

Spice:

Synonymous with function and performance, the new era of high intensity illumination in LED. With its high flux output and high luminous intensity, It transcends today LED lightings technology and how we perceive it.



Features:

- > Super high brightness surface mount LED
- > 120° viewing angle.
- > Compact package outline (LxW) of 3.0 x 1.4 mm.
- > Ultra low height profile - 0.52mm.
- > Low thermal resistance.
- > Build-in ESD protection device.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Compliance to automotive standard; AEC-Q101.



Applications:

- > Automotive: Back-light applications.

Optical Characteristics at Tj=25°C

Part Ordering Number	Color	Viewing Angle°	Luminous Flux @ 80mA (lm) <i>Appx. 1.2</i>		
			Min.	Typ.	Max.
SEW-BZSH-6P7Q-1	White	120	23.5	30.6	34.8

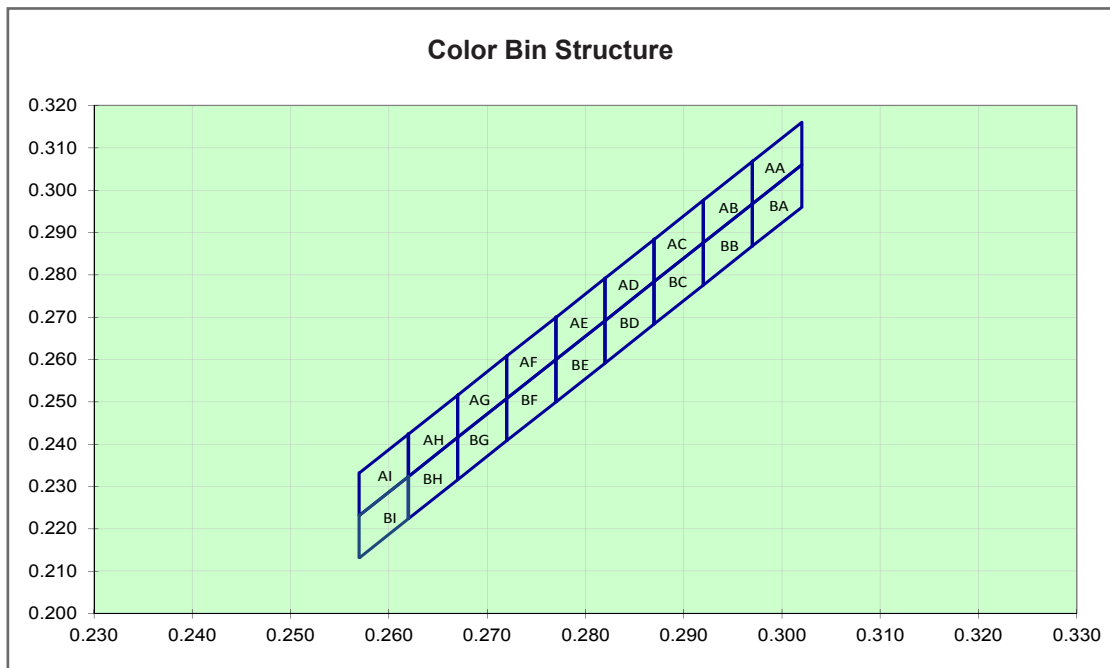
Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 80 mA <i>Appx. 3.1</i>		
	Min. (V)	Typ. (V)	Max. (V)
SEW-BZSH	2.7	3.0	3.2

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	150	mA
Peak pulse current	200	mA
Reverse voltage	Not for reserve bias	V
ESD threshold (HBM)	2000	V
LED junction temperature	120	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C
Thermal resistance - Junction / solder point, R _{th JS} (Mounted on dual sided FR4 in house PCB, total Cu area >900mm ²)	28	K/W

