

<b>Customer Approved</b>
<b>Date:</b>

**Part No.:**  
**LB153IR1C-A01T2**

**DATA SHEET**

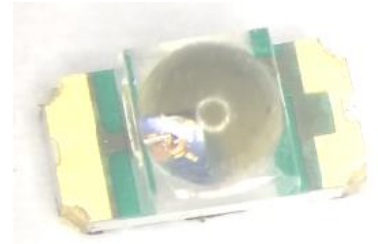
Issue Date: 2018.08.08  
Issue No.: LTD-153IR-001  
REVISION: V2

Designer	Checker	Approver
<i>Vic</i>	<i>Rock</i>	<i>Jeff</i>

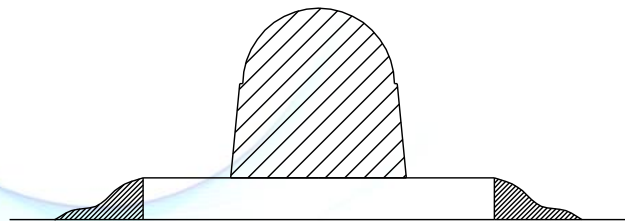
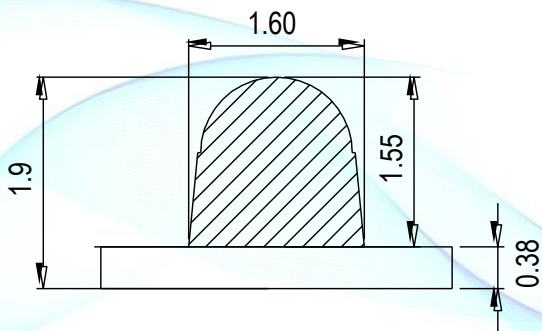
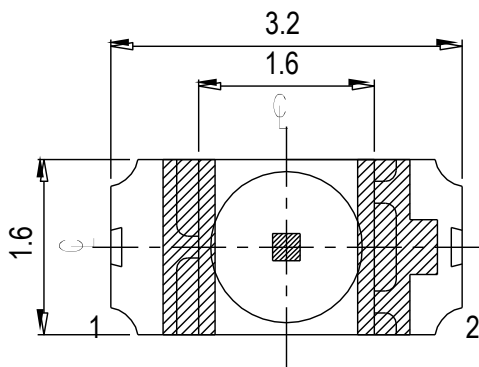
SMD Type ■ Top view 1206 Lens Package  
LB153IR1C-A01T2

**Features**

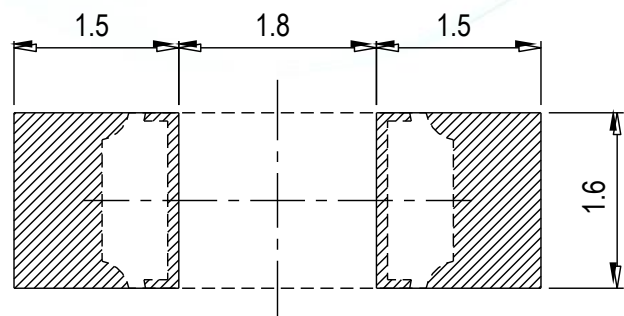
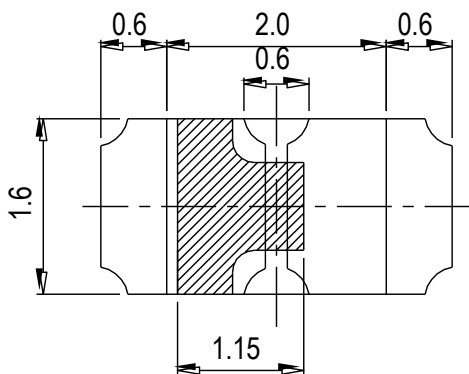
- 1206 Lens package
- Top view LED
- Compatible with infrared and vapor phase reflow solder process
- Narrow viewing angle
- Pb-free
- RoHS compliant



**Package Dimensions**



**Recommended Solder Pad**



**Note:**

Tolerance unless mentioned is  $\pm 0.1$  mm, Unit = mm.

