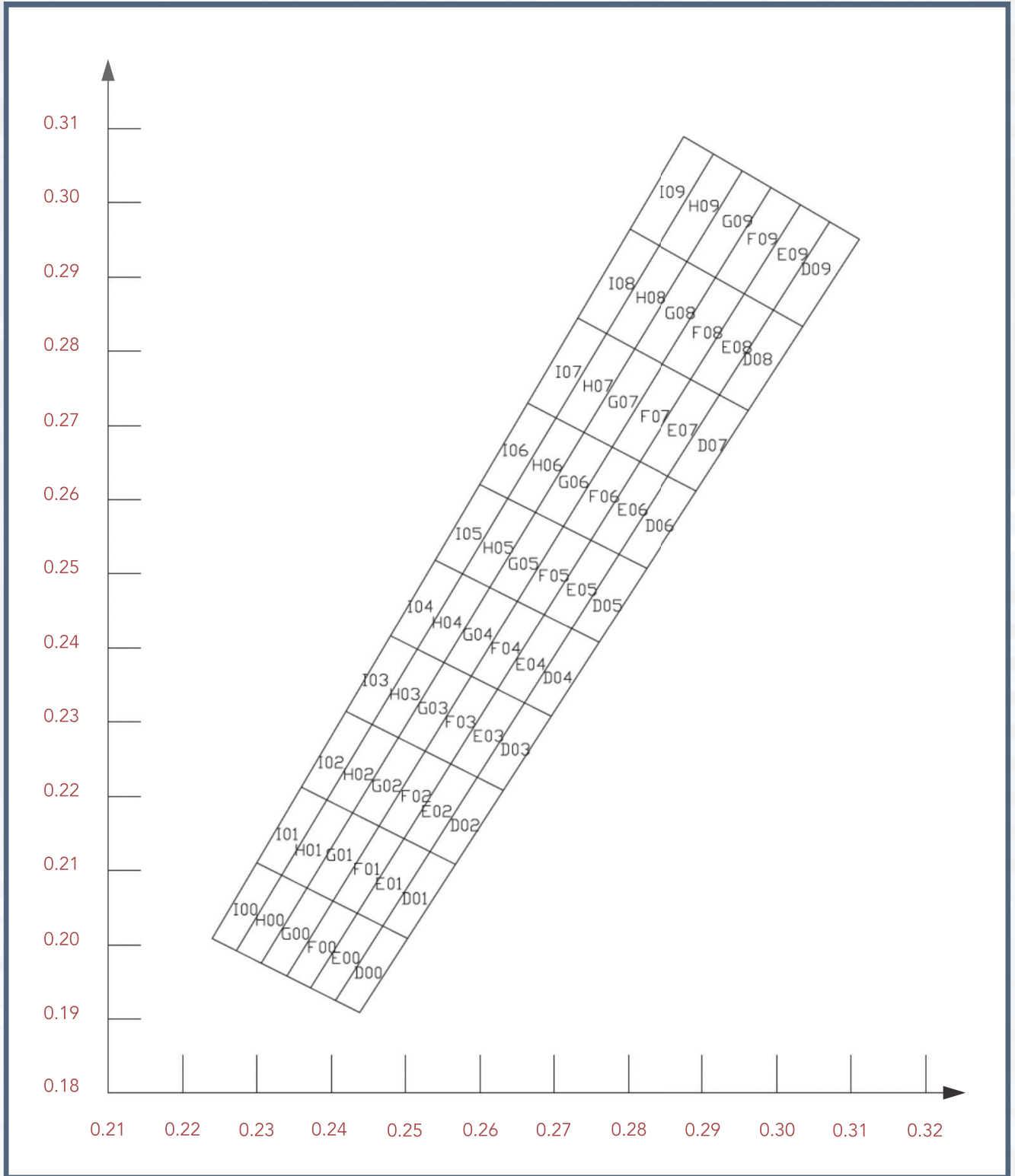
PARAMETER	SYMBOL	VALUE	UNIT
Forward Current	If	30	mA
Reverse Voltage	Vr	5	V
Operating Temperature Range	Top	-20 ~ +85	°C
Storage Temperature Range	Tstg	-35 ~ +85	°C
Peak Pulsing Current	Ifp	100	mA
Electrostatic Discharge	ESD	1000 (HBM)	V

