EVERLIGHT ELECTRONICS CO.,LTD.

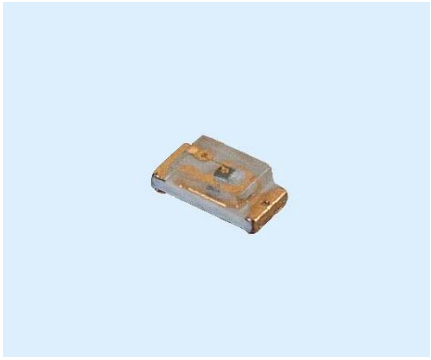
Technical Data Sheet

0603 Package Chip LED (0.6mm Height)

19-213USRC/S259/TR8

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 19-213 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.

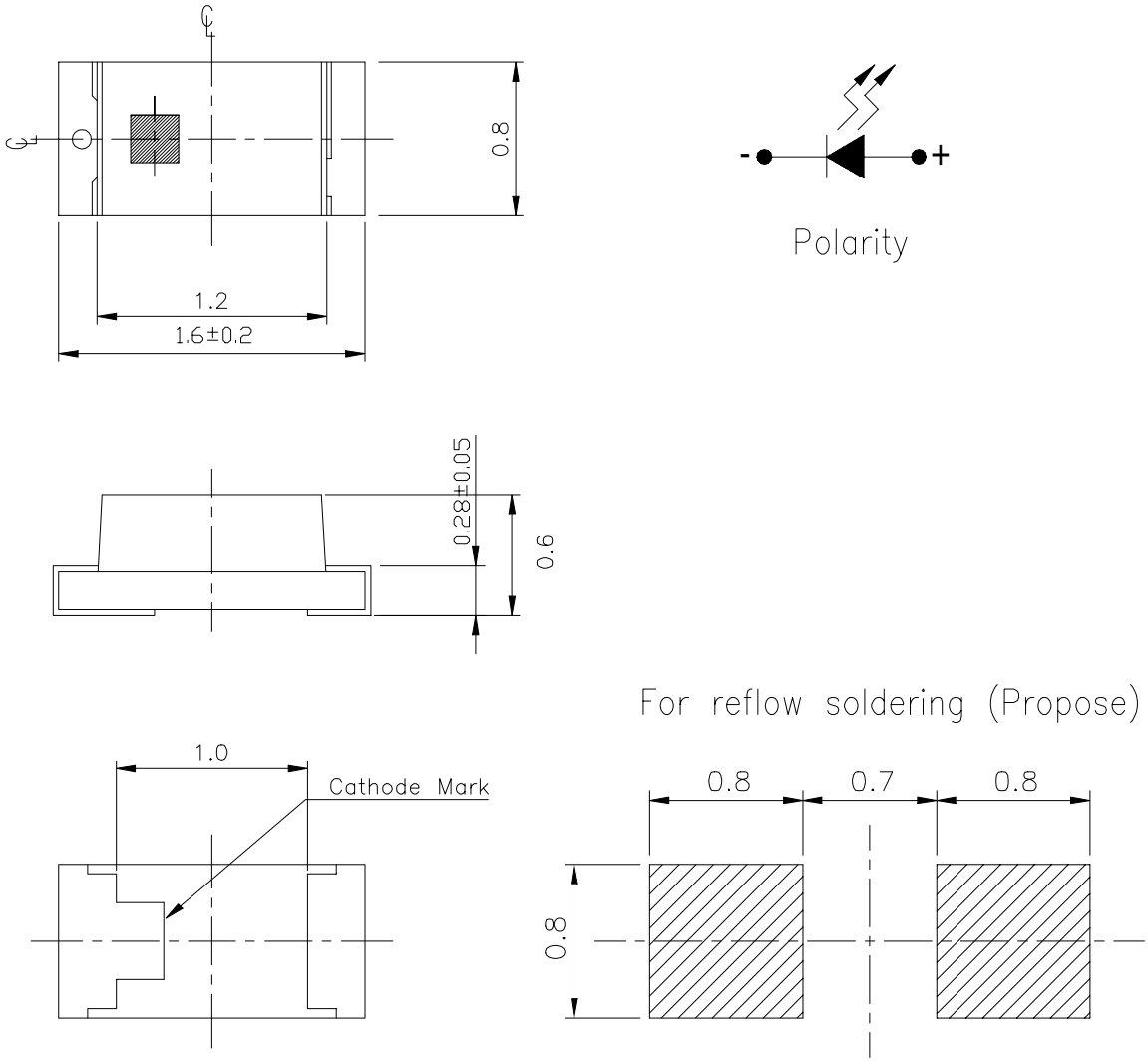
Applications

- 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

Chip Material	Emitted Color	Lens Color
AlGaInP	Super Red	Water Clear

Package Outline Dimensions



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

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	25	mA
Forward Current (Ta=80℃)	I_F	10	mA
Operating Temperature	Topr	-40 ~ +100	℃
Storage Temperature	Tstg	-40 ~ +120	℃
Electrostatic Discharge	ESD	2000	V
Power Dissipation	Pd	60	mW
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	160	mA
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	16	-----	50	mcd	I_F=10mA
