EVERLIGHT ELECTRONICS CO.,LTD.

Technical Data Sheet

1206 Package Chip LED (1.1 mm Height)

15-21/G6C-FP1Q1L/2T

Features

- Package in 8mm tape on 7″ diameter reel.
- Compatible with automatic placement equipment.
- Compatible with infrared and vapor phase reflow
  solder process.
- Mono-color type.
- Pb-free.

Descriptions

- The 15-21 SMD Taping is much smaller than lead frame
  type components, thus enable smaller board
  size, higher packing   density, reduced
  storage space and finally smaller equipment
  to be obtained.
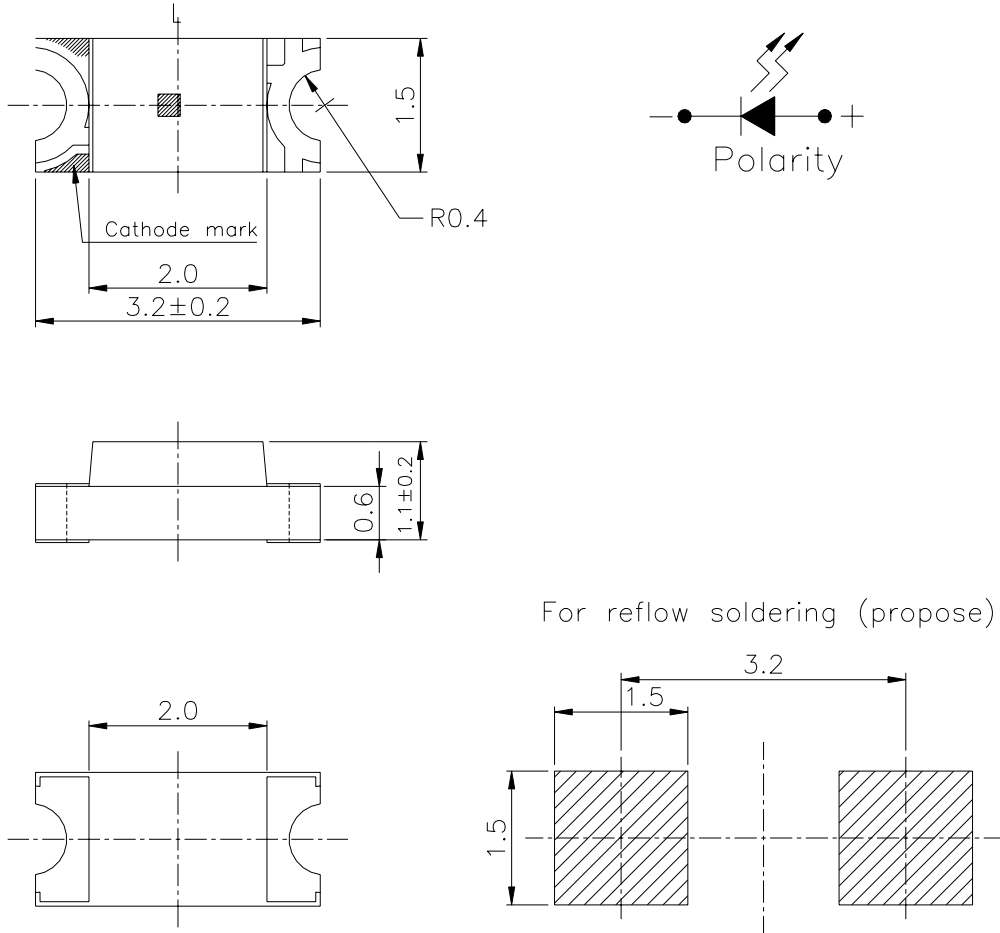- Besides, lightweight makes them ideal for
  miniature applications. etc.

Applications

- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in
  telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.

