

## Technical Data Sheet

### Side View LEDs (Height 1.4mm)

**50-215/B7C-FS2U1B14/2C**

#### Features

- Side view white LED
- White SMT package
- Lead frame package with individual 2 pins
- Wide viewing angle
- Soldering methods: IR reflow soldering
- Pb-free
- The product itself will remain within RoHS compliant version.



#### Descriptions

The 50-215 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 LED ideal for light guide application.

#### Applications

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

#### Device Selection Guide

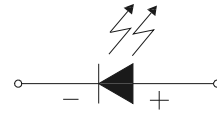
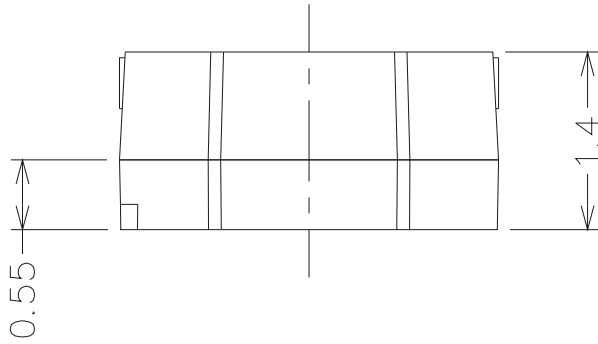
Chip	Emitted Color	Resin Color
Material		
InGaN	Blue	Water Clear

**Technical Data Sheet**

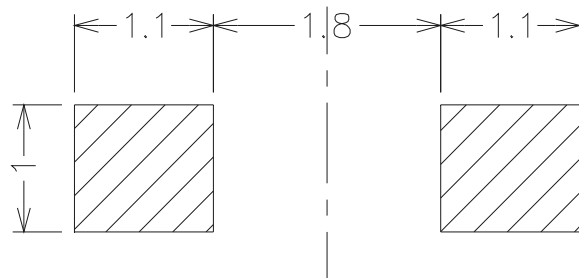
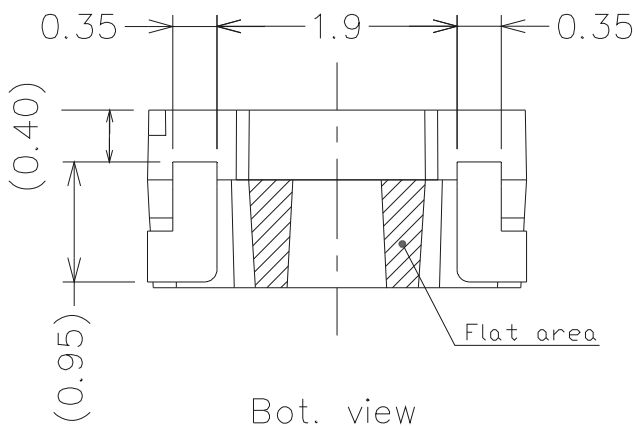
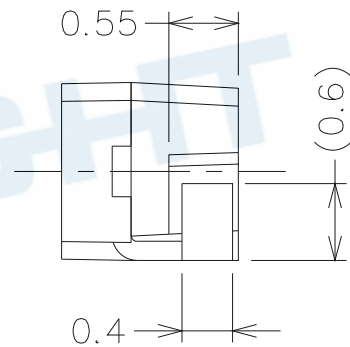
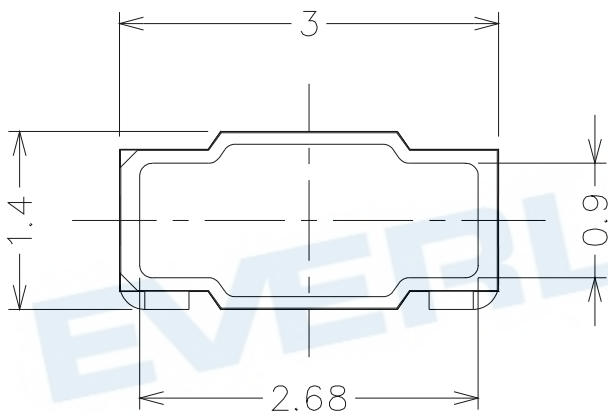
**Side View LEDs (Height 1.4mm)**

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**Package Outline Dimensions**



Polarity



Soldering patterns

**Note:** The tolerances unless dimensions are  $\pm 0.1\text{mm}$ .



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## Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V <sub>R</sub>	5	V
Forward Current	I <sub>F</sub>	30	mA
Peak Forward Current (Duty 1/10 @1KHz)	I <sub>FP</sub>	100	mA
Power Dissipation	P <sub>d</sub>	110	mW
Electrostatic Discharge(HBM) *1	ESD	1000	V
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +90	°C
Soldering Temperature	T <sub>sol</sub>	Reflow Soldering : 260°C for 10 sec. Hand Soldering : 350°C for 3 sec.	

