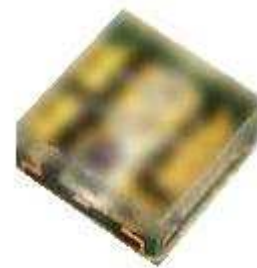


Dispure

B3053FCH-E7C-000114



Features

- Package: RGB 3 in 1 package/4pin Polarity
- Anti-Reflection resin
- View angle : $\geq 120^\circ$ (min 50% brightness)
- Component solder able surface finish is gold
- High contrast

Main Applications

- Indoor display
- Full color display
- Fine pitch application



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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.

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Product Specifications

	Specification	Material	Quantity
Iv	Red : 77 mcd typical @10mA Green : 160 mcd typical @5mA Blue : 40 mcd typical @5mA Ts= 25° C; Tolerance ±10%		
λ _D	Red : 621 nm typical @10mA Green : 531 nm typical @5mA Blue : 471 nm typical @5mA Ts = 25° C; Tolerance ± 0.5nm		
Vf	Red : 2.4 V maximum @10mA Green : 3.2 V maximum @5mA Blue : 3.2 V maximum @5mA Ts = 25° C; Tolerance ± 0.05V		
Ir	R: <10uA@ V _R = 5; G/B: <1uA@ V _R = 5		
Resin	Clear	Epoxy	
Carrier tape	EIA 481-1A specs	Conductive black tape	
Reel	EIA 481-1A specs	Conductive black	
Label	HT standard	Paper	
Packing bag	250x230mm	Aluminum laminated bag/ no-zipper	One reel per bag
Carton	HT standard	Paper	Non-specified

Others: Each immediate box consists of 5 reels. The 5 reels may not necessarily have the same lot number or the same bin combinations of I_v, λ_D and V_f. Each reel has a label identifying its specification; the immediate box consists of a product label as well.

Note :This is shipped test conditions

※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.

ATTENTION: Electrostatic Discharge (ESD) protection

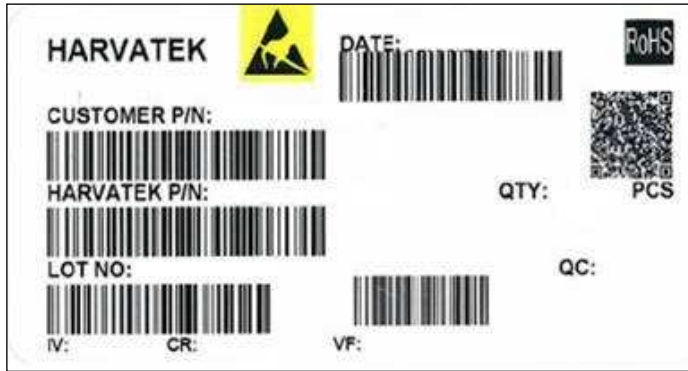


The symbol to the left denotes that ESD precaution is needed. ESD protection for GaP and AlGaAs based chips is necessary even though they are relatively safe in the presence of low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are **STATIC SENSITIVE devices**. ESD precaution must be taken during design and assembly.