SEW-BZSH, Color Grouping *Appx. 2.1*



Bin		1	2	3	4
AA	Cx	0.2970	0.2970	0.3020	0.3020
	Cy	0.2968	0.3068	0.3160	0.3060
AB	Cx	0.2920	0.2920	0.2970	0.2970
	Cy	0.2876	0.2976	0.3068	0.2968
AC	Cx	0.2870	0.2870	0.2920	0.2920
	Cy	0.2784	0.2884	0.2976	0.2876
AD	Cx	0.2820	0.2820	0.2870	0.2870
	Cy	0.2692	0.2792	0.2884	0.2784
AE	Cx	0.2770	0.2770	0.2820	0.2820
	Cy	0.2600	0.2700	0.2792	0.2692
AF	Cx	0.2720	0.2720	0.2770	0.2770
	Cy	0.2508	0.2608	0.2700	0.2600
AG	Cx	0.2670	0.2670	0.2720	0.2720
	Cy	0.2416	0.2516	0.2608	0.2508
AH	Cx	0.2620	0.2620	0.2670	0.2670
	Cy	0.2324	0.2424	0.2516	0.2416
AI	Cx	0.2570	0.2570	0.2620	0.2620
	Cy	0.2232	0.2332	0.2424	0.2324

Bin		1	2	3	4
BA	Cx	0.2970	0.2970	0.3020	0.3020
	Cy	0.2868	0.2968	0.3060	0.2960
BB	Cx	0.2920	0.2920	0.2970	0.2970
	Cy	0.2776	0.2876	0.2968	0.2868
BC	Cx	0.2870	0.2870	0.2920	0.2920
	Cy	0.2684	0.2784	0.2876	0.2776
BD	Cx	0.2820	0.2820	0.2870	0.2870
	Cy	0.2592	0.2692	0.2784	0.2684
BE	Cx	0.2770	0.2770	0.2820	0.2820
	Cy	0.2500	0.2600	0.2692	0.2592
BF	Cx	0.2720	0.2720	0.2770	0.2770
	Cy	0.2408	0.2508	0.2600	0.2500
BG	Cx	0.2670	0.2670	0.2720	0.2720
	Cy	0.2316	0.2416	0.2508	0.2408
BH	Cx	0.2620	0.2620	0.2670	0.2670
	Cy	0.2224	0.2324	0.2416	0.2316
BI	Cx	0.2570	0.2570	0.2620	0.2620
	Cy	0.2132	0.2232	0.2324	0.2224

Luminous Intensity Group

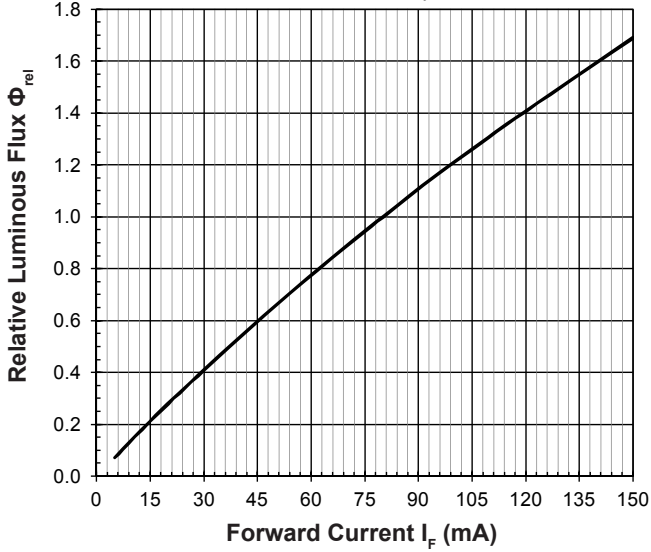
Brightness Group	Luminous Flux ^{Appx. 1.2} (lm)
6P	23.5 ... 25.1
7P	25.1 ... 26.8
8P	26.8 ... 28.7
9P	28.7 ... 30.6
6Q	30.6 ... 32.7
7Q	32.7 ... 34.8

Vf Binning

Vf Bin @ 80mA	Forward Voltage (V) ^{Appx. 3.1}
V1	2.70 ... 2.80
V2	2.80 ... 2.90
V3	2.90 ... 3.00
V4	3.00 ... 3.10
V5	3.10 ... 3.20

