SPECIFICATION FOR APPROVAL

Customer : _____

Customer Part No: _____

SHINING Part No: SN-NE2121ADXBRGB-N

Emitted color: RGB

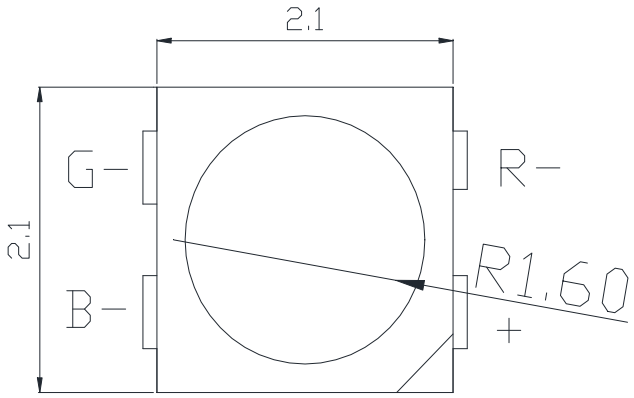
Revision History		
Date	**Revision History**	**Prepared**
2022.3.17	New Version	A/0

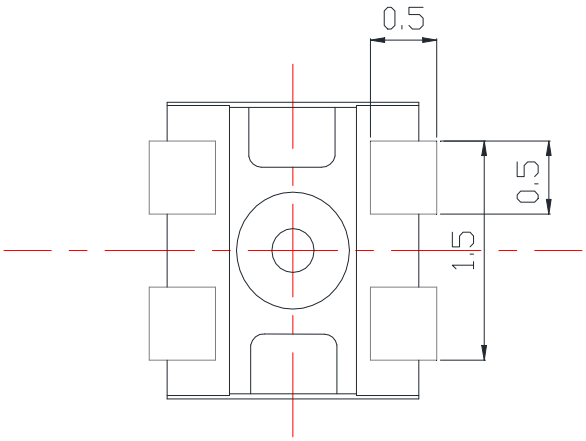
Confirmed By Customer	Approval by	Prepared by
	Liusan	Shaochengcheng

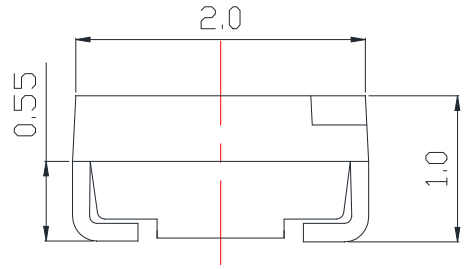
Feature

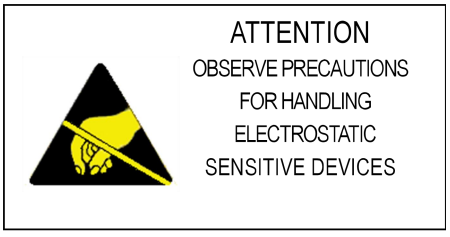
- Δ Viewing angle:120 deg
- Δ 2.1mm×2.1mm×1.0mm
- Δ Pb-free
- Δ RoHS compliant lead-free soldering compatible
- Δ AEC-Q102 Qualified
- Δ Precondition: Bases on JEDEC J-STD 020D Level 3

Package Outline









NOTES:

1. All dimensions are in millimeters ;
2. Tolerances are ±0.2mm unless otherwise noted.

Absolute maximum ratings at Ta=25℃

Parameter	Symbol	Value		Unit
Forward current	If	R	15	mA
	If	B	15	mA
	If	G	15	mA
Reverse voltage	Vr		5	V
Operating temperature range	Top		-40 ~+105	℃
Storage temperature range	Tstg		-40~+105	℃
Pulse Forward Current (Pulse Width≦100 μs and Duty ≦3%)	Ifp		30	mA
Electrostatic Discharge	ESD		2000(HBM)	V

