



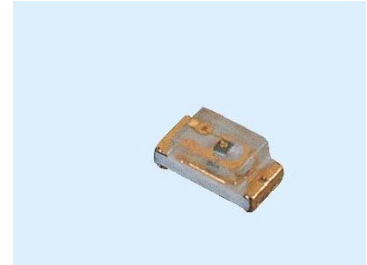
Technical Data Sheet

0603 Package Chip LED (0.6mm Height)

19-213/GHC-YR1S2/3T

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.
- The product itself will remain with RoHS compliant version.



Descriptions

- The 19-213 LED 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.

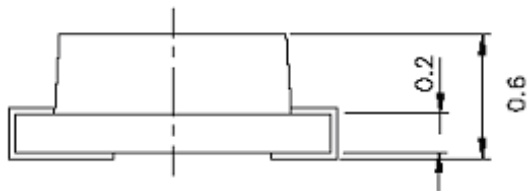
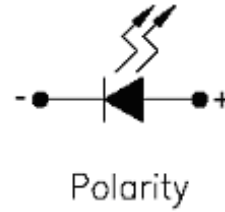
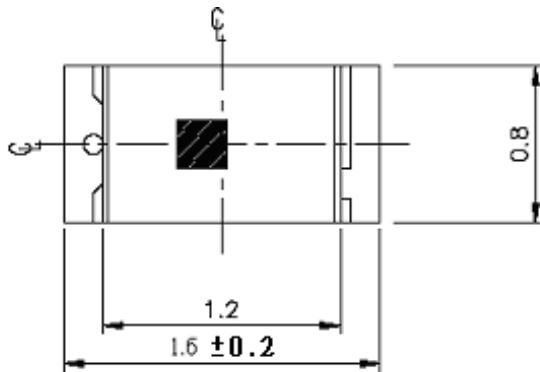
Applications

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

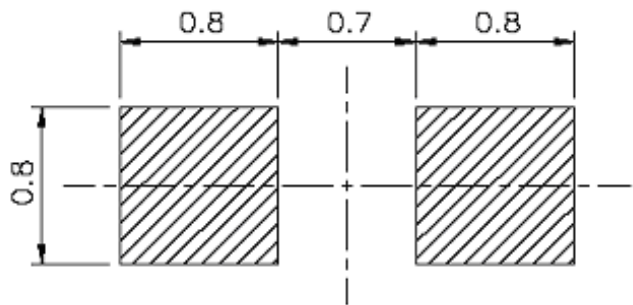
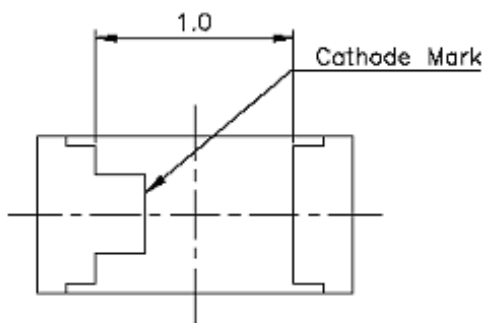
Device Selection Guide

Part No.	Chip	Emitted Color	Resin Color
	Material		
19-213/GHC-YR1S2/3T	InGaN	Brilliant Green	Water Clear

Package Outline Dimensions



For reflow soldering (Propose)



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm.

19-213/GHC-YR1S2/3T
Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	25	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	100	mA
Power Dissipation	P_d	110	mW
Electrostatic Discharge(HBM)	ESD	150	V
Operating Temperature	T_{opr}	-40 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +90	°C
Soldering Temperature	T_{sol}	Reflow Soldering:260 °C for 10 sec Hand Soldering:350°C for 3 sec	

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I_v	112	----	285	mcd	$I_F=20mA$
Viewing Angle	$2\theta 1/2$	-----	120	-----	deg	
Peak Wavelength	λ_p	-----	518	-----	nm	
Dominant Wavelength	λ_d	520	-----	535	nm	
Spectrum Radiation Bandwidth	$\Delta\lambda$	-----	35	-----	nm	
Forward Voltage	V_F	2.70	3.30	3.70	V	
Reverse Current	I_R	-----	-----	50	μA	$V_R=5V$

Notes:

- 1.Tolerance of Luminous Intensity $\pm 11\%$**
- 2.Tolerance of Dominant Wavelength $\pm 1nm$**

