

Harvatek Surface Mount CHIP LEDs Data Sheet
Model: HT-PT30A02

Official Product	HT Part No. HT-PT30A02	Your Part No.		Data Sheet No.
Tentative Product	*****	*****		HT-PT30A02
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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 TECHNOLOGIES CORPORATION. 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 Specification

	Specification	Material	Quantity
Luminous Intensity	Min. 2180mcd @ 2700k~6500k @20mA/ Ta= 25° C Tolerance: ± 10%		
Correlated Color Temperature	Refer to page 8 @20mA/ Ta= 25° C Tolerance: ± 0.01		
Vf	2.8~3.5V(0.1V/bin) @20mA/ Ta= 25° C Tolerance: ± 0.1V		
Resin	Yellow	Silicone resin	
Carrier tape	According to EIA 481-1A specs	Conductive black tape	2500pcs per reel
Reel	According to EIA 481-1A specs	Conductive black	
Label	HT standard	Paper	
Packing bag	220x240mm	Aluminum laminated bag/ no-zipper	One reel one bag
Carton	HT standard	Paper	Non-specified
	Specification	Material	Quantity

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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Product Characteristics

Electro-Optical Characteristics

(I_F @ 20mA, T_a 25 °C)

Product No.	Lighting Color	Material	V_F (V)		CCT:	Luminous Intensity (mcd)
			min	max	Correlated Color Temperature(K)	Min.
HT-PT30A02	White	InGaN	2.8	3.5	2700k-6500K	2180 mcd

Package Outline Dimension

Unit: mm Tolerance: +/-0.1

Outline Dim.	Soldering Pattern
<p>Unit:mm Tolerances:±0.10</p>	<p>Recommended Pad</p>
Soldering terminals may shift in the x, y direction.	

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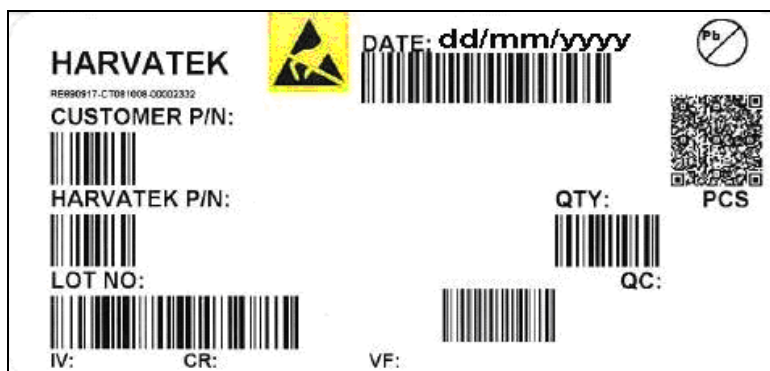
Absolute Maximum Ratings

<i>Parameter</i>	<i>Symbol</i>	<i>Rating</i>	<i>Unit</i>
<i>Reverse Voltage</i>	Vr	5	V
<i>Forward Current</i>	If	30	mA
<i>Power Dissipation</i>	Pd	110	mW
<i>Pulse Forward Current(I)</i>	I _{FP}	100	mA
<i>Storage Temperature</i>	Ts	-40 ~ +100	°C
<i>Operation Temperature</i>	Top	-30 ~ +85	°C
<i>Electrostatic Discharge(HBM)</i>	ESD	500	V

(T_a 25 °C)

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

Label Spec.



■ **Customer P/N: To Be Defined**

■ **Harvatek P/N**

HT - PT30A02



Series Name
HT-PT30A02: 3.0x 1.4x 1.2mm

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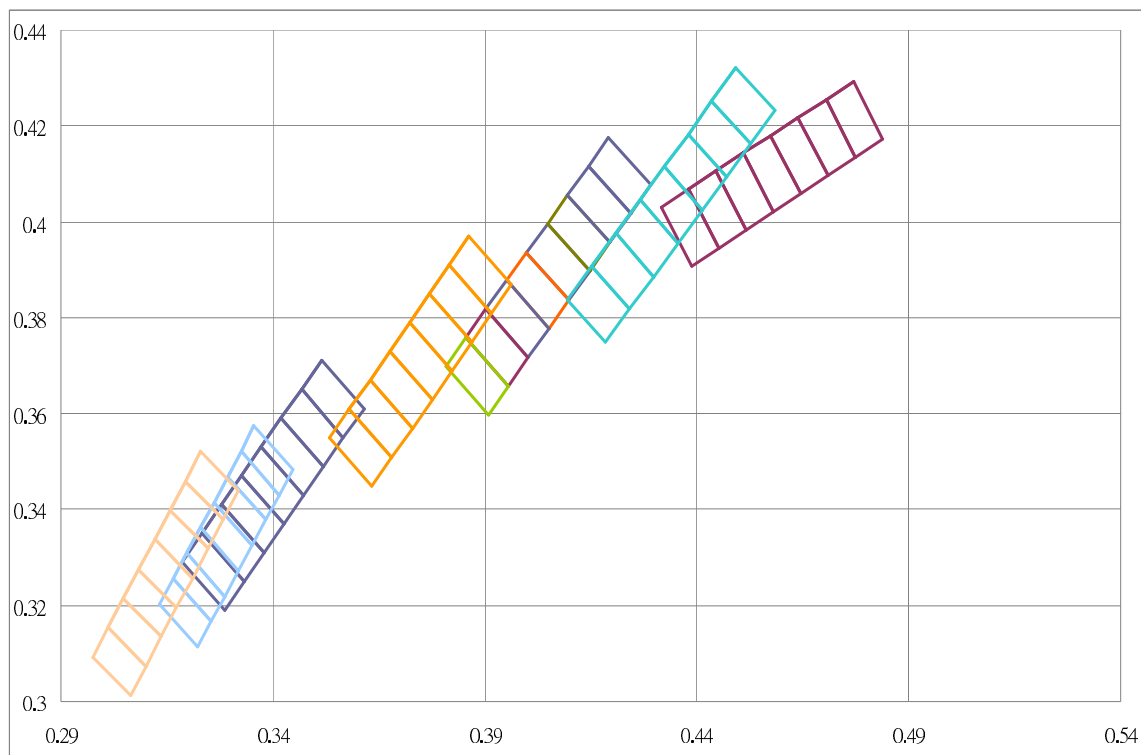
Bin Code.