Electro-optical characteristics at Ta=25℃

Parameter	Test Condition		Symbol	Value			Unit
				Min.	Typ.	Max.	
Forward voltage	If=15mA	R	Vf	1.7	--	2.5	V
	If=10mA	G	Vf	2.5	--	3.0	V
	If=10mA	B	Vf	2.5	--	3.0	V
Luminous intensity	If=15mA	R	Iv	285	--	560	Mcd
	If=10mA	G	Iv	715		1400	Mcd
	If=10mA	B	Iv	140		285	Mcd
Dominant Wave Length	If=15mA	R	WD	619		624	nm
	If=10mA	G	WD	525		537	nm
	If=10mA	B	WD	465		475	nm
Viewing angle at 50% Iv	(R)IF=15mA (G/B) IF=10mA		2 θ 1/2	--	120	--	Deg
Reverse current	Vr=5V		Ir	--	--	10	μA

\NOTE: (Tolerance: IV±10%, Vf ±0.1V, WD ±1nm)

Forward voltage range

Forward Voltage Unit：V		
Chip	MIN	MAX
R	1.7	2.5
G	2.5	3.0
B	2.5	3.0

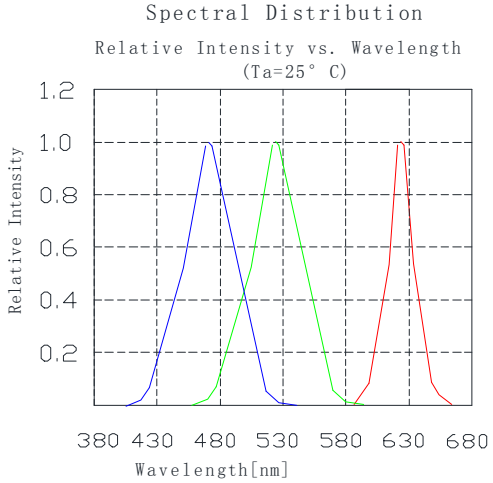
Luminous intensity range

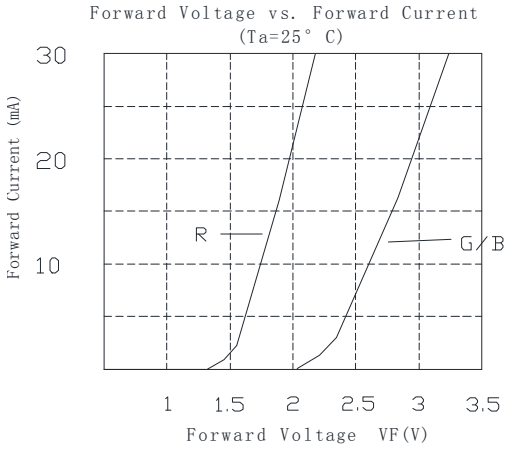
Luminous Intensity Unit：mcd			
Chip	Bin Code	MIN	MAX
R	T1	285	355
	T2	355	450
	U1	450	560
G	V1	715	900
	V2	900	1125
	W1	1125	1400
B	R2	140	180
	S1	180	224
	S2	224	285

