

## Technical Data Sheet

### 0.6mm Height Flat Top LED

#### 19-213/GVC-ALNB/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.

#### 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

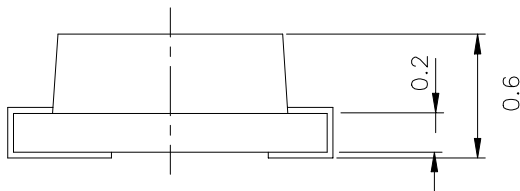
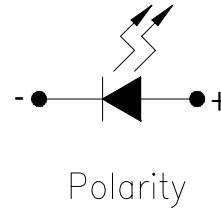
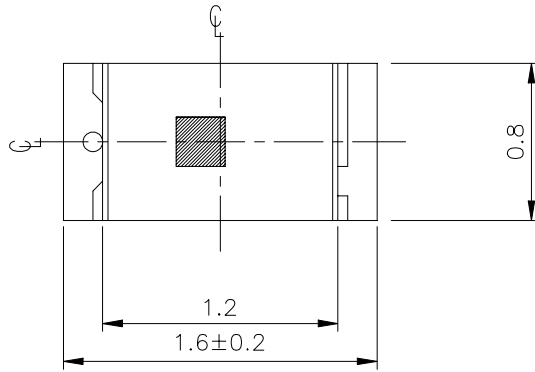
- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and backlighting in telephone and fax.
- Flat backlight for LCD, switch and symbol.
- General use.
- Indoor signboard use.



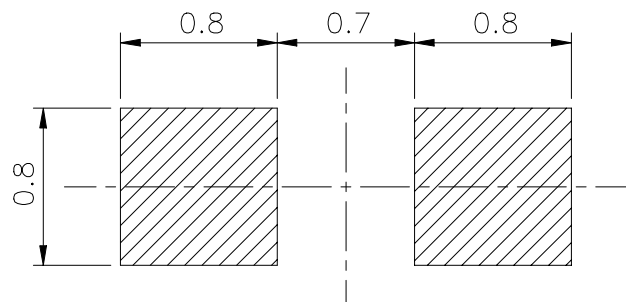
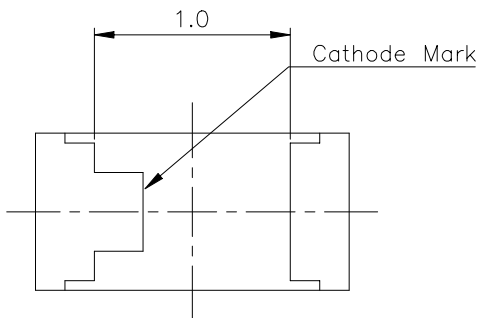
#### Device Selection Guide

Part No.	Chip		Lens Color
	Material	Emitted Color	
19-213/GVC-ALNB/3T	AlGaInP	Green	Water Clear

**Package Outline Dimensions**



For reflow soldering (Propose)



**Note:** The tolerances unless mentioned is  $\pm 0.1\text{mm}$  , Angle  $\pm 0.5^\circ$  ,Unit = mm

**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Unit
Reverse Voltage	V <sub>R</sub>	5	V
Forward Current	I <sub>F</sub>	25	mA
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +90	°C
Soldering Temperature	T <sub>sol</sub>	260 (for 5 seconds)	°C
Electrostatic Discharge	ESD	2000	V
Power Dissipation	P <sub>d</sub>	110	mW
Peak Forward Current (Duty 1/10 @ 1KHz)	I <sub>F</sub>	60	mA

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	I <sub>v</sub>	11.5	-----	45.0	mcd	I <sub>F</sub> =20mA
Peak Wavelength	λ <sub>p</sub>	-----	568	-----	nm	
Dominant Wavelength	λ <sub>d</sub>	563.5	-----	571.5	nm	
Spectrum Radiation Bandwidth	Δλ	-----	20	-----	nm	
Viewing Angle	2θ 1/2	-----	120	-----	deg	
Forward Voltage	V <sub>F</sub>	1.75	-----	2.35	V	
Reverse Current	I <sub>R</sub>	-----	-----	10	μA	V <sub>R</sub> =5V