Device Selection Guide

Part No.	Chip		Lens Color
	Material	Emitted Color	
15-21/G6C-FP1Q1L/2T	AlGaInP	Brilliant Yellow Green	Water Clear

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Package Outline Dimensions

Cathode mark

2.0

3.2±0.2

R0.4

1.5

Polarity

0.6   1.1±0.2

2.0

For reflow soldering (propose)

3.2

1.5

1.5

Note: Tolerances Unless Dimension ±0.1mm , Unit = mm

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Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	25	mA
Operating Temperature	Topr	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +90	℃
Electrostatic Discharge	ESD	2000	V
Power Dissipation	Pd	60	mW
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	60	mA
Soldering Temperature	Tsol	Reflow Soldering : 260℃ for 10sec. Hand Soldering : 350℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	45.0	-----	90.0	mcd	I_F =20mA
Viewing Angle	$2\theta 1/2$	-----	140	-----	deg	
Peak Wavelength	λp	-----	575	-----	nm	
Dominant Wavelength	λd	570.0	-----	574.5	nm	
Spectrum Radiation Bandwidth	$\triangle \lambda$	-----	20	-----	nm	
Forward Voltage	V_F	1.70	-----	2.30	V	
Reverse Current	I_R	-----	-----	10	μA	V_R =5V

Notes:

1.Tolerance of Luminous Intensity ±10%

2.Tolerance of Dominant Wavelength ±1nm

3.Tolerance of Forward Voltage ±0.05V

Bin Range Of Dom. Wavelength

Group	Bin	Min	Max	Unit	Condition
F	CC2	570.0	571.5	nm	I_F=20mA
	CC3	571.5	573.0		
	CC4	573.0	574.5		

Bin Range Of Luminous Intensity

Bin	Min	Max	Unit	Condition
P1	45.0	57.0	mcd	I_F=20mA
P2	57.0	72.0		
Q1	72.0	90.0		

Bin Range Of Forward Voltage

Group	Bin	Min	Max	Unit	Condition
L	19	1.70	1.80	V	I_F=20mA
	20	1.80	1.90		
	21	1.90	2.00		
	22	2.00	2.10		
	23	2.10	2.20		
	24	2.20	2.30		

Notes:

1.Tolerance of Luminous Intensity ±10%

2.Tolerance of Dominant Wavelength ±1nm

3.Tolerance of Forward Voltage ±0.05V

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Typical Electro-Optical Characteristics Curves