19-213/GHC-YR1S2/3T**Bin Rang Of Dom. Wavelength**

Group	Bin	Min	Max	Unit	Condition
Y	X	520	525	nm	If=20mA
	Y	525	530		
	Z	530	535		

Bin Rang Of Luminous Intensity

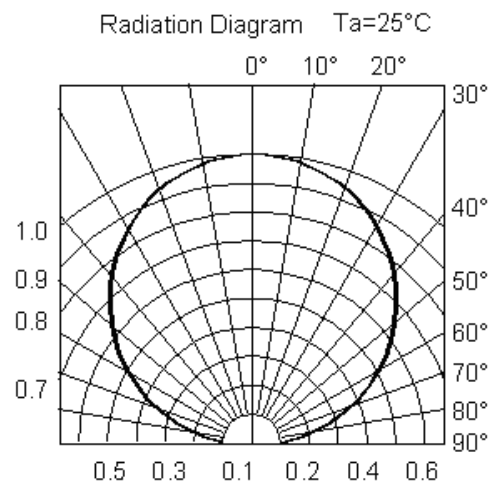
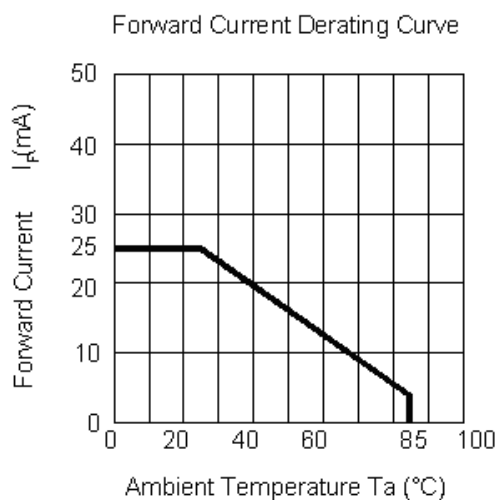
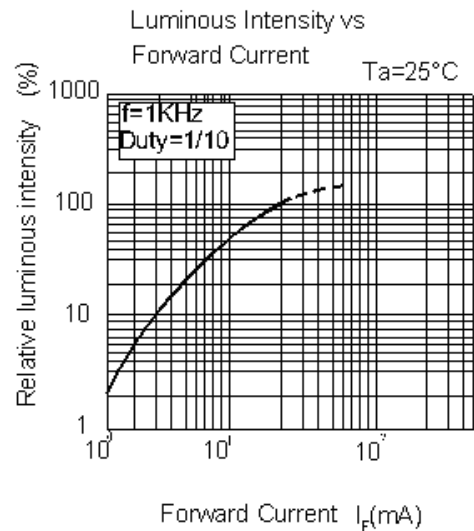
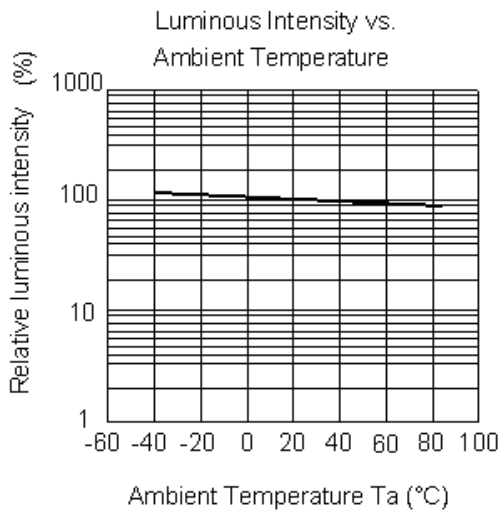
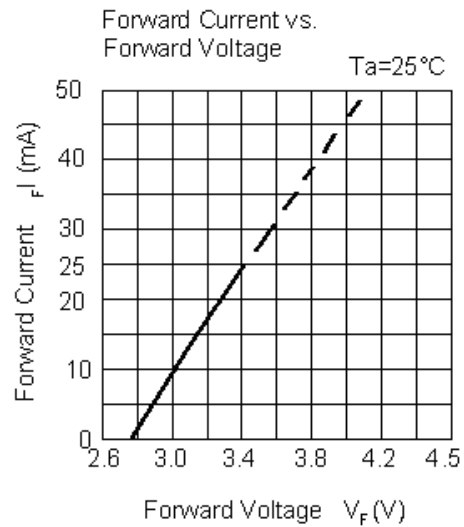
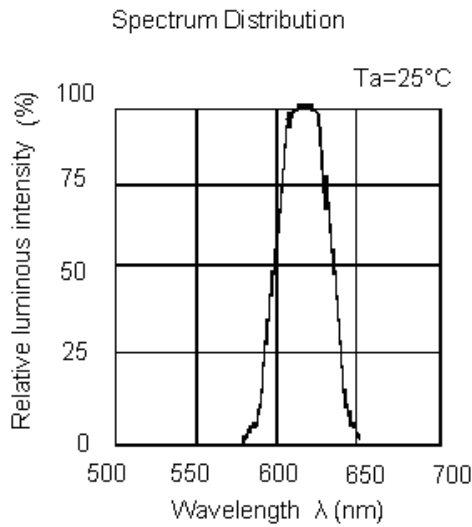
Bin	Min	Max	Unit	Condition
R1	112	140	mcd	If=20mA
R2	140	180		
S1	180	225		
S2	225	285		