**Bin Rang Of Dom. Wavelength**

Groups	Bin	Min	Max	Unit	Condition
<b>A</b>	C13	563.5	565.5	nm	IF=20mA
	C14	565.5	567.5		
	C15	567.5	569.5		
	C16	569.5	571.5		

**Bin Rang Of Luminous Intensity**

Bin	Min	Max	Unit	Condition
L	11.5	18.0	mcd	IF=20mA
M	18.0	28.5		
N	28.5	45.0		

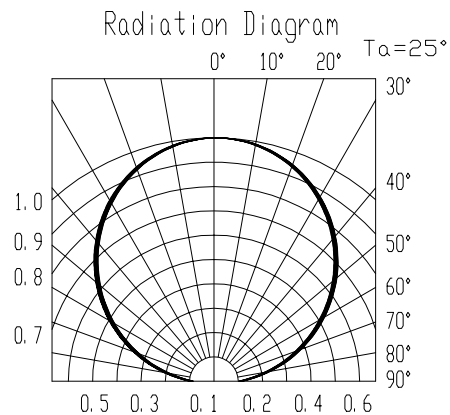
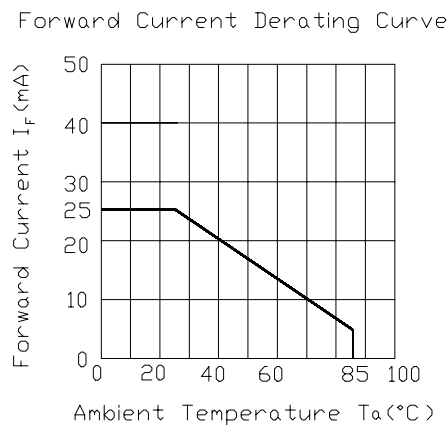
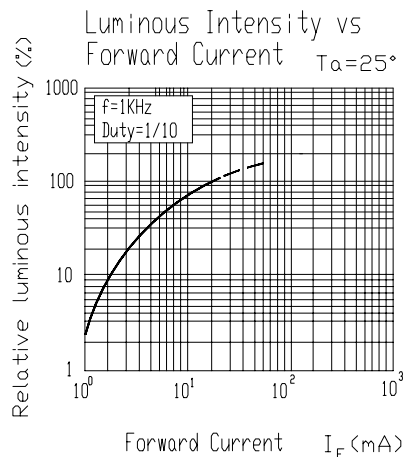
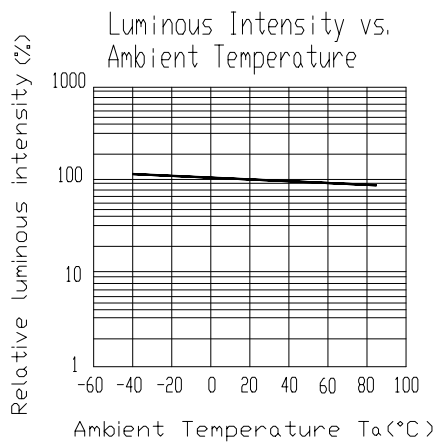
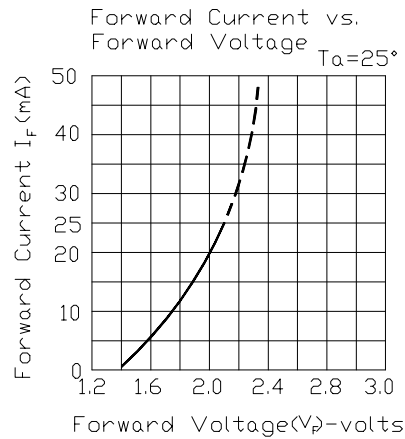
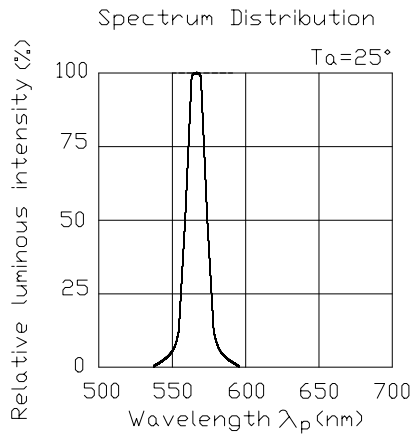
**Bin Rang Of Forward Voltage**