Spectrum Distribution

Forward Current vs. Forward Voltage

Luminous Intensity vs. Ambient Temperature

Luminous Intensity vs Forward Current

Forward Current Derating Curve

Radiation Diagram
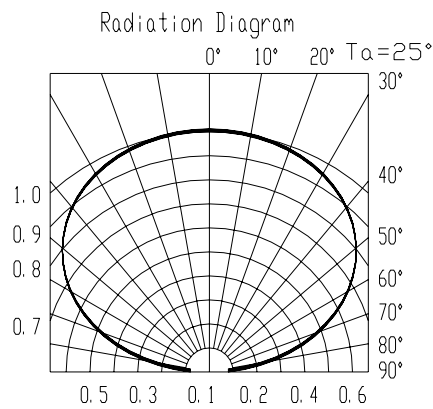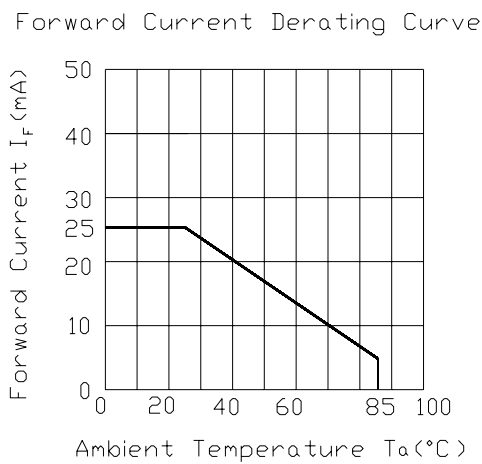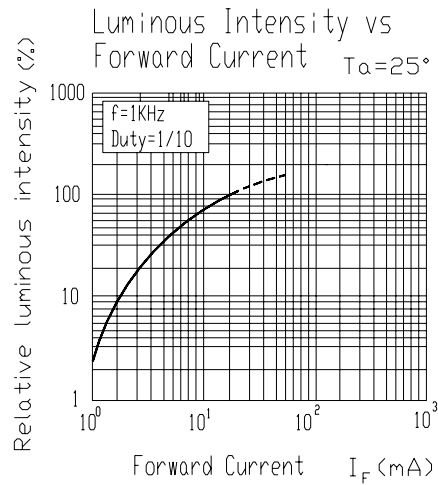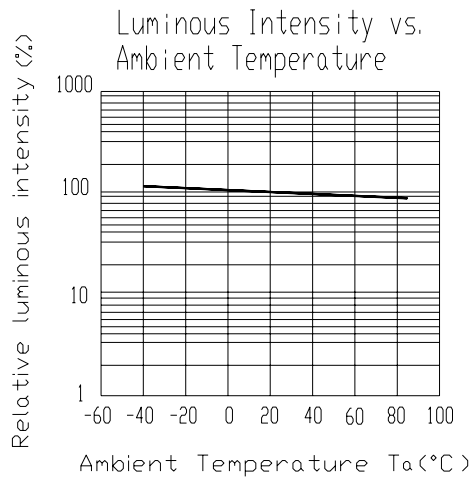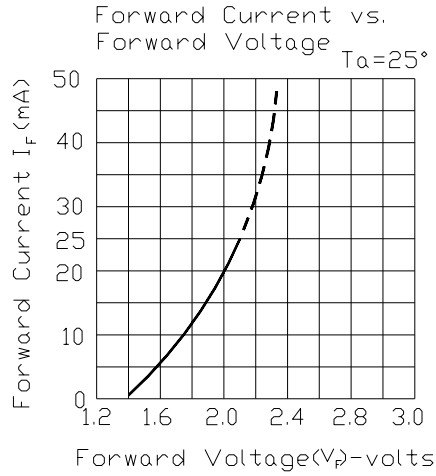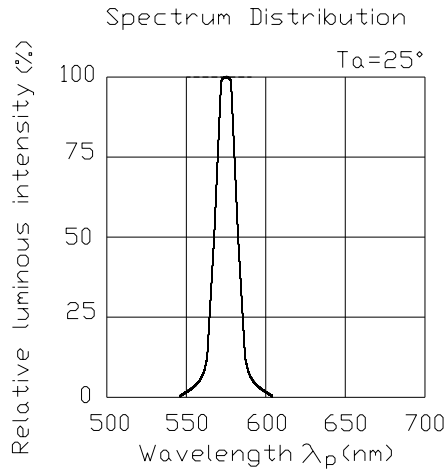
15-21/G6C-FP1Q1L/2T

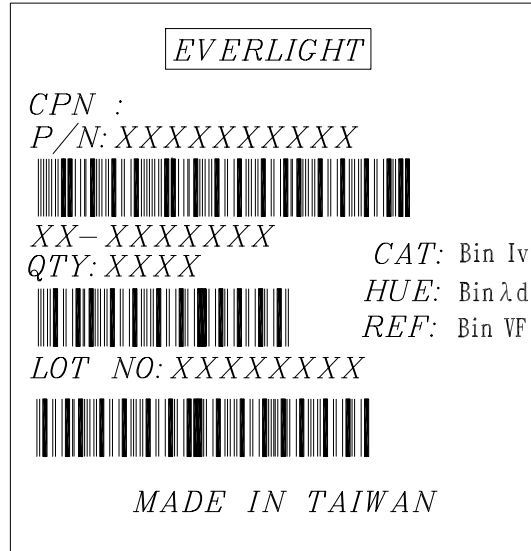## Label explanation

CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank

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EVERLIGHT
CPN :
P/N: XXXXXXXXX

XX- XXXXXXX           CAT: Bin Iv
QTY: XXXX             HUE: Bin λd
                      REF: Bin VF
LOT NO: XXXXXXXX

       MADE IN TAIWAN
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Reel Dimensions