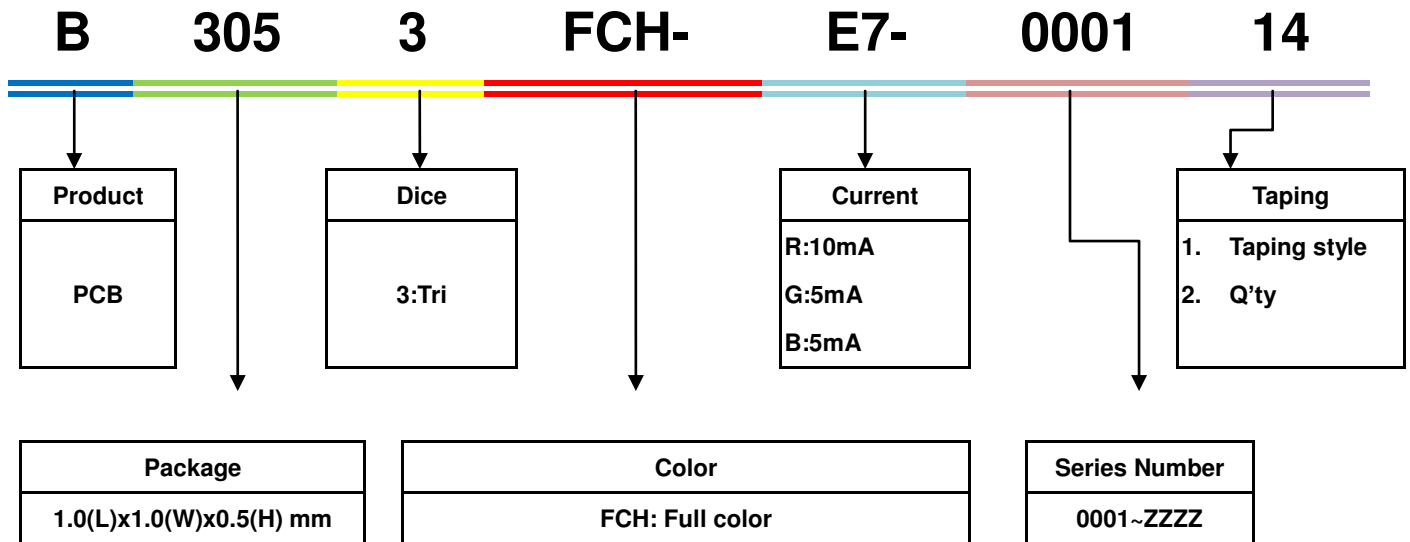
If manual work or processing is needed, please ensure the device is adequately protected from ESD during the process.

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Label Specifications



Harvatek P/N:



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		

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Luminous Intensity (Iv) Bin: R@10mA;G/B @5mA

IV								
R			G			B		
FL3	51	61	FP3	122	146	FJ2	28.8	34
FM1	56	67	FQ1	127	152	FJ3	30	36
FM2	61	73	FQ2	146	175	FK1	34	41
FM3	67	80	FQ3	152	182	FK2	36	43.5
FN1	73	87	FR1	175	210	FK3	41	49
FN2	80	96	FR2	182	218	FL1	43.5	52
FN3	87	104	FR3	210	252	FL2	49	59
FP1	96	115	FS1	218	261	FL3	52	62
FP2	104	125	FS2	252	302	FM1	59	71

Note: It maintains a tolerance of $\pm 10\%$ on IV

Dominant Wavelength (λ_D) Bin:

WD								
Red			Green			Blue		
R1	616	620	G1	517	520	B1	461	464
R2	620	624	G2	520	523	B2	464	467
R3	624	628	G3	523	526	B3	467	470
R4	628	632	G4	526	529	B4	470	473
R5	632	636	G5	529	532	B5	473	476
R6	636	640	G6	532	535	B6	476	479
			G7	535	538			

Note: It maintains a tolerance of $\pm 0.5\text{nm}$

Forward Voltage (Vf) Bin:

Vf								
Red			Green			Blue		
-	1.6	2.4	-	2.4	3.2	-	2.4	3.2

Note: It maintains a tolerance of $\pm 0.05\text{V}$ on forward voltage measurements

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Product Features

Electro-Optical Characteristics

Part number	Emitting Color	Material	Forward		Wavelength			I_v (mcd)		IF(mA)	Viewing Angle $2\theta \frac{1}{2}$
			Voltage(VF)		(nm) typ.						
			typ.	max.	λ_D	λ_p	$\Delta\lambda$	min.	typ.		
B3053FCH-E7	Ultra Bright Red	AlGaInP	1.9	2.4	621	632	16	52	77	10	140
	Green	GaN	2.7	3.2	531	519	32	122	160	5	140
	Blue	GaN	2.8	3.2	471	463	22	28.8	40	5	140

T_s 25 °C

Package Outline Dimension and Recommended Soldering Pattern for Reflow Soldering

(Unit: mm Tolerance: +/-0.1)

Outline Dim.	Soldering Pattern
Soldering terminals may shift in the x, y direction.	

