Harvatek Surface Mount CHIP LEDs Data Sheet
B1701SP--20P000314U1930

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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 Specifications

Item	Specification	Material	Quantity
Luminous Intensity(Iv)	71.5-450.0 mcd @20 mA/ T_S = 25℃;Tolerance:±10%		
Chromaticity Coordinate	As page 6 & 7 @20 mA/ T_S = 25℃;Tolerance: ±0.007		
Vf	2.7-3.9 V @20 mA/ T_S = 25℃;Tolerance: ±0.05V		
Ir	< 10 μA @ V_R = 5 V		
Resin	Yellow	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, CIE 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.

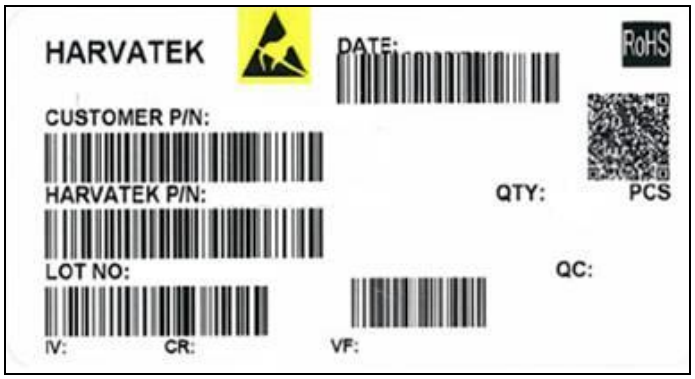
ATTENTION: Electrostatic Discharge (ESD) protection



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 170 1 SP-- 20P 0003 14 U1930

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

Package	Color	Series Number	Customer Code
2.0(L)x1.3(W)x0.8(H) mm	SP: White	X001~XZZZ	Customer Product Code X0001~XZZZZ

■ 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		

Specifications Range

■Luminous Intensity (Iv) Bin:

Color	Bin Code	Spec. Range	Bin Code	Spec. Range
TW	Q1	71.5-90.0 mcd	Q2	90.0-112.5 mcd
	R1	112.5-140.0 mcd	R2	140.0-180.0 mcd
	S1	180.0-226.0 mcd	S2	226.0-285.0 mcd
	T1	285.0-320.0 mcd	T2	320.0-360.0 mcd
	U1	360.0-400.0 mcd	U2	400.0-450.0 mcd

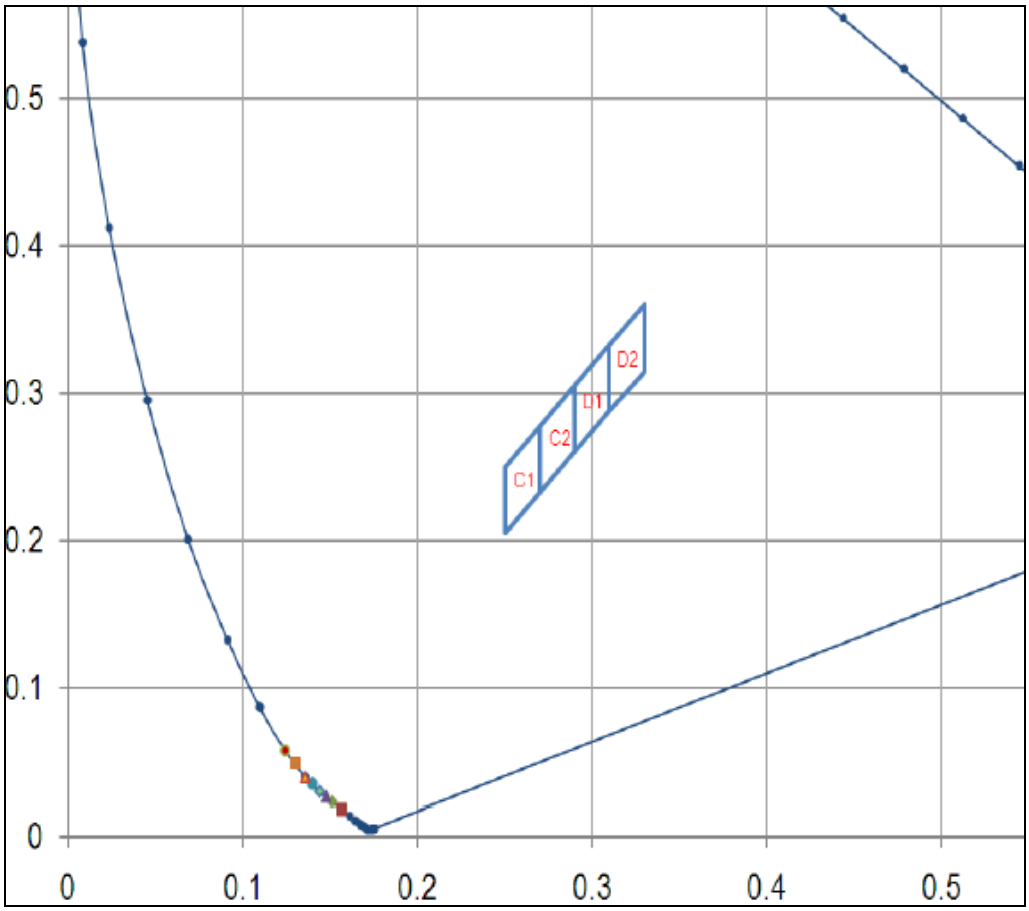
Note: It maintains a tolerance of ±10% on Luminous Intensity.