## ELECTRO-OPTICAL CHARACTERISTICS AT Ta - 25°C

PARAMETER	TEST CONDITION	SYMBOL	VALUE			UNIT	
			MIN	TYPE	MAX		
Forward Voltage	If - 20mA	Vf	V9	2.9	-	3.0	V
			V0	3.0	-	3.1	
			V1	3.1	-	3.2	
			V2	3.2	-	3.3	
			V3	3.3	-	3.4	
Luminous Intensity	If - 20mA	Iv	V4	3.4	-	3.5	mcd
			10	1380	-	1440	
			11	1440	-	1500	
			12	1500	-	1560	
			13	1560	-	1620	
			14	1620	-	1680	
			15	1680	-	1740	
			16	1740	-	1800	
			17	1800	-	1860	
			18	1860	-	1930	
			19	1930	-	2000	
			20	2000	-	2070	
			21	2070	-	2140	
			22	2140	-	2210	
23	2210	-	2280				
24	2280	-	2350				
25	2350	-	2420				
26	2420	-	2490				
27	2490	-	2560				
Viewing Angle at 50% Iv	If - 20mA	2θ 1/2	-	120	-	Deg	
Reverse Current	Vr - 5V	Ir	-	-	10	µA	

NOTE: (Tolerance: Iv ± 10%, Vf ± 0.05V, X, Y ± 0.01)  
IFP Conditions: Pulse Width ≤ 10µs and Duty ≤ 1/10.

