Harvatek Surface Mount CHIP LEDs Approval Sheet
B2G32USNB05C-000113

DISCLAIMER

HARVATEK reserves the right to make changes without further notice to any products herein to improve reliability, function or design. HARVATEK does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights, nor the rights of others.

LIFE SUPPORT POLICY

HARVATEK's products are not authorized for use as critical components in life support devices or systems without the express written approval of the President of HARVATEK or HARVATEK INTERNATIONAL. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.

2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Product Specification

	Specification	Material	Quantity
Iv	**USD:** 11.25-71.5 mcd **NB:** 11.25-45.0mcd @5mA/ Ta= 25^{O} C Tolerance: ± 10%		
lambda(λ_D)	**USD**:615-635nm **NB**:460.0-480.0 nm @5mA/ Ta= 25^{O} C; Tolerance; ± 0.5nm		
Vf	**USD**: 1.6-2.4V **NB**: 2.55-3.15V /0.1V/BIN @5mA/ Ta= 25^{O} C, Tolerance: ± 0.05V		
Ir	< 100 µA @ V_R = 5 V		
Resin	Clear	Epoxy resin	
Carrier tape	According to EIA 481-1A specs	Conductive tape	3000pcs per reel
Reel	According to EIA 481-1A specs	Conductive Black	
Label	HT standard	Paper	
Packing bag	220x240mm	Aluminum laminated bag	One reel one bag
Carton	HT standard	Paper	Non-specified

Others:

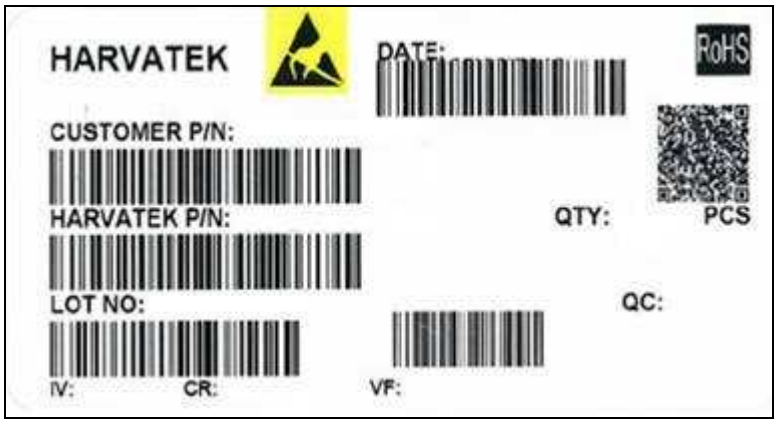
Every mid-box will be loaded 5 reels. These 5 reels can be different in lot, Iv, lambda, or Vf. Every reel will have an independent label to identify its specification and the mid-box there will have a corresponding label post on it.

ATTENTION: Electricstatic Discharge (ESD) protection

The symbol shown on the page herein to introduce 'Electro-Optical Characteristics'. ESD protection for GaP and AlGaAs based chips is still necessary even though they are safe in low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are **STATIC SENSITIVE devices**. ESD protection has to considered and taken in the initial design stage.

If manual work/process is needed, please ensure the device is well protected from ESD during all the process.

Label Spec.:



■ Harvatek P/N

B 2 G 3 2 U SNB 20

Product	Package	Dice	Color	Current
PCB	1.6(L)x1.25(W)x0.4(H)mm	1: Single	USD: Ultra Bright Red NB: Blue	20 mA

■ Lot No.:

1	2	3	4	5	6	7	8	9	10
E	1	A	1	A	2	2	L	1	2
Code 1 2		Code 3	Code 4	Code 5	Code 6	Code 7	Code 8	Code 9	Code 10
		Mfg. Year	Mfg. Month	Mfg. Date	Consecutive number		Special code		
Internal Tracing Code		2010-A 2011-B 2012-C 2013-D . .	1:Jan. 2:Feb. .... A:Oct. B:Nov. C:Dec.	1:A 2:B 3:C ... 26:Z 27:7 28:8 29:9 30:3 31:4	01~ZZ		000~ZZZ		