■Color Bin:

Color	Bin Code	Spec. Range	Bin Code	Spec. Range
TW	C1	X: 0.2500, 0.2500, 0.2700, 0.2700 Y: 0.2050, 0.2500, 0.2775, 0.2325	C2	X: 0.2700, 0.2700, 0.2900, 0.2900 Y: 0.2325, 0.2775, 0.3050, 0.2600
	D1	X: 0.2900, 0.2900, 0.3100, 0.3100 Y: 0.2600, 0.3050, 0.3325, 0.2875	D2	X: 0.3100, 0.3100, 0.3300, 0.3300 Y: 0.2875, 0.3325, 0.3600, 0.3150

Note: It maintains a tolerance of x,y ±0.007

■Chromaticity Coordinate



■Forward Voltage (Vf) Bin:

Color	Bin Code	Spec. Range
TW	G8	2.7-2.9 V
	H7	2.9-3.1 V
	H8	3.1-3.3 V
	J7	3.3-3.5 V
	J8	3.5-3.7 V
	K7	3.7-3.9 V

Note: It maintains a tolerance of ±0.05V on forward voltage measurements

Product Features

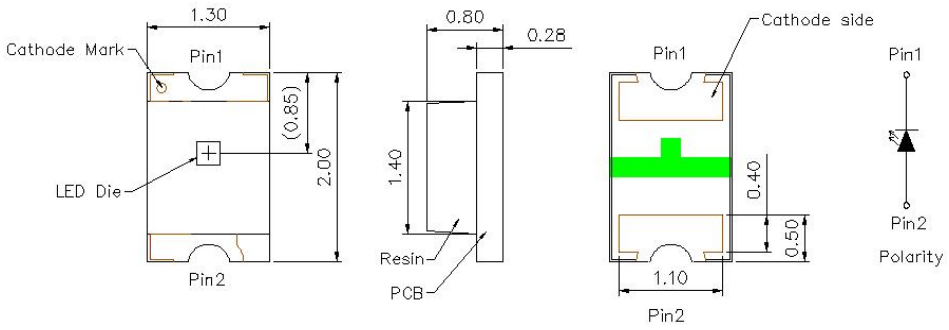
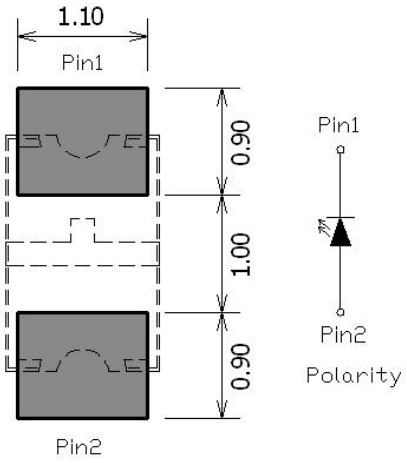
Electro-Optical Characteristics

($T_{Soldering}$, 25℃)

Series	Emitting Color	Material	V_F(V)		Chromaticity Coordinate	I_V(mcd)	Viewing Angle $2\theta\frac{1}{2}$
			typ	max	x,y	Typical	
B1701TW--20	TW	InGaN	3.2	3.9	x=0.2900,y=0.2850	280	X：130 Y：110

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.	