■ **Luminous Intensity Bin:**

lv code	Low	High
B8	2180	2290
B9	2290	2400
BA	2400	2550
BB	2550	2700
BC	2700	2850
BD	2850	3000

Luminous Intensity Measurement Tolerance is $\pm 7\%$

■ **Correlated Color Temperature Rank:**



Correlated color Temperature is derived from the CIE 1931 Chromaticity diagram
CCT measured tolerance is $\pm 5\%$.

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BIN Rank Corrdinates

CIE code	x1	y1	x2	y2	x3	y3	x4	y4
E6501	0.3230	0.3520	0.3320	0.3440	0.3283	0.3379	0.3193	0.3459
D6501	0.3193	0.3459	0.3283	0.3379	0.3247	0.3318	0.3157	0.3398
C6501	0.3157	0.3398	0.3247	0.3318	0.3210	0.3257	0.3120	0.3337
B6501	0.3120	0.3337	0.3210	0.3257	0.3173	0.3196	0.3083	0.3276
A6500	0.3083	0.3276	0.3173	0.3196	0.3137	0.3134	0.3047	0.3214
B6502	0.3047	0.3214	0.3137	0.3134	0.3100	0.3073	0.3010	0.3153
C6502	0.3010	0.3153	0.3100	0.3073	0.3063	0.3012	0.2973	0.3092
C5601	0.3356	0.3574	0.3446	0.3484	0.3414	0.3431	0.3324	0.3521
B5601	0.3324	0.3521	0.3414	0.3431	0.3382	0.3378	0.3292	0.3468
A5600	0.3292	0.3468	0.3382	0.3378	0.3350	0.3325	0.3260	0.3415
B5602	0.3260	0.3415	0.3350	0.3325	0.3318	0.3272	0.3228	0.3362
C5602	0.3228	0.3362	0.3318	0.3272	0.3286	0.3219	0.3196	0.3309
D5602	0.3196	0.3309	0.3286	0.3219	0.3254	0.3166	0.3164	0.3256
E5602	0.3164	0.3256	0.3254	0.3166	0.3222	0.3113	0.3132	0.3203
B5001	0.3514	0.3710	0.3614	0.3610	0.3567	0.3550	0.3467	0.3650
A5000	0.3467	0.3650	0.3567	0.3550	0.3520	0.3490	0.3420	0.3590
B5002	0.3420	0.3590	0.3520	0.3490	0.3473	0.3430	0.3373	0.3530
C5002	0.3373	0.3530	0.3473	0.3430	0.3426	0.3370	0.3326	0.3470
D5002	0.3326	0.3470	0.3426	0.3370	0.3379	0.3310	0.3279	0.3410
E5002	0.3279	0.3410	0.3379	0.3310	0.3332	0.3250	0.3232	0.3350
F5002	0.3232	0.3350	0.3332	0.3250	0.3285	0.3190	0.3185	0.3290
D4101	0.3863	0.3970	0.3963	0.3870	0.3916	0.3810	0.3816	0.3910
C4101	0.3816	0.3910	0.3916	0.3810	0.3869	0.3750	0.3769	0.3850
B4101	0.3769	0.3850	0.3869	0.3750	0.3822	0.3690	0.3722	0.3790
A4100	0.3722	0.3790	0.3822	0.3690	0.3775	0.3630	0.3675	0.3730
B4102	0.3675	0.3730	0.3775	0.3630	0.3728	0.3570	0.3628	0.3670
C4102	0.3628	0.3670	0.3728	0.3570	0.3681	0.3510	0.3581	0.3610
D4102	0.3581	0.3610	0.3681	0.3510	0.3634	0.3450	0.3534	0.3550