Viewing Angle	2θ 1/2	-----	120	-----	deg	
Peak Wavelength	λ p	-----	639	-----	nm	
Dominant Wavelength *1	λ d	625	-----	635	nm	
Spectrum Radiation Bandwidth	△λ	-----	20	-----	nm	
Forward Voltage	V_F	1.75	-----	2.30	V	I_F=10mA
		1.80	-----	2.40		I_F=25mA
Reverse Current	I_R	-----	-----	10	μA	V_R=5V

Notes:

***1. Tolerance of Dominant Wavelength ±1nm**

Bin Range Of Luminous Intensity

Bin	Min	Max	Unit	Condition
M	16.0	32.0	mcd	IF=10mA
N	25.0	50.0		

Bin Range Of Dom. Wavelength

Bin	Min	Max	Unit	Condition
1	625	630	nm	IF=10mA
2	630	635		

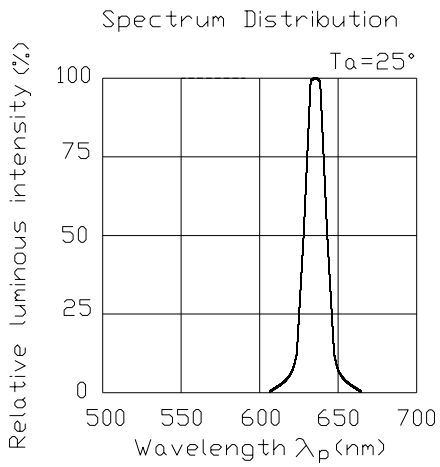
Bin Range Of Forward Voltage

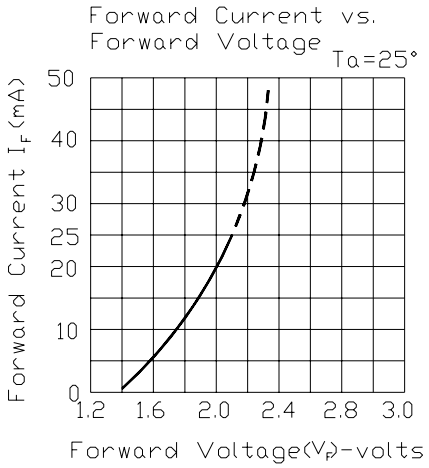
Bin	Min	Max	Unit	Condition
1	1.75	2.00	V	IF=10mA
2	1.90	2.15		
3	2.05	2.30		

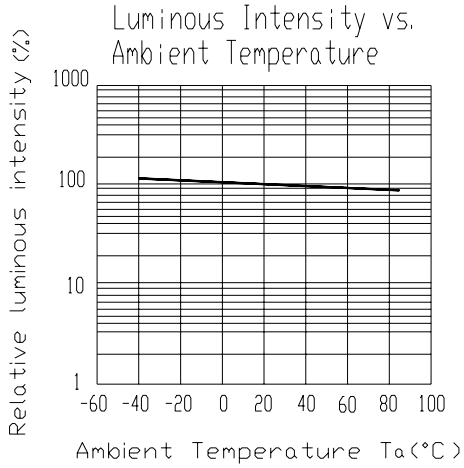
Notes:

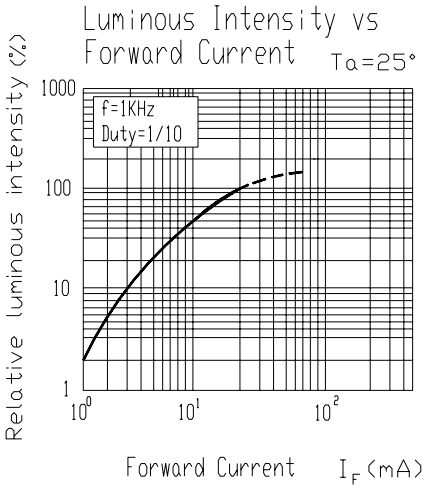
***1. Tolerance of Dominant Wavelength ±1nm**