### Applications

- Free air transmission system
- Infrared remote control units with high power requirement
- Smoke detector
- Infrared applied system

### Absolute Maximum Ratings (T<sub>Soldering</sub>=25°C)

Parameter	Symbol	Rating	Unit
Forward Current	I <sub>F</sub>	65	mA
Peak Forward Current Pulse Width ≤ 100μs , Duty ≤ 1%.	I <sub>FP</sub>	1.0	A
Power Dissipation	P <sub>d</sub>	130	mW
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +100	°C
Soldering Temperature	T <sub>sol</sub>	Reflow Soldering : 260°C for 10 sec. Hand Soldering : 350°C for 3 sec.	
Reverse Voltage	V <sub>R</sub>	5	V

### Electro-Optical Characteristics (T<sub>Soldering</sub>=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Radiant Intensity	E <sub>e</sub>	4	-	9	mW/sr	I <sub>F</sub> =20mA
Radiant Intensity	E <sub>e</sub>	-	30	-	mW/sr	I <sub>F</sub> =100mA Pulse Width ≤ 100μs , Duty ≤ 1%
Forward Voltage	V <sub>F</sub>	1.1	1.25	1.5	V	I <sub>F</sub> =20mA
Forward Voltage	V <sub>F</sub>	-	1.5	1.8	V	I <sub>F</sub> =100mA Pulse Width ≤ 100μs , Duty ≤ 1%
Peak Wavelength	λ <sub>D</sub>	-	940	-	nm	I <sub>F</sub> =20mA
Viewing Angle	2θ <sub>1/2</sub>	-	25	-	deg	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	-	-	1	μA	V <sub>R</sub> =5V

Notes:

1. Tolerance of Luminous Intensity ±10%.
2. Tolerance of Dominant Wavelength : ±1nm.
3. Tolerance of Forward Voltage : ±0.05V.

## Bin Code Description

### Bin Range of Radiant Intensity

Bin Code	Min.	Max.	Unit	Condition
A4	4	5	mW/sr	I <sub>F</sub> =20mA
A5	5	6		
A6	6	7		
A7	7	8		
A8	8	9		

### Bin Range of Forward Voltage

Bin Code	Min.	Max.	Unit	Condition
18	1.1	1.2	V	I <sub>F</sub> =20mA
19	1.2	1.3		
20	1.3	1.4		
21	1.4	1.5		

Notes:

- 1.Tolerance of Radiant Intensity  $\pm 10\%$ .
- 2.Tolerance of Forward Voltage :  $\pm 0.05V$ .