Note\*1:

The products are sensitive to static electricity and must be carefully taken when handling products.

## Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>	225	----	565	mcd	I <sub>F</sub> =20mA
Viewing Angle	2θ1/2	----	120	----	deg	
Peak Wavelength	λ <sub>p</sub>	----	468	----	nm	
Dominant Wavelength	λ <sub>d</sub>	464	----	472	nm	
Spectrum Radiation Bandwidth	Δλ	----	25	----	nm	
Forward Voltage	V <sub>F</sub>	2.70	----	3.50	V	
Reverse Current	I <sub>R</sub>	----	----	50	μA	V <sub>R</sub> =5V

## Notes:

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

**Technical Data Sheet****Side View LEDs (Height 1.4mm)****50-215/B7C-FS2U1B14/2C****Bin Range of Luminous Intensity**

Bin Code	Min.	Max.	Unit	Conduction
S2	225	285	mcd	I <sub>F</sub> =20mA
T1	285	360		
T2	360	450		
U1	450	565		

**Bin Range of Dominant Wavelength**

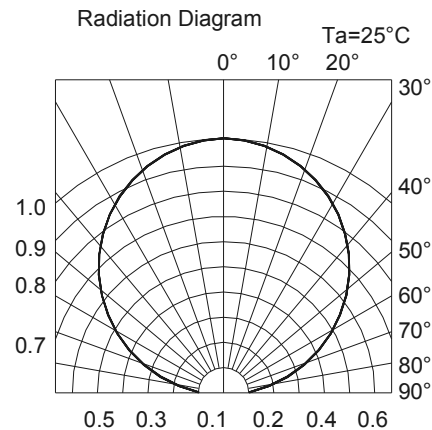
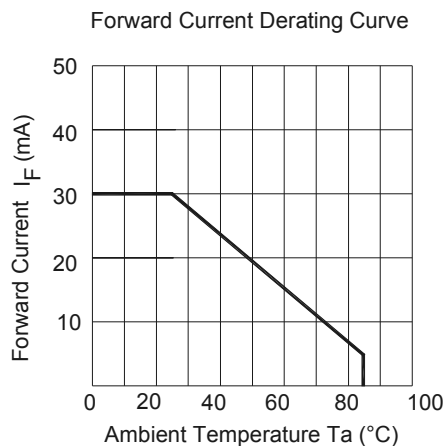
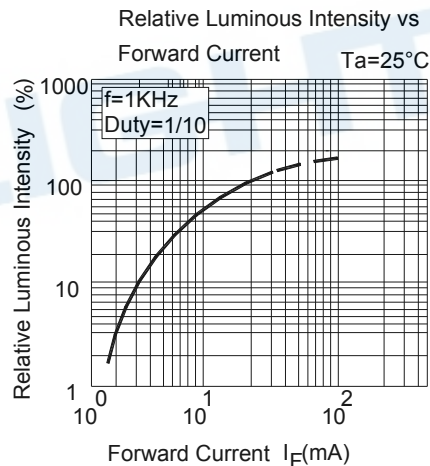
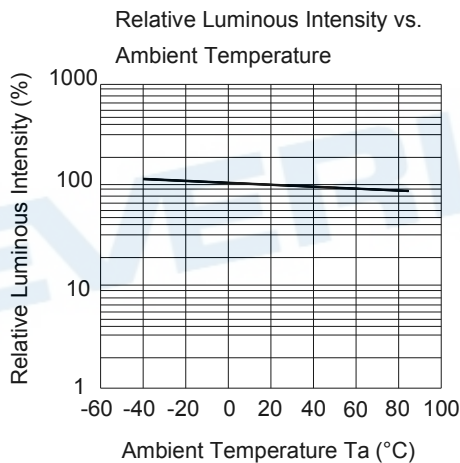
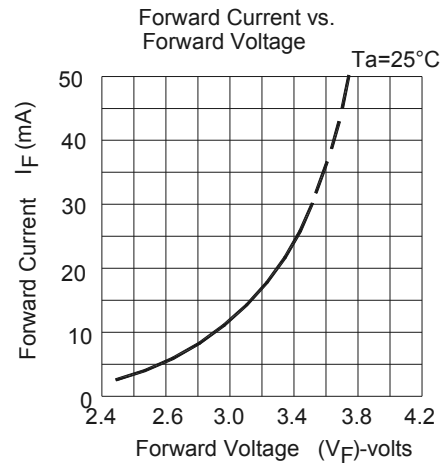
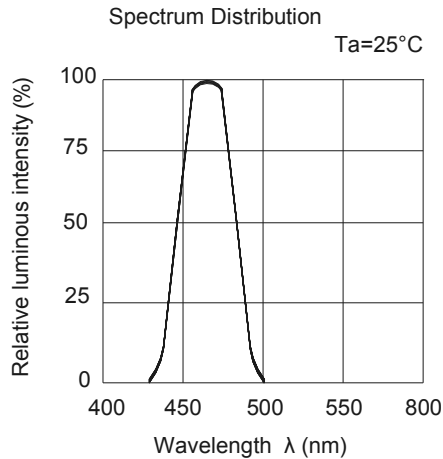
Group	Bin Code	Min.	Max.	Unit	Condition
F	AA1	464	466	nm	I <sub>F</sub> =20mA
	AA2	466	468		
	AA3	468	470		
	AA4	470	472		