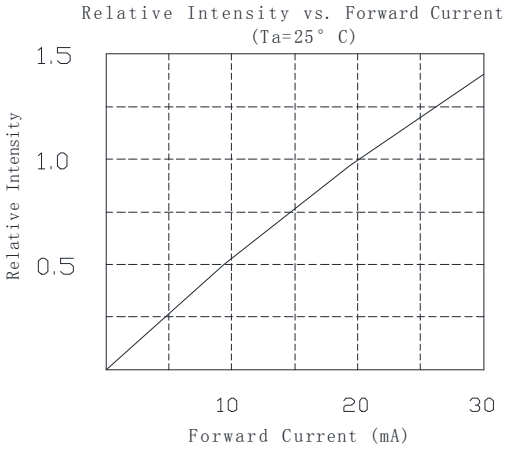
Chromaticity range

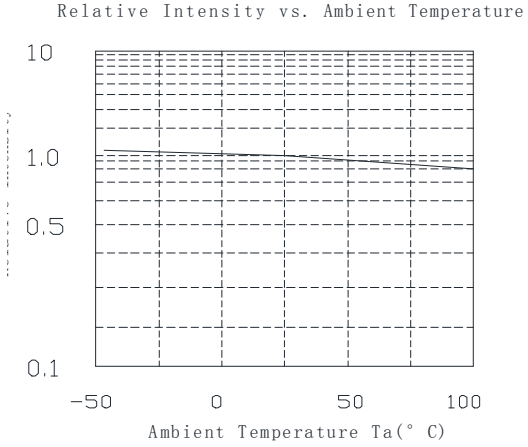
Dominant Wavelength Unit：nm			
Chip	Bin Code	MIN	MAX
R	Full Distribution	619	624
G	A	525	531
	B	528	534
	C	531	537
B	A	465	469
	B	467	471
	C	469	473
	D	471	475

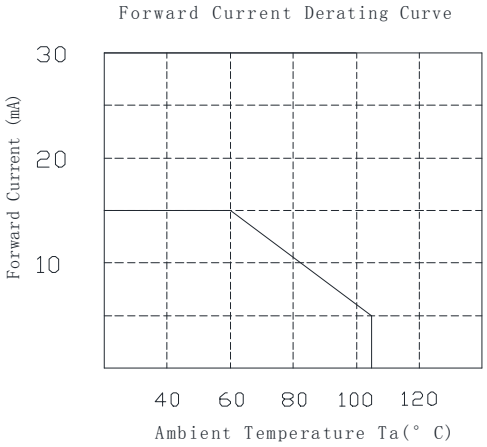
Typical optical characteristics curves











Reflow profile

■ Soldering condition

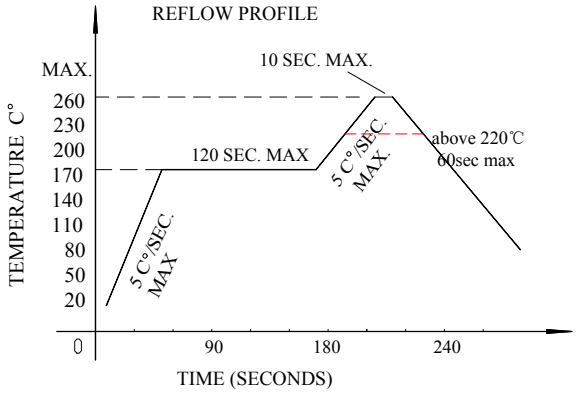
• Recommended soldering conditions

Reflow Soldering		Hand Soldering	
Pre-heat	160～180℃	Temperature	300℃ Max.
Pre-heat time	120 seconds Max.		
Peak temperature	260℃ Max.	Soldering time	3 second Max.
Soldering time	10 seconds Max.		(one time only)
Condition	Refer to Temperature-profile		

• After reflow soldering rapid cooling should be avoided

■ Temperature-profile (Surface of circuit board)

Use the following conditions shown in the figure.



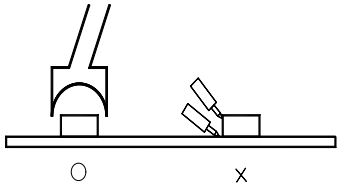
1. Reflow soldering should not be done more than two times
2. When soldering ,do not put stress on the LEDs during heating

■ Soldering iron

1. When hand soldering, keep the temperature of the iron under 300℃, and at that temperature keep the time under 3 sec.
2. The hand soldering should be done only a time
3. The basic spec is ≤5 sec. when the temperature of 260℃, do not contact the resin when hand soldering

■ Rework

1. Customer must finish rework within 5 sec und
2. The head of iron can not touch the resin
3. Twin-head type is preferred.



■ CAUTIONS

The encapsulated material of the LEDs is silicone . Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the picking up nozzle, the pressure on the silicone resin should be proper.