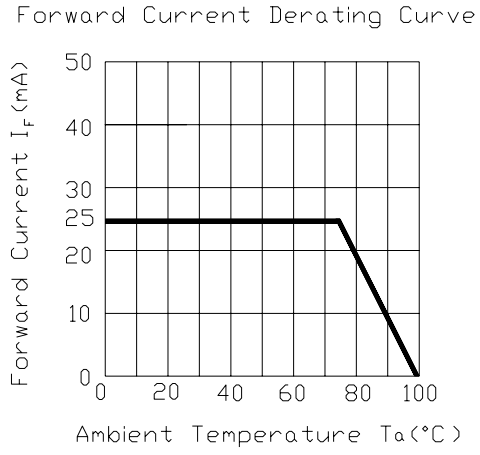
Typical Electro-Optical Characteristics Curves

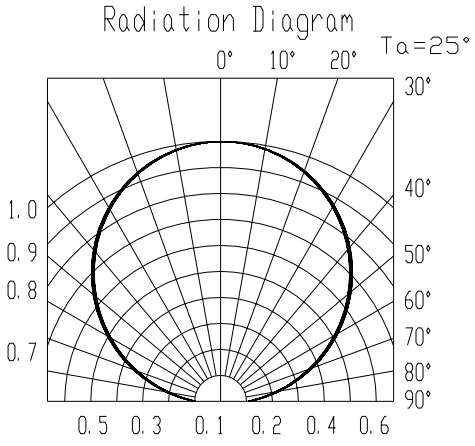












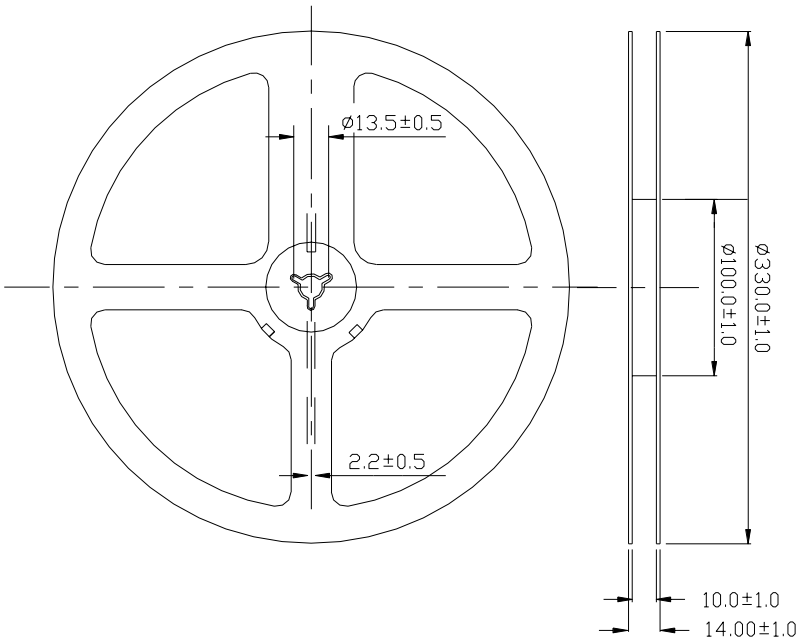
Label explanation

CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank

Reel Dimensions



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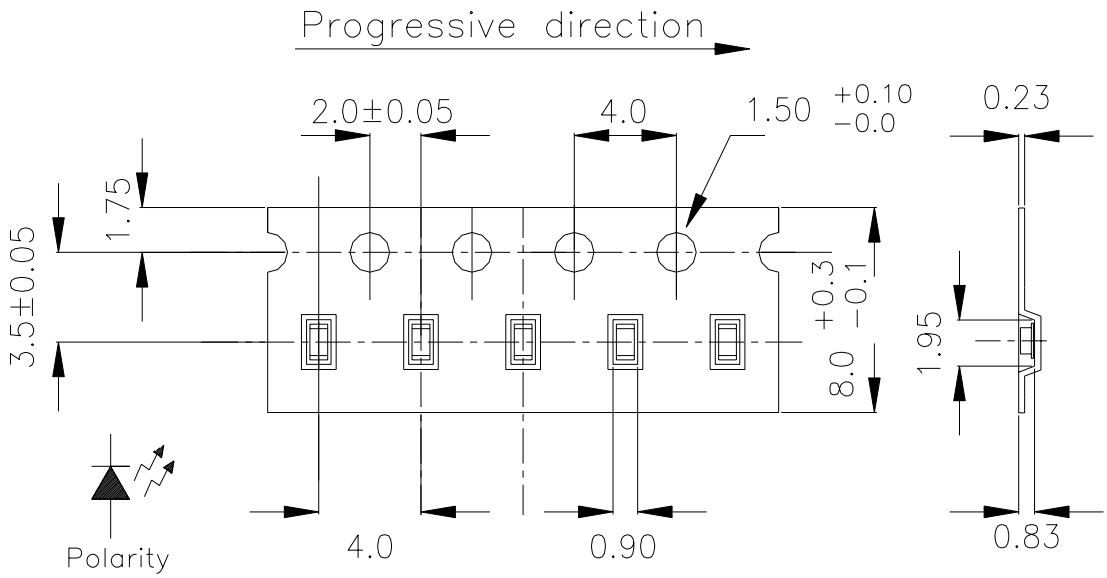
Carrier Tape Dimensions: Loaded quantity 10000 PCS per reel