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D3501	0.4191	0.4177	0.4291	0.4077	0.4243	0.4017	0.4143	0.4117
C3501	0.4143	0.4117	0.4243	0.4017	0.4195	0.3957	0.4095	0.4057
B3501	0.4095	0.4057	0.4195	0.3957	0.4147	0.3897	0.4047	0.3997
A3500	0.4047	0.3997	0.4147	0.3897	0.4099	0.3837	0.3999	0.3937
B3502	0.3999	0.3937	0.4099	0.3837	0.4051	0.3777	0.3951	0.3877
C3502	0.3951	0.3877	0.4051	0.3777	0.4003	0.3717	0.3903	0.3817
D3502	0.3903	0.3817	0.4003	0.3717	0.3955	0.3657	0.3855	0.3757
D3001	0.4493	0.4321	0.4583	0.4231	0.4526	0.4162	0.4436	0.4252
C3001	0.4436	0.4252	0.4526	0.4162	0.4469	0.4093	0.4379	0.4183
B3001	0.4379	0.4183	0.4469	0.4093	0.4412	0.4024	0.4322	0.4114
A3000	0.4322	0.4114	0.4412	0.4024	0.4355	0.3955	0.4265	0.4045
B3002	0.4265	0.4045	0.4355	0.3955	0.4298	0.3886	0.4208	0.3976
C3002	0.4208	0.3976	0.4298	0.3886	0.4241	0.3817	0.4151	0.3907
D3002	0.4151	0.3907	0.4241	0.3817	0.4184	0.3748	0.4094	0.3838

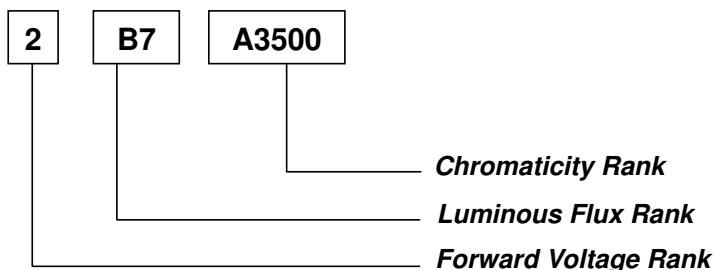
**Measurement tolerance is $\pm 5\%$

■ **Vf Bin:**

Vf code	Low	High
1	2.9	3
2	3	3.1
3	3.1	3.2
4	3.2	3.3
5	3.3	3.4
6	3.4	3.5

Forward Voltage Measurement Allowance is $\pm 0.05V$

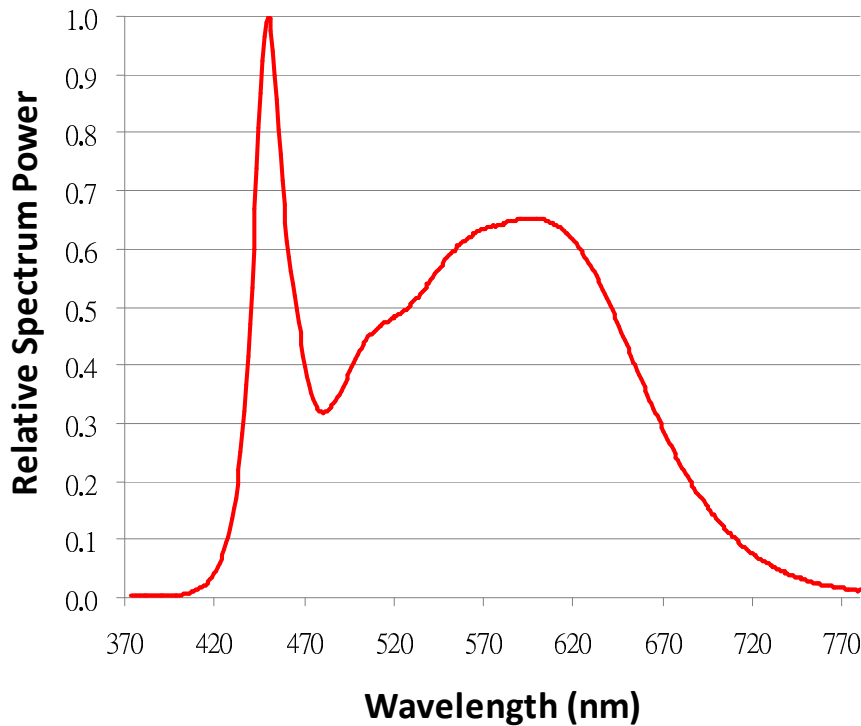
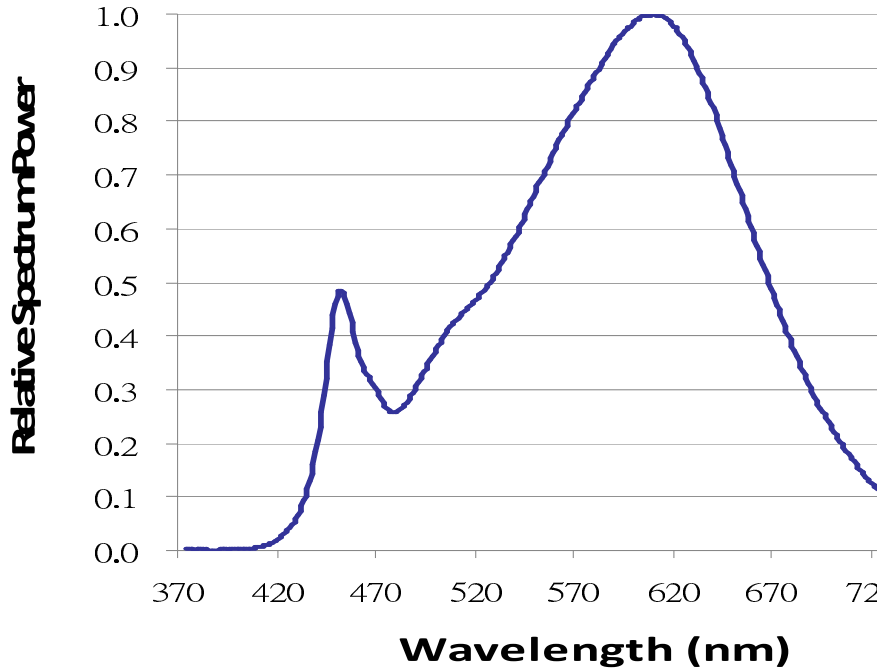
Bin code definition