Reliability

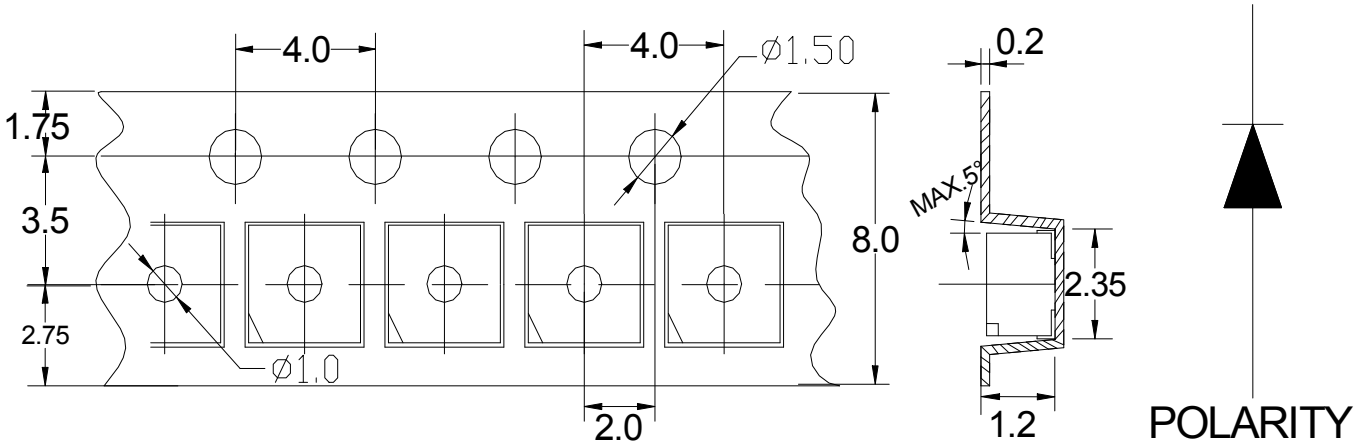
(1)TEST ITEMS AND RESULTS

Test Item	Test Conditions	Note	Number of Damaged
Resistance to Soldering Heat(Reflow Soldering)	Tsld=260℃,10sec	3 times	0/22
Thermal Shock	-40℃ 30min ↑↓<5min 105℃ 30min	1000 cycle	0/22
High Temperature Storage	T_a=105℃	1000 hrs	0/22
Humidity Heat Storage	T_a=85℃ RH=85%	1000 hrs	0/22
Low Temperature Storage	T_a=-40℃	1000 hrs	0/22
Normal Temperature Life Test	T_a=25℃ I_F=15mA	1000 hrs	0/22
High Temperature Life Test	T_a=105℃ I_F=5mA	1000 hrs	0/22
Low Temperature Life Test	T_a=-40℃ I_F=15mA	1000 hrs	0/22
Temperature Cycle	-40℃ 10min ↑↓15min 105℃ 10min I_F=5mA 5Min On,5Min Off	1000 cycle	0/22
High Humidity Heat Life Test	T_a=60℃ RH=85% I_F=15mA	1000 hrs	0/22
Pulse Life Test	T_a=55℃ Pulse Forward Current 30mA Pulse Width ≦ 100 μs and Duty ≦ 3%	1000 hrs	0/22