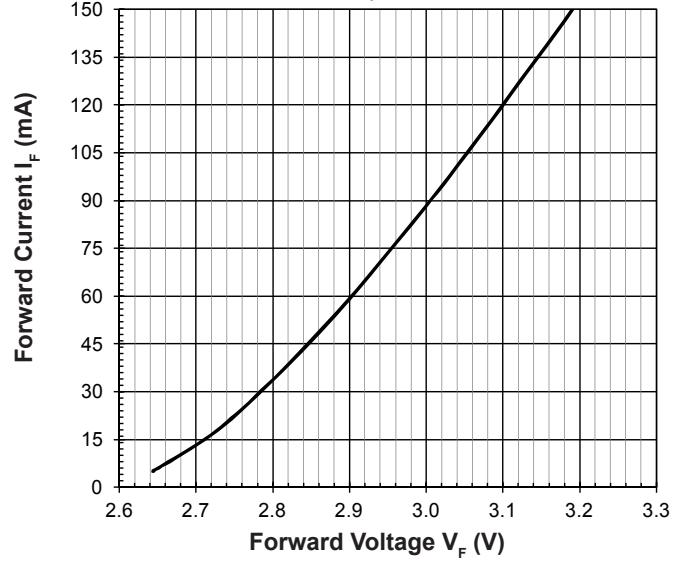
Relative Luminous Flux Vs Forward Current