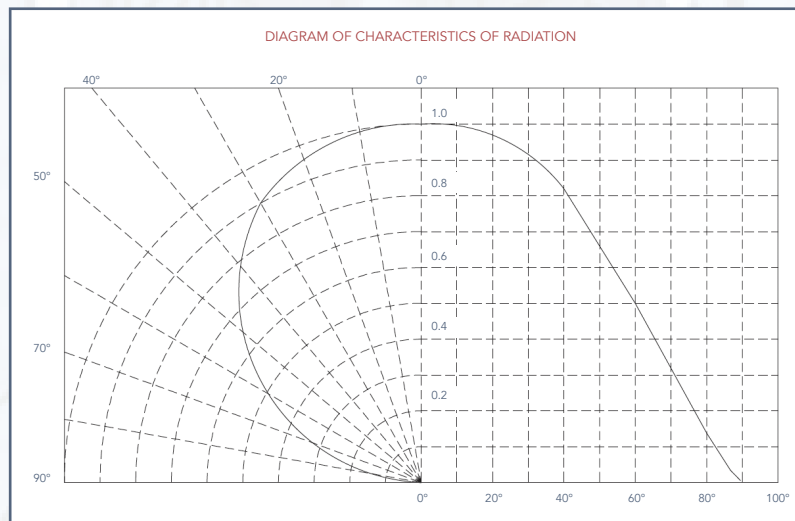
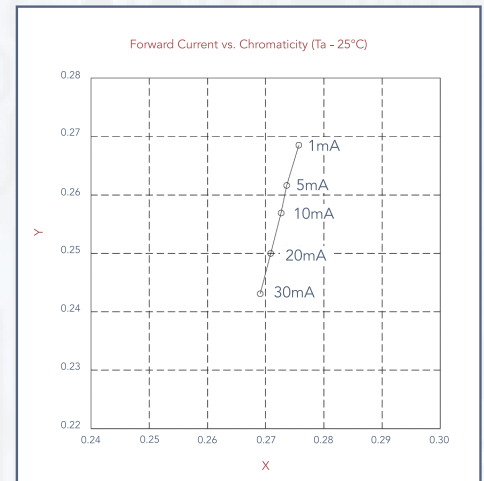
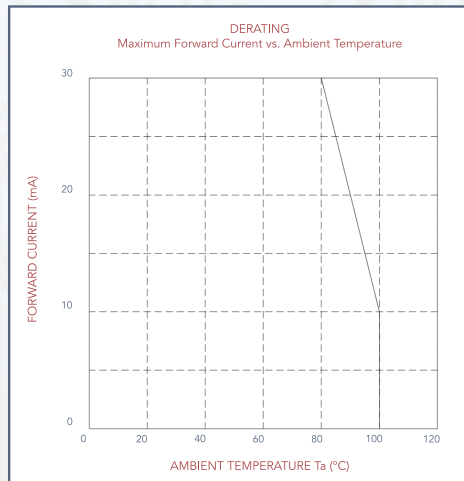
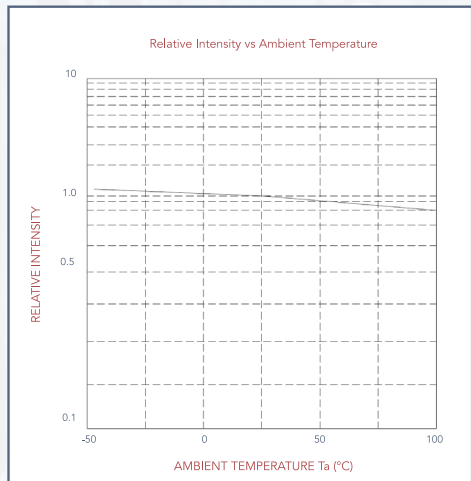
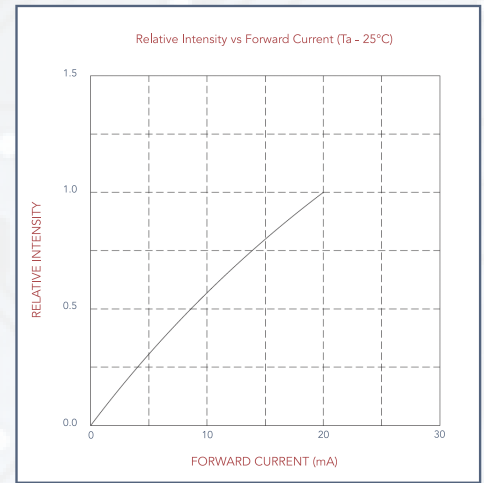
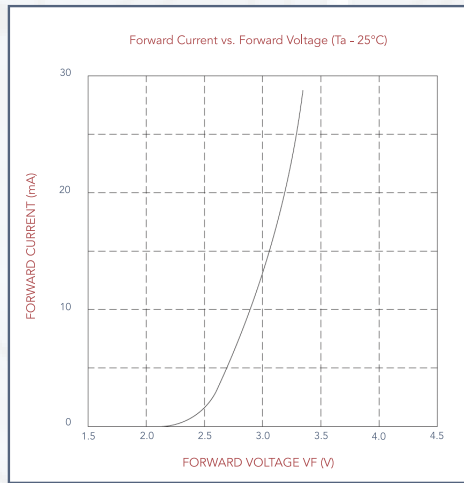
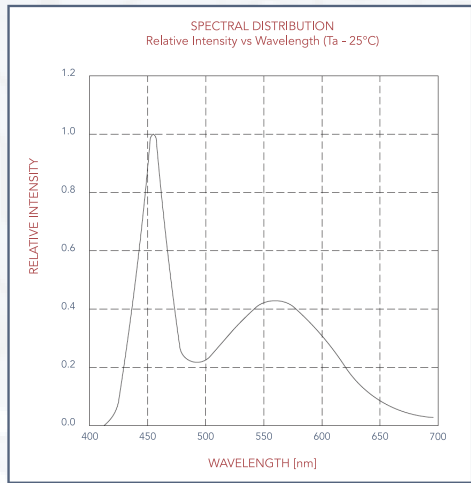
CHROMATICITY BIN



