Harvatek Surface Mount CHIP LEDs Data Sheet
B2591IRP-20C000132U1930

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DISCLAIMER

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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.

Product Specifications

Item	Specification	Material	Quantity
Peak Wavelength λ_p	Typ:850 nm @20mA/ T_S= 25℃		
Radiant Intensity I_e	7.5-15 mW/sr @20mA/ T_S= 25℃		
Forward Voltage V_F	1.2-2.0 V @20mA/ T_S= 25℃ ;Tolerance: ± 0.1V		
Reverse Current I_R	< 10 μA @ V_R = 5 V		
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	220x240mm	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 Iv, λ_D and Vf. 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.

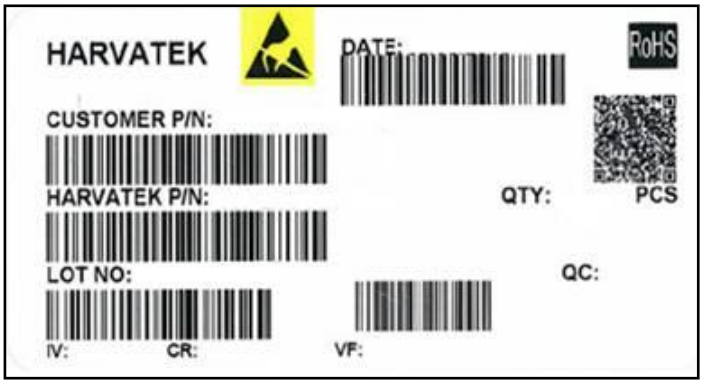
ATTENTION: Electrostatic Discharge (ESD) protection



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.

Label Specifications



■Harvatek P/N:

B 259 1 IRP- 20C 0001 32 U1930

Product	Dice Q'ty	Current	Taping	Customer Code
PCB	1:Single	20mA	1. Taping style 2. Q'ty	Customer Product Code

Package	Color	Series Number
3.2(L)x2.55(W)x1.6(H) mm	IRP:850nm	X001~XZZZ

■ 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 ... 2018-I/J 2019-K ... 2022-N 2023-P ...	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		

Absolute Maximum Rating at 25℃

Symbol	Parameters	Ratings	Units	Notes
I_F	Forward Current	50	mA	
I_{FP}	Peak Forward Current	500	mA	1
V_R	Reverse Voltage	5	V	
T_{opr}	Operating Temperature	-40 ~ +85	℃	
T_{stg}	Storage Temperature	-40 ~ +100	℃	
T_{sol}	Soldering Temperature	260	℃	2

Notes:

1. I_{FP} Conditions--Pulse Width≦100μs and Duty≦1%.

2. Soldering time≦5 seconds.

Electro-Optical Characteristics

Symbol	Parameters	Test conditions	Min	Typ	Max	Units	Notes
I_e	Radiant Intensity	I_F=20mA	7.5	11	15	mW/sr	3
λ_P	Peak Wavelength	I_F=20mA	-	850	-	nm	
$\Delta\lambda$	Spectral bandwidth at 50% of I_{max}	I_F=20mA		30	-	nm	
V_F	Forward Voltage	I_F=20mA	-	1.45	-	V	4
I_R	Reverse Current	V_R=5V	-	-	10	μA	
$2\theta_{1/2}$	Angle of Half Intensity (X)	I_F=20mA	-	20	-	deg	
	Angle of Half Intensity (Y)		-	20	-		

Notes:

3. Radiant Intensity (I_e) Bin:

Color	Bin Code	Spec. Range
IRP	PG	7.5-10 mW/sr
	PH	10-12.5 mW/sr
	PJ	12.5-15 mW/sr