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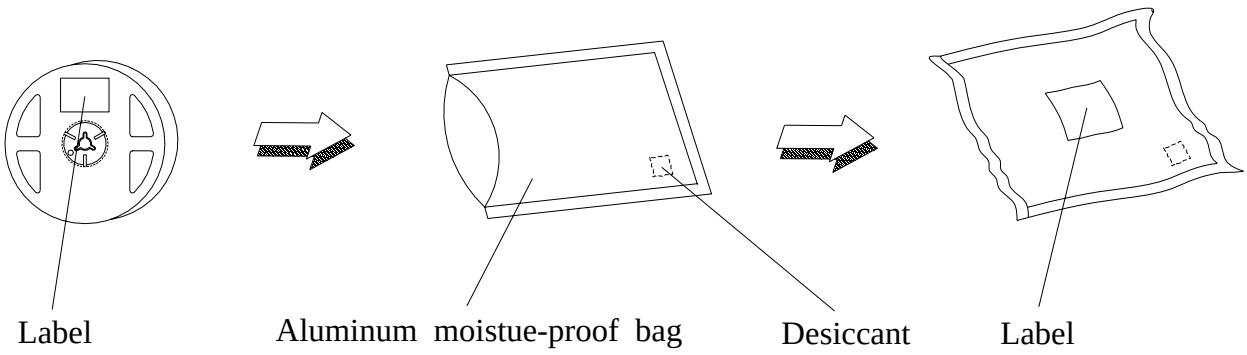
Moisture Resistant Packaging



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℃ 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℃/R.H85%	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 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 LEDs remain, it should be stored in moisture proof packages.

   2.4 After opening the package, the LEDs should be kept at 30℃ or less and 70%RH or less.

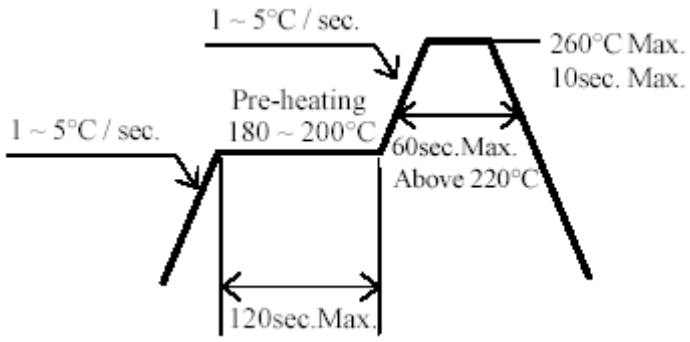
   2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

   2.6 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.

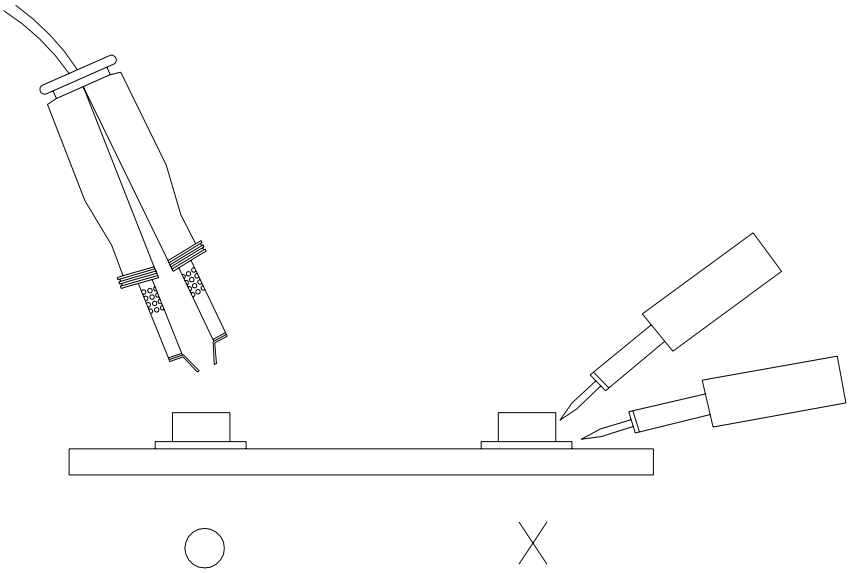
3.4 After soldering, do not warp the circuit board.

4.Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 280℃ 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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