BIN CODE	CIE-X1	CIE-Y1	CIE-X2	CIE-Y2	CIE-X3	CIE-Y3	CIE-X4	CIE-Y4
D00	0.2469	0.2026	0.2405	0.1926	0.2438	0.1909	0.2503	0.2009
D01	0.2532	0.2126	0.2469	0.2026	0.2503	0.2009	0.2567	0.2109
D02	0.2597	0.2226	0.2532	0.2126	0.2567	0.2109	0.2632	0.2208
D03	0.2660	0.2326	0.2597	0.2226	0.2632	0.2208	0.2696	0.2308
D04	0.2724	0.2426	0.2660	0.2326	0.2696	0.2308	0.2761	0.2408
D05	0.2787	0.2527	0.2724	0.2426	0.2761	0.2408	0.2825	0.2508
D06	0.2854	0.2632	0.2787	0.2527	0.2825	0.2508	0.2892	0.2612
D07	0.2924	0.2741	0.2854	0.2632	0.2892	0.2612	0.2962	0.2720
D08	0.2996	0.2855	0.2924	0.2741	0.2962	0.2720	0.3035	0.2833
D09	0.3072	0.2974	0.2996	0.2855	0.3035	0.2833	0.3111	0.2951
E00	0.2435	0.2043	0.2372	0.1942	0.2405	0.1926	0.2469	0.2026
E01	0.2498	0.2144	0.2435	0.2043	0.2469	0.2026	0.2532	0.2126
E02	0.2561	0.2244	0.2498	0.2144	0.2532	0.2126	0.2597	0.2226
E03	0.2624	0.2344	0.2561	0.2244	0.2597	0.2226	0.2660	0.2326
E04	0.2687	0.2445	0.2624	0.2344	0.2660	0.2326	0.2724	0.2426
E05	0.2750	0.2546	0.2687	0.2445	0.2724	0.2426	0.2787	0.2527
E06	0.2816	0.2652	0.2750	0.2546	0.2787	0.2527	0.2854	0.2632
E07	0.2885	0.2762	0.2816	0.2652	0.2854	0.2632	0.2924	0.2741
E08	0.2957	0.2877	0.2885	0.2762	0.2924	0.2741	0.2996	0.2855
E09	0.3032	0.2997	0.2957	0.2877	0.2996	0.2855	0.3072	0.2974
F00	0.2402	0.2060	0.2339	0.1959	0.2372	0.1942	0.2435	0.2043
F01	0.2463	0.2161	0.2402	0.2060	0.2435	0.2043	0.2498	0.2144
F02	0.2526	0.2261	0.2463	0.2161	0.2498	0.2144	0.2561	0.2244
F03	0.2588	0.2362	0.2526	0.2261	0.2561	0.2244	0.2624	0.2344
F04	0.2650	0.2463	0.2588	0.2362	0.2624	0.2344	0.2687	0.2445
F05	0.2712	0.2564	0.2650	0.2463	0.2687	0.2445	0.2750	0.2546
F06	0.2778	0.2671	0.2712	0.2564	0.2750	0.2546	0.2816	0.2652
F07	0.2847	0.2783	0.2778	0.2671	0.2816	0.2652	0.2885	0.2762
F08	0.2918	0.2899	0.2847	0.2783	0.2885	0.2762	0.2957	0.2877
F09	0.2993	0.3020	0.2918	0.2899	0.2957	0.2877	0.3032	0.2997

