

SMD ▪ Mini Top View LEDs 65-21/G6C-AN2Q1/3T



Features

- P-LCC-2 package.
- Colorless clear resin.
- Wide viewing angle 120°.
- Inner reflector and white package.
- Brightness: 36 to 90mcd at 20mA
- Precondition: Bases on JEDEC J-STD 020D Level 2
- Qualification according to AEC-Q101 rev C.
- Automotive reflow profile (IR reflow or wave soldering)

Applications

- Optical indicators.
- Coupling into light guides.
- Backlighting (LCD, cellular phones, switches, keys, displays, illuminated advertising, general lighting).
- Coupling into light guides; Interior automotive lighting (e.g. dashboard backlighting, etc.).

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Yellow Green	Water Clear

Absolute Maximum Ratings (Ta=25 °C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	12	V
Forward Current	I_F	30	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	60	mA
Power Dissipation	P_d	60	mW
Junction Temperature	T_j	125	
Operating Temperature	T_{opr}	-40 ~ +100	
Storage Temperature	T_{stg}	-40 ~ +110	
Thermal Resistance	$R_{th\ J-A}$	500	K/W
	$R_{th\ J-S}$	300	K/W
ESD (Classification acc. AEC Q101)	ESD_{HBM}	2000	V
	ESD_{MM}	200	V
Soldering Temperature	T_{sol}	Reflow Soldering : 260	for 30 sec.
		Hand Soldering : 350	for 3 sec.

Electro-Optical Characteristics (Ta=25 °C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	36	-----	90	mcd	I _F =20mA
Viewing Angle	2θ _{1/2}	-----	120	-----	deg	I _F =20mA
Peak Wavelength	λ _p	-----	575	-----	nm	I _F =20mA
Dominant Wavelength	λ _d	569.5	-----	577.5	nm	I _F =20mA
Spectrum Radiation Bandwidth	Δλ	-----	20	-----	nm	I _F =20mA
Forward Voltage	V _F	1.75	-----	2.35	V	I _F =20mA
Reverse Current	I _R	-----	-----	10	μA	V _R =12V

Note:

1. Tolerance of Luminous Intensity: ±11%
2. Tolerance of Dominant Wavelength: ±1nm
3. Tolerance of Forward Voltage: ±0.1V

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Condition
N2	36	45	mcd	I _F =20mA
P1	45	57		
P2	57	72		
Q1	72	90		

Note:

Tolerance of Luminous Intensity: ±11%

Bin Range of Dominant Wavelength

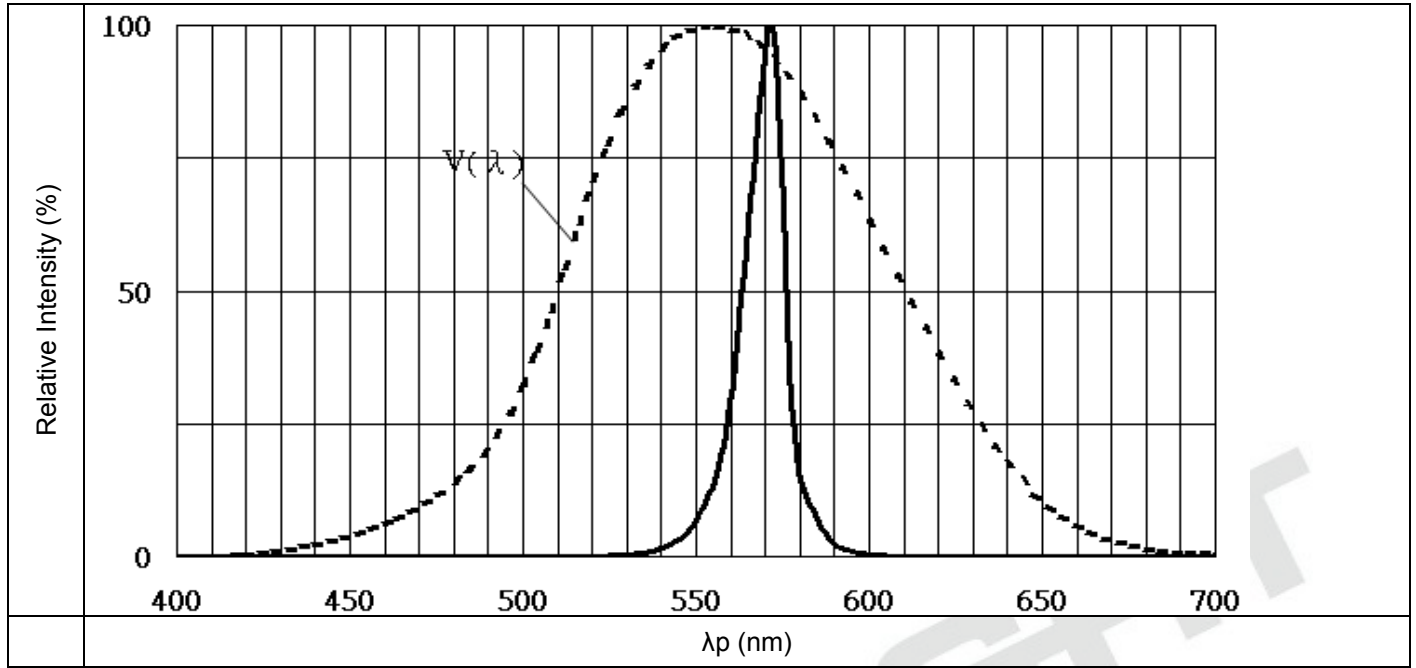
Bin Code	Min.	Max.	Unit	Condition
C16	569.5	571.5	nm	I _F =20mA
C17	571.5	573.5		
C18	573.5	575.5		
C19	575.5	577.5		

Note:

Tolerance of Dominant Wavelength: ±1nm

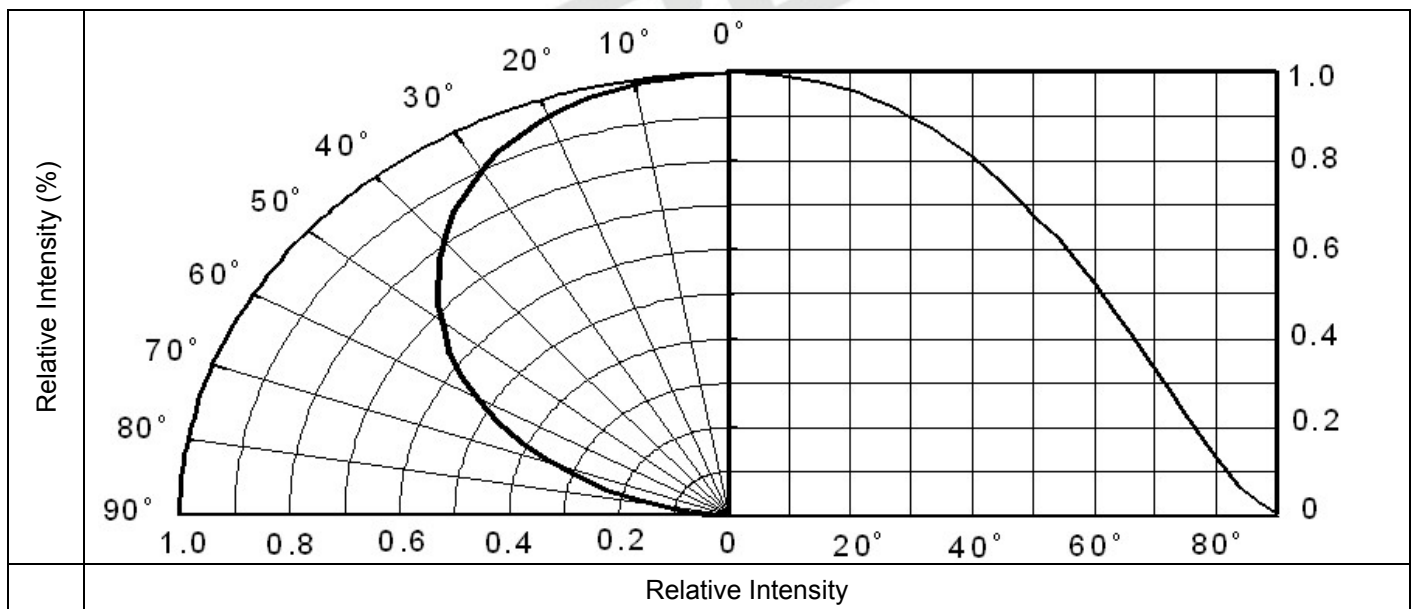
Typical Electro-Optical Characteristics Curves

