EVERLIGHT ELECTRONICS CO., LTD.

Technical Data Sheet

Mini Top View LEDs

65-21/BHC-FS1T1B14/2T

Features

- White SMT package.
- Optical indicator.
- Wide viewing angle.
- Soldering methods: IR reflow soldering.
- Available on tape and reel.
- Pb-free
- The product itself will remain within RoHS compliant version.



Descriptions

- The 65-21 series is available in soft orange, green, blue, and yellow. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes the ideal for light pipe application.

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

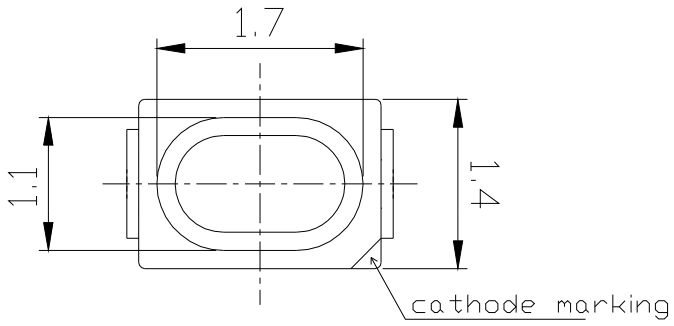
Chip Material	Emitted Color	Resin Color
InGaN	Blue	Water Clear

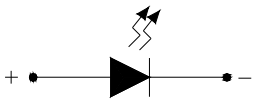
Technical Data Sheet

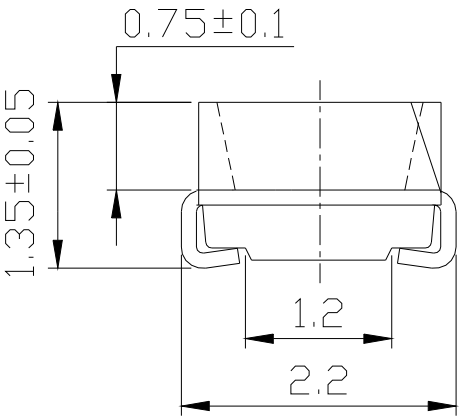
Mini Top View LEDs

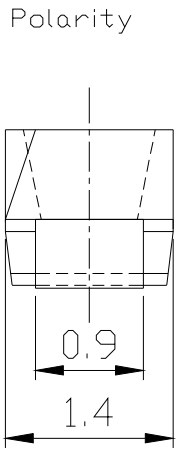
65-21/BHC-FS1T1B14/2T

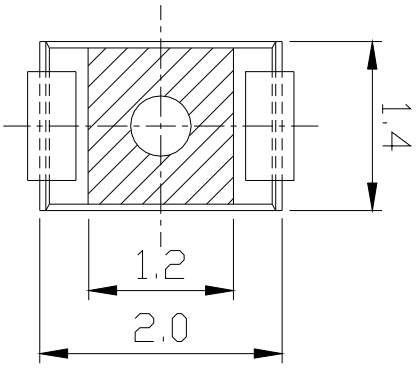
Package Outline Dimensions



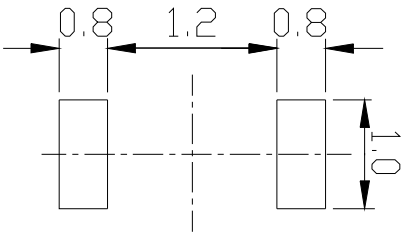








Recommended solding pad design



Note: The tolerances unless mentioned is ±0.1mm ,Unit = mm

Technical Data Sheet

Mini Top View LEDs

65-21/BHC-FS1T1B14/2T

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	30	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	100	mA
Power Dissipation	Pd	110	mW
Electrostatic Discharge(HBM)	ESD	1000	V
Operating Temperature	Topr	-40 ~ +85	℃
Storage Temperature	Tstg	-40 ~ +90	℃
Soldering Temperature	Tsol	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	180	-----	360	mcd	I_F =20mA
Viewing Angle	2θ1/2	-----	120	-----	deg	I_F =20mA
Peak Wavelength	λp	-----	468	-----	nm	I_F =20mA
Dominant Wavelength	λd	464	-----	472	nm	I_F =20mA
Spectrum Radiation Bandwidth	Δλ	-----	20	-----	nm	I_F =20mA
Forward Voltage	V_F	2.7	-----	3.5	V	I_F =20mA
Reverse Current	I_R	-----	-----	50	μA	V_R=5V