BIN CODE	CIE-X1	CIE-Y1	CIE-X2	CIE-Y2	CIE-X3	CIE-Y3	CIE-X4	CIE-Y4
G00	0.2368	0.2077	0.2306	0.1975	0.2339	0.1959	0.2402	0.2060
G01	0.2429	0.2178	0.2368	0.2077	0.2402	0.2060	0.2463	0.2161
G02	0.2491	0.2279	0.2429	0.2178	0.2463	0.2161	0.2526	0.2261
G03	0.2552	0.2380	0.2491	0.2279	0.2526	0.2261	0.2588	0.2362
G04	0.2613	0.2482	0.2552	0.2380	0.2588	0.2362	0.2650	0.2463
G05	0.2675	0.2583	0.2613	0.2482	0.2650	0.2463	0.2712	0.2564
G06	0.2740	0.2691	0.2675	0.2583	0.2712	0.2564	0.2778	0.2671
G07	0.2808	0.2804	0.2740	0.2691	0.2778	0.2671	0.2847	0.2783
G08	0.2879	0.2921	0.2808	0.2804	0.2847	0.2783	0.2918	0.2899
G09	0.2953	0.3043	0.2879	0.2921	0.2918	0.2899	0.2993	0.3020
H00	0.2334	0.2094	0.2273	0.1992	0.2306	0.1975	0.2368	0.2077
H01	0.2394	0.2196	0.2334	0.2094	0.2368	0.2077	0.2429	0.2178
H02	0.2455	0.2297	0.2394	0.2196	0.2429	0.2178	0.2491	0.2279
H03	0.2516	0.2399	0.2455	0.2297	0.2491	0.2279	0.2552	0.2380
H04	0.2577	0.2500	0.2516	0.2399	0.2552	0.2380	0.2613	0.2482
H05	0.2637	0.2602	0.2577	0.2500	0.2613	0.2482	0.2675	0.2583
H06	0.2702	0.2711	0.2637	0.2602	0.2675	0.2583	0.2740	0.2691
H07	0.2770	0.2824	0.2702	0.2711	0.2740	0.2691	0.2808	0.2804
H08	0.2841	0.2943	0.2770	0.2824	0.2808	0.2804	0.2879	0.2921
H09	0.2914	0.3067	0.2841	0.2943	0.2879	0.2921	0.2953	0.3043
I00	0.2300	0.2111	0.2240	0.2008	0.2273	0.1992	0.2334	0.2094
I01	0.2360	0.2213	0.2300	0.2111	0.2334	0.2094	0.2394	0.2196
I02	0.2420	0.2315	0.2360	0.2213	0.2394	0.2196	0.2455	0.2297
I03	0.2480	0.2417	0.2420	0.2315	0.2455	0.2297	0.2516	0.2399
I04	0.2540	0.2519	0.2480	0.2417	0.2516	0.2399	0.2577	0.2500
I05	0.2600	0.2621	0.2540	0.2519	0.2577	0.2500	0.2637	0.2602
I06	0.2664	0.2731	0.2600	0.2621	0.2637	0.2602	0.2702	0.2711
I07	0.2731	0.2845	0.2664	0.2731	0.2702	0.2711	0.2770	0.2824
I08	0.2802	0.2965	0.2731	0.2845	0.2770	0.2824	0.2841	0.2943
I09	0.2874	0.3090	0.2802	0.2965	0.2841	0.2943	0.2914	0.3067