2.2±0.5

Ø60.0±1.0

Ø178.0±1.0

Ø13.0 ± 0.5

9.0±1.0
12.0±1.0
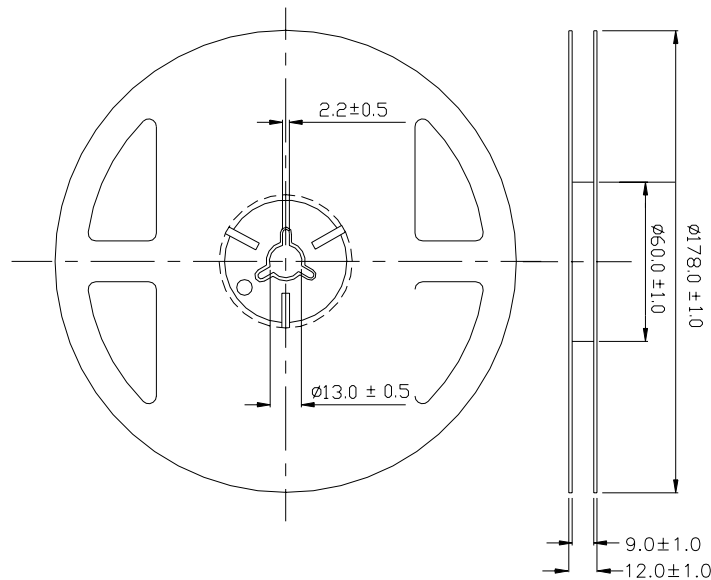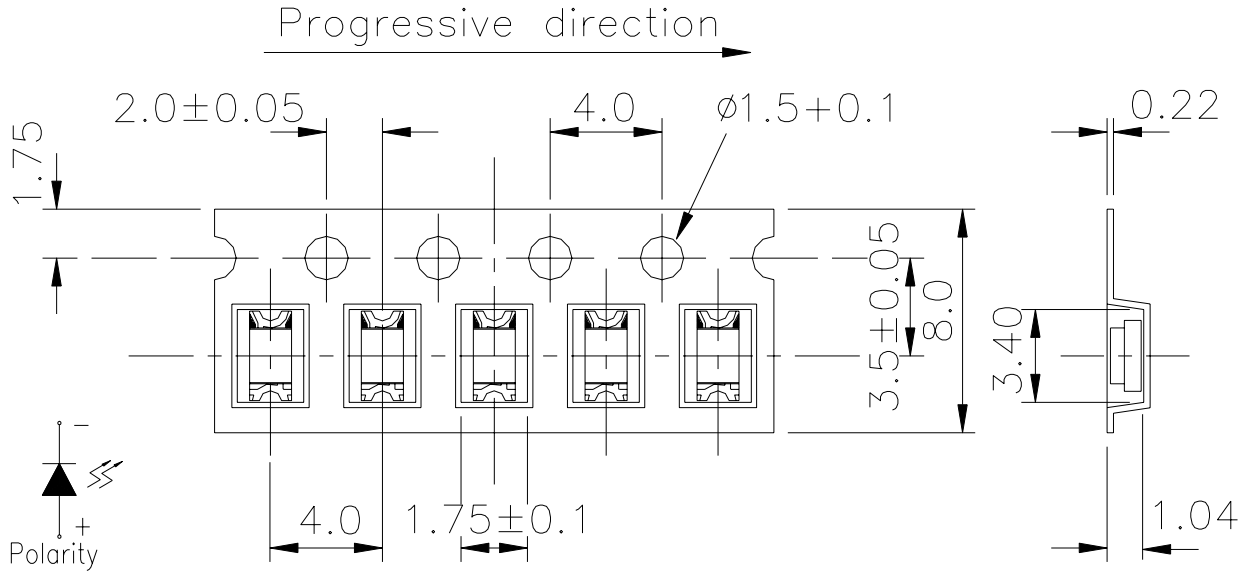
Note: Tolerances Unless Dimension ±0.1mm , Unit = mm

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Carrier Tape Dimensions: Loaded quantity 2000 PCS per reel