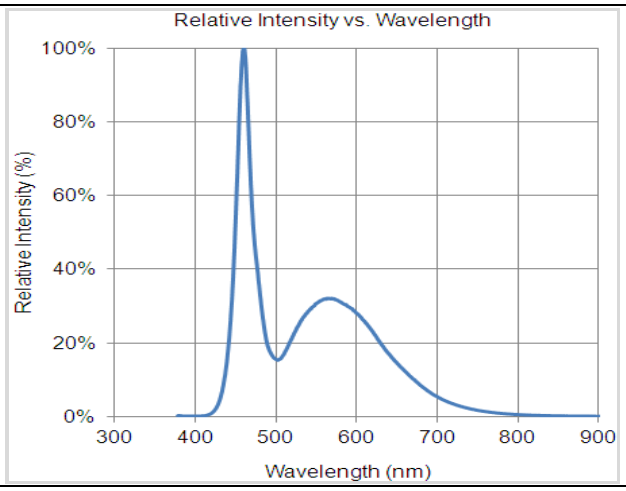
Absolute Maximum Ratings

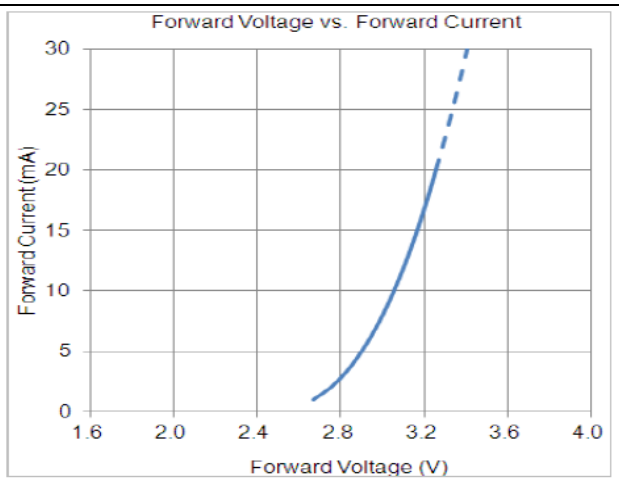
($T_{Soldering}$,25℃)

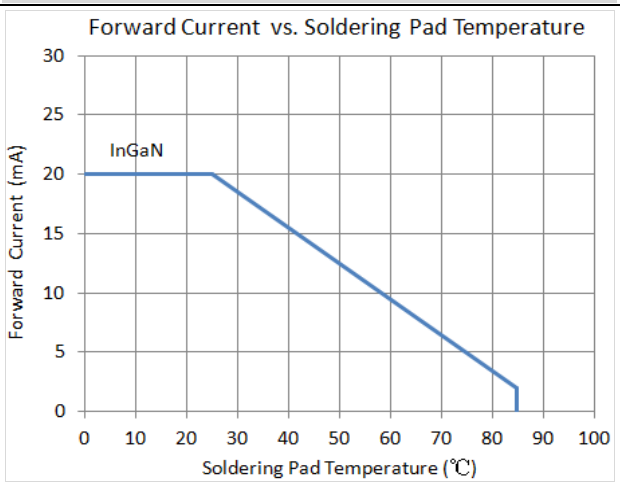
Series	P_D (mW)	I_F (mA)	I_{FP} (mA)*	T_{OP} (℃)	T_{ST} (℃)
Color	Power Dissipation	Forward Current	Pulse Forward Current	Operating Temperature	Storage Temperature
TW	78	20	80	-40~+85	-40~+100

