EVERLIGHT ELECTRONICS CO., LTD.

Technical Data Sheet

Side View LEDs (Height 0.8mm)

99-213/R6C-AR2S2B/2C

Features

- Side view LED.
- 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 99-213 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. The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

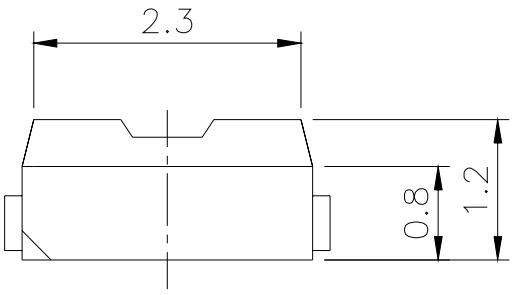
Applications

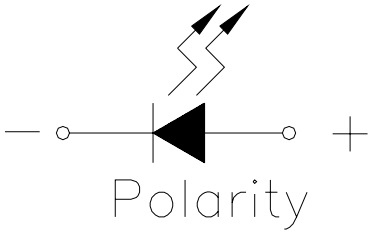
- LCD Back Light.
- Mobile phones .
- Indicators.
- Illuminations.
- Switch Lights.

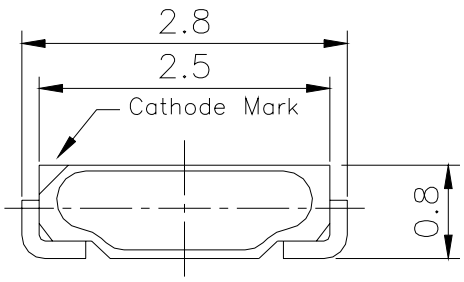
Device Selection Guide

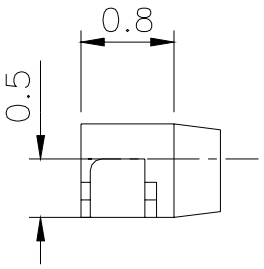
Chip Material	Emitted Color	Resin Color
AlGaInP	Brilliant Red	Water Clear

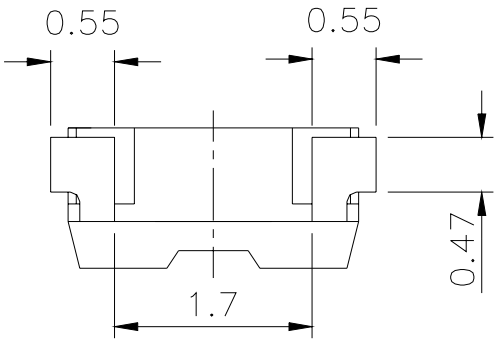
Package Outline Dimensions



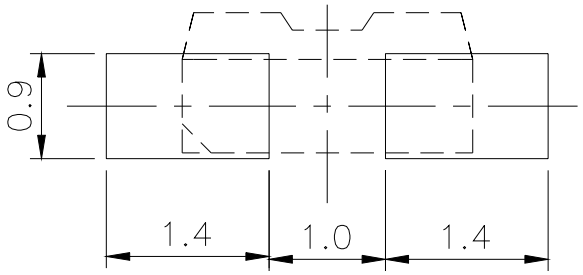








Recommended soldering pad design



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

The weight per unit : 0.00481g (Avg.).

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol		Rating	Unit
Reverse Voltage	V_R		5	V
Forward Current	I_F		50	mA
Peak Forward Current(Duty 1/10 @ 1KHz)	I_{FP}		100	mA
Power Dissipation	Pd		120	mW
Electrostatic Discharge	ESD	HBM	2000	V
		MM	400	
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	I_V	140	---	285	mcd	I_F=20mA
Viewing Angle	2θ 1/2	-----	110	-----	deg	
Peak Wavelength	λp	-----	632	-----	nm	
Dominant Wavelength	λ d	617.5	-----	633.5	nm	
Spectrum Radiation Bandwidth	△λ	-----	20	-----	nm	
Forward Voltage	V_F	1.75	---	2.35	V	
Reverse Current	I_R	-----	-----	10	uA	V_R=5V