■ **Iv Bin:**

Color	Bin Code	Spec. Range
Ultra Bright Red	L	11.25-18.0 mcd
	M	18.0-28.5 mcd
	N	28.5-45.0 mcd
	P	45.0-71.5 mcd
Blue	L	11.25-18.0 mcd
	M	18.0-28.5 mcd
	N	28.5-45.0 mcd

■ **Dominate Wavelength :**

Color	Bin Code	Spec. Range
Ultra Bright Red	-	615.0-635.0 nm
Blue	AA	460.0-465.0 nm
	AB	465.0-470.0 nm
	AC	470.0-475.0 nm
	AD	475.0-480.0 nm

■ **Vf Bin:**

Color	Bin Code	Spec. Range
Ultra Bright Red	-	1.6-2.4 V
Blue	G2T	2.55-2.65 V
	G3T	2.65-2.75 V
	G4T	2.75-2.85 V
	H1T	2.85-2.95 V
	H2T	2.95-3.05 V
	H3T	3.05-3.15 V

Product Feature

Electro-Optical Characteristics

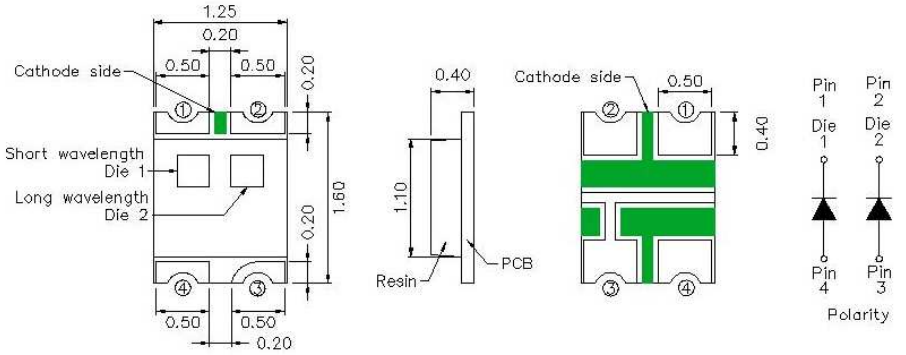
(I_F @ 5mA, T_a 25°C)

Code for parts	Lighting Color	Material	V_F(V)		λ (nm)			I^*_V(mcd)
			typ	max	λ_D	λ_P	△λ	typ
B2G32USNB05C	Ultra Bright Red	AlInGaP	1.9	2.4	622	636	17	28.5
	Blue	InGan	2.8	3.15	472	470	40	18.0

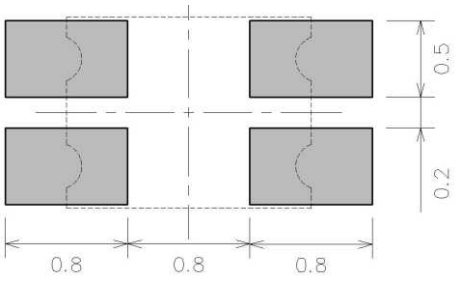
Package Outline Dimension and Recommended Soldering Pattern for Reflow Soldering

Unit: mm Tolerance: +/-0.1

Outline Dim.



Soldering Pattern



Soldering terminal may shift in x, y direction.