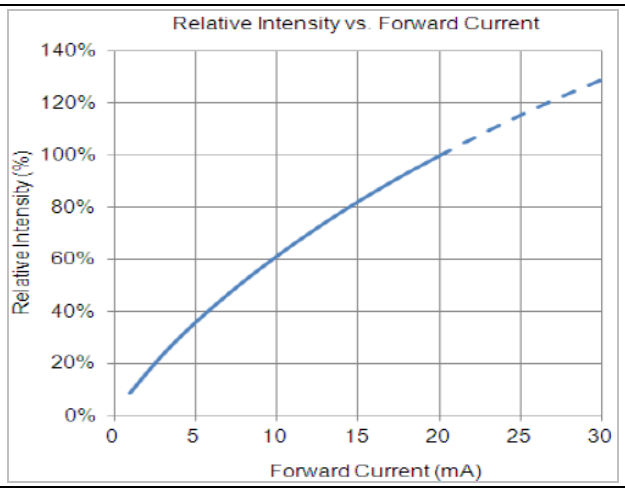
* Condition for I_{FP} is pulse of 1/10 duty and 0.1msec width

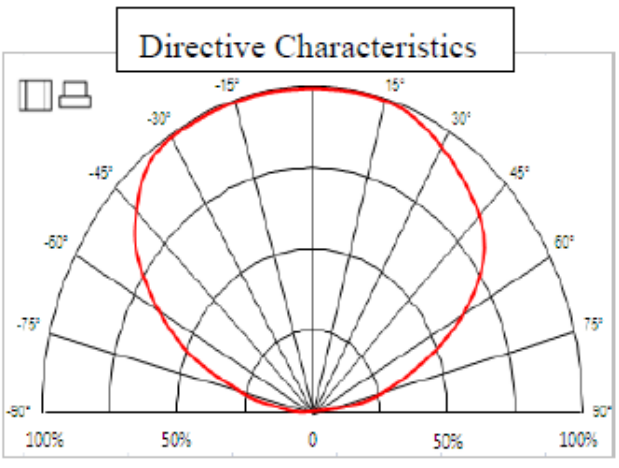
Characteristics of B1701TW

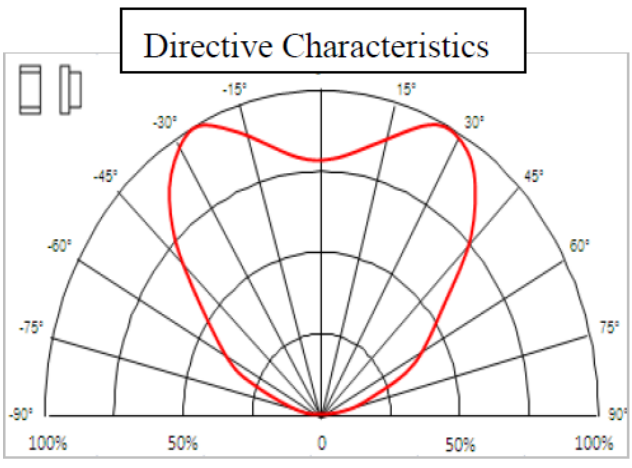










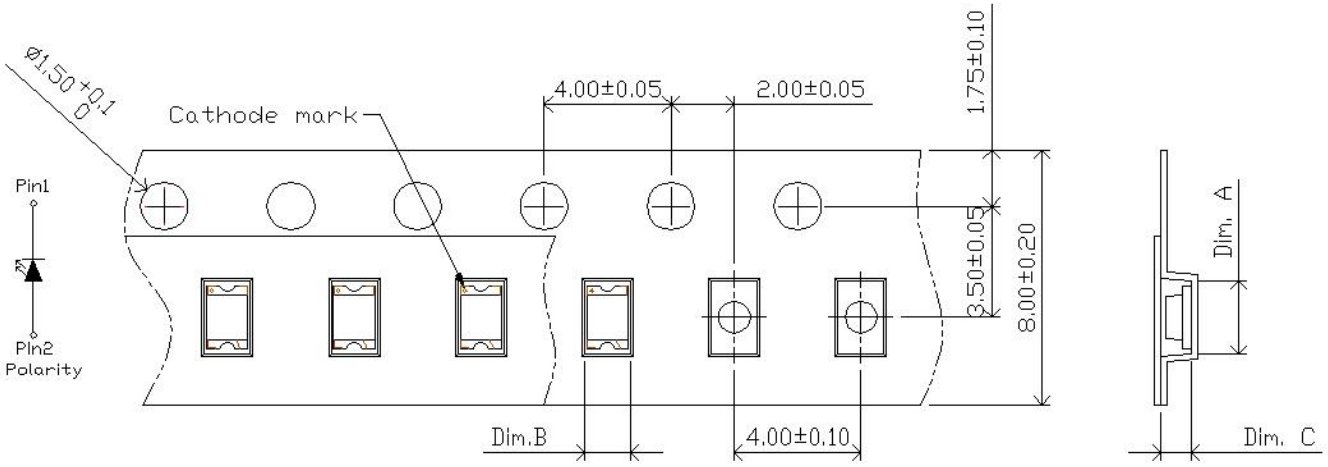


Precaution for Use

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 4 weeks 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.