**Typical Electro-Optical Characteristics Curves**

Fig.1-Forward Current vs. Forward Voltage  $T_a=25^\circ\text{C}$

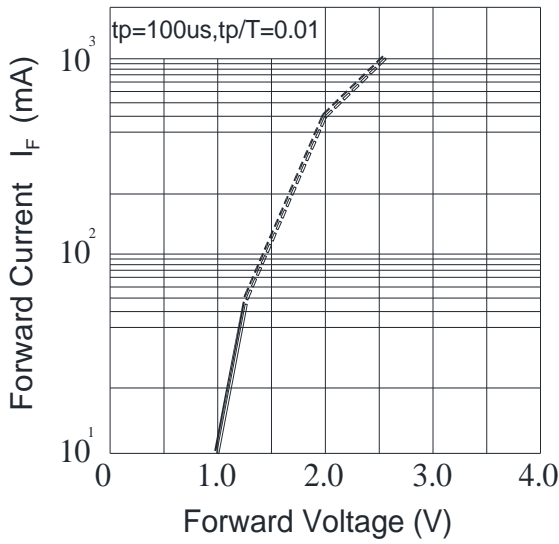


Fig.2-Relative Intensity vs. Forward Current

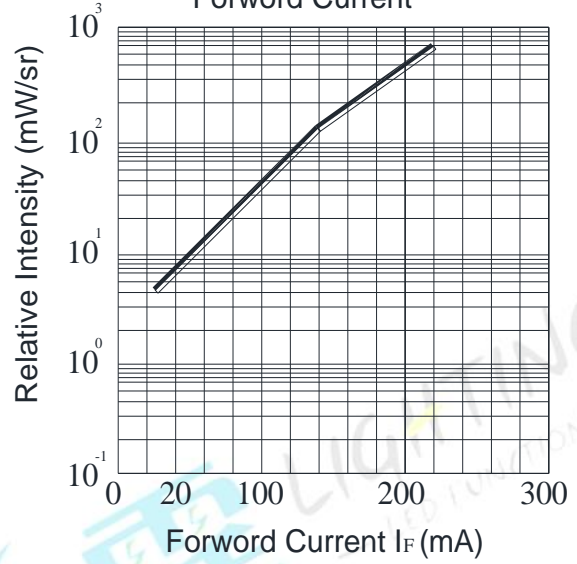


Fig.3-Forward Current vs. Ambient Temperature

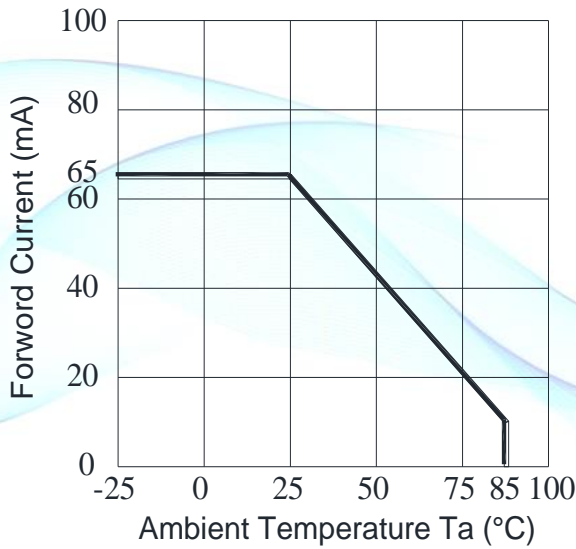
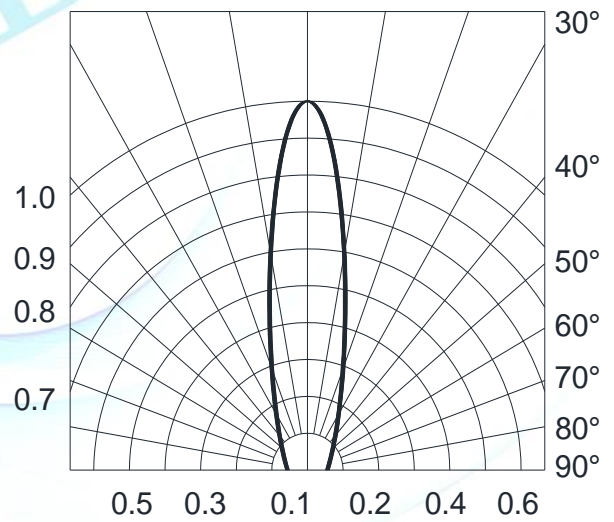