Absolute Maximum Ratings

(T_a 25°C)

Series	I_F (mA)	I_{FP} (mA)**	V_R (V)	I_R (uA)	T_{OP} (°C)	T_{ST} (°C)
Ultra Bright Red	20	80	5	<100@ V_R = 5	-30~+80	-40~+85
Blue	20	80				

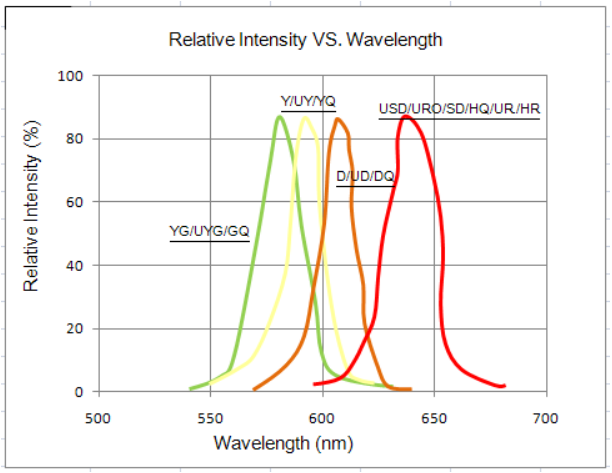
** Condition for I_{FP} is pulse of 1/10 duty and 0.1msec width

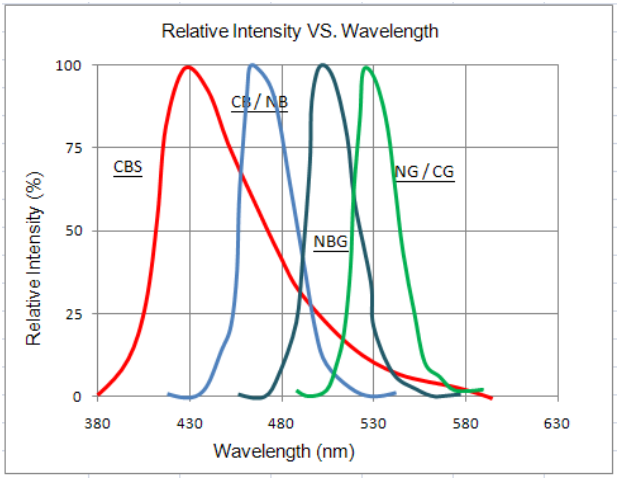
Remarks:This product should be operated in forward bias.If a reverse voltage is continuously applied to the product, such operation can cause migration resulting in LED damage.

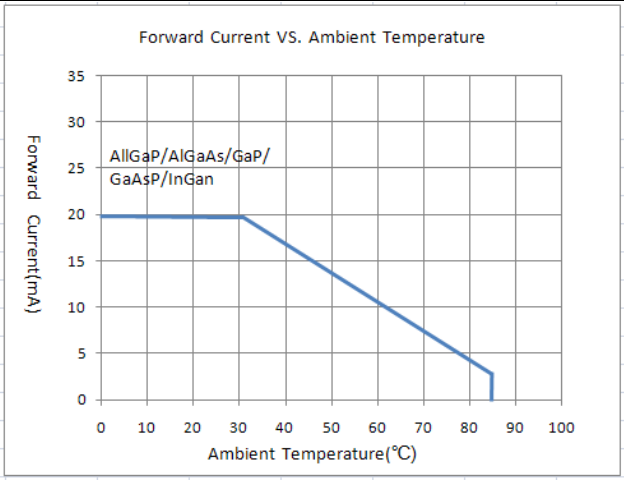
Precaution for Use

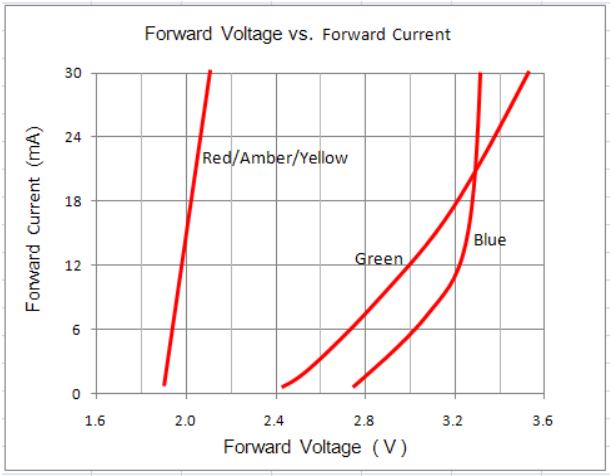
1. The chips should not be used directly in any type of fluid such as water, oil, organic solvent, etc.
2. When the LEDs are illuminating, the maximum ambient temperature should be first considered before operation.
3. LEDs must be stored in a clean environment. A sealed container with a nitrogen atmosphere is necessary if the storage period is over 3 months after shipping.
4. The LEDs must be used within seven days after unpacked. Unused products must be repacked in an anti-electrostatic package, folded to close any opening and then stored in a dry and cool space.
5. The appearance and specifications of the products may be modified for improvement without further notice.
6. The LEDs are sensitive to the static electricity and surge. It is strongly recommended to use a grounded wrist band and anti-electrostatic glove when handling the LEDs.
   If a voltage over the absolute maximum rating is applied to LEDs, it will damage LEDs. Damaged LEDs will show some abnormal characteristics such as remarkable increase of leak current, lower turn-on voltage and getting unlit at low current.