Typical Curve of Spectral Distribution

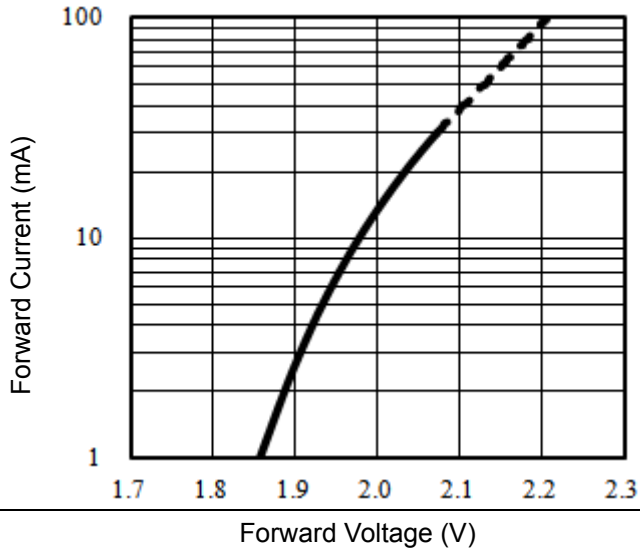


Note: $V(\lambda)$ =Standard eye response curve; $I_F = 20\text{mA}$

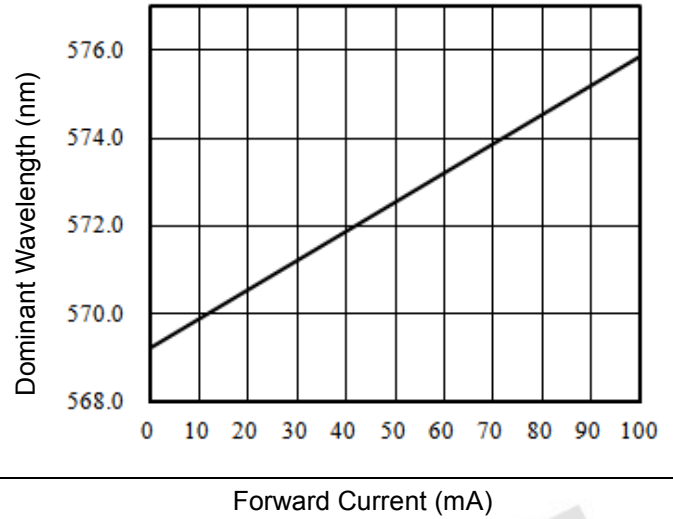
Diagram Characteristics of Radiation



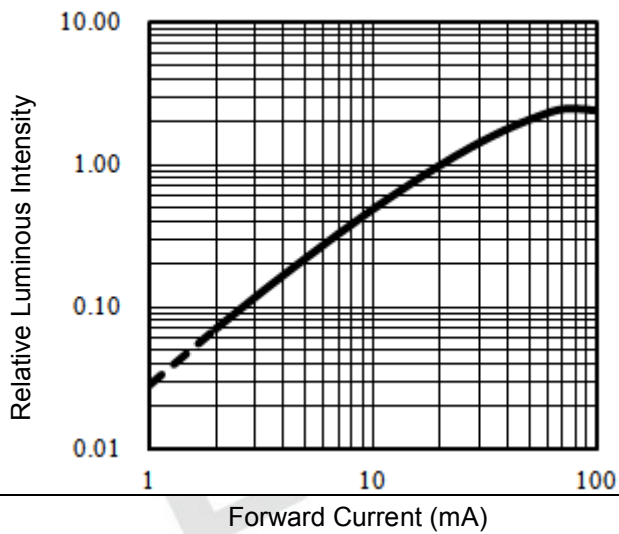
Forward Current vs. Forward Voltage (Ta=25 °C)