Fig.4-Radiation Diagram  $T_a=25^\circ\text{C}$



**Typical Electro-Optical Characteristics Curves**

Fig.5-Peak Emission Wavelength vs. Ambient Temperature

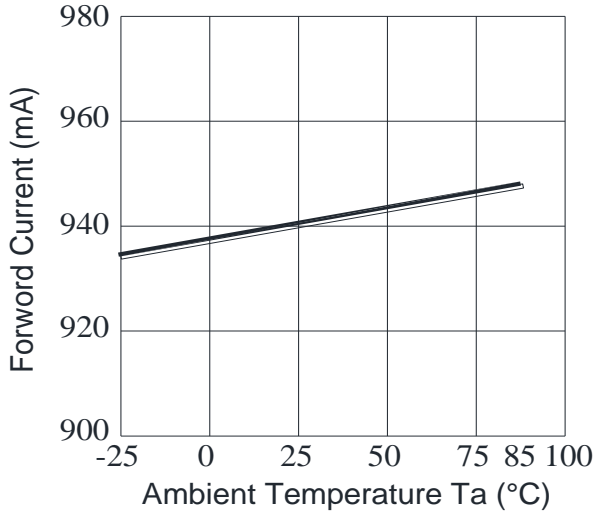


Fig.6-Spectral Sensitivity

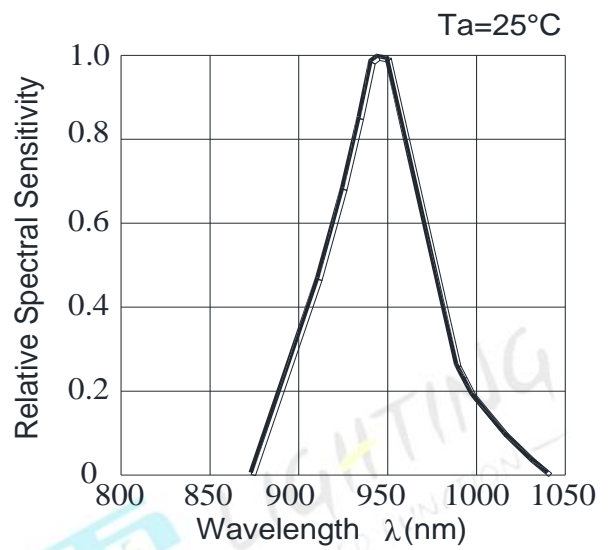


Fig.7-Relative Intensity vs. Ambient Temperature  $T_a=25^\circ\text{C}$

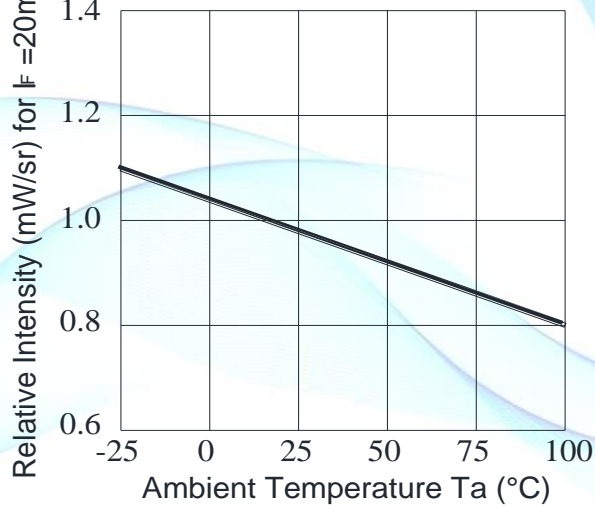
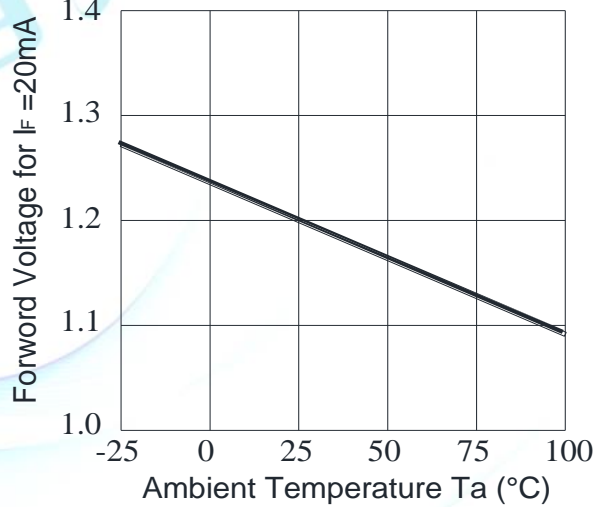