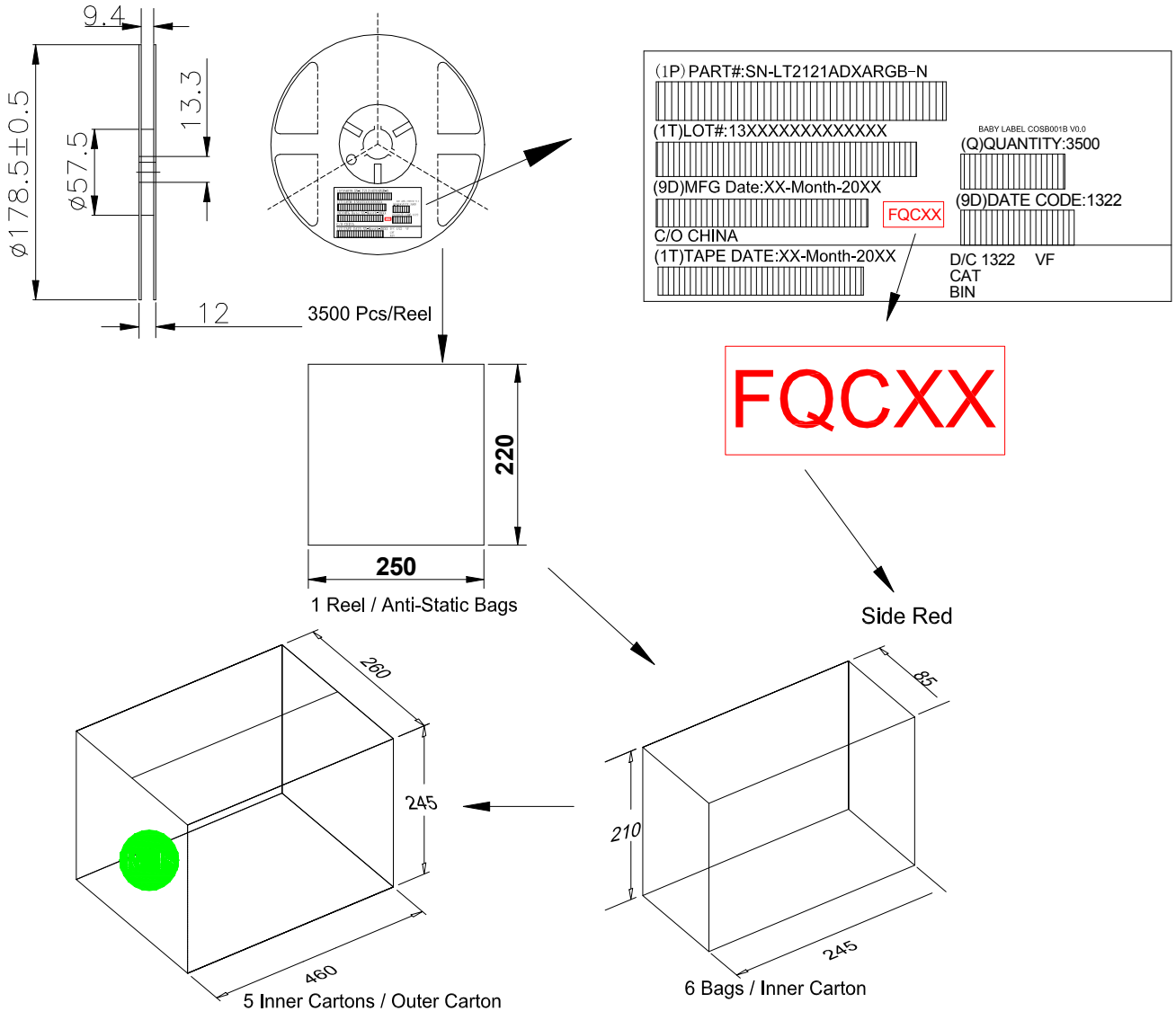
(2)CRITERIA FOR JUDGING THE DAMAGE

Item	Symbol	Criteria for Judgement	
		Min.	Max.
Forward Voltage	VF	_	Initial Data×1.1
Luminous Intensity	IV	Initial Data×0.8	_
Wavelength	NM	Initia-2	Initia+2

Packaging Specifications



Packaging specifications



CAUTIONS

Storage conditions

Before opening the package:

The LEDs should be kept at 30℃ or less and 70%RH or less. The LEDs should be used within a year. When storing the LEDs, moisture proof packaging with absorbent material (silica gel) is recommended.

After opening the package:

The LEDs should be kept at 30℃ or less and 50%RH or less. The LEDs should be soldered within 24 hours (1days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material (silica gel). It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.

This specification shining has the right of final interpretation