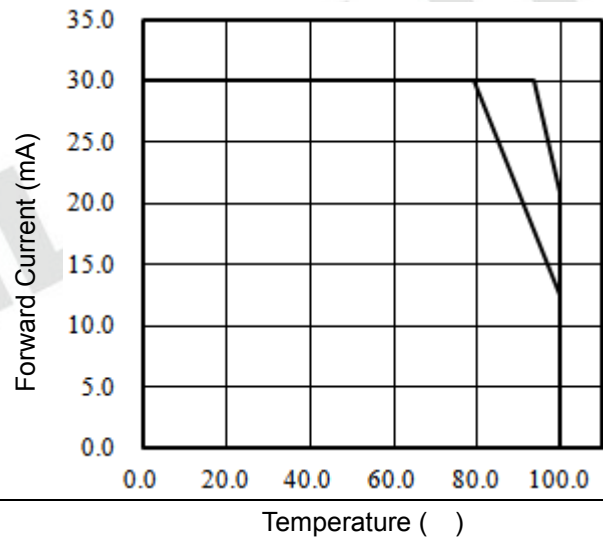
Dominant Wavelength vs. Forward Current (Ta=25 °C)



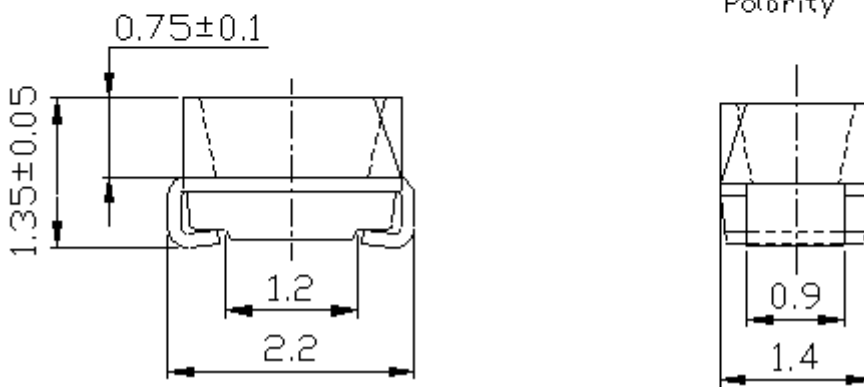
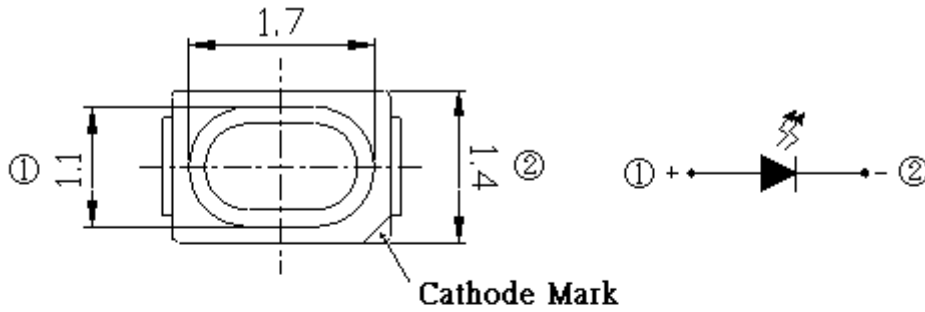
Relative Luminous Intensity vs. Forward Current (Ta=25 °C)