Fig.8-Forward Voltage vs. Ambient Temperature  $T_a=25^\circ\text{C}$



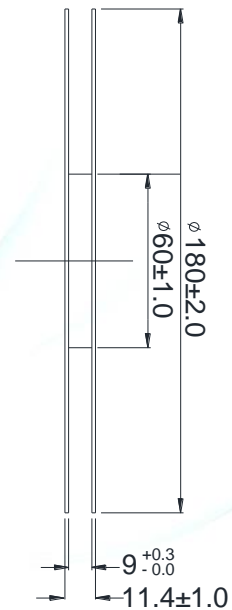
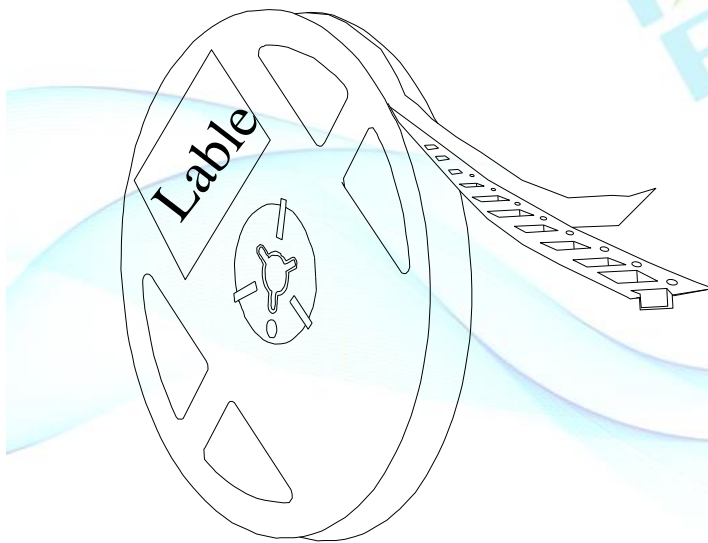
**Moisture Resistant Packing Materials**

**Label Explanation**



- \* QR code:  
Contains all of the following information
- \* P/N: Product Number
- \* TYPE :Part NO.
- \* IV: Luminous Intensity Rank
- \* HUE: Dom. Wavelength Rank
- \* VF: Forward Voltage Rank
- \* QTY: Packing Quantity
- \* LOT NO.: Lot Number