**Bin Range of Forward Voltage**

Group	Bin Code	Min.	Max.	Unit	Condition
B14	34	2.70	2.80	V	I <sub>F</sub> =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:  $\pm 11\%$
2. Tolerance of Dominant Wavelength:  $\pm 1\text{nm}$
3. Tolerance of Forward Voltage:  $\pm 0.1\text{V}$

**Technical Data Sheet**
**Side View LEDs (Height 1.4mm)**
**50-215/B7C-FS2U1B14/2C**
**Typical Electro-Optical Characteristics Curves**




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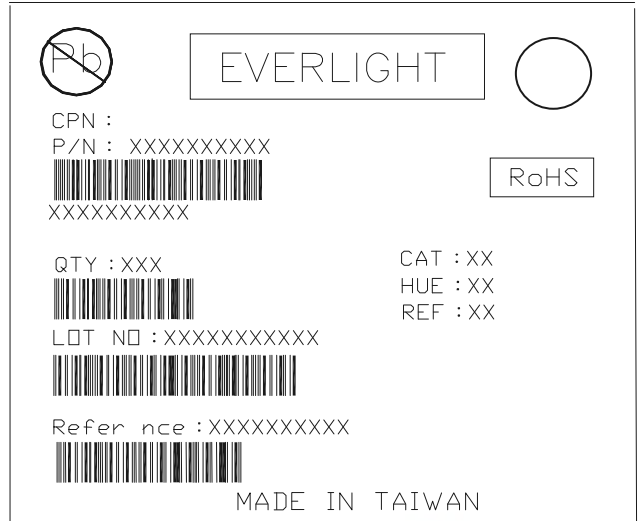
Technical Data Sheet

Side View LEDs (Height 1.4mm)