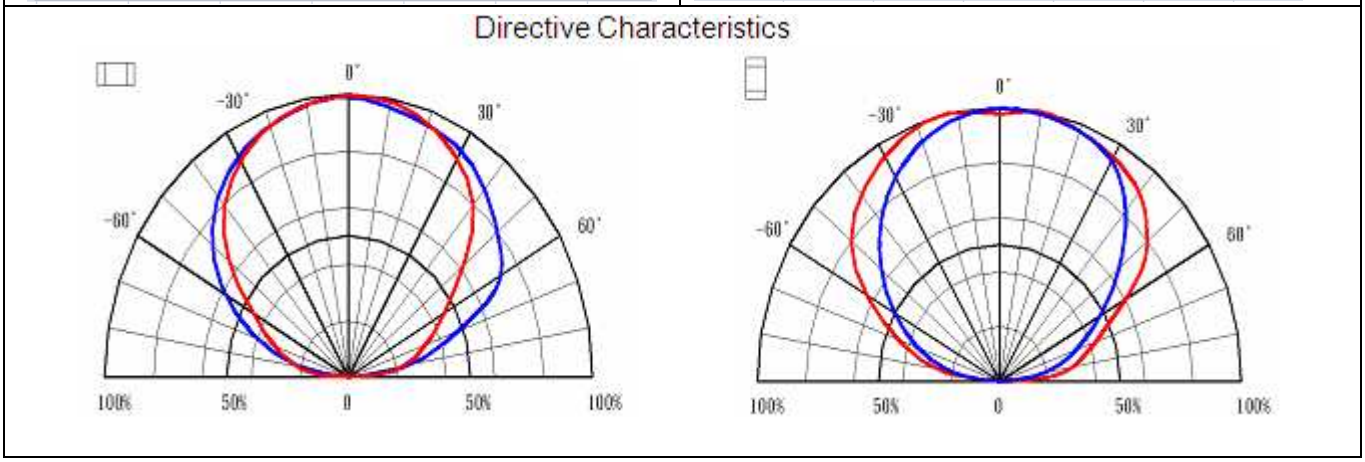
Characteristics of HT-2G3 Series





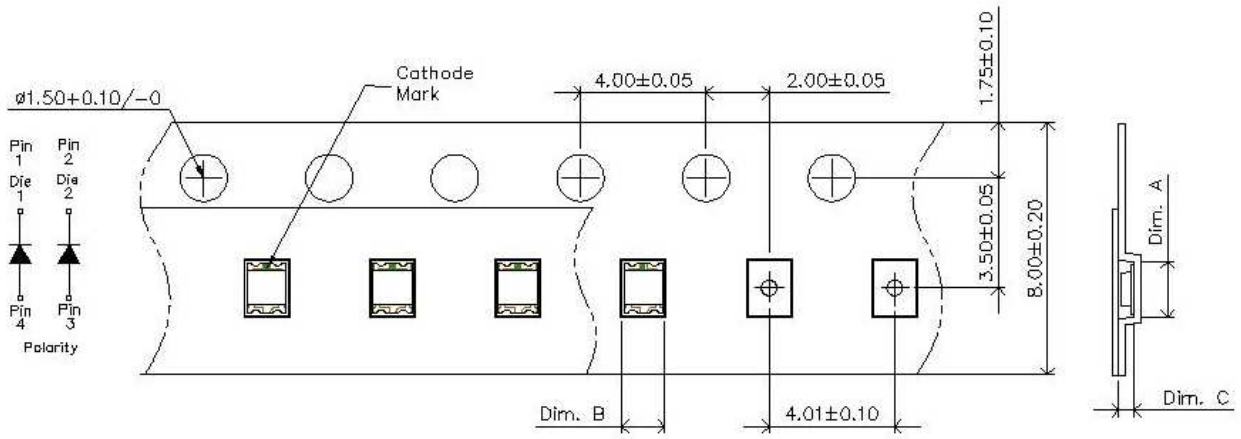






Packaging Tape, Reel, and Packing Model