$\Phi_v/\Phi_v(80\text{mA}) = f(I_F); T_j = 25^\circ\text{C}$



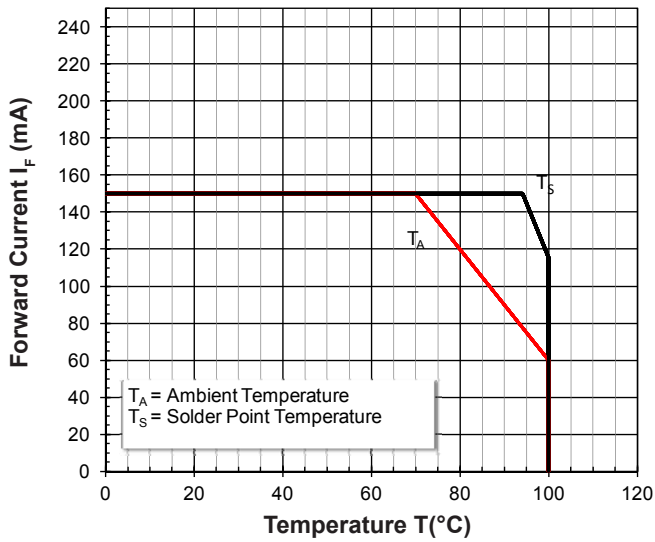
Forward Current Vs Forward Voltage

$I_F = f(V_F); T_j = 25^\circ\text{C}$



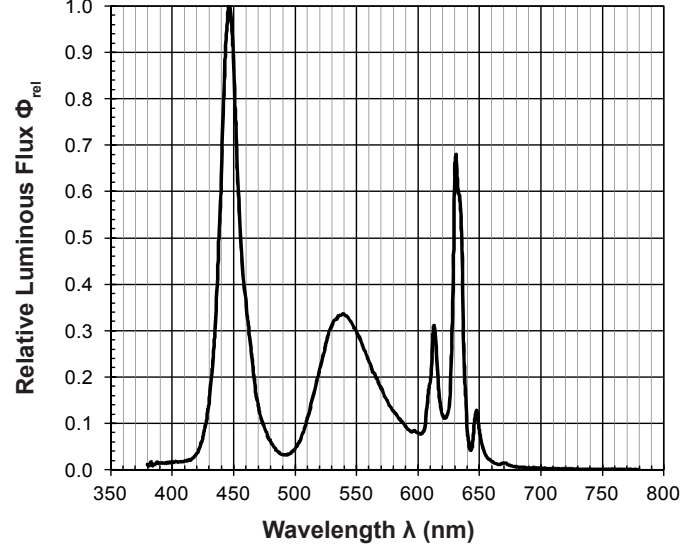
Maximum Current Vs Temperature

$I_F = f(T)$



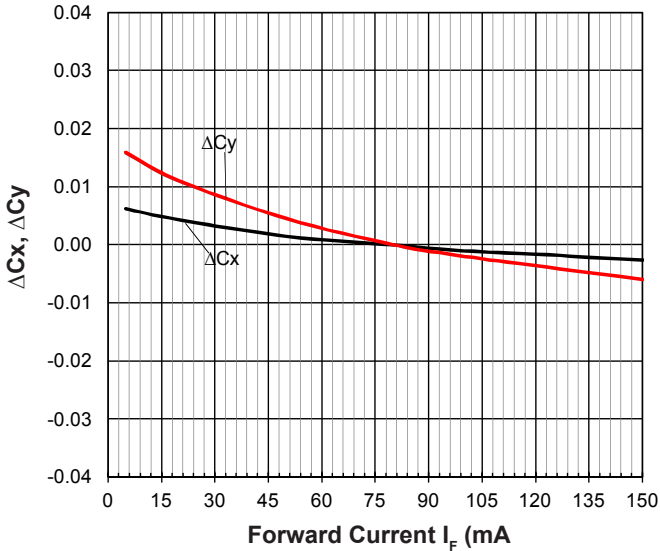
Relative Spectral Emission

$\Phi_{rel} = f(\lambda); T_j = 25^\circ\text{C}; I_F = 80\text{mA}$



Chromaticity Coordinate Shift Vs Forward Current

$\Delta Cx, \Delta Cy = f(I_F); T_j = 25^\circ\text{C}$

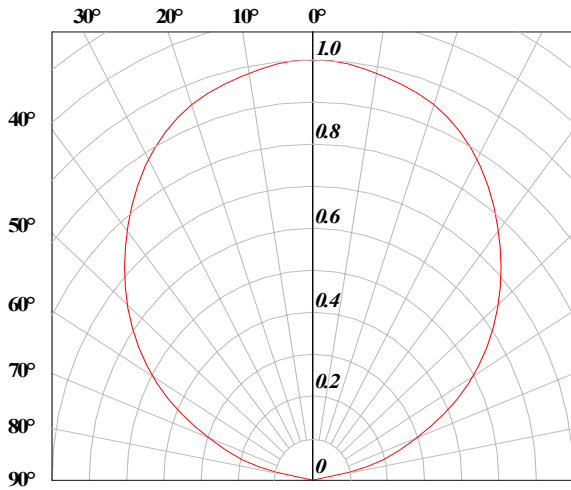


Allowable Forward Current Vs Duty Ratio

$(T_j = 25^\circ\text{C}; t_p \leq 10\mu\text{s})$

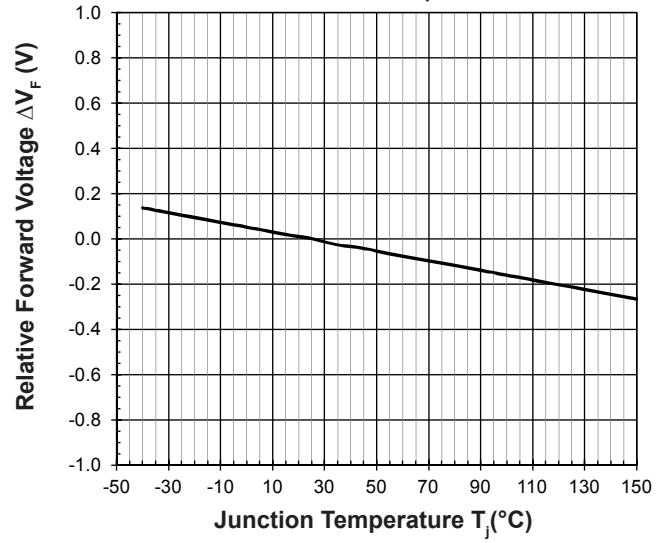


Radiation Pattern



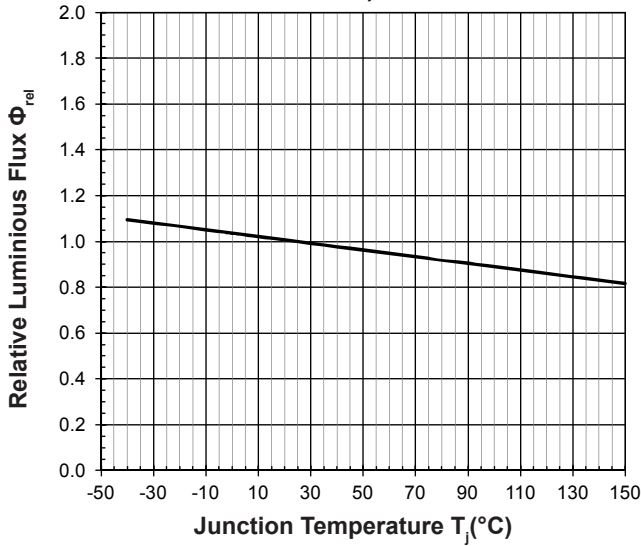
Relative Forward Voltage Vs Junction Temperature