Groups	Bin	Min	Max	Unit	Condition
<b>B</b>	0	1.75	1.95	nm	IF=20mA
	1	1.95	2.15		
	2	2.15	2.35		

**Notes:**

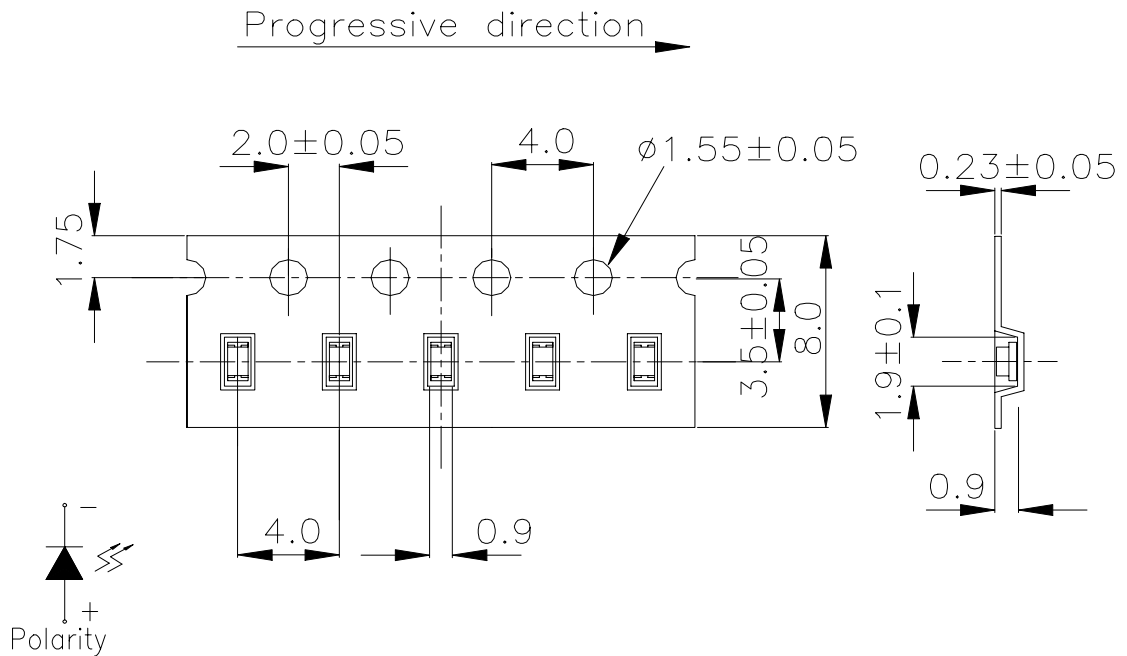
- 1.Tolerance of Luminous Intensity  $\pm 15\%$**
- 2.Tolerance of Dominant Wavelength  $\pm 1\text{nm}$**
- 3.Tolerance of Forward Voltage  $\pm 0.1\text{V}$**