4. Peak Wavelength (λ_P) Bin:

Color	Bin Code	Spec. Range
IRP	D	830-870 nm

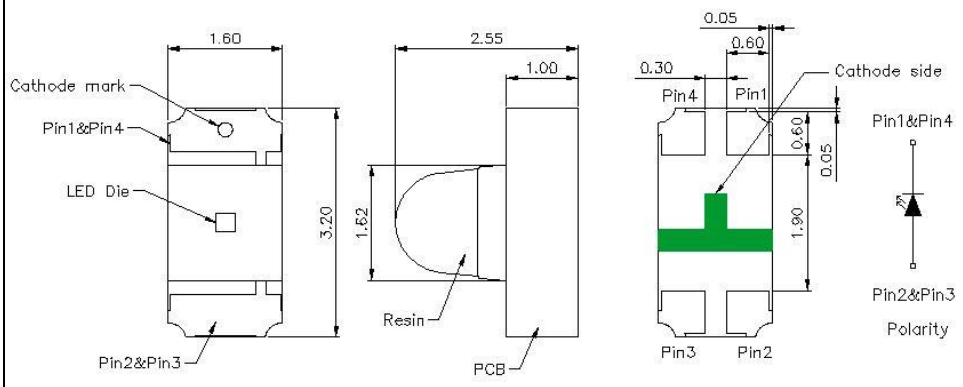
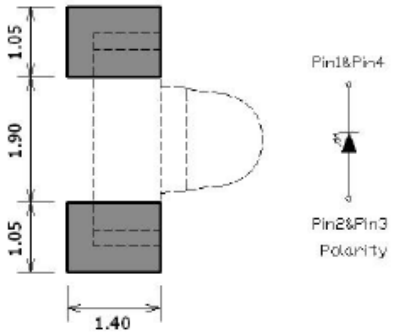
Notes:

5. Forward Voltage (V_F) Bin:

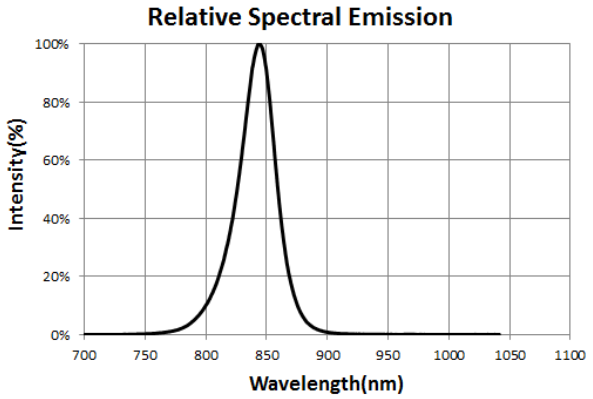
Color	Bin Code	Spec. Range
IRP	D5	1.2-1.4 V
	D6	1.4-1.6 V
	E5	1.6-1.8 V
	E6	1.8-2.0 V

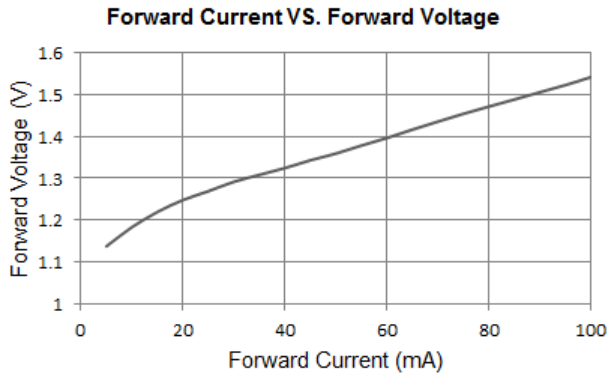
Package Outline Dimension and Recommended Soldering Pattern for Reflow Soldering

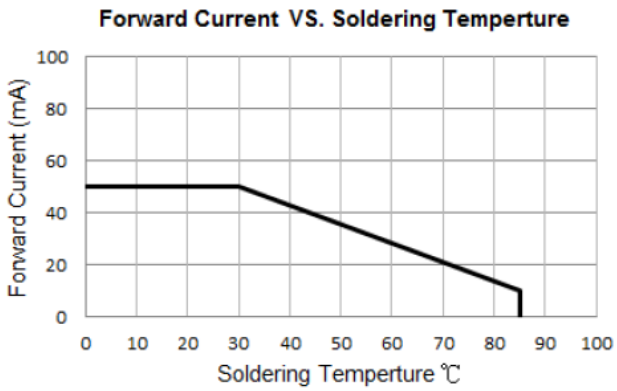
(Unit:mm Tolerance: +/-0.1)

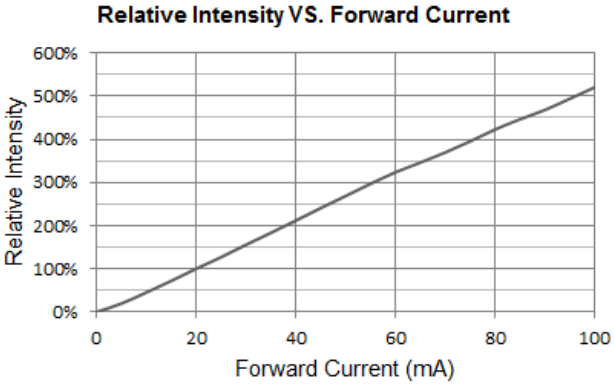
Outline Dim.	Soldering Pattern
	
Soldering terminals may shift in the Wd direction.	