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 80\text{mA}$$



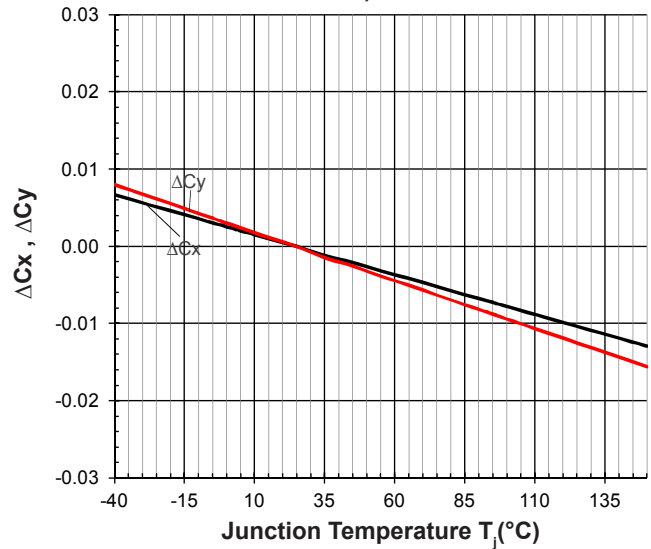
Relative Luminous Flux Vs Junction Temperature