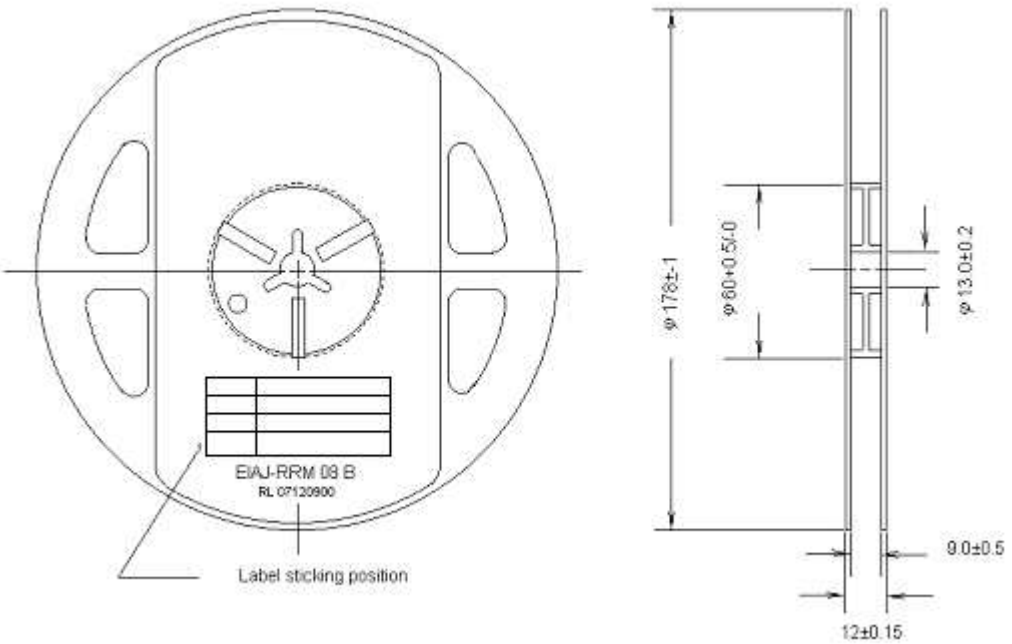
Tape Dimension



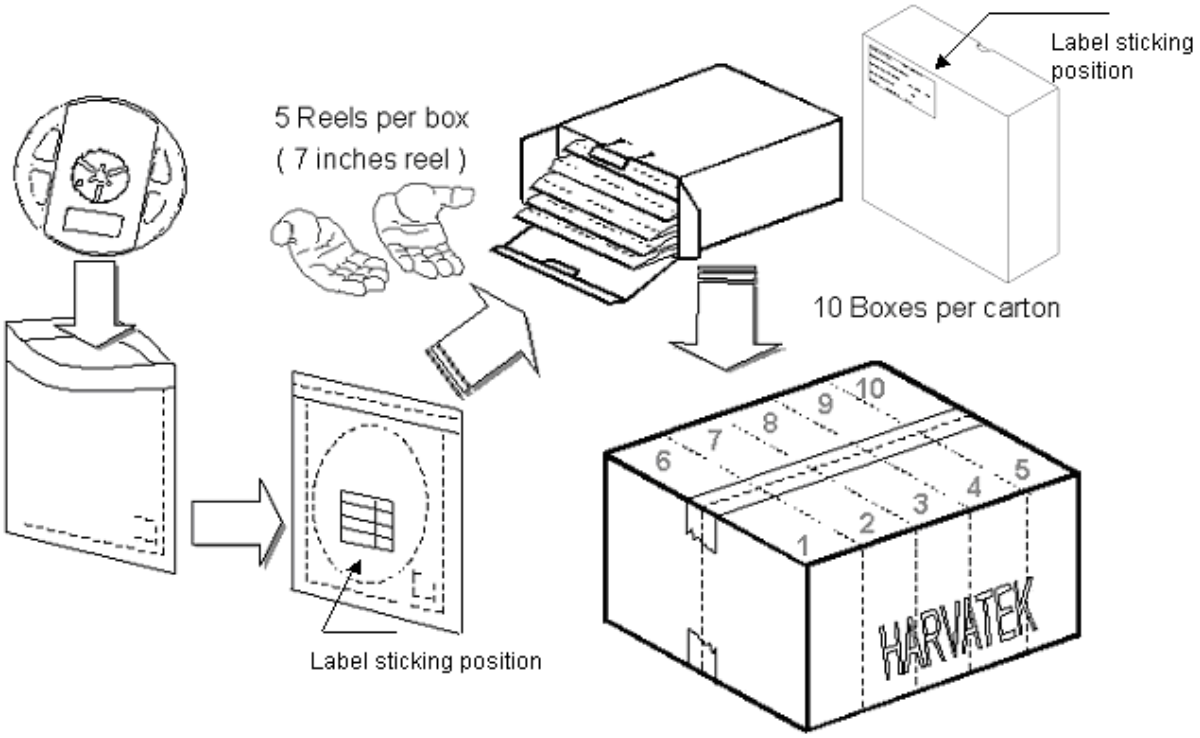
Part No.	Dim. A	Dim. B	Dim. C	Q'ty/Reel
HT-2G3	1.75±0.10	1.37±0.10	0.5±0.10	3K