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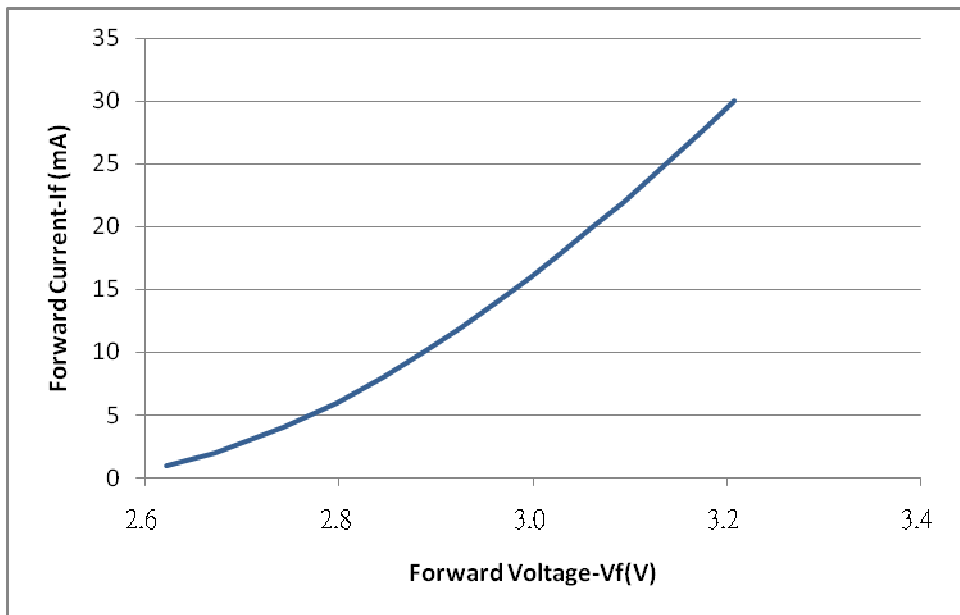
Characteristics of HT-PC56H01

Spectrum Distribution

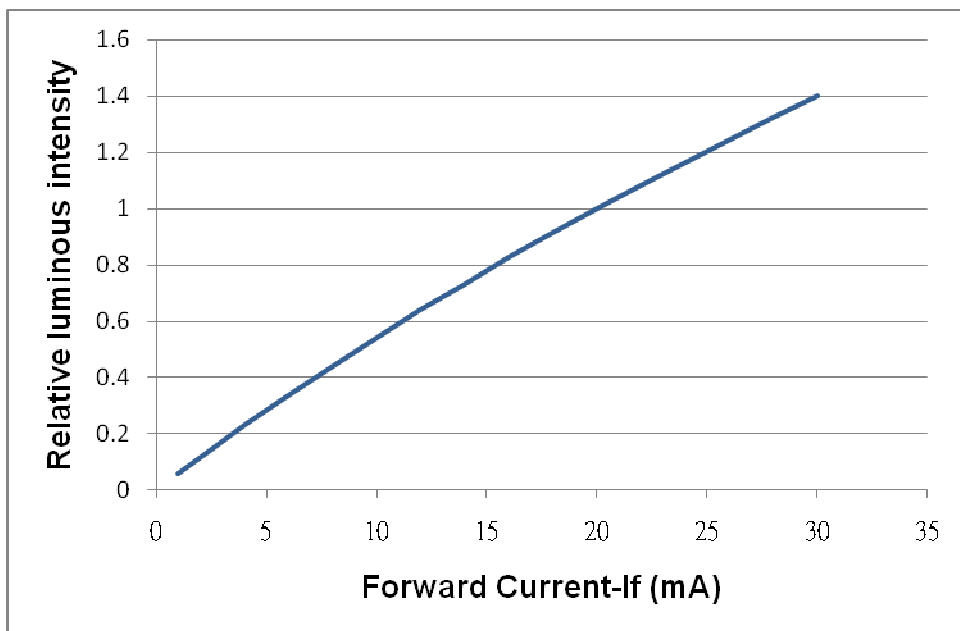


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Forward Voltage vs. Forward Current