**Typical Electro-Optical Characteristics Curves**



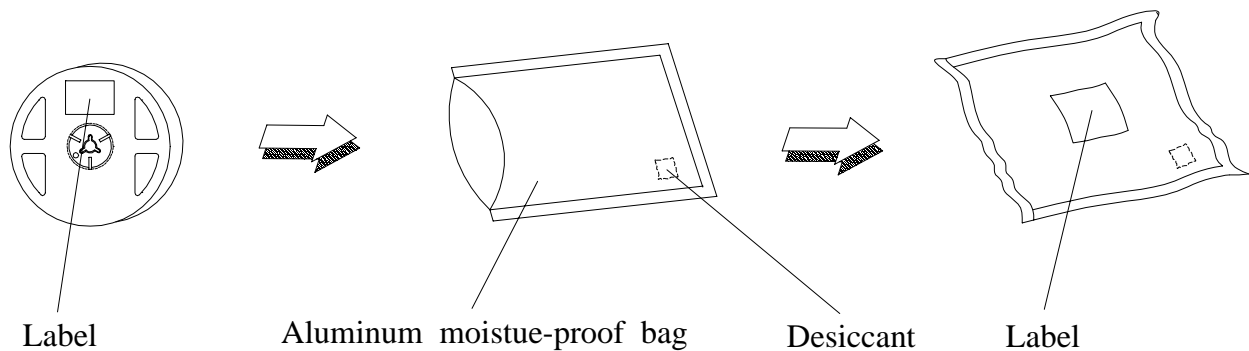


**Carrier Tape Dimensions**



**Note:** The tolerances unless mentioned is  $\pm 0.1\text{mm}$  , Angle $\pm 0.5^\circ$  ,Unit = mm

**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/Rc
1	Reflow	Temp. : 240°C ± 5°C Min. 5 sec.	6 min.	22 Pcs.	0/1
2	Temperature Cycle	H : +100°C 15 min. § 5 min. L : -40°C 15 min.	300 Cycles	22 Pcs.	0/1
3	Thermal Shock	H : +100°C 5 min. § 10 sec. L : -10°C 5 min.	300 Cycles	22 Pcs.	0/1
4	High Temperature Storage	Temp. : 100°C	1000 Hrs.	22 Pcs.	0/1
5	Low Temperature Storage	Temp. : -55°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/RH 85%	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 ).

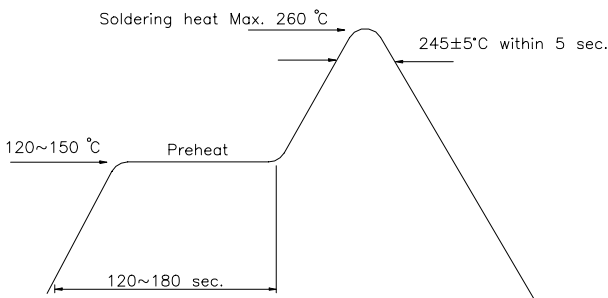
2. Storage time

2.1 The operation of Temperature and RH are : 5°C ~35°C , RH60%.

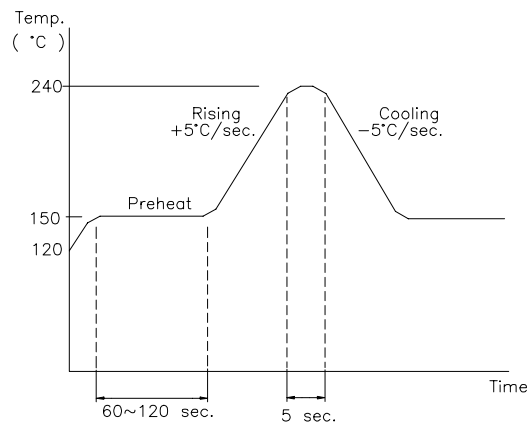
2.2 Once the package is opened, the products should be used within a week. Otherwise, they should be kept in a damp proof box with descanting agent. Considering the tape life , we suggest our customers to use our products within a year(from production date).

2.3 If opened more than one week in an atmosphere 5°C ~35°C , RH 60%, they should be treated at 60°C± 5°C for 15hrs.

**Soldering heat**



**Reflow Temp / Time**

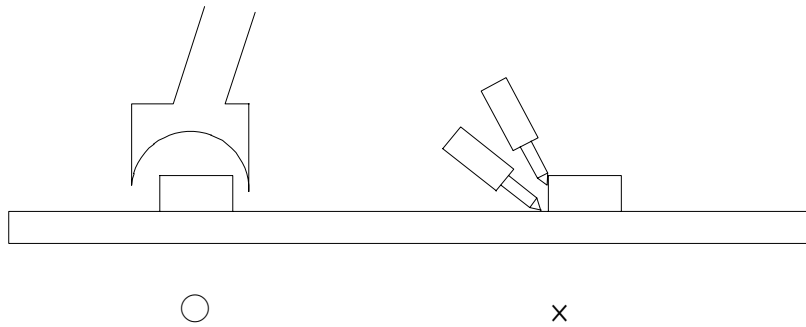


**Soldering Iron**

Basic spec is  $\leq 5$  sec when 260°C. If temperature is higher, time should be shorter (+10°C → -1sec). Power dissipation of Iron should be smaller than 15 W , and temperature should be controllable. Surface temperature of the device should be under 230 °C .

**Rework**

1. Customer must finish rework within 5 sec under 245°C.
2. The head of iron can not touch copper foil.
3. Twin-head type is preferred.



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