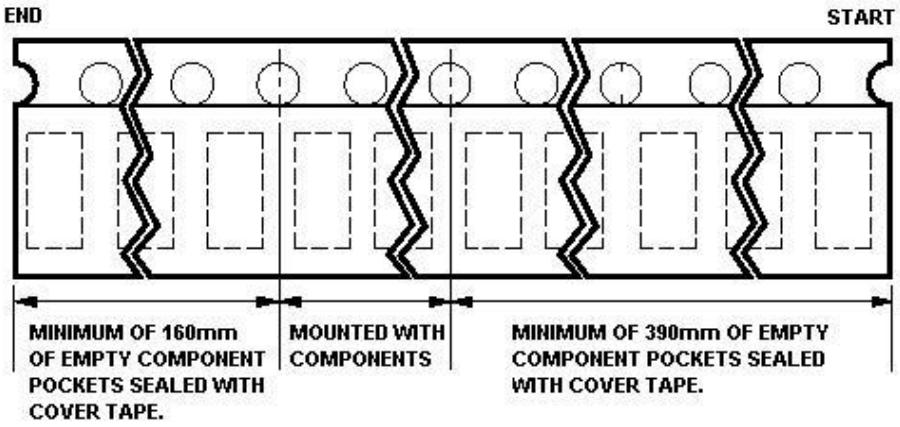
Packaging

Tape Dimension

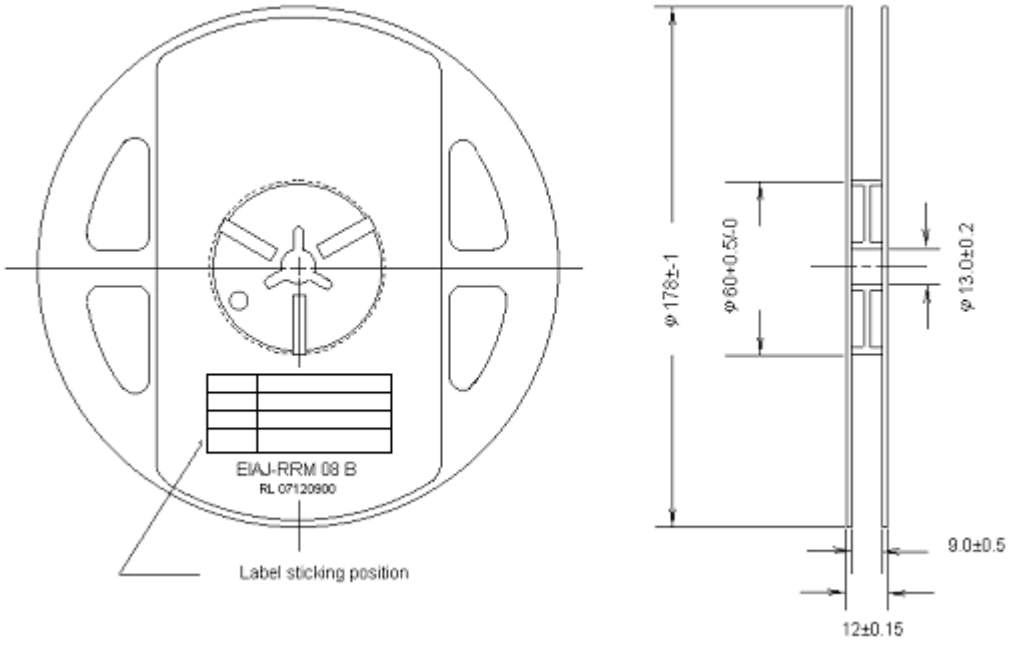


Dim. A	Dim. B	Dim. C	Q'ty/Reel
2.20±0.05	1.42±0.05	0.88±0.05	4K