# TYPICAL OPTICAL CHARACTERISTICS CURVES



# REFLOW PROFILE

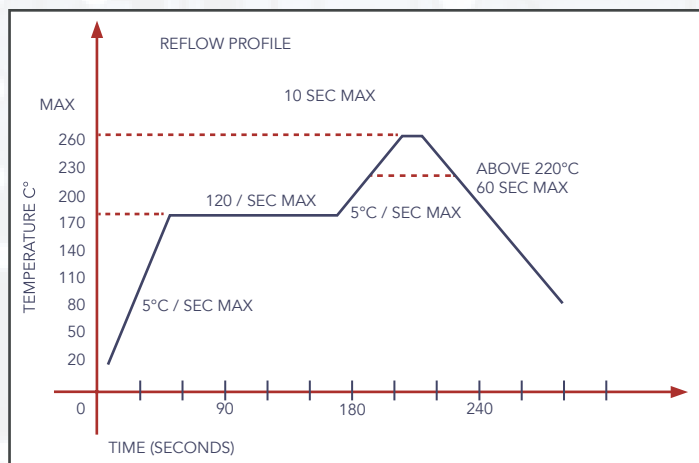
## - Soldering Condition

Recommended Soldering  
After reflow soldering rapid cooling should be avoided

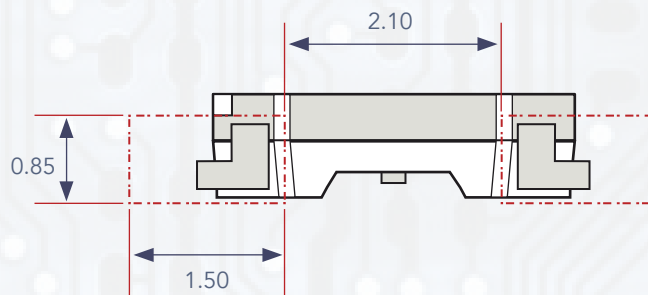
REFLOW SOLDERING		HAND SOLDERING	
Pre-Heat	160°C ~ 180°C	Temperature	300°C
Pre-Heat Time	120 Seconds Max.	Soldering Time	3 Second Max - One Time Only
Peak Temperature	260°C Max		
Soldering Time	10 Seconds Max		
Condition	Refer to Temperature		

## - Temperature - profile (surface of circuit board)

Use the following conditions as shown in figure



## - Recommend Pad Design (Units: mm)



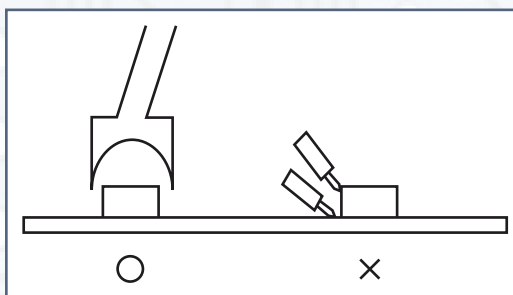
Reflow soldering should not be done more than two times  
When soldering, do not put stress on the LEDs during heating

## - Soldering Iron

When hand soldering, keep the temperature of the iron under 300°C, and at that temperature keep the time under 3 sec.  
The hand soldering should be done only a time  
The basic spec is ≤5 sec. when the temperature of 260°C, do not contact the resin when hand soldering.

## - Rework

Customer must finish rework within 5 sec under 260°C  
The head of iron can not touch the resin  
Twin-head type is preferred



## - CAUTIONS

The encapsulated material of the LEDs is silicone. Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the picking up nozzle, the pressure on the silicone resin should be proper.

## RELIABILITY

### - TEST ITEMS AND RESULTS

TYPE	TEST ITEM	REF STANDARD	TEST CONDITIONS	NOTE	NUMBER OF DAMAGED
Environmental Sequence	Resistance to Soldering Heat (Reflow Soldering)	JESD22 - B106	Tsld - 260°C, 10 sec	2 times	0/22
	Thermal Shock	JESD22 - A106	-40°C 5min ↑↓ 10s 100°C 5 min	300 cycle	0/22
	High Humidity Heat Storage	JEITA ED-4701 100-103	85°C, RH - 85%	1000 hrs	0/22
Operation Sequence	Life Test	JESD22 - A108	T <sub>a</sub> - 25°C I <sub>F</sub> - 20mA	1000 hrs	0/22
	Low Temperature Life Test	JESD22 - A108	T <sub>a</sub> - 40°C	1000 hrs	0/22
	High Humidity Heat Life Test	JESD22 - A101	60°C RH - 90% I <sub>F</sub> - 20mA	500 hrs	0/22

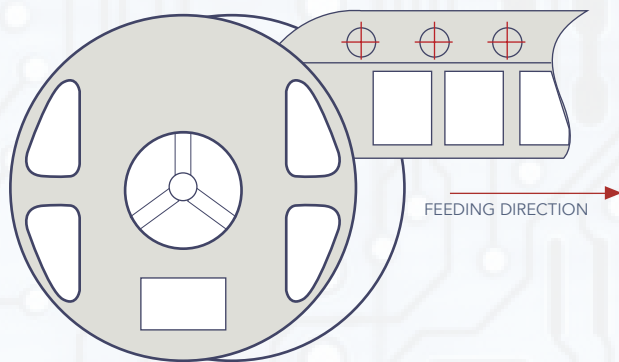
### - CRITERIA FOR JUDGING THE DAMAGE

ITEM	SYMBOL	TEST CONDITIONS	CRITERIA FOR JUDGEMENT	
			MIN.	MAX.
Forward Voltage	VF	IF - 20mA	-	U.S.L *) x 1.1
Reverse Current	IR	VR - 5V	-	U.S.L*) x 2.0
Luminous Intensity	IV	IF - 20mA	L.S.L**) x 0.7	-