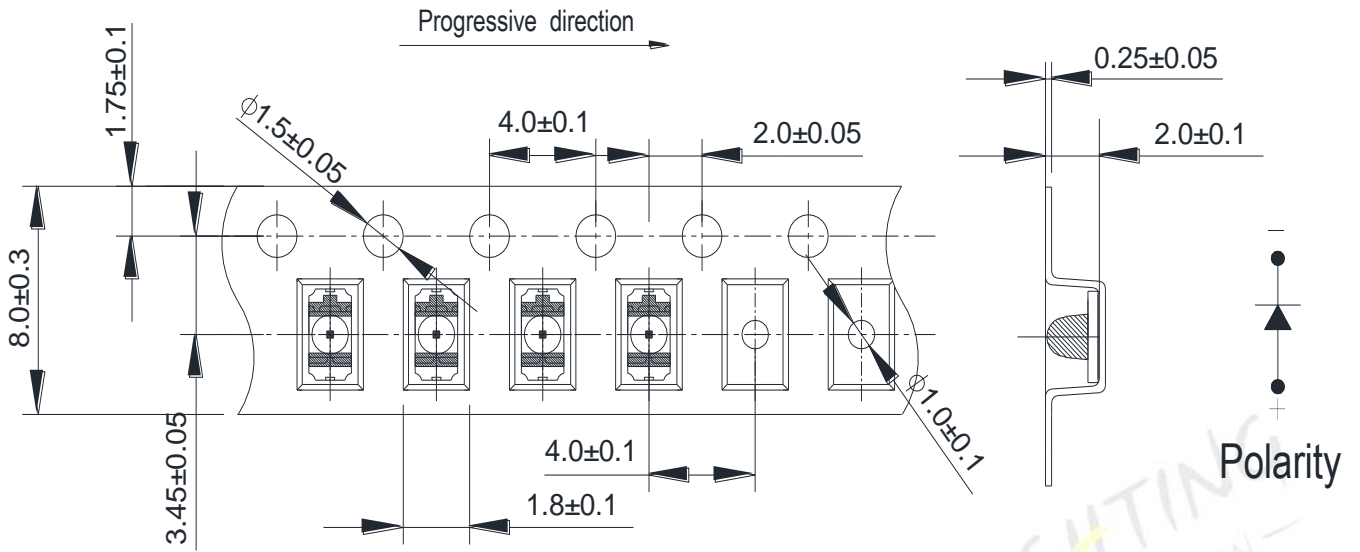
**Taping method: Loaded Quantity 2,000 pcs Per Reel**



**Direction of unreeling** →

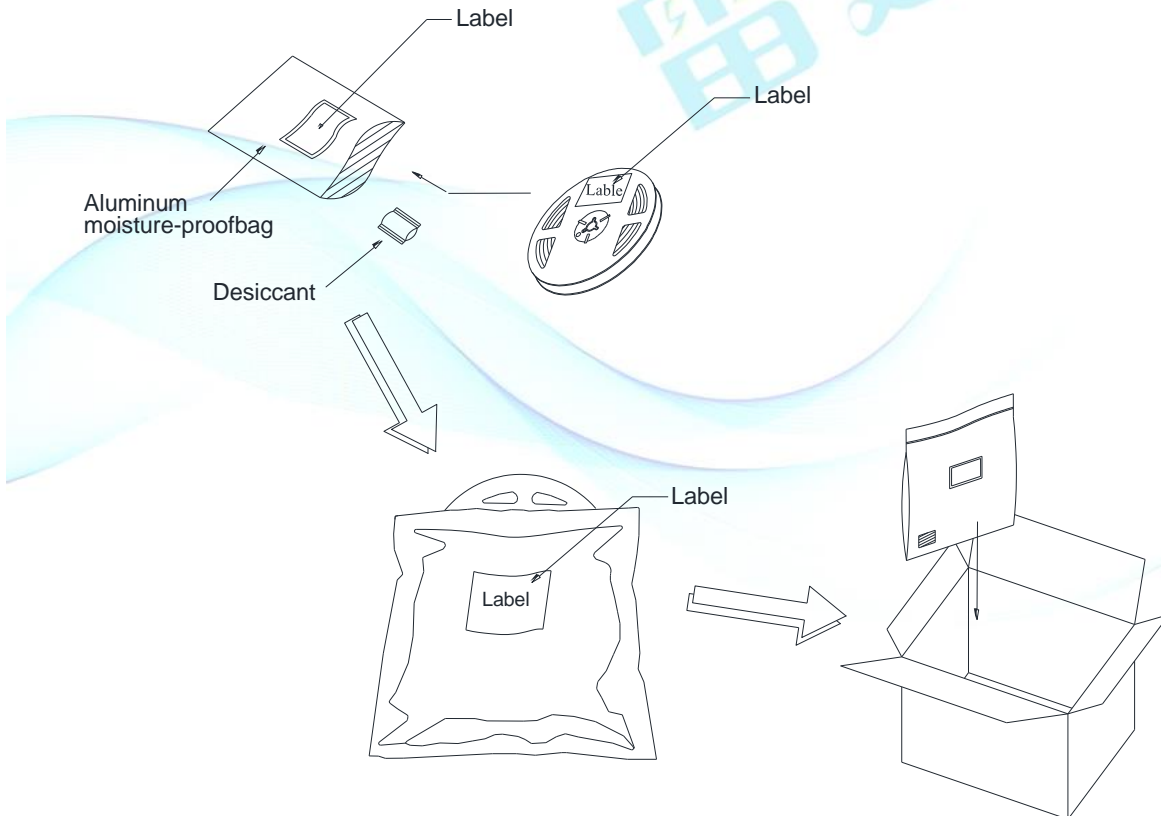
- Notes:
1. Tolerance unless mentioned is  $\pm 0.1$ mm, Unit = mm.
  2. Minimum packing amount is 1000 pcs per reel.