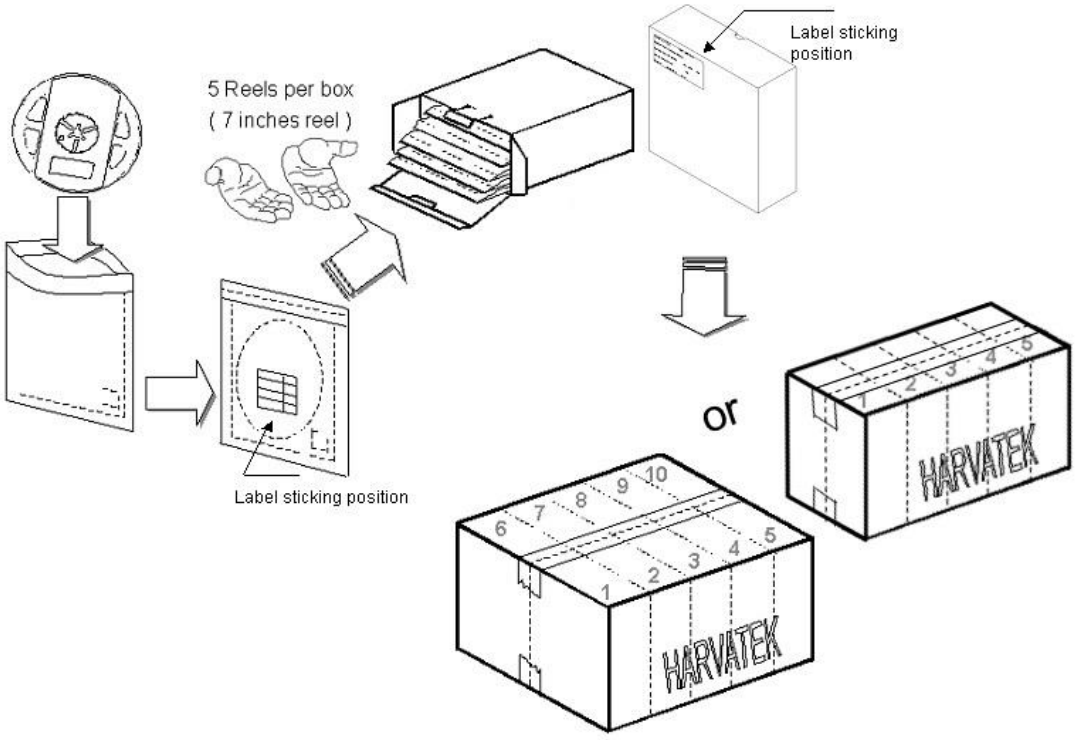
Unit: mm



Reel Dimension



Packing



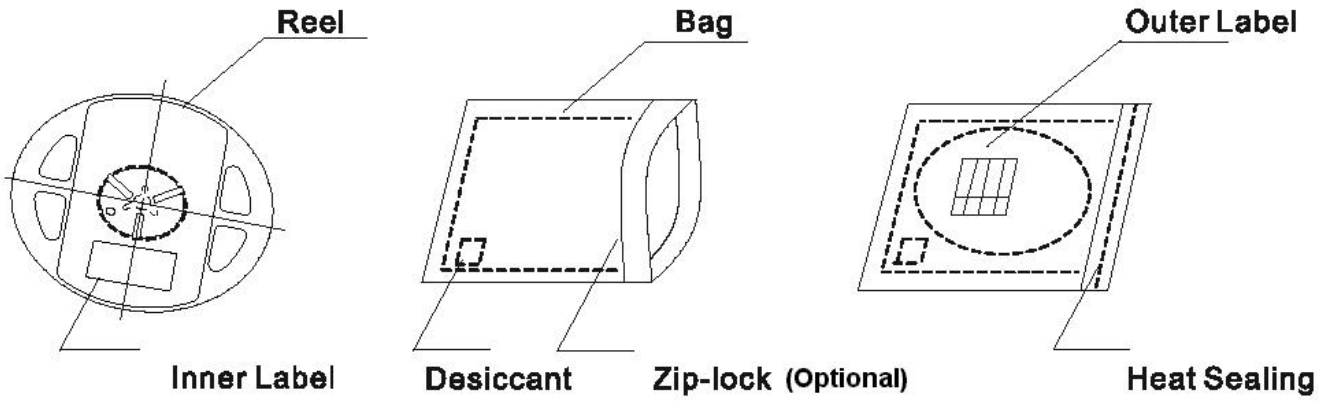
5 or 10 boxes per carton is available depending on shipment quantity.