Notes:

1.Tolerance of Luminous Intensity: ±11%
2.Tolerance of dominant wavelength: ±1nm.
3.Tolerance of Forward Voltage: ±0.05V

Technical Data Sheet

Mini Top View LEDs

65-21/BHC-FS1T1B14/2T

Bin Range of Luminous Intensity

Bin	Min	Max	Unit	Condition
S1	180	225	mcd	I_F=20mA
S2	225	285		
T1	285	360		

Bin Range of Dominant Wavelength

Group	Bin	Min	Max	Unit	Condition
F	AA1	464.0	466.0	nm	I_F=20mA
	AA2	466.0	468.0		
	AA3	468.0	470.0		
	AA4	470.0	472.0		

Bin Range of Forward Voltage

Group	Bin	Min	Max	Unit	Condition
B14	34	2.70	2.80	V	I_F=20mA
	35	2.80	2.90		
	36	2.90	3.00		
	37	3.00	3.10		
	38	3.10	3.20		
	39	3.20	3.30		
	40	3.30	3.40		
	41	3.40	3.50		

Notes:

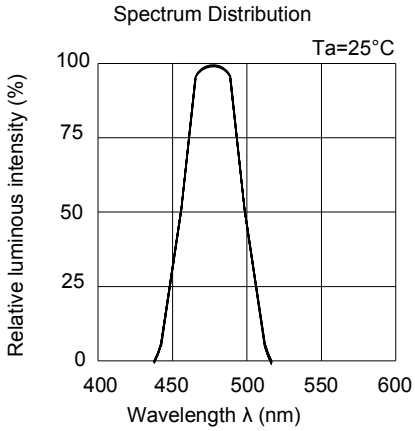
1.Tolerance of Luminous Intensity: ±11%
2.Tolerance of dominant wavelength: ±1nm.
3.Tolerance of Forward Voltage: ±0.05V