Notes:

1.Tolerance of Luminous Intensity ±10%

2. Tolerance of Dominant Wavelength ±1nm

3. Tolerance of Forward Voltage ±0.1V

Bin Range of Luminous Intensity

Bin Code	Min.	Max.	Unit	Conduction
R2	140	180	mcd	I_F=20mA
S1	180	225		
S2	225	285		

Bin Range of Dom. Wavelength

Group	Bin	Min	Max	Unit	Condition
A	E4	617.5	621.5	nm	I_F=20mA
	E5	621.5	625.5		
	E6	625.5	629.5		
	E7	629.5	633.5		

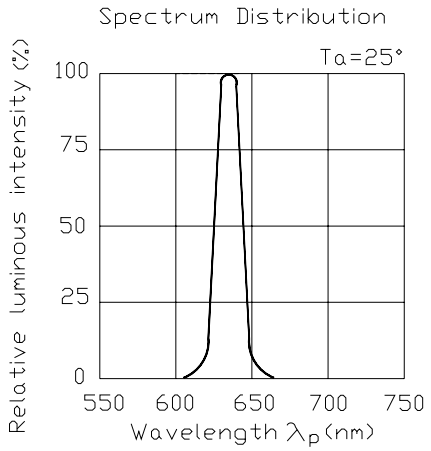
Bin Range of Forward Voltage

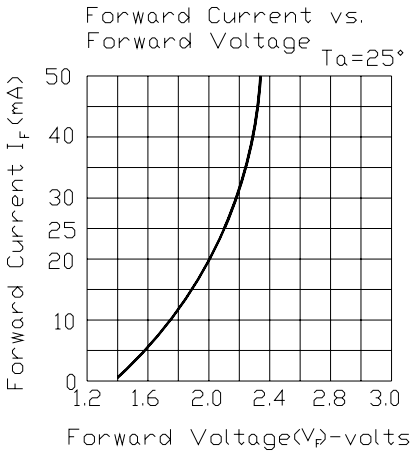
Group	Bin	Min	Max	Unit	Condition
B	0	1.75	1.95	V	I_F=20mA
	1	1.95	2.15		
	2	2.15	2.35		

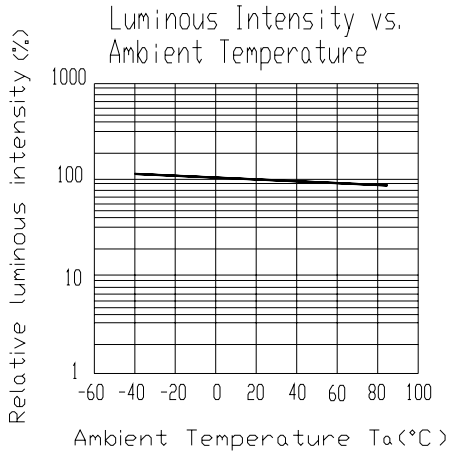
Notes:

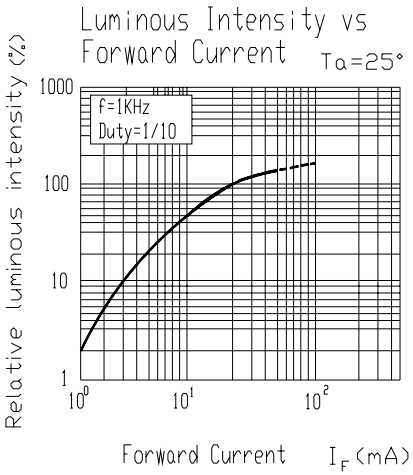
1. Tolerance of Luminous Intensity ±10%
2. Tolerance of Dominant Wavelength ±1nm
3. Tolerance of Forward Voltage ±0.1V