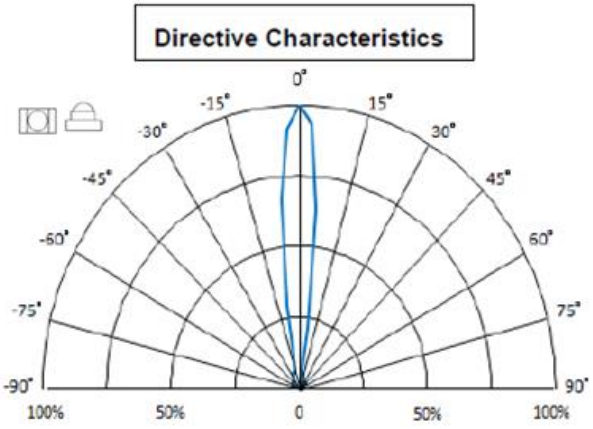
Characteristics of B2591IRP

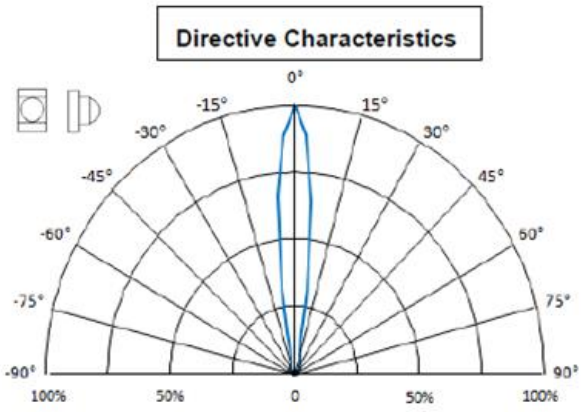










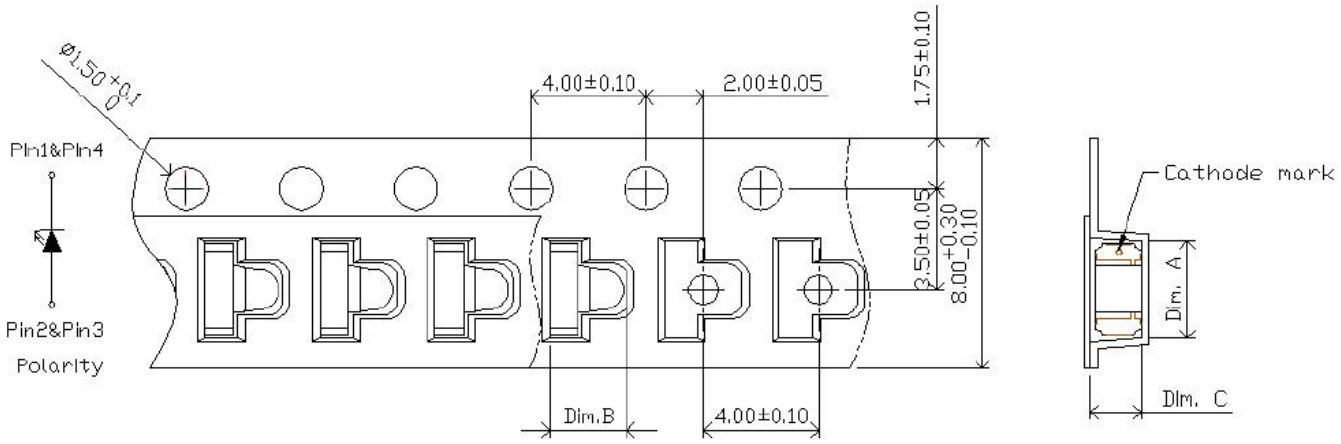


Precaution for Use

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 72 hrs 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.