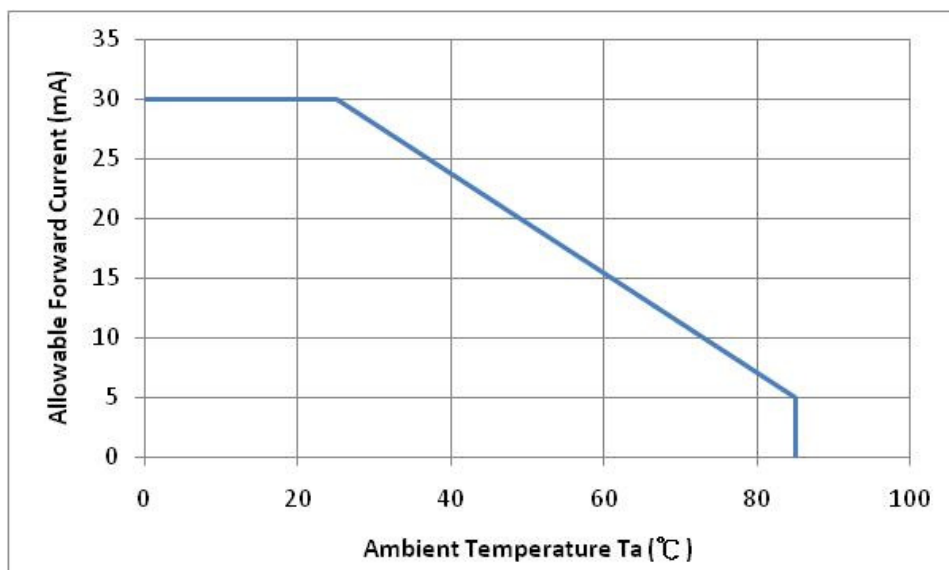


Forward Current vs. Relative Luminous Intensity

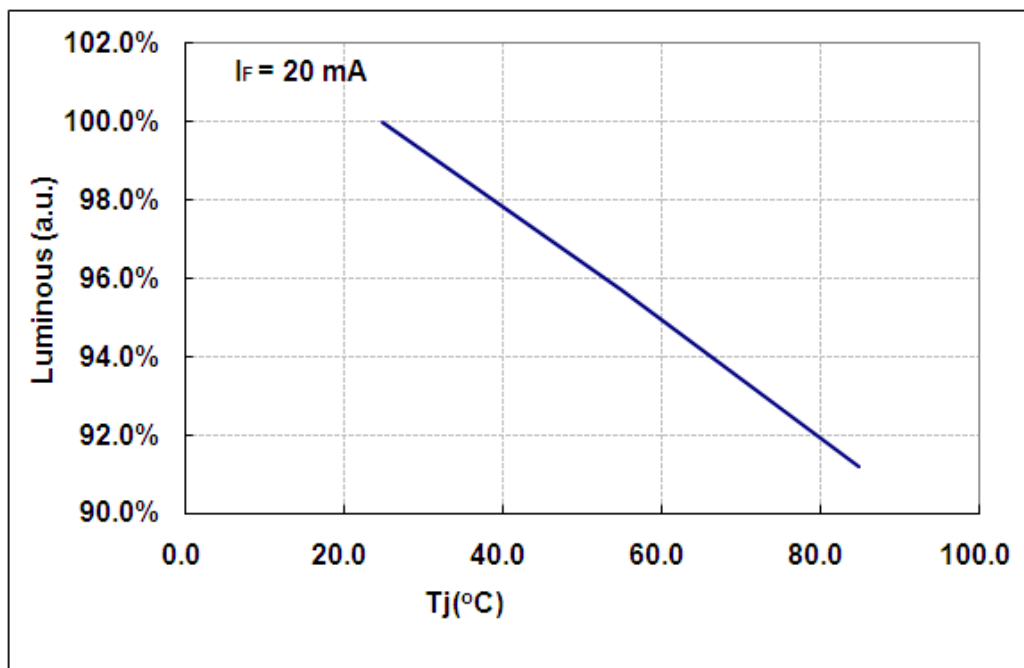


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Ambient Temp. vs. Allowable Forward Current