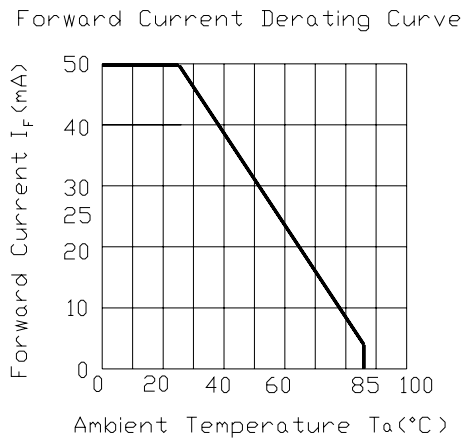
Typical Electro-Optical Characteristics Curves

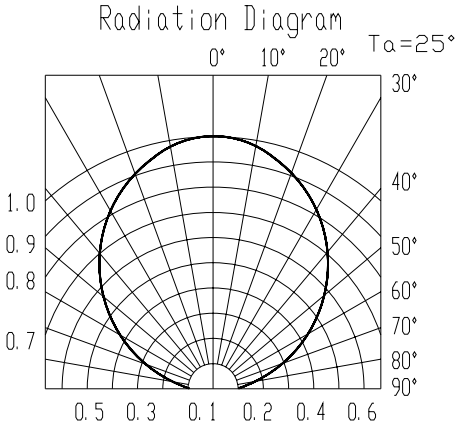










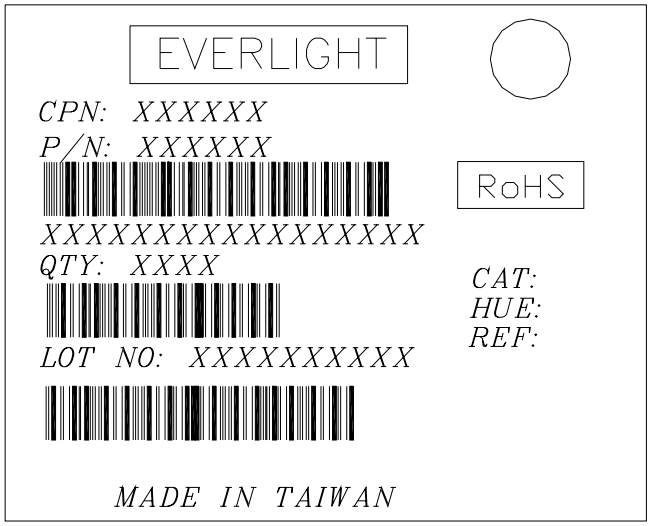


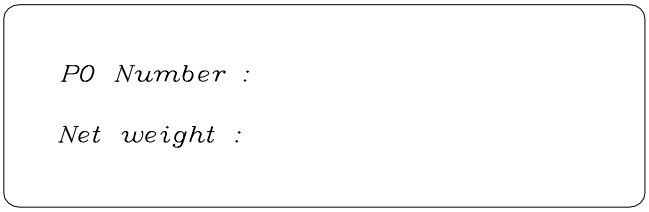
Label explanation

CAT: Luminous Intensity Rank

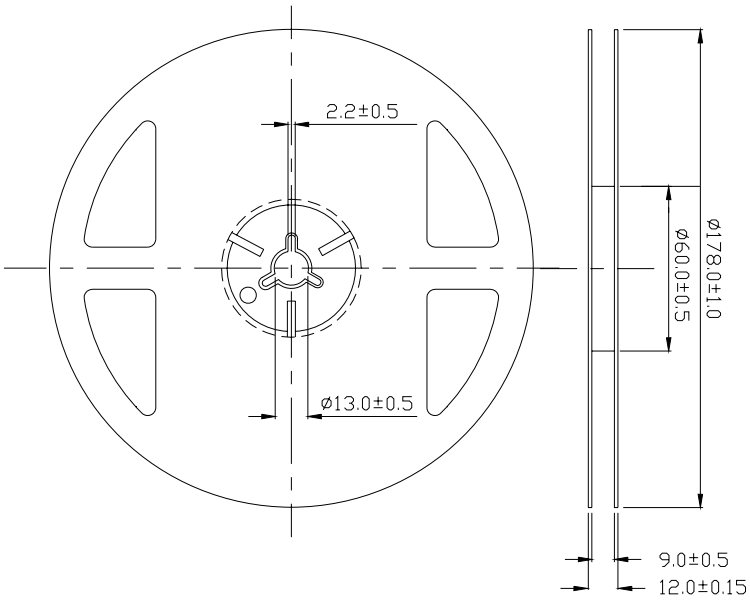
HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank