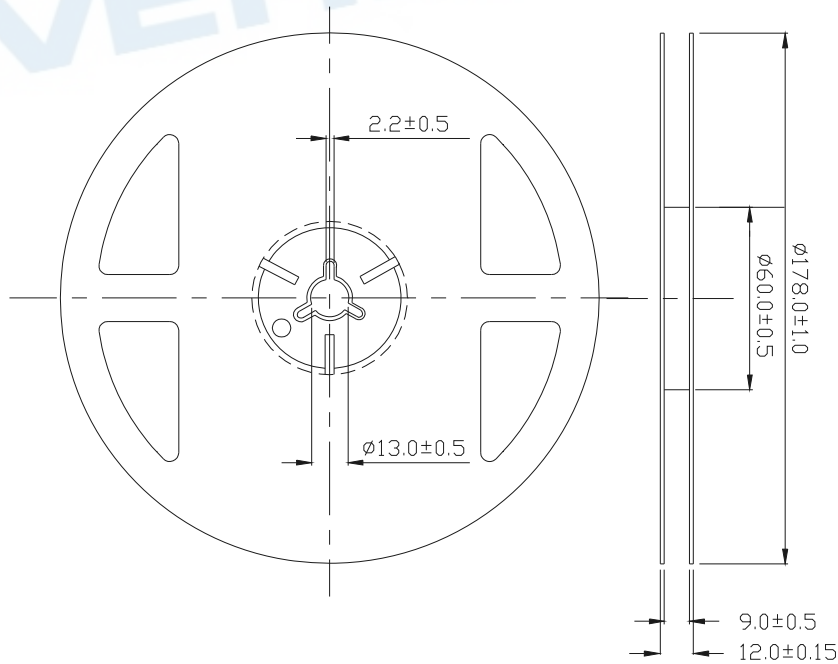
50-215/B7C-FS2U1B14/2C

Label Explanation

- CAT: Luminous Intensity Rank
- HUE: Chromaticity Coordinates
- REF: Forward Voltage Rank



Reel Dimensions



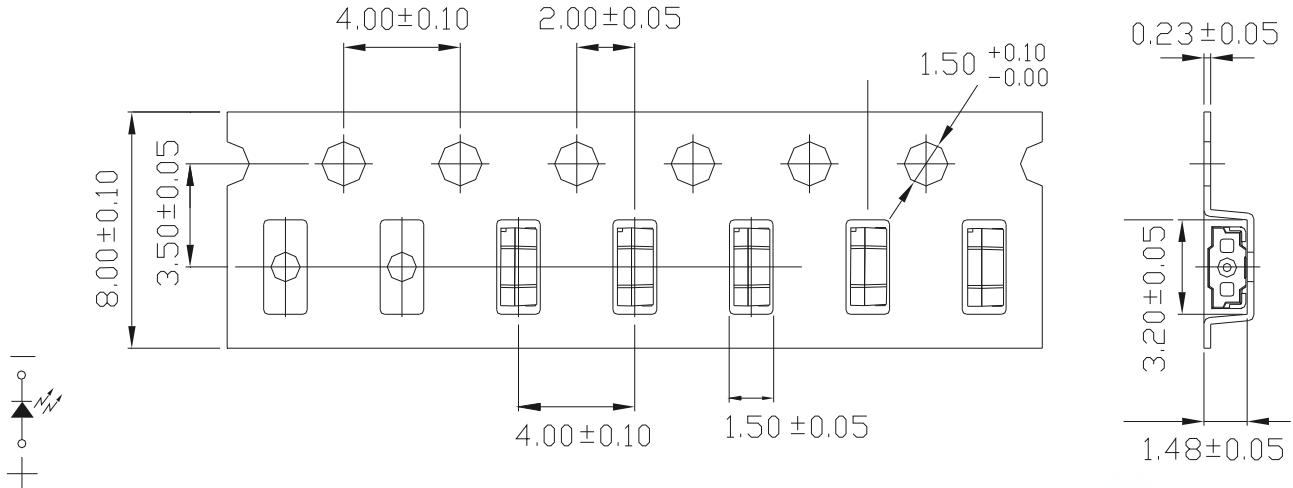
Note: The tolerances unless dimensions are  $\pm 0.1$ mm.