**Carrier Tape Dimensions:**



Note:  
Tolerance unless mentioned is  $\pm 0.1$ mm, Unit = mm.

**Moisture Resistant Packing Process**



Moisture/Reflow sensitivity classification  
IPC / JEDEC J-STD-020C: Level 2



**Reliability Test Items and Conditions**

The reliability of products shall be satisfied with items listed below.

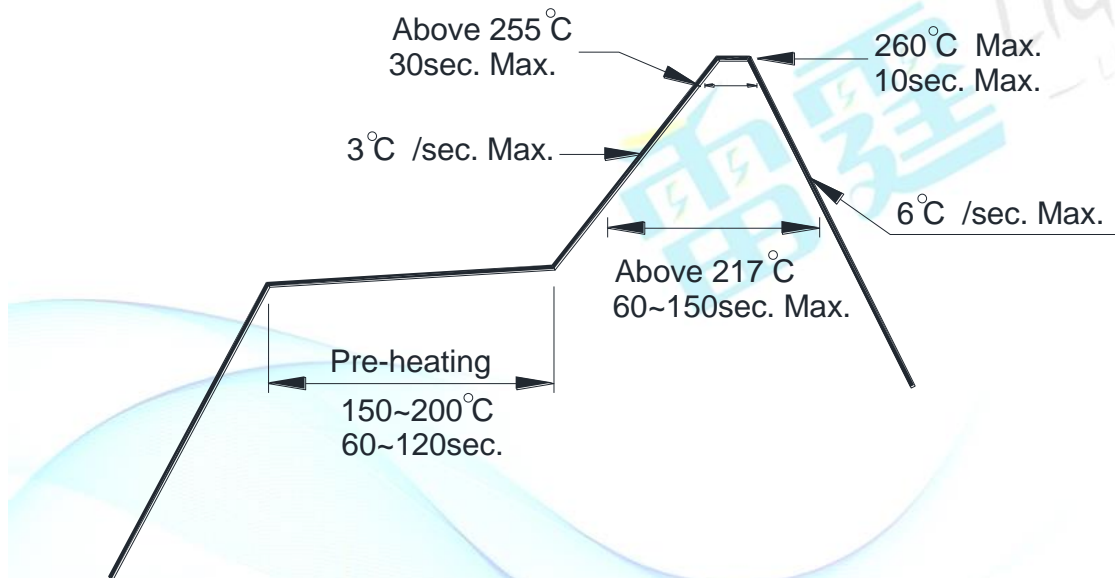
Confidence level : 90%

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/5min ∩ 10 sec L : -10°C/5min	300 Cycles	22 PCS.	0/1
3	Temperature Cycle	H : +100°C/15min ∩ 5 min L : -40°C/15min	300 Cycles	22 PCS.	0/1
4	High Temperature/Humidity Storage	Ta=85°C,85%RH	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Ta=-40°C	1000 Hrs.	22 PCS.	0/1
6	High Temperature Storage	Ta=100°C	1000 Hrs.	22 PCS.	0/1
7	DC Operation Life	Ta=25°C, I <sub>F</sub> = 20 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 1 year 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°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.