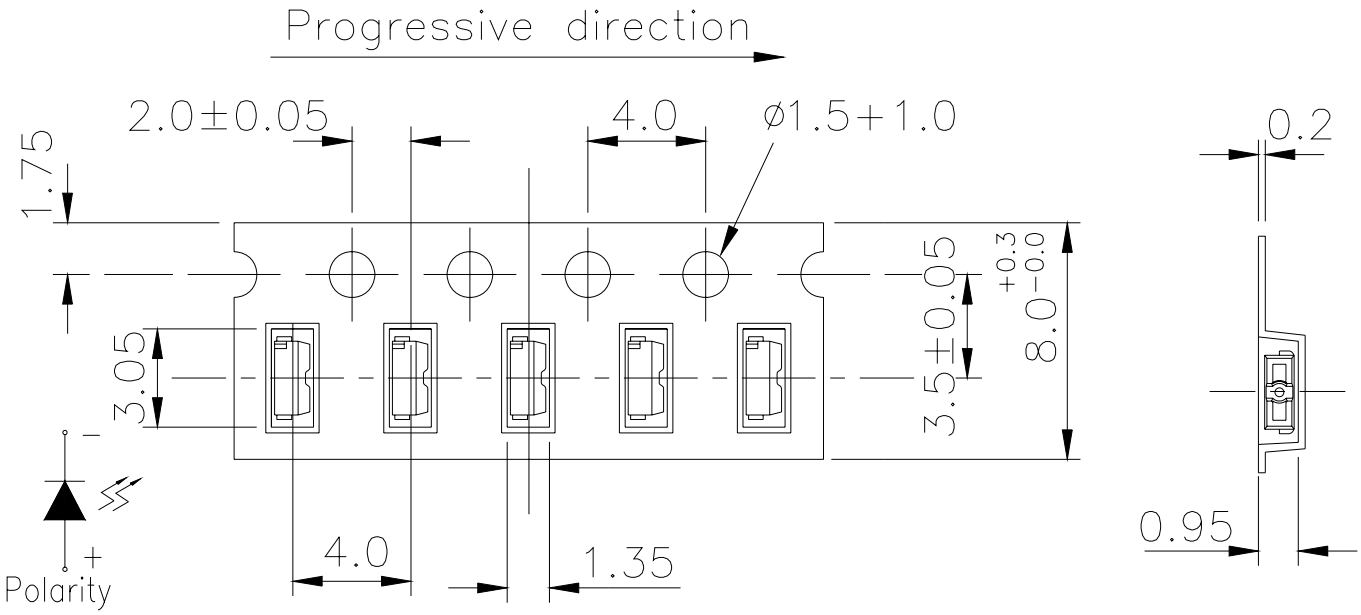
Reel Dimensions



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

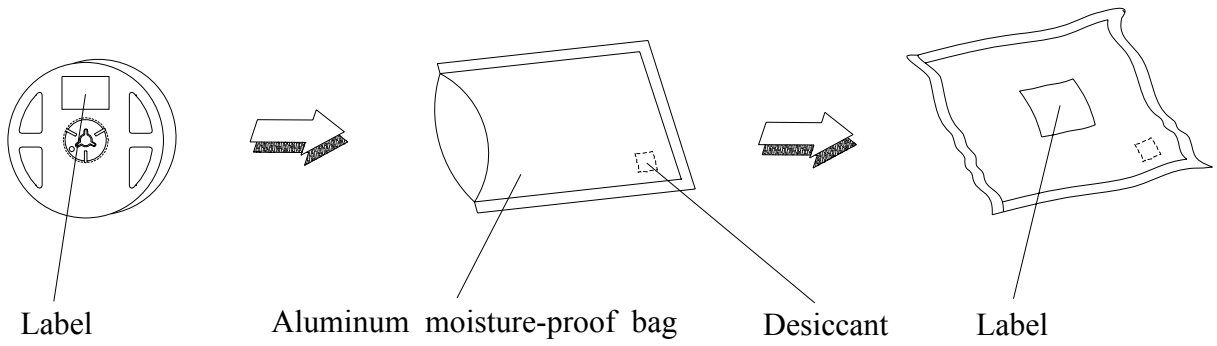
The material of reel was PS.

Carrier Tape Dimensions; Loaded quantity per reel 2000 PCS/reel



Note: 1.Tolerances Unless Dimension ±0.1mm Unit = mm
2.The material of carrier tape was PC.

Moisture Resistant Packaging



Note: The material of Aluminum moisture bag was Aluminum & polyester.

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℃ Max. 10 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 / 25℃	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.