Unit: mm

Reel Dimension



Packing Model



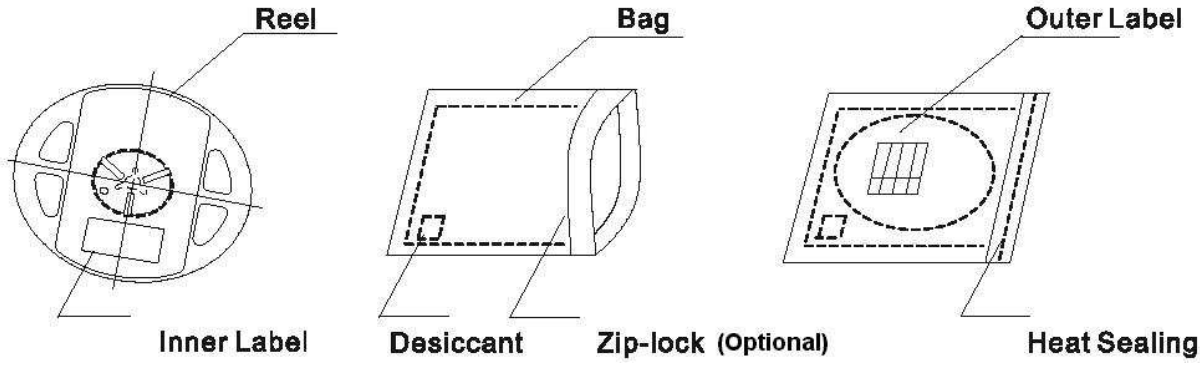
5 boxes per carton is available according to shipping quantity.