Progressive direction

Note: Tolerances Unless Dimension ±0.1mm , Unit = mm

Moisture Resistant Packaging

Label   Aluminum moisture-proof bag   Desiccant   Label
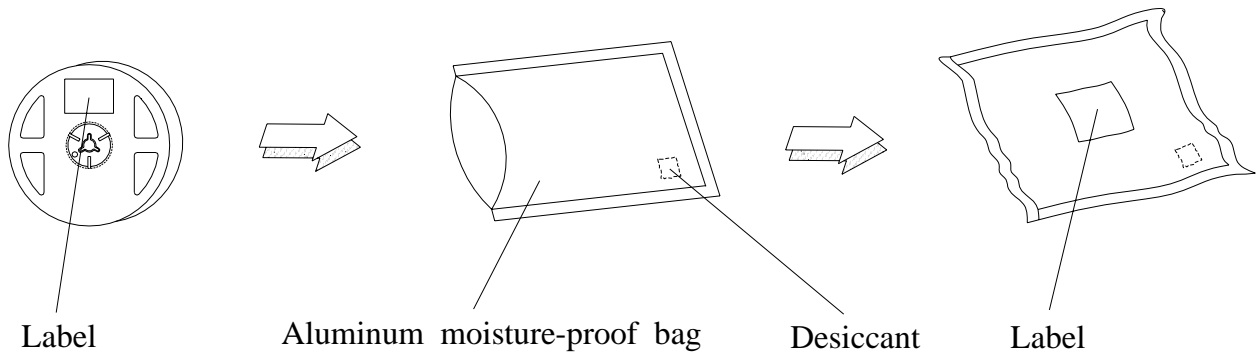
15-21/G6C-FP1Q1L/2T

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 5 sec.	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.

2.3After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less(Floor life).

   However,it's recommended that The LEDs should be used within 168 hours (7 days) after opening

   the package.If unused LED 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
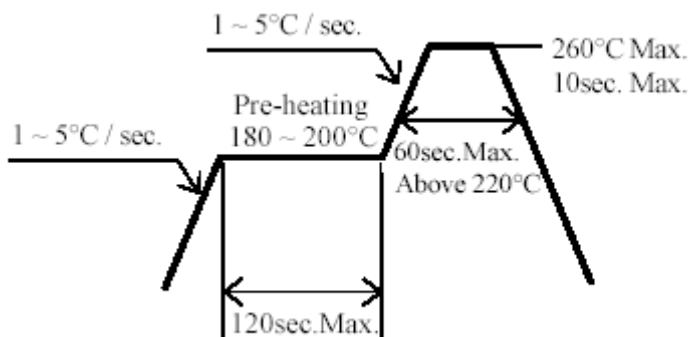
3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the LEDs during heating.
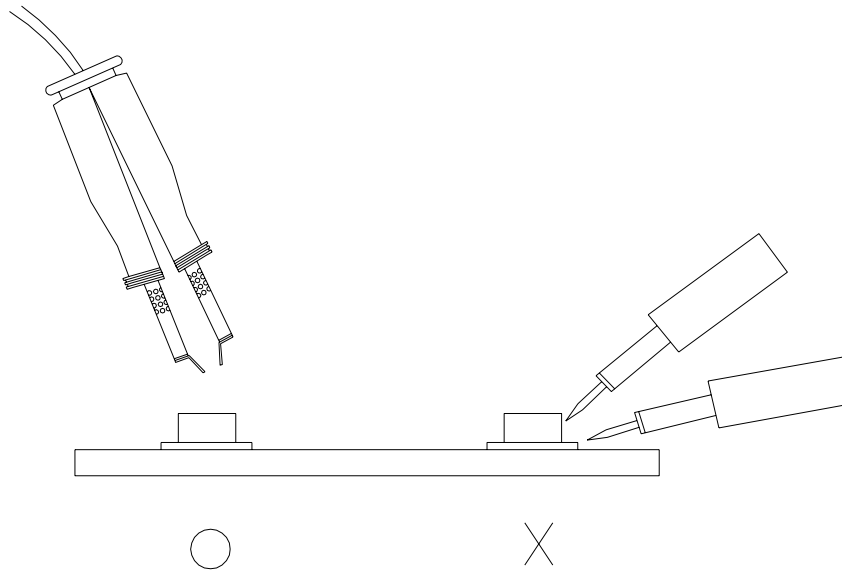
3.4 After soldering, do not warp the circuit board.

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.