Absolute Maximum Ratings

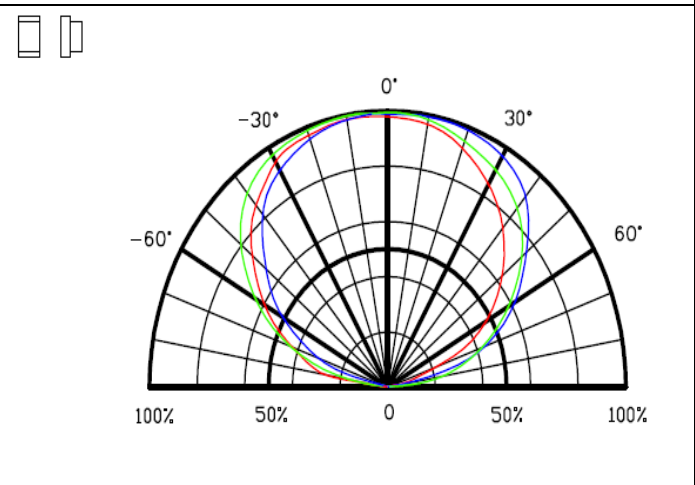
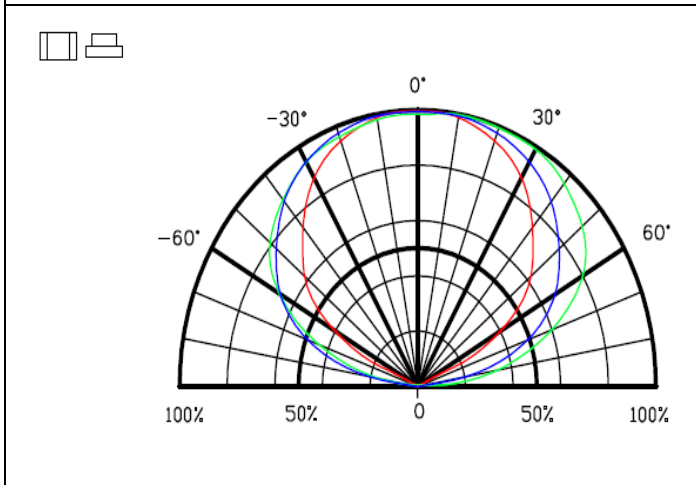
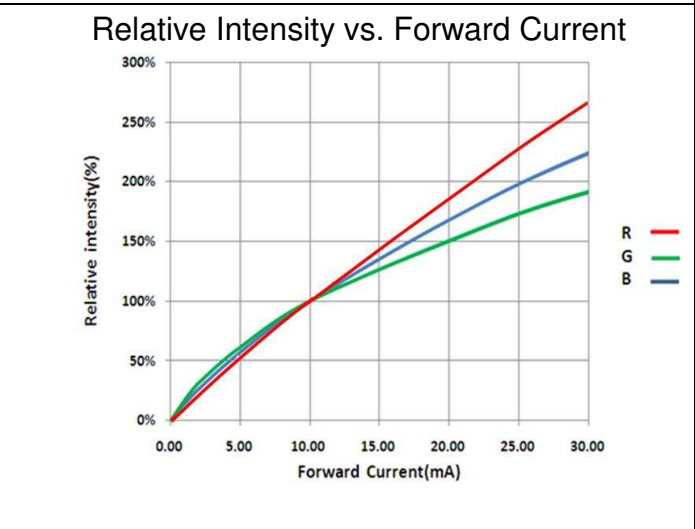