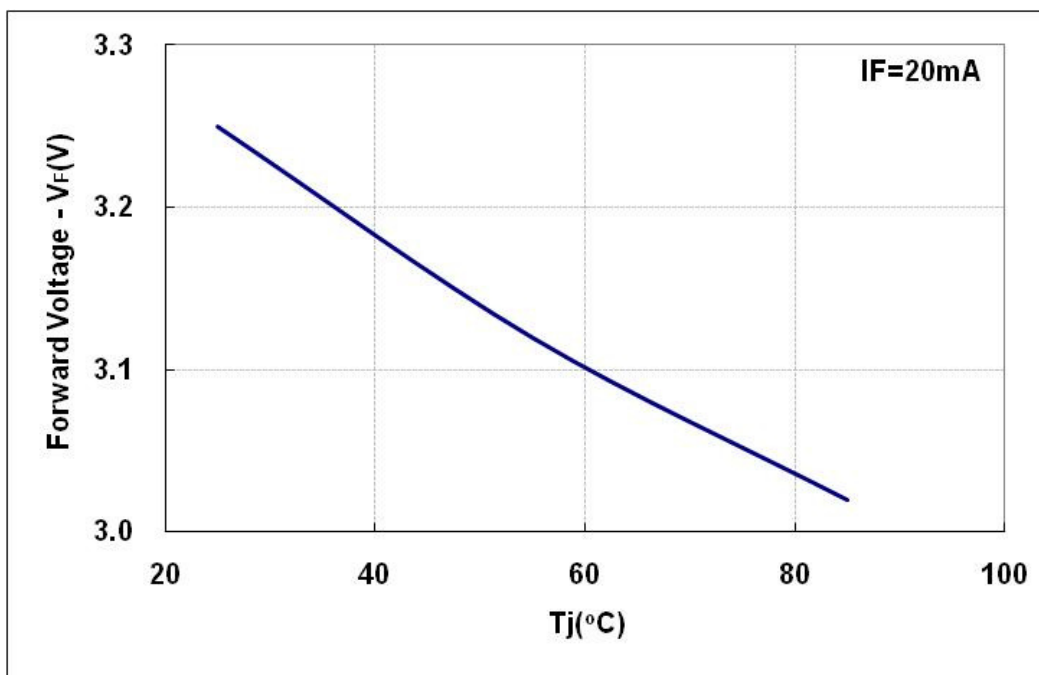


Junction Temp. vs. Relative Luminous Flux

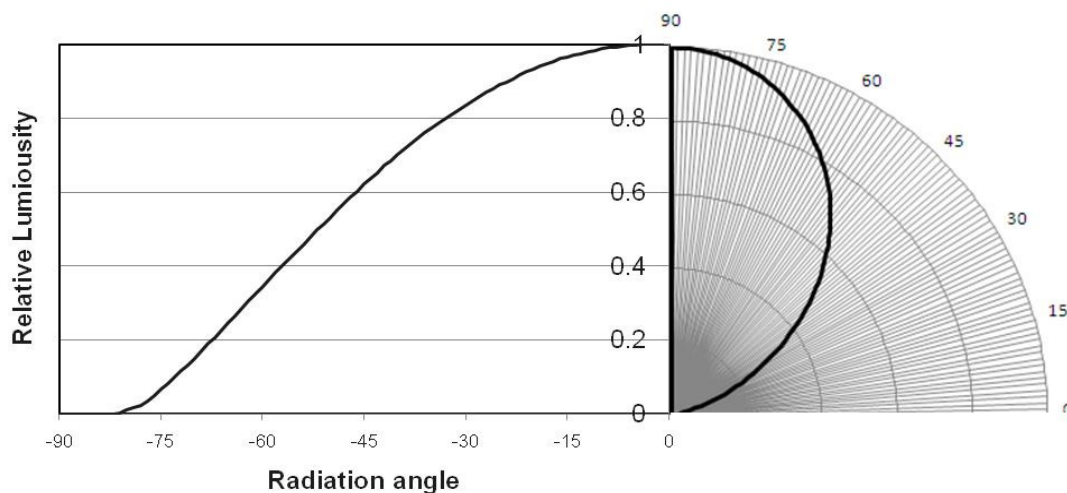


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Junction Temp. vs. Forward Voltage