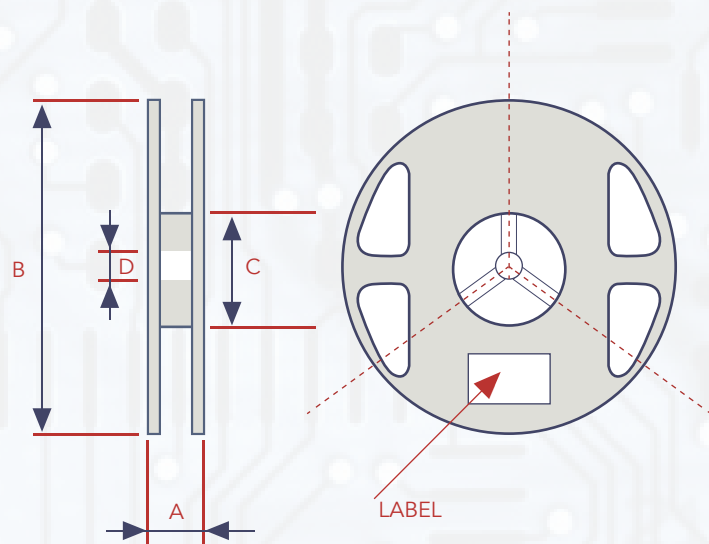
- U.S.L.: Upper Standard Level  
- L.S.L.: Lower Standard Level