Notes:

- 1.Tolerance of Luminous Intensity $\pm 11\%$
- 2.Tolerance of Dominant Wavelength $\pm 1\text{nm}$

19-213/GHC-YR1S2/3T

Typical Electro-Optical Characteristics Curves



19-213/GHC-YR1S2/3T

Label explanation

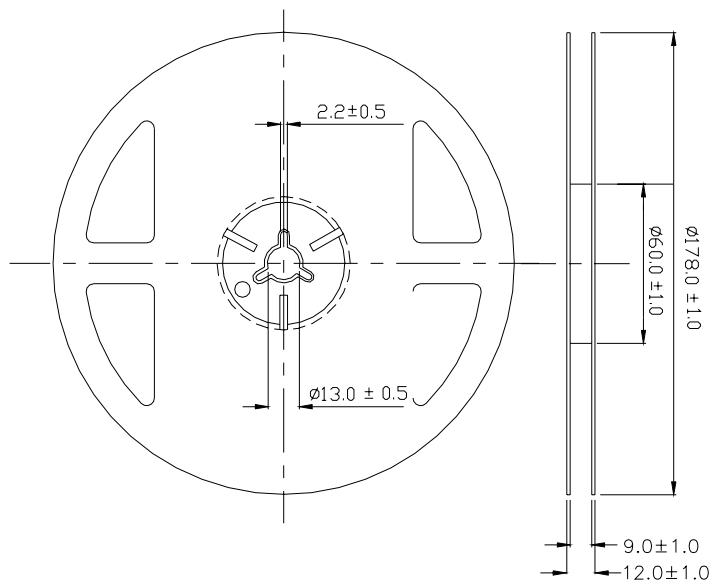
CAT: Luminous Intensity Rank

HUE: Dom. Wavelength Rank

REF: Forward Voltage Rank



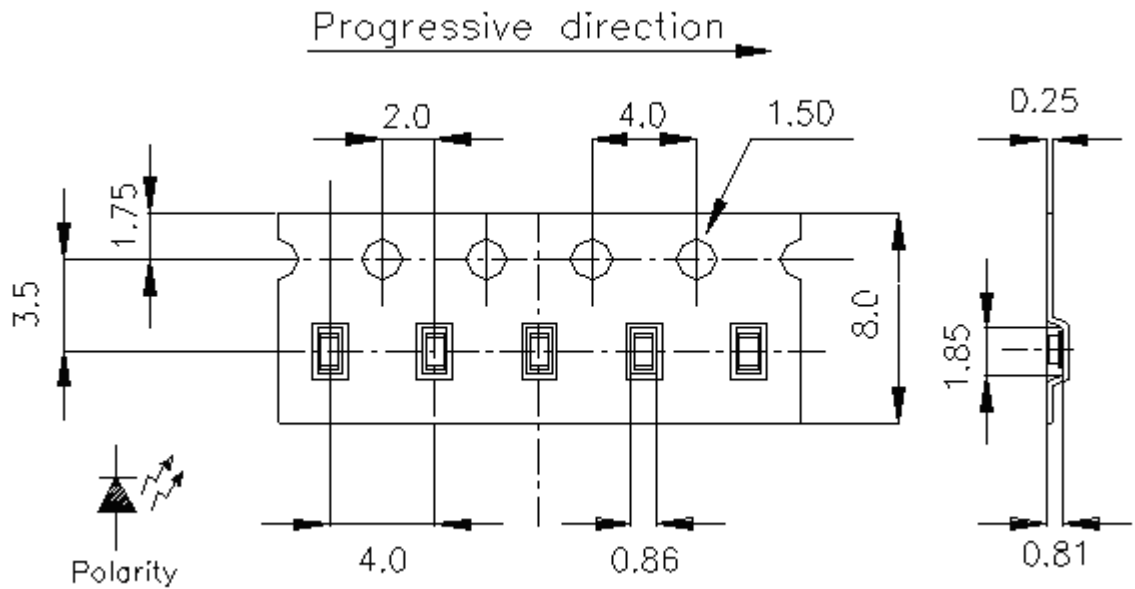
Reel Dimensions



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

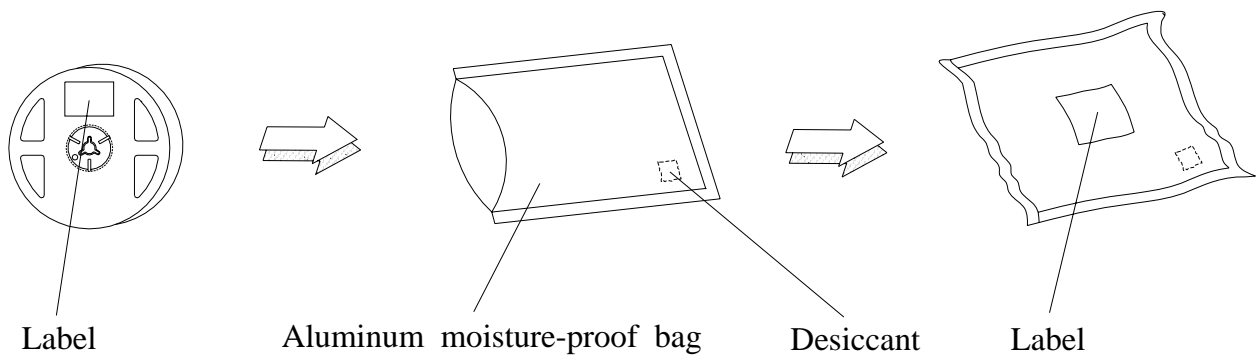
19-213/GHC-YR1S2/3T

Carrier Tape Dimensions: Loaded quantity 3000 PCS per reel



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$,Unit = mm.

Moisture Resistant Packaging



19-213/GHC-YR1S2/3T
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°C ±5°C Min. 5sec.	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	1000 Hrs.	22 PCS.	0/1