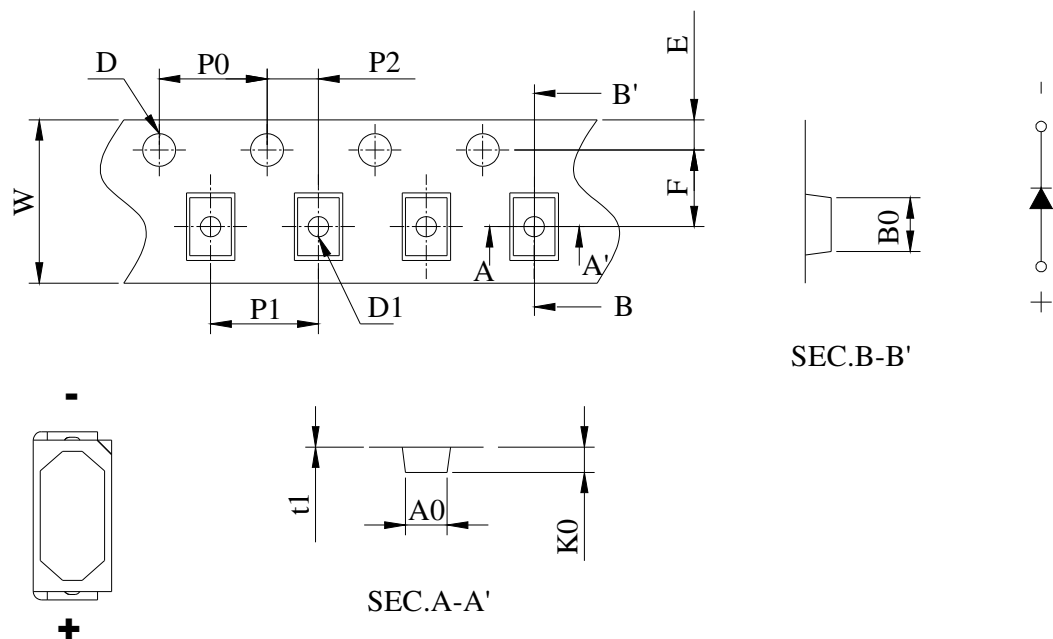


Radiation Pattern



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Packaging
Tape Dimension

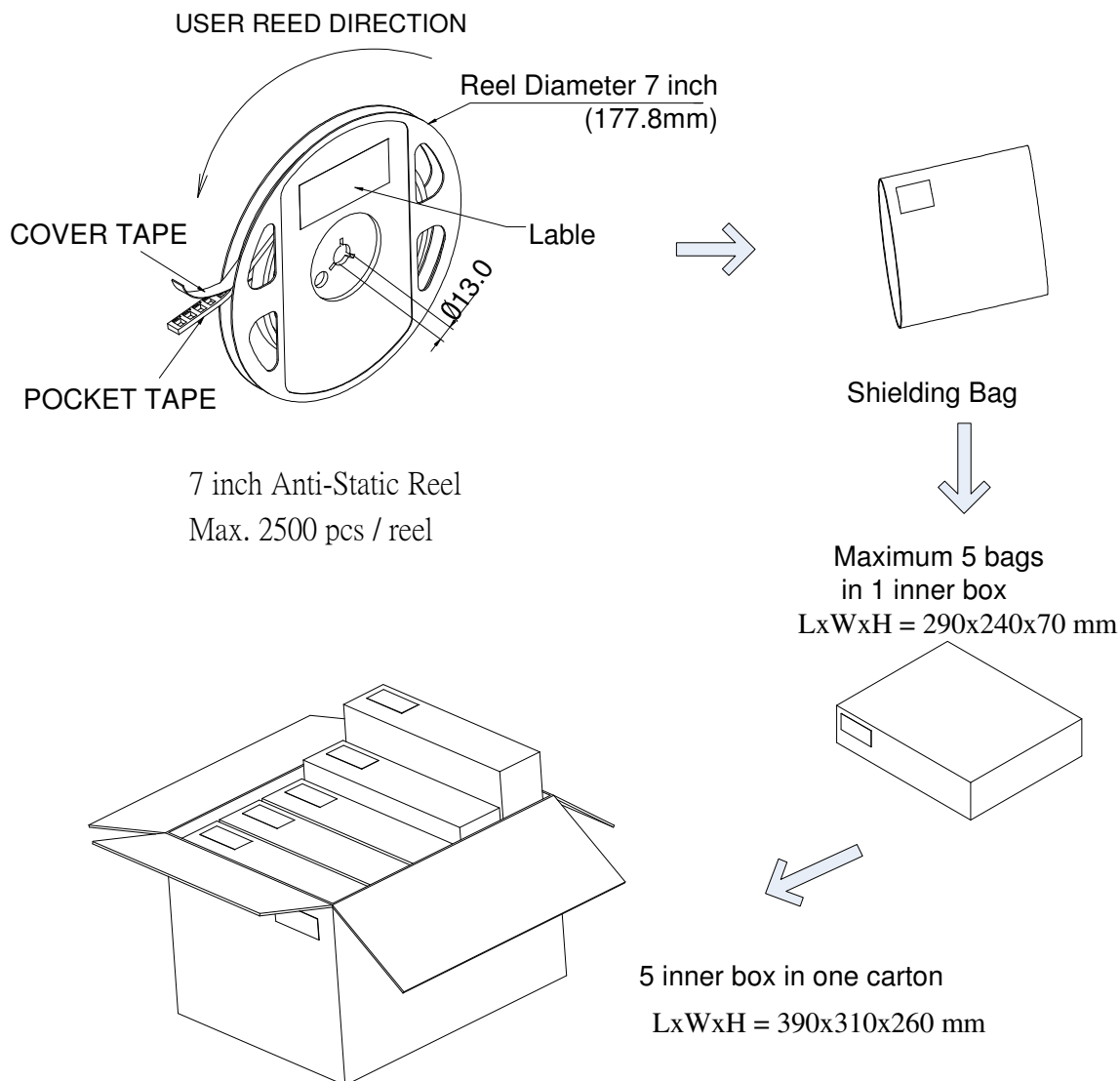


Unit : mm

Item	Spec	Tol.(+/-)	Item	Spec	Tol.(+/-)
W	8.00	±0.10	P2	2.00	±0.05
E	1.75	±0.10	P0 x 10	40.00	±0.20
F	3.50	±0.05	t1	0.23	±0.05
D	1.50	+0.1,-0	A0	1.50	±0.05
D1	1.00	±0.10	B0	3.20	±0.05
P0	4.00	±0.10	K0	1.48	±0.05