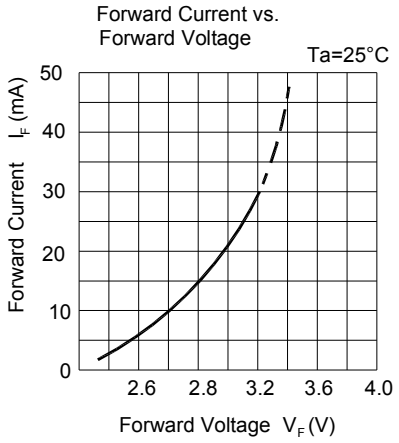
Technical Data Sheet

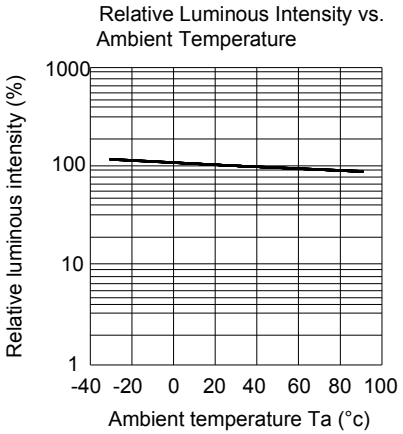
Mini Top View LEDs

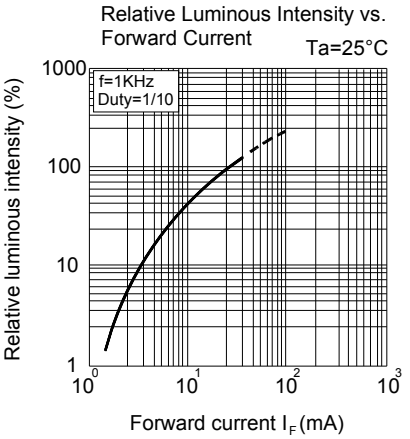
65-21/BHC-FS1T1B14/2T

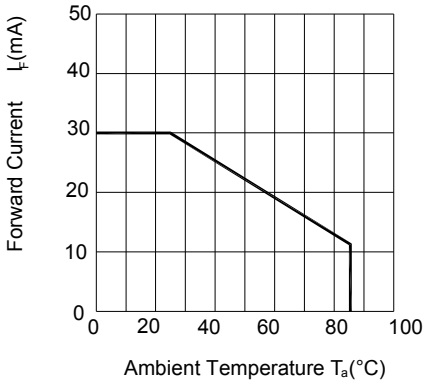
Typical Electro-Optical Characteristics Curves

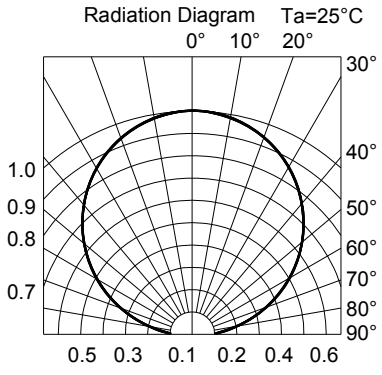












Technical Data Sheet

Mini Top View LEDs

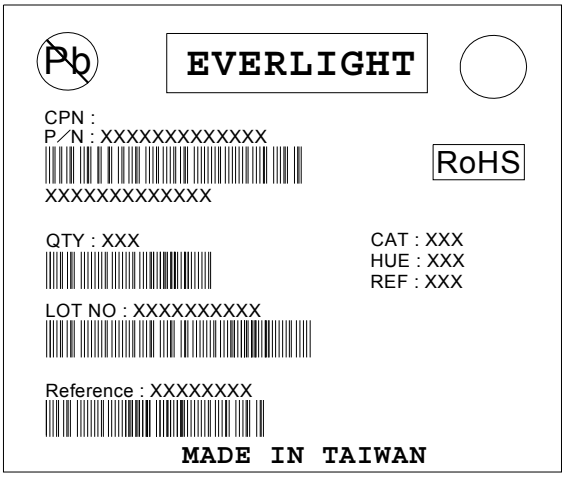
65-21/BHC-FS1T1B14/2T

Label Explanation

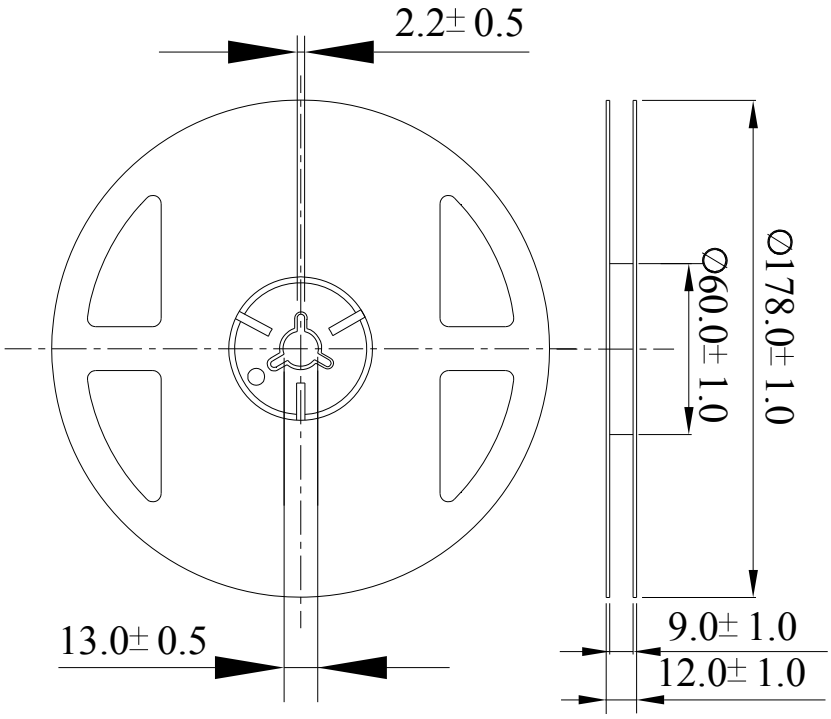
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank