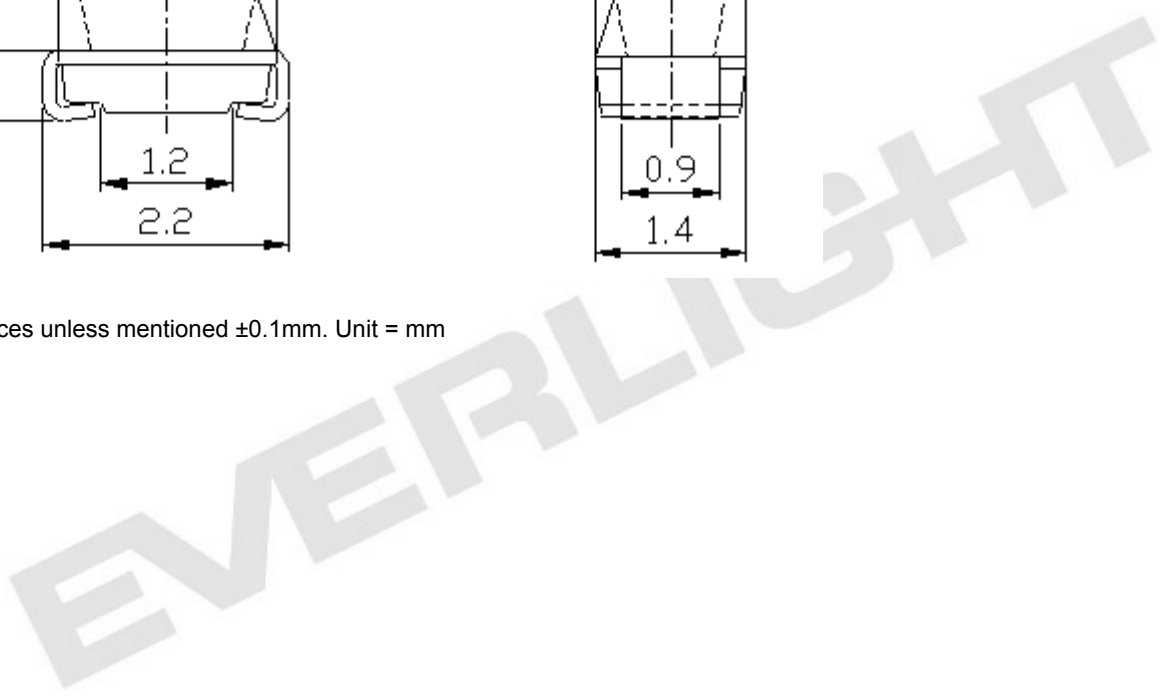
Max. Permissible Forwarded Current (Ta=25 °C)