$$\Phi_V/\Phi_V(25^\circ\text{C}) = f(T_j); I_F = 80\text{mA}$$

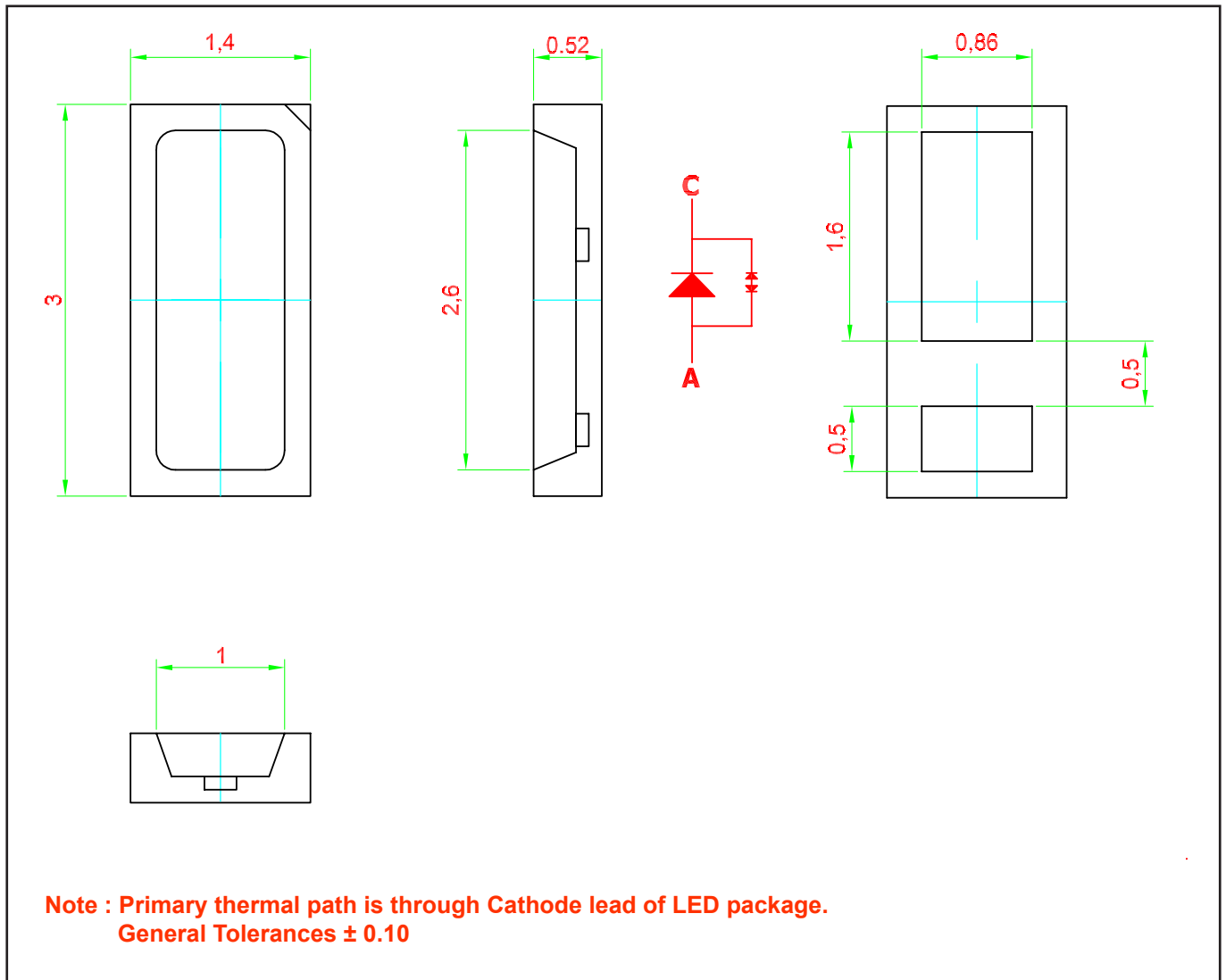


Chromaticity Coordinate Shift Vs Junction Temperature

$$\Delta C_x, \Delta C_y = f(T_j); I_F = 80\text{mA}$$



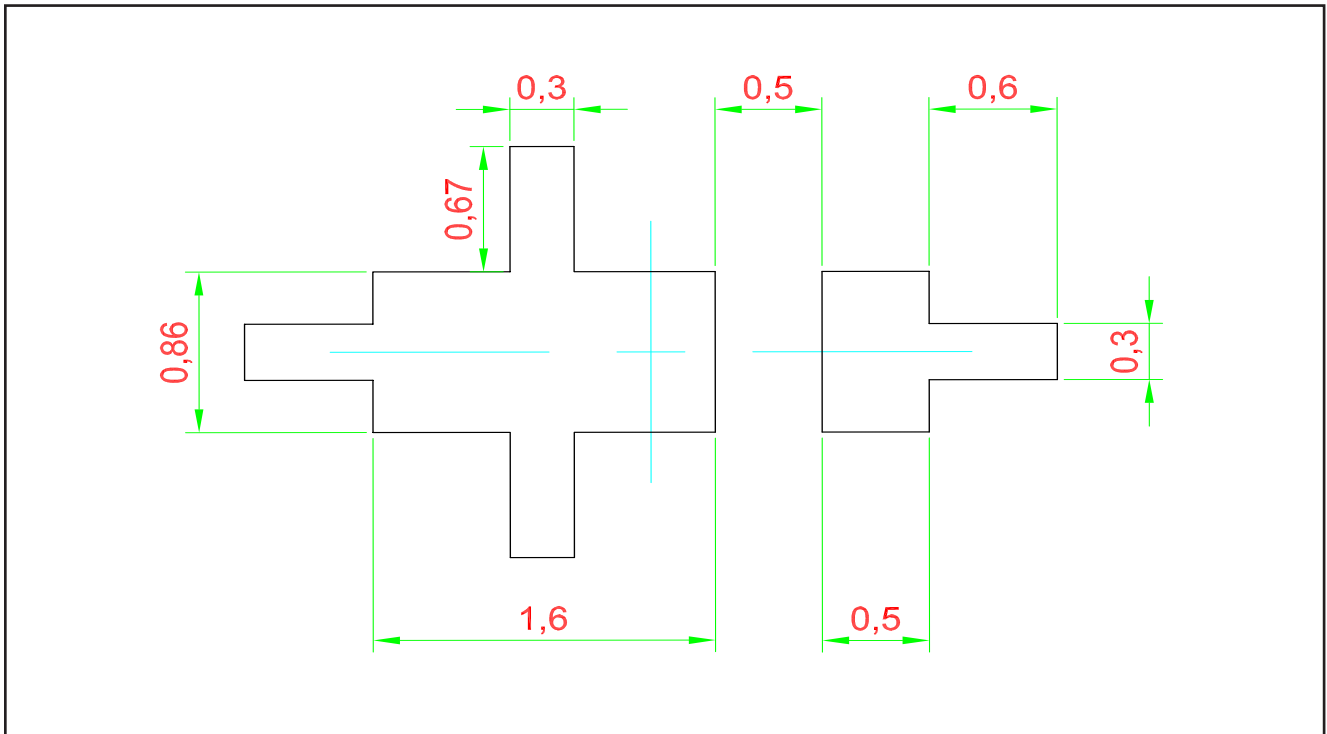
SpicePlus 3014 • InGaN White: SEW-BZSH Package Outlines