Reel Dimensions



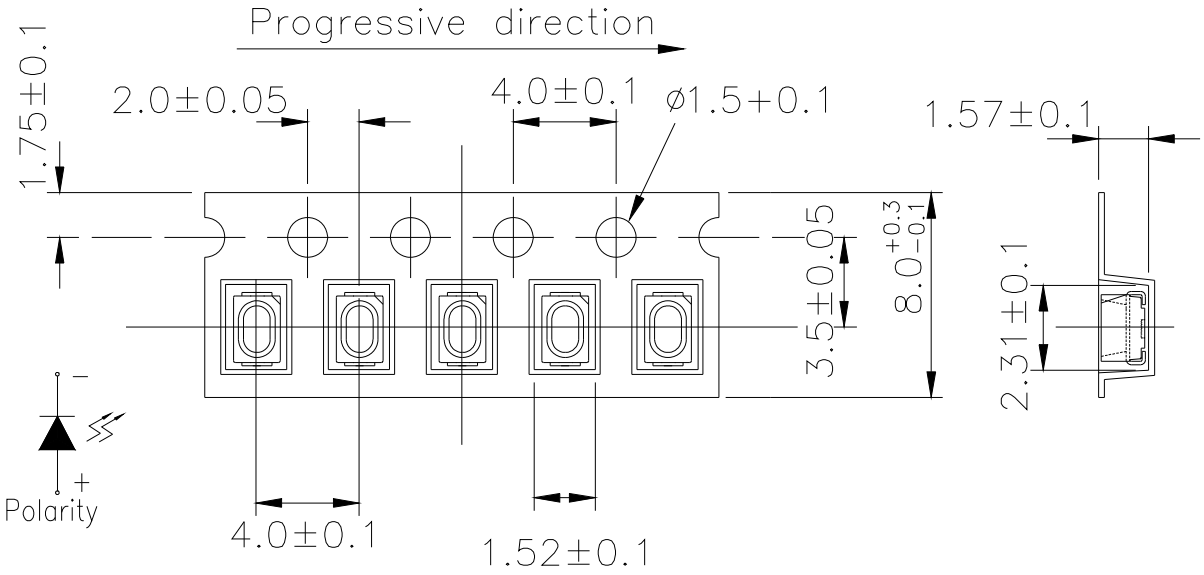
Note: The tolerances unless mentioned is ±0.1mm , Unit = mm