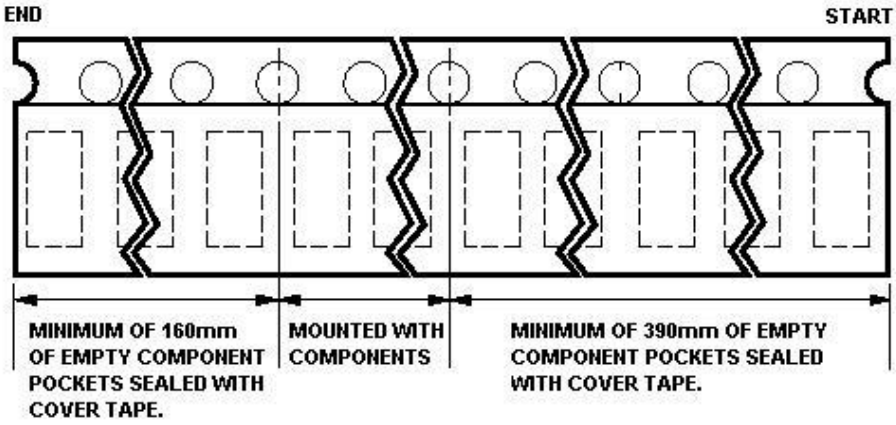
Packaging

Tape Dimension

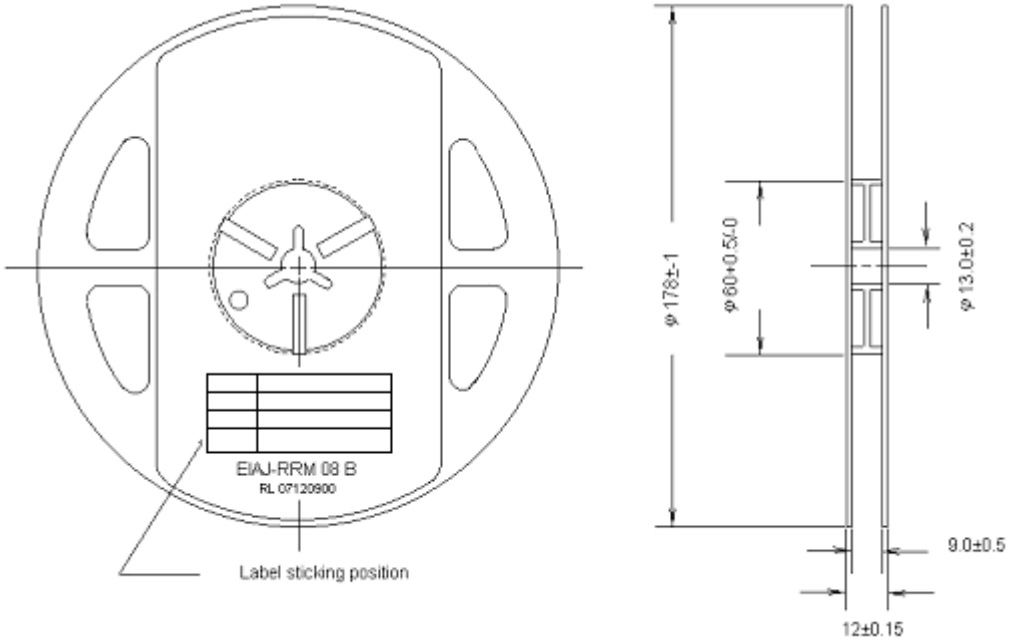


Dim. A	Dim. B	Dim. C	Q'ty/Reel
3.30±0.10	1.70±0.10	2.20±0.10	2K

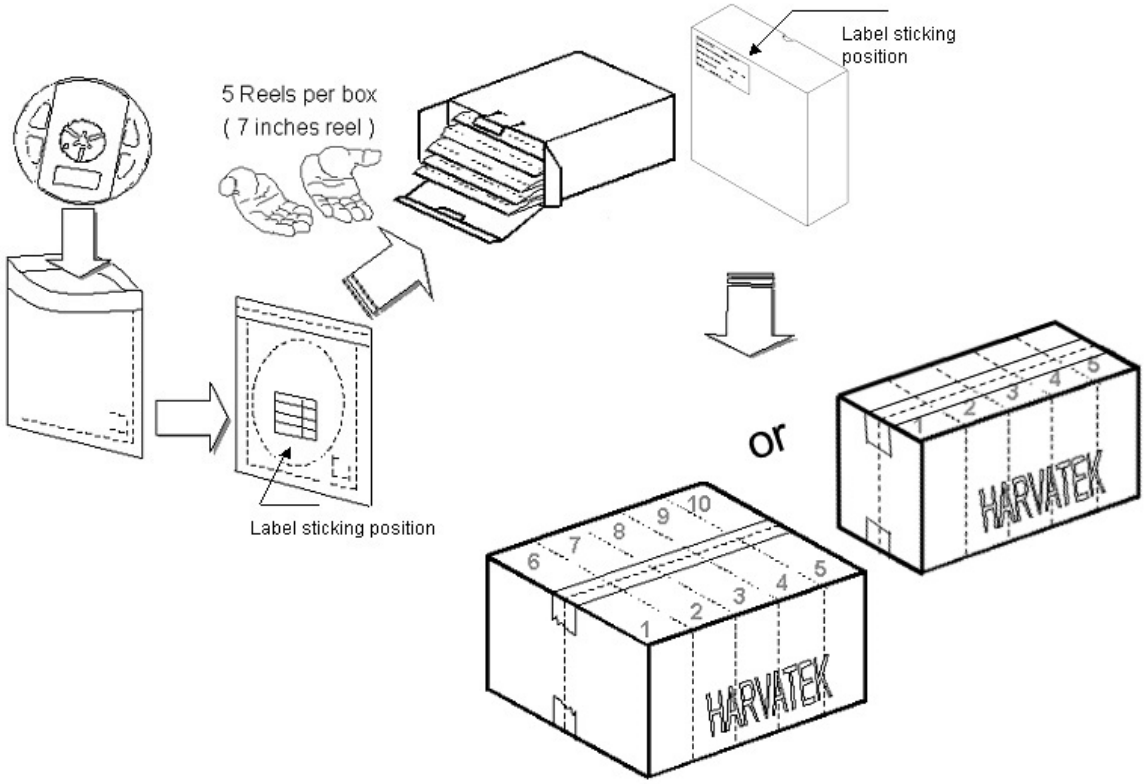
Unit: mm



Reel Dimension



Packing



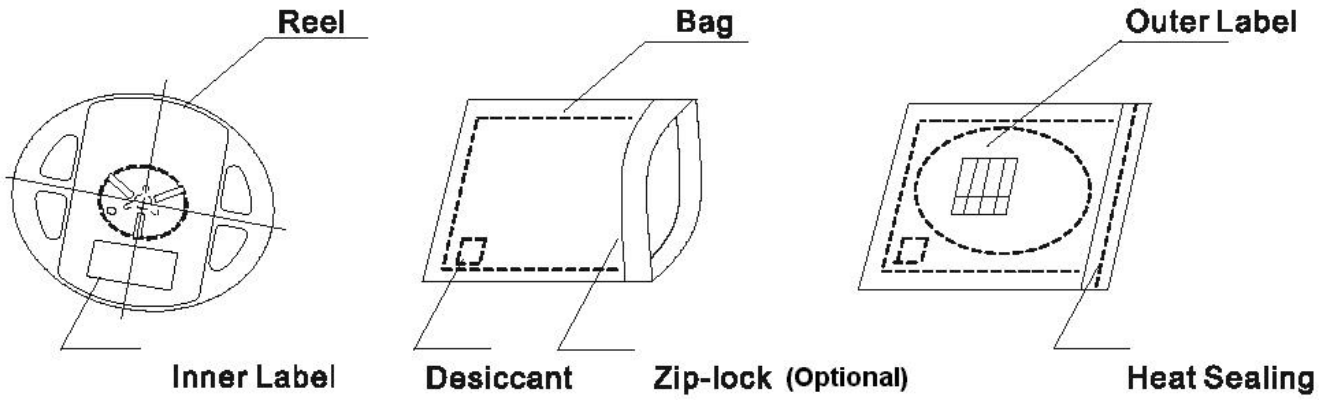
5 or 10 boxes per carton is available depending on shipment quantity.

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 hrs.
The conditions are as followings:

1. 60±3℃×(12~24hrs)and<5%RH, taped reel type.
2. 100±3℃×(45min~1hr), bulk type.
3. 130±3℃×(15min~30min), bulk type.