## PACKAGING SPECIFICATIONS

### - Feeding Direction



### - Dimensions of Reel (Unit: mm)

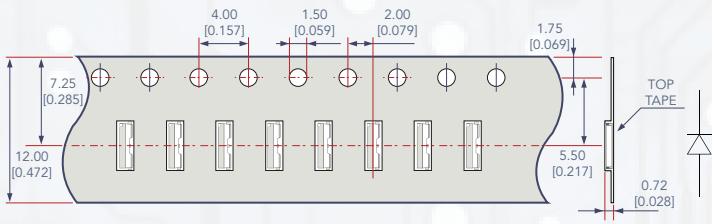


A	12.0 ± 0.1mm
B	178 ± 1mm
C	60 ± 1mm
D	13.0 ± 0.5mm

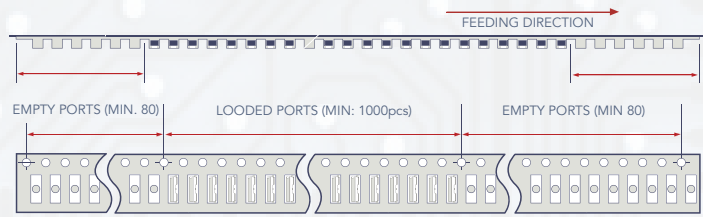


# PACKAGING SPECIFICATIONS

## - Dimensions of Tape (unit : mm)

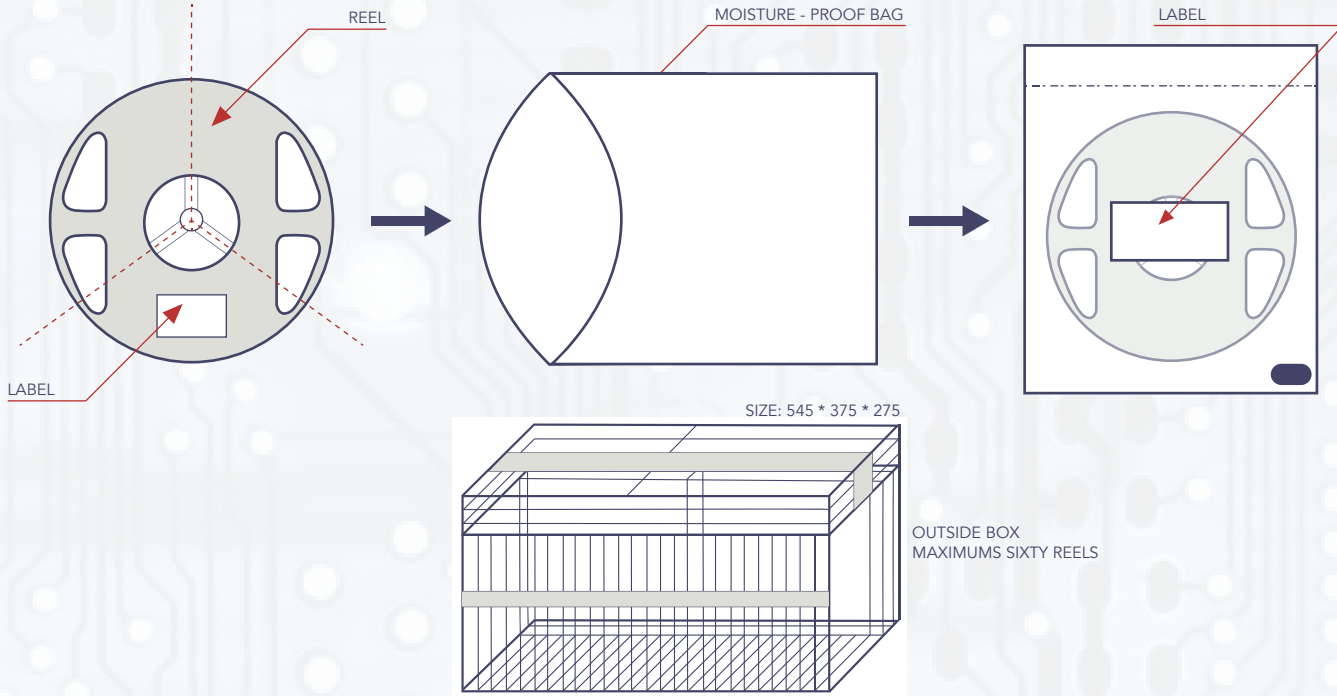


## - Arrangement of Tape

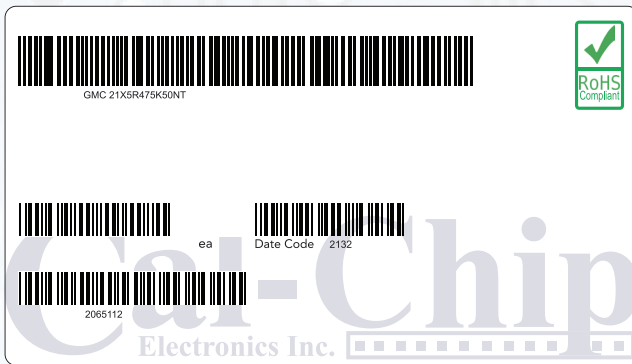


### NOTES

- Empty component pockets are sealed with top cover tape.
- The maximum number of missing lamps is two.
- The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.
- 4,000 pcs/Reel



## - Label



## - Cautions

### - Packaging Specification

- Reeled products (numbers of products are 4,000pcs) packed in a seal off moisture-proof bag along with a desiccant one by one, Eighty moisture-proof bag of maximums are put the outside the box (size: about 545mm x about 375 x about 275mm) Together with buffer material, and it is packed. (Pare No., Lot No., quantity should appear on the label on the moisture-proof bag, part No. And quantity should appear on the label on the cardboard box.) The number of the loading steps of outside box (cardboard box) has three steps.

### - Storage Conditions

- **Before Opening the Packaging** - The LEDs should be kept at 30°C or less and 70%RH or less. The LEDs should be used within a year. When storing the LEDs, moisture proof packaging with absorbent material is recommended.

- **After Opening the Package** - The LEDs should be kept at 30°C or less and 60%RH or less. The LEDs should be soldered within 168 hours (7days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material. It is also recommended to return the LEDs to the original moistureproof bag and to reseal the moisture proof bag again.