Material

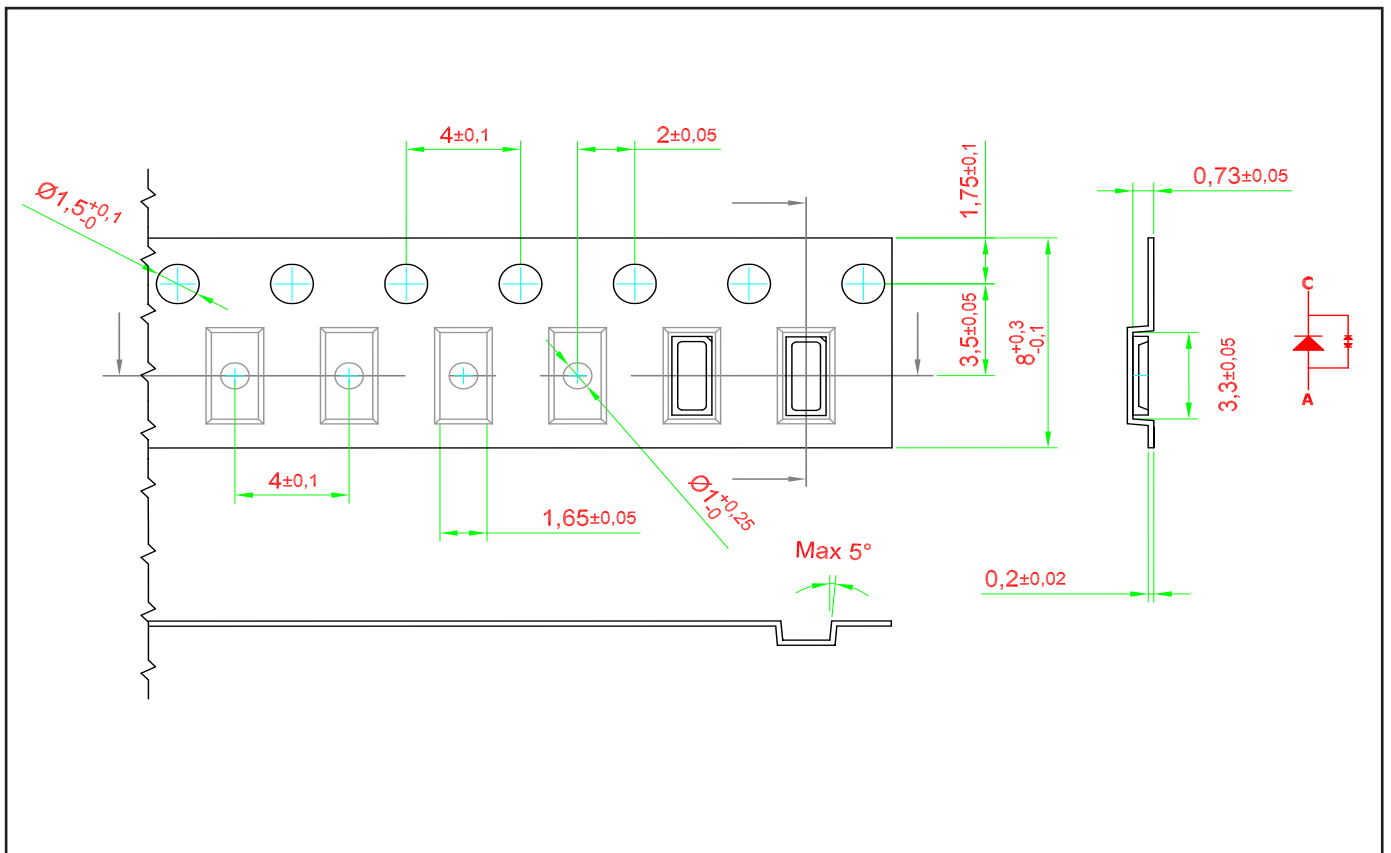
	Material
Lead-frame	Cu Alloy With Ag Plating
Package	Heat Resistant Polymer
Encapsulant	Silicone Resin
Soldering Leads	Ag Plating