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Packing and Reel Dimension



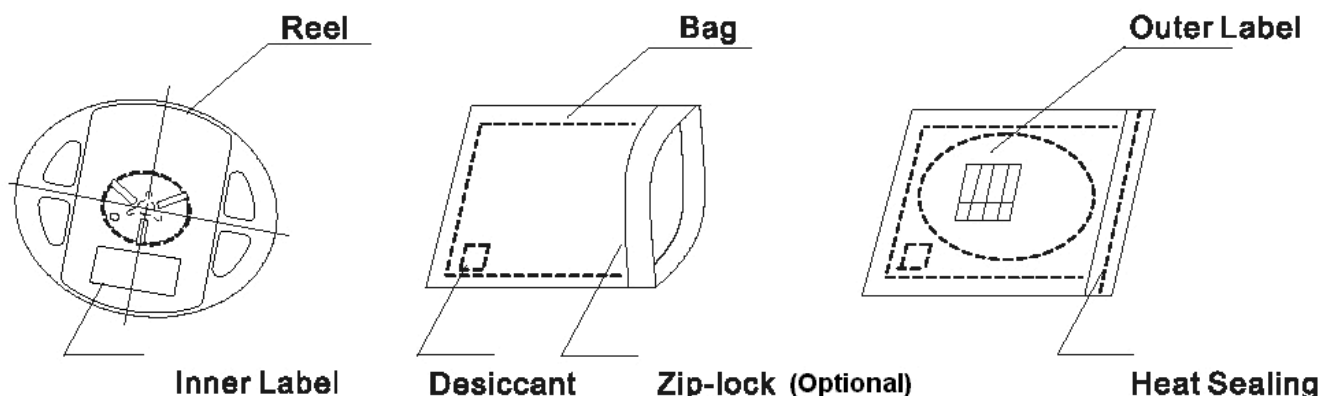
Dry Pack

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.

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The packaging sequence is as follows:



PRECAUTIONS

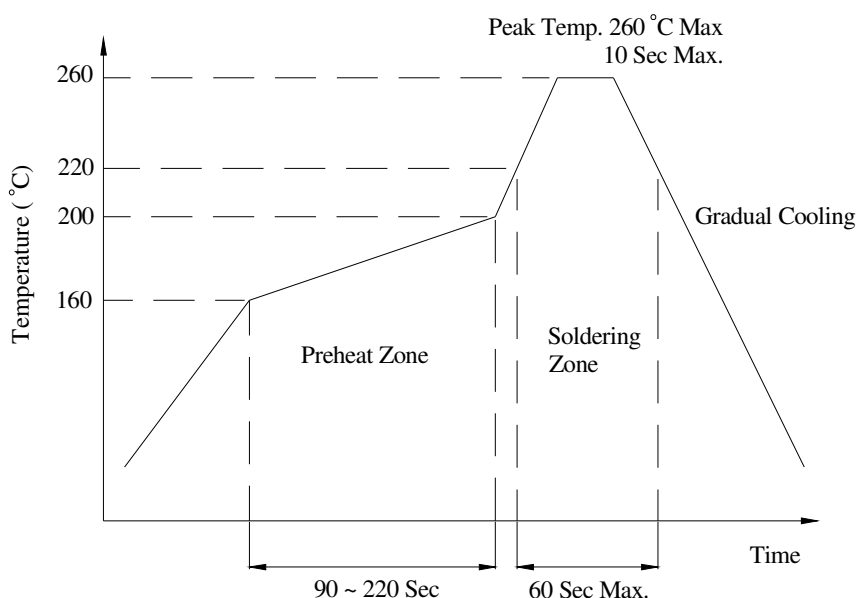
1. Avoid exposure to moisture at all times during transportation or storage.
2. Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the 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.
7. Before open the package, should kept at 30 oC, 90% RH environment or less, The LED should be used within a year.
8. After open the package, the LED should be kept at 30oC, 60 % RH environment or less. The LED should be soldered within 168 hours (7 days) 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).
9. The SMD LED is an ESD sensitive device. All the equipment and machine must be properly grounded.
10. Applying proper resistor for the circuit design is recommended. Otherwise slight voltage shift may cause big current change and the LED may be burn out.
11. LED Pre-Bake Notice: After the package opening over 168 hrs in 30°C, 60% RH or less. LED should be baked at 70±5°C / 24 hrs before using.

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Reflow Soldering

When soldering LEDs:

1. Do not solder/reflow the same LED over two times.
2. Recommend soldering conditions:
Hand soldering: 350 °C max , 3 sec. max.
Reflow soldering: Pre-heat 200 °C max , 220 sec. max.
Peak 260 °C max , 10 sec. max.
3. Reflow temperature profile as below: (lead-free solder)



- When soldering, don't put stress on the LEDs
- After LEDs have been soldered, strongly recommend not to repair to keep the LEDs performance.

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.

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Cleaning

- If washing is required, recommend to use alcohol as a solvent.
- Recommend to avoid cleaning the LEDs by ultrasonic.
If necessary, pre-test the LED is necessary to confirm whether any damage occur after the process.

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.

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• **Revise History**

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