Precautions

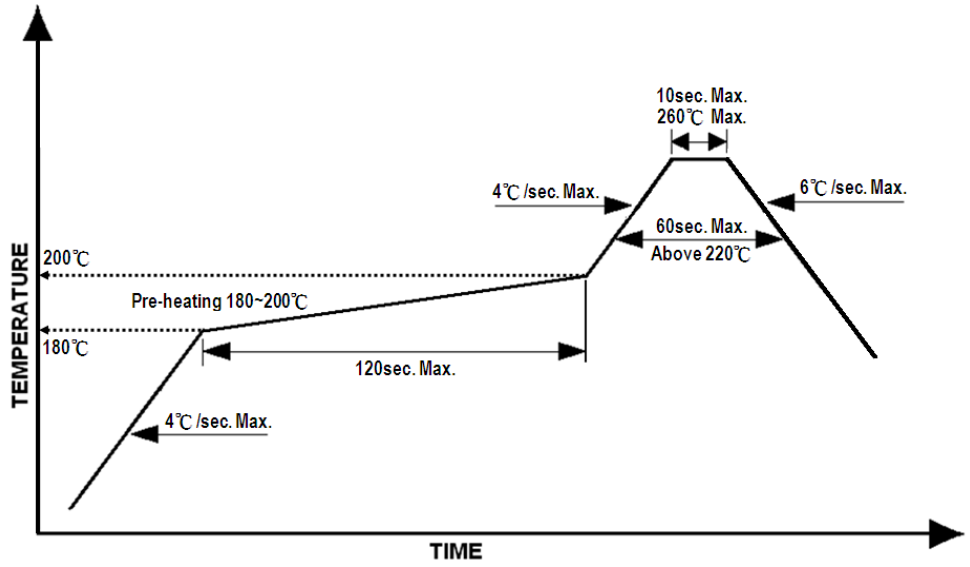
1. Avoid exposure to moisture at all times during transportation or storage.
2. Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the 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.

Reflow Soldering

Recommend soldering paste specifications:

1. Operating temp.: Above 220 ^{O}C ,60 sec.
2. Peak temp.:260 ^{O}CMax.,10sec Max.
3. Reflow soldering should not be done more than two times.
4. Never attempt next process until the component is cooled down to room temperature after reflow.
5. The recommended reflow soldering profile (measured on the surface of the LED terminal) is as following:

Lead-free Solder Profile



Reworking

- Rework should be completed within 5 seconds under 260 ^{O}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^{o}C x 30sec. or <30^{o}C x 3min
- Ultrasonic cleaning: < 15W/ bath; bath volume ≤ 1liter
- Curing: 100 ^{O}C max, <3min

Cautions of Pick and Place

- Avoid stress on the resin at elevated temperature.
- Avoid rubbing or scraping the resin by any object.
- Electric-static may cause damage to the component. Please ensure that the equipment is properly grounded. Use of an ionizer fan is recommended.

Revise History

Rev.	Descriptions	Date	Page
1.0	-	05/14/2018	-
1.1	Revise Forward Current and Peak Forward Current	07/02/2018	6
1.2	New Lot No.	02/25/2020	5

Unikeyic Electronics

Global Electronic Components Distributor

Click to view pricing, inventory, delivery, and lifecycle information:

HARVATEK:

T15B1UYG-20C000212U1930 B1591USD-20C001922U1930 B1861TX--05P000334U1930
B2612UYUG20D000212U1930 HV-I8UG60G-MP9AA-U1930 B2102UDUG20C000133U1930
B2591IR--20C000132U1930 B2G32USNB20C000513U1930 B3C73RBG02D0006H4U1930
B2102USNB20C000833U1930 B2G32UDUG20C000113U1930 B3SK3RGB-F6C0001HOU1930
T1691NB--20C000212U1930 B19Y1NB--20C000113U1930 T4642PTIRM3B000351U1930
V1081NB--20C000342U1930 B1211URO-20C000134U1930 B2102USNG20C000133U1930
T15B1DND-20P000112U1930 B1591NB--20C000212U1930 B1811TX--05PP05413U1930
B2601UD--20D000123U1930 B1811USD-20C000613U1930 B1911UD--20D001014U1930
B2151IR-20C000133U1930 B2972USUG20D000914U1930 B3803FCH-20C001112U1930
B4301IR--20C000482U1930 F1081IR--A1C000242U1930 F10Q1USD-20C000242U1930