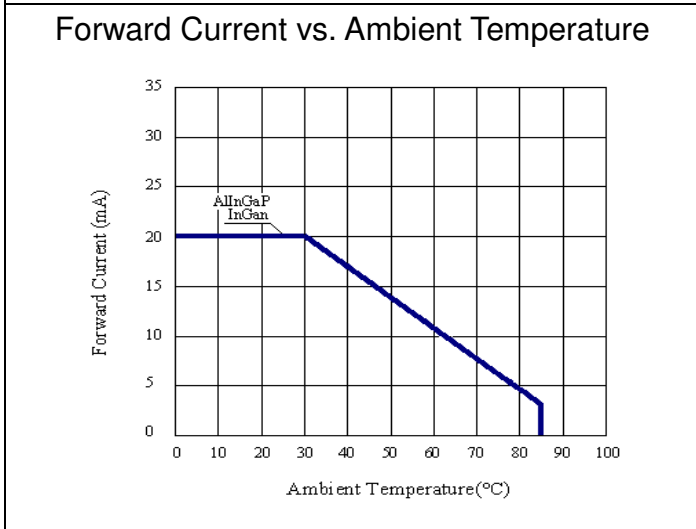
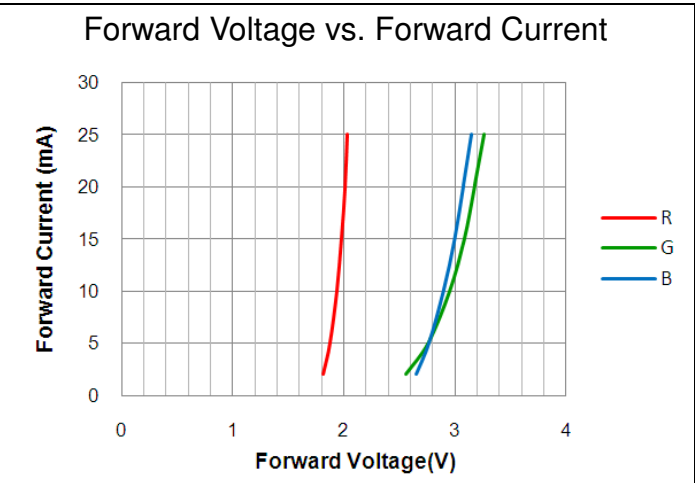
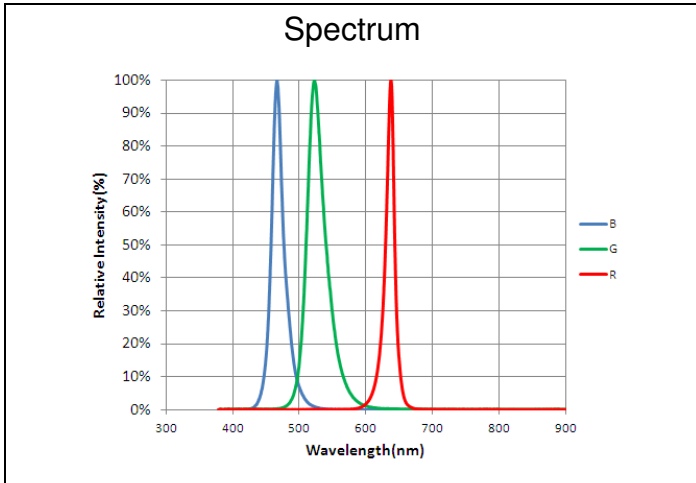
(T_s 25 °C)