**Technical Data Sheet**

**Side View LEDs (Height 1.4mm)**

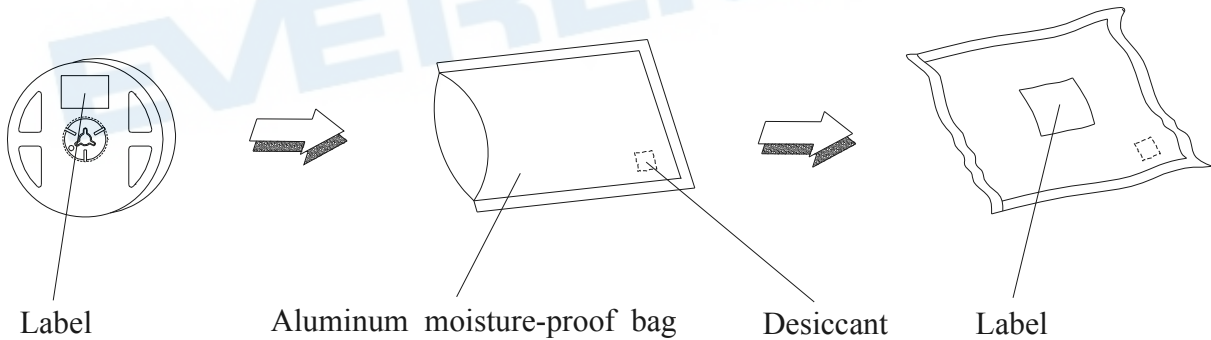
**50-215/B7C-FS2U1B14/2C**

**Carrier Tape Dimensions: Loaded Quantity 2000 pcs. Per Reel**



**Note:** The tolerances unless dimensions are ± 0.1mm.

**Moisture Resistant Packaging**



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**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 Qty'	Ac/Re
1	Reflow Soldering	Temp.: 260°C±5°C Min. 5 sec.	6 Min.	22 pcs.	0/1
2	Temperature Cycle	H: +100°C 15min. ∫ 5 min. L: -40°C 15min.	300 cycles	22 pcs.	0/1
3	Thermal Shock	H: +100°C 5min. ∫ 10 sec. L: -10°C 5min.	300 cycles	22 pcs.	0/1
4	High Temperature Storage	Temp.: 100°C±5°C	1000 hrs.	22 pcs.	0/1
5	Low Temperature Storage	Temp.: -40°C±5°C	1000 hrs.	22 pcs.	0/1
6	DC Operating Life	I <sub>F</sub> = 20 mA / 25°C	1000 hrs.	22 pcs.	0/1
7	High Temperature / High Humidity	85°C±5°C / 85%RH	1000 hrs.	22 pcs.	0/1



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#### 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 Don't 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.

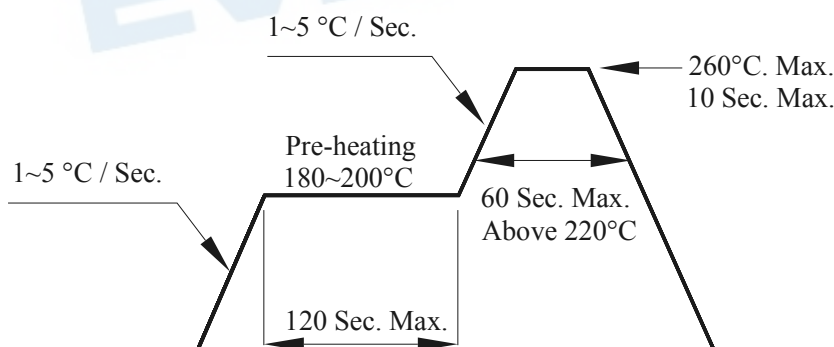
2.3 After opening the package: The LED's floor life is 1 year under 30°C or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.

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.

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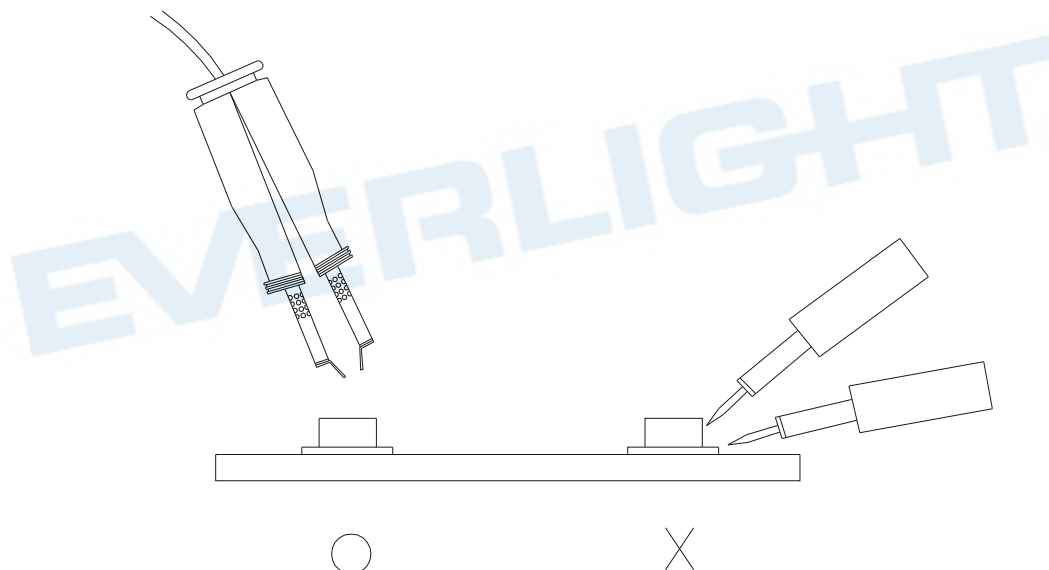
**50-215/B7C-FS2U1B14/2C**

#### 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.



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