5	Low Temperature Storage	Temp. : -40°C	1000 Hrs.	22 PCS.	0/1
6	DC Operating Life	IF = 20 mA	1000 Hrs.	22 PCS.	0/1
7	High Temperature / High Humidity	85°C / 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°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.

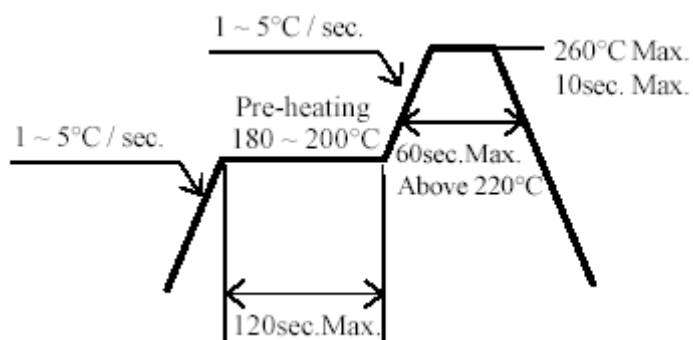
If unused LEDs remain, it should be stored in moisture proof packages.

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 : $60\pm 5^{\circ}\text{C}$ 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.

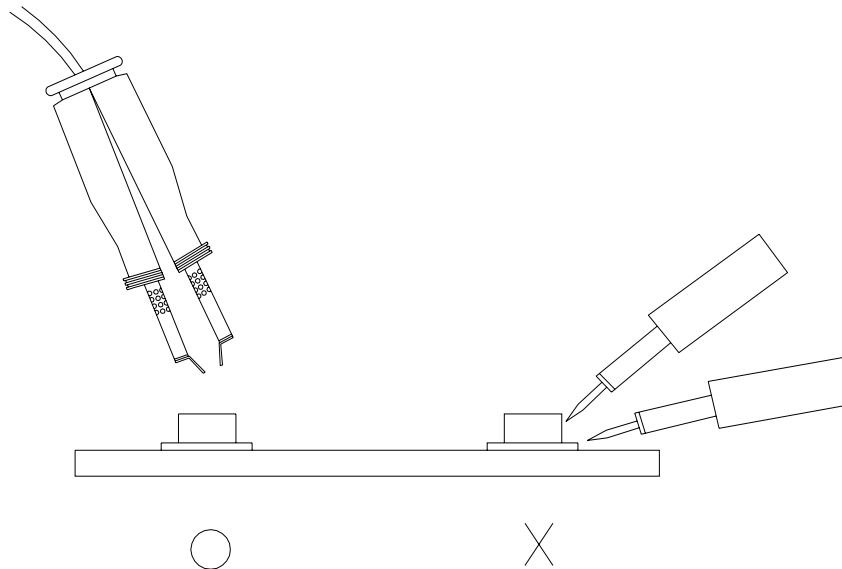
3.4 After soldering, do not warp the circuit board.

19-213/GHC-YR1S2/3T**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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