Series	Pd (mW)	I_F (mA)	I_{FP} (mA)*	T_{OP} (°C)	T_{ST} (°C)
Color	Power Dissipation	Forward Current	Pulse Forward Current	Operating Temperature	Storage Temperature
Red	150	20	30	-40~+85	-40~+100
Blue/Green					

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

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Characteristics of B3053FCH



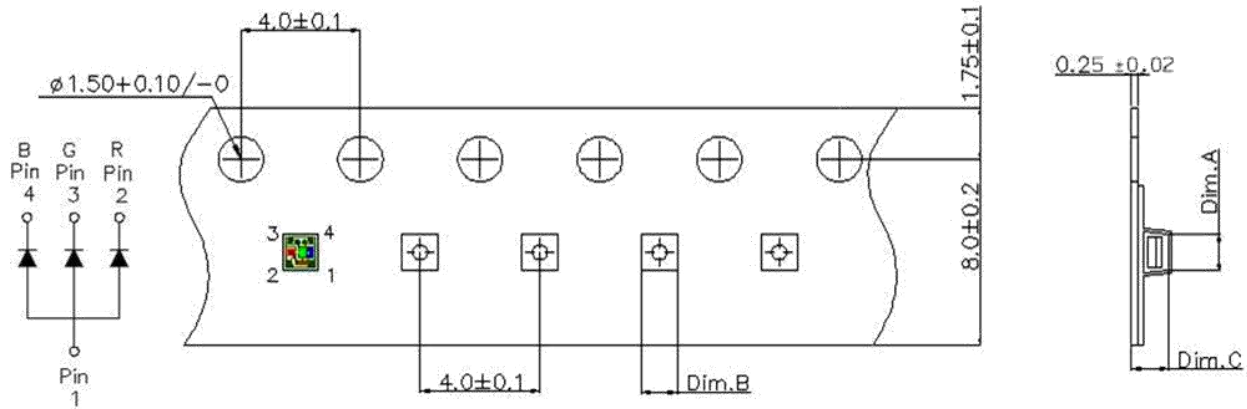
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Precaution for Use

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.

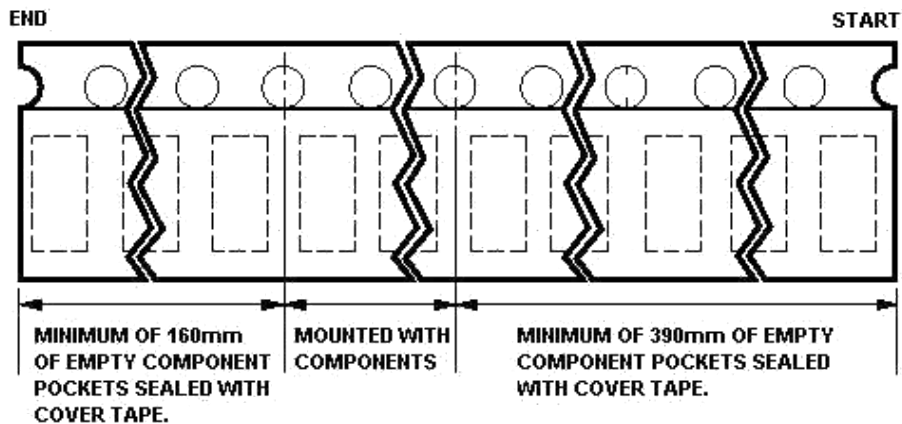
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Packaging Tape Dimension



Part No.	Dim. A	Dim. B	Dim. C
HT-3053	1.24 ± 0.05	1.28 ± 0.05	0.66 ± 0.05

Unit: mm



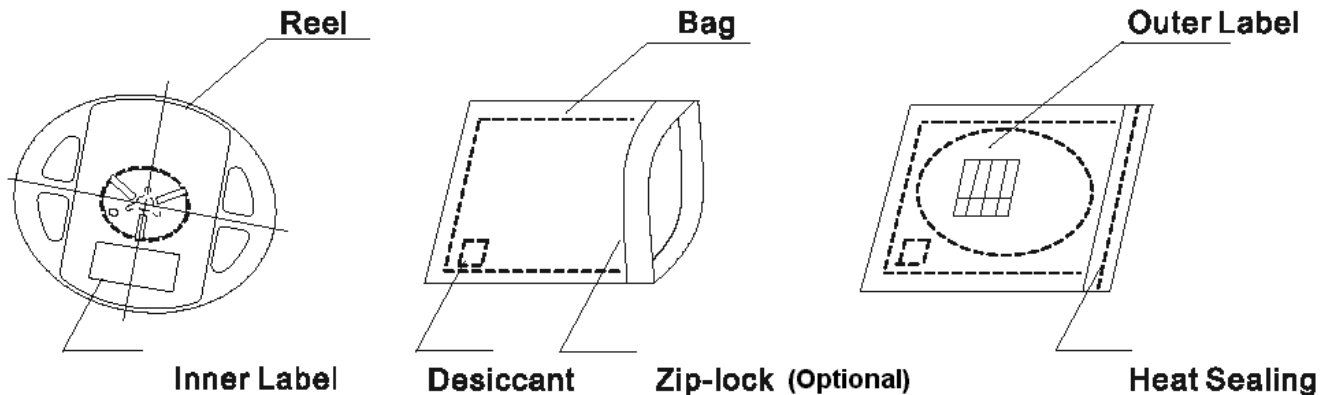
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Dry Pack

All SMD optical devices are **MOISTURE SENSITIVE**. Avoid exposure to moisture at all times during transportation or storage. Every reel is packaged in a moisture protected anti-static bag. Each bag is properly sealed prior to shipment.