Package Dimension



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



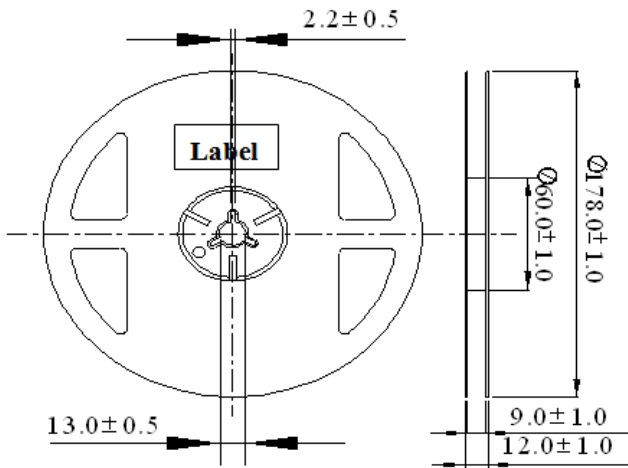
Moisture Resistant Packing Materials

Label Explanation

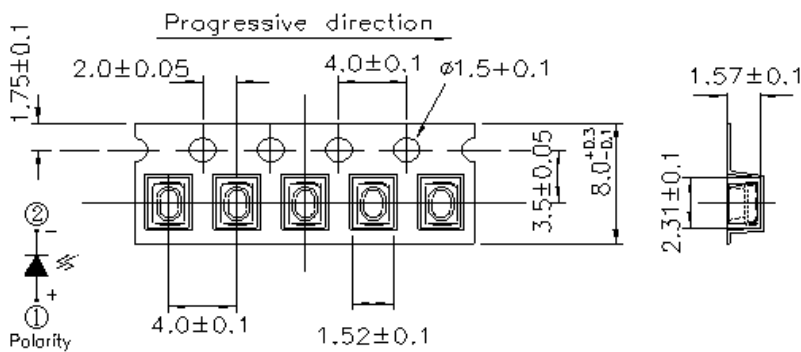


- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions

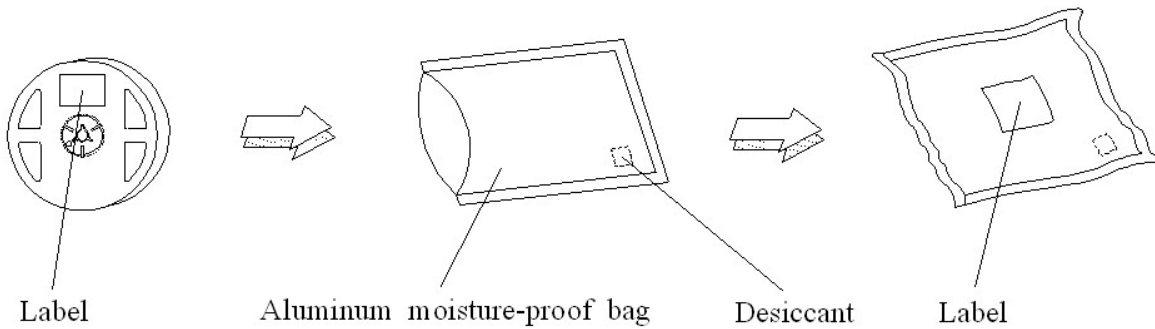


Carrier Tape Dimensions: Loaded Quantity 3000 pcs Per Reel



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

Moisture Resistant Packing Process

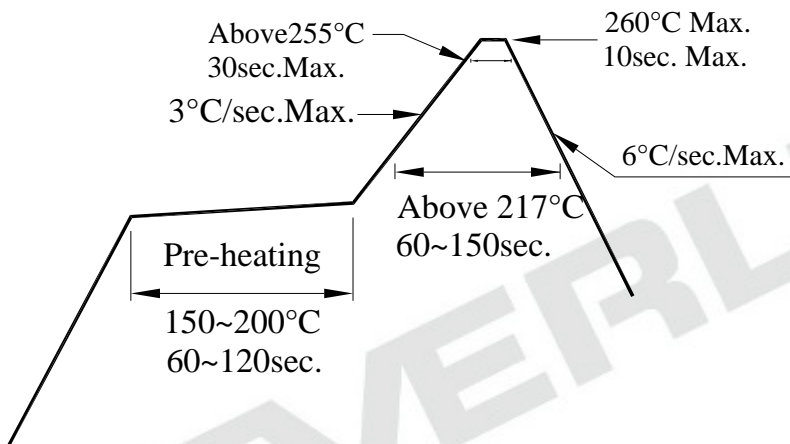


Note: Tolerances unless mentioned $\pm 0.1\text{mm}$. Unit = mm

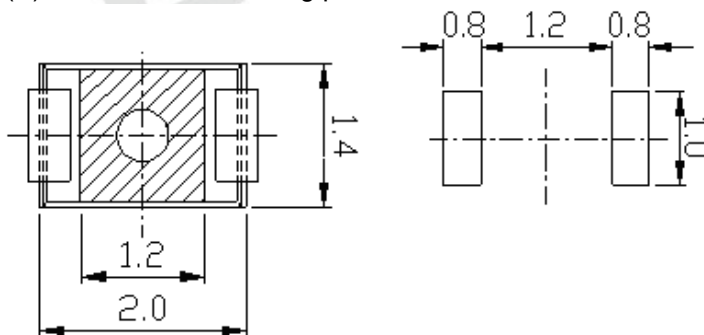
Precautions for Use

1. Over-current-proof

1.1 (A) Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).



1.2 (B) Recommend soldering pad



Note: Reference: IPC/JEDEC J-STD-020D

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 hours 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.

Application Restrictions

High reliability applications such as military/aerospace, automotive safety/security systems, and medical equipment may require different product. If you have any concerns, please contact Everlight before using this product in your application. This specification guarantees the quality and performance of the product as an individual component. Do not use this product beyond the specification described in this document.

Revision History

Rev.	Modified date	File modified contents
1	2013/06/18	New Spec
2	2015/04/29	Typical Electro-Optical Characteristics Curves