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.

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 4 weeks. 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

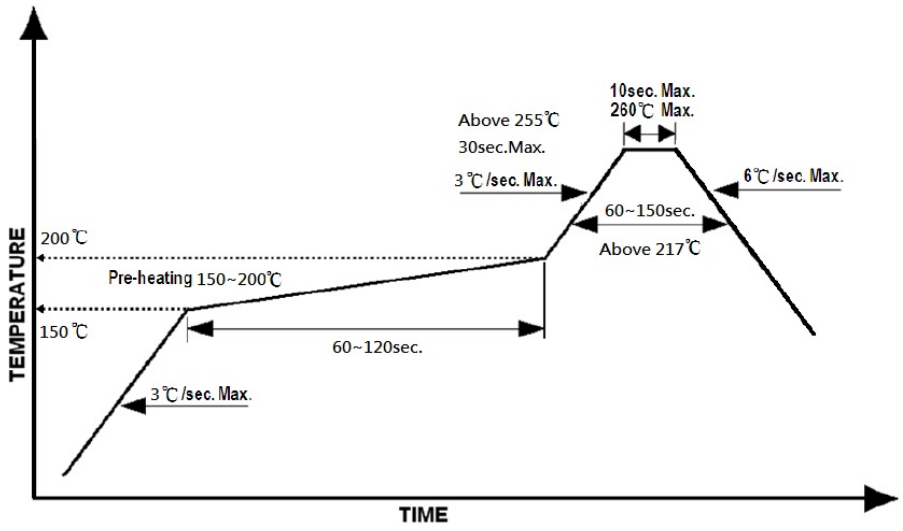
1. Avoid exposure to moisture at all times during transportation or storage.
2. Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the 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 217℃ ,60~150sec
2. Peak temp.:260℃ Max.,10sec Max.
3. Reflow soldering should not be done more than two times.
4. Never take next process until the component is cooled down to room temperature after reflow.
5. The recommended reflow soldering profile (measuring on the surface of the LED terminal) is as following:

Lead-free Solder Profile



Reworking

- Rework should be completed within 5 seconds under 260℃.
- 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℃ x 30sec. or <30℃ x 3min
- Ultra sonic cleaning: < 15W/ bath; bath volume ≤ 1liter
- Curing: 100℃ 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	Official Version	08/04/2017	-
1.1	Renew Form and Add Customer Product Code	04/22/2021	P5

Unikeyic Electronics

Global Electronic Components Distributor

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

HARVATEK:

B17T2UONG20D000314U1930 B1811USD-20C000613U1930 B19Y1USD-20C000113U1930
B1911NB--20C005314U1930 B2102UGNB20C000233U1930 B2161USD-20C000334U1930
B2841NB--20C001414U1930 T1341MND-20P000712U1930 V1081NB--20C000342U1930
B1811TX--05PP05413U1930 F1081NG--20C000542U1930 T4642PTIRM3B000351U1930
B3C73RBG02D0006H4U1930 B3SK3RGB-F6C0001HOU1930 F1081IRP-A1C000142U1930
HV-32312/260/XSUB-U1930 T15B1USD-20C000112U1930 B2102UDUG20C000133U1930
B15W1IR--20C000112U1930 B1A81UYG-20C000313U1930 B2592USNG20D0001L2U1930
HV-317464/230/SURSUBW-F3.0-U1930 B15P1PD--H9B000113U1930 B1811UD--20C000413U1930
B2592UONG20C0002L2U1930 B12H1UY--20D000134U1930 B1A81USD-20C000313U1930
HV-32223/260/SYGX-U1930 HV-I8UG60G-MP9AA-U1930 B1931URO-20D000114U1930