Upon request, a humidity indicator will be included in the moisture protected anti-static bag prior to shipment.

The packaging sequence is as follows:



Baking

Baking before soldering is recommended when the package has been unsealed for 72 hours.

The conditions are as followings:

1. $60\pm 3^{\circ}\text{C} \times (12\sim 24\text{hrs})$ and $< 5\% \text{RH}$, taped reel type.
2. $100\pm 3^{\circ}\text{C} \times (45\text{min}\sim 1\text{hr})$, bulk type.
3. $130\pm 3^{\circ}\text{C} \times (15\text{min}\sim 30\text{min})$, bulk type.

PRECAUTIONS

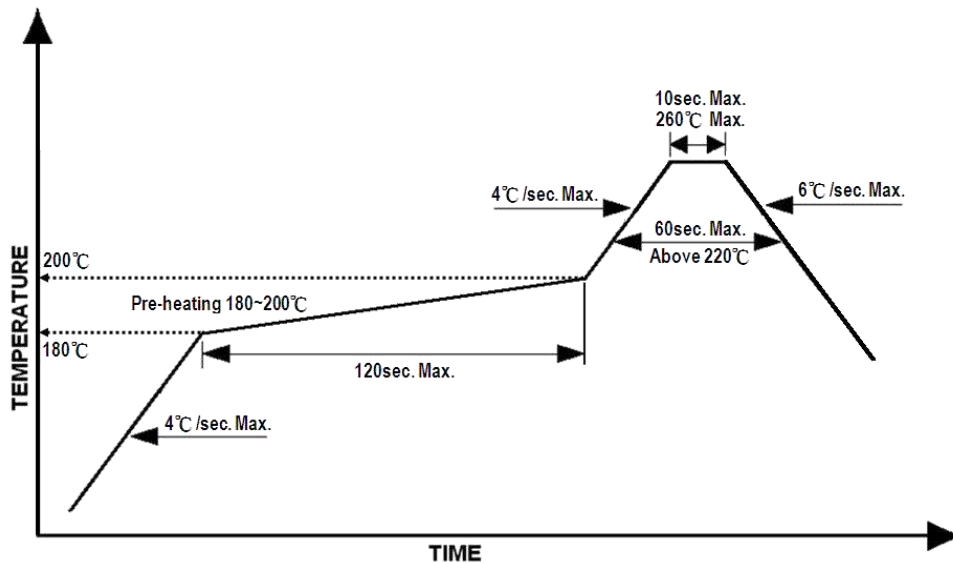
1. Avoid exposure to moisture at all times during transportation or storage.
2. Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the specified limit.
4. Avoid operation beyond the limits as specified by the absolute maximum ratings.
5. Avoid direct contact with the surface through which the LED emits light.
6. If possible, assemble the unit in a clean room or dust-free environment.

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Reflow Soldering

Recommend soldering paste specifications:

1. Operating temp.: Above 220 °C ,60sec
2. Peak temp.:260 °CMax.,10sec Max.
3. Never take next process until the component is cooled down to room temperature after reflow.
4. The recommended reflow soldering profile (measuring on the surface of the LED terminal) is following:
Lead-free Solder Profile
5. Reflow soldering should not be done more than two times



Reworking

- Rework should be completed within 5 seconds under 260 °C.
- The iron tip must not come in contact with the copper foil.
- Twin-head type is preferred.

Cleaning

Following are cleaning procedures after soldering:

- An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.
- Temperature x Time should be 50°C x 30sec. or <30°C x 3min
- Ultra sonic cleaning: < 15W/ bath; bath volume ≤ 1liter
- Curing: 100 °C max, <3min

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