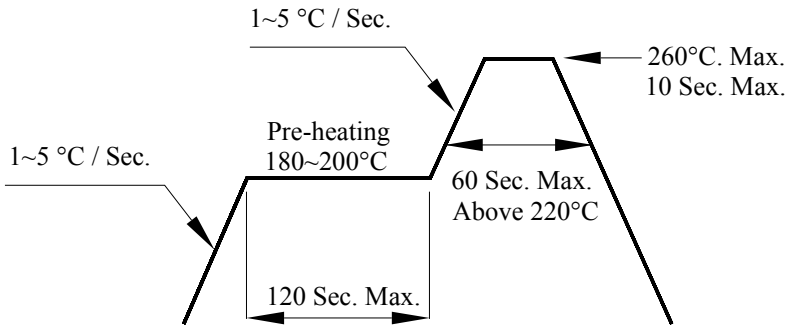
   2.2 Before opening the package: The LEDs should be kept at 30℃ or less and 90%RH or less.

   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.

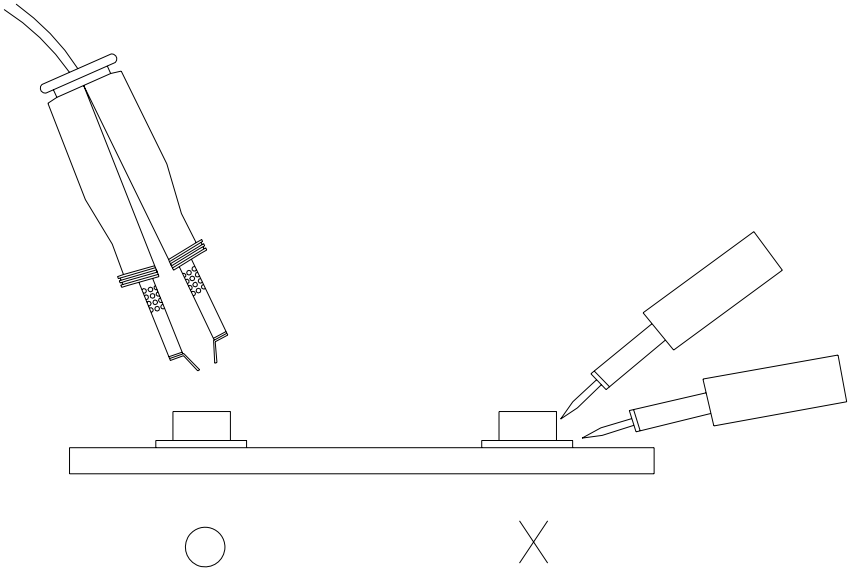
   3.4 After soldering, do not warp the circuit board.

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.



6. Handling Indications

During processing, mechanical stress on the surface should be minimized as much as possible. Sharp objects of all types should not be used to pierce the sealing compound

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