Dry Pack

Any SMD optical device, like this chip LED, is **MOISTURE SENSITIVE device**. Avoid absorbing moisture at any time during transportation or storage. Every reel will be packaged in the moisture barrier anti-static bag (Specific bag material will depend upon customers' requirement or option). And the bag is well sealed before shipment.

By customer's requirement, we will put a humidity indicator in each moisture barrier anti-static bag before shipment.

The package is the following:



Cautions of Pick and Place

It should be avoided to load stress on the resin during high temperature.

Avoid rubbing or scraping the resin by any object.

Electric-static may cause damage to the component. Please confirm that the equipment grounding well. Using an ionizer fan is recommended.

PRECAUTIONS

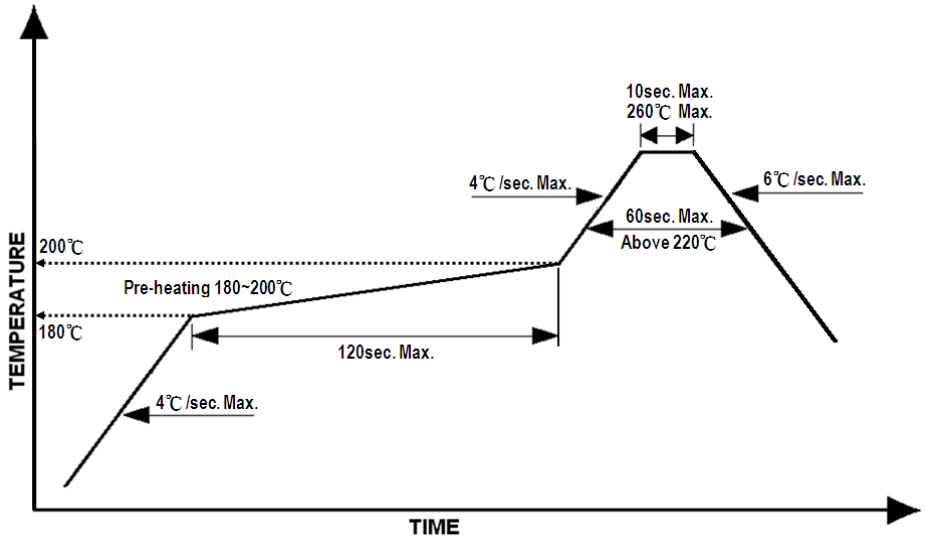
1. Avoid absorbing moisture at any time during transportation or storage.
2. Anti-Static process is needed especially when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a proper series current limit resistor. Avoid driving reverse voltage over the specification of LEDs when turning the unit ON/OFF.
4. Any application should refer to the specifications of absolute maximum ratings.
5. Avoid any direct contact with the viewing area.
6. If possible, assemble the unit in a clean room or dust-free environment.

Re-flow Soldering

Recommend soldering paste specifications:

1. Operating temp.: Above 220 ^{O}C ,60 sec.
2. Peak temp.:260 ^{O}CMax.,10sec Max.
3. Never attempt next process until the component is cooled down to room temperature after reflow.
4. The recommended reflow soldering profile (measured on the surface of the LED terminal) is as following:

Lead-free Solder Profile



Rework

- Customer must finish rework within 5 sec. under 260 ^{O}C.
- The head of iron cannot touch copper foil.
- Twin-head type is preferred.

Cleaning

The conditions of cleaning after soldering:

An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.

Temperature×Time: <50 ^{O}C×30sec, or <30 ^{O}C×3min

Ultra sonic cleaning: < 15W/ bath; Bath volume: 1liter max.

Curing: 100 ^{O}C max, <3min

Do not contact with component on the assembly board.

Cautions of Pick and Place

It should be avoided to load stress on the resin during high temperature.

Avoid rubbing or scraping the resin by any object.

Electric-static may cause damage to the component. Please confirm that the equipment grounding well. Using an ionizer fan is recommended.

Revise History

Rev.	Descriptions	Date	Page
1.0	-	06/14/2013	-