Recommended Solder Pad

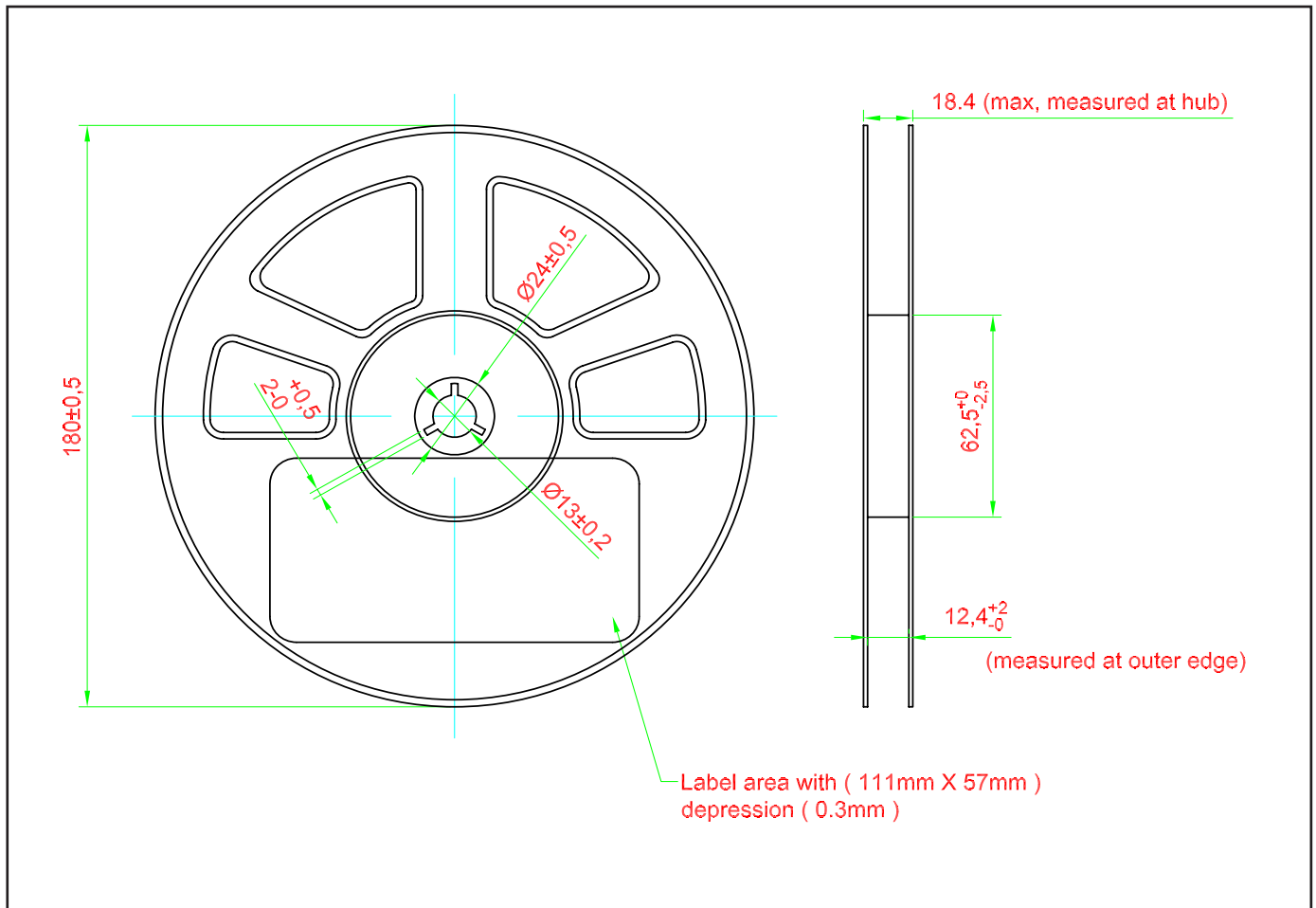


Taping and orientation