Technical Data Sheet

Mini Top View LEDs

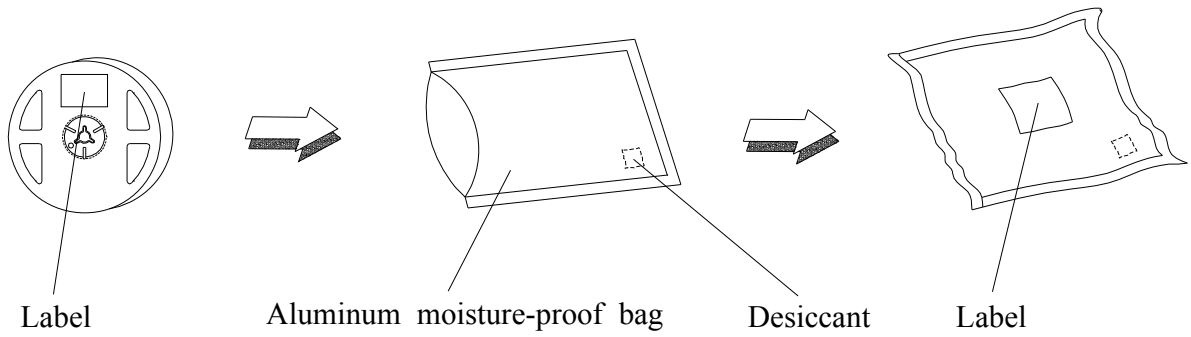
65-21/BHC-FS1T1B14/2T

Carrier Tape Dimensions: Loaded Quantity 2000 pcs Per Reel.



Note: The tolerances unless mentioned is ±0.1mm , Unit = mm

Moisture Resistant Packaging



Technical Data Sheet

Mini Top View LEDs

65-21/BHC-FS1T1B14/2T

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. 5sec.	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.

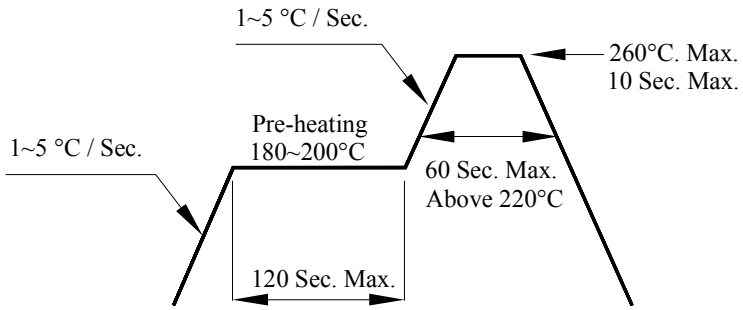
2.2 Before opening the package: The LEDs should be kept at 30℃ or less and 90%RH or less.

2.3 After opening the package: The LED's floor life is 1 year under 30℃ 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℃ 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.

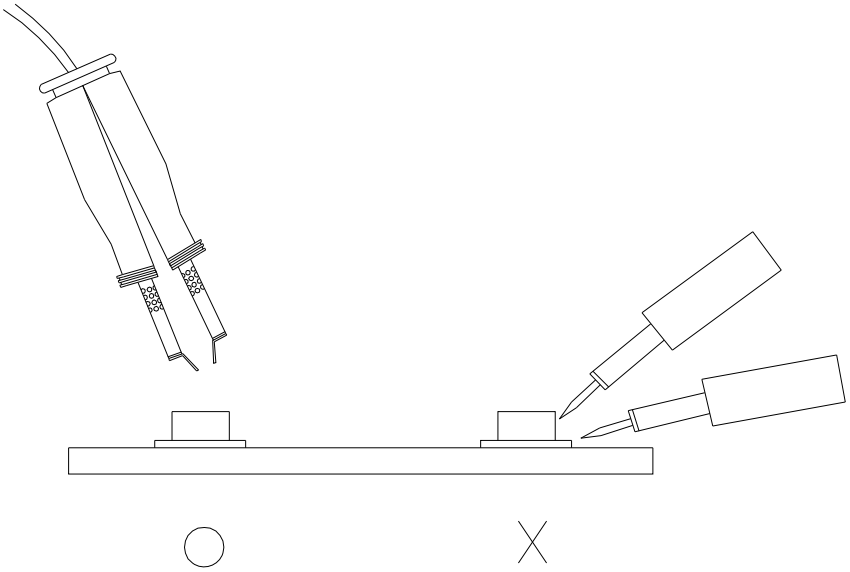
3.4 After soldering, do not warp the circuit board.

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.



EVERLIGHT ELECTRONICS CO., LTD.
Office: No 25, Lane 76, Sec 3, Chung Yang Rd, Tucheng, Taipei 236, Taiwan, R.O.C
Tel: 886-2-2267-2000, 2267-9936
Fax: 886-2267-6244, 2267-6189, 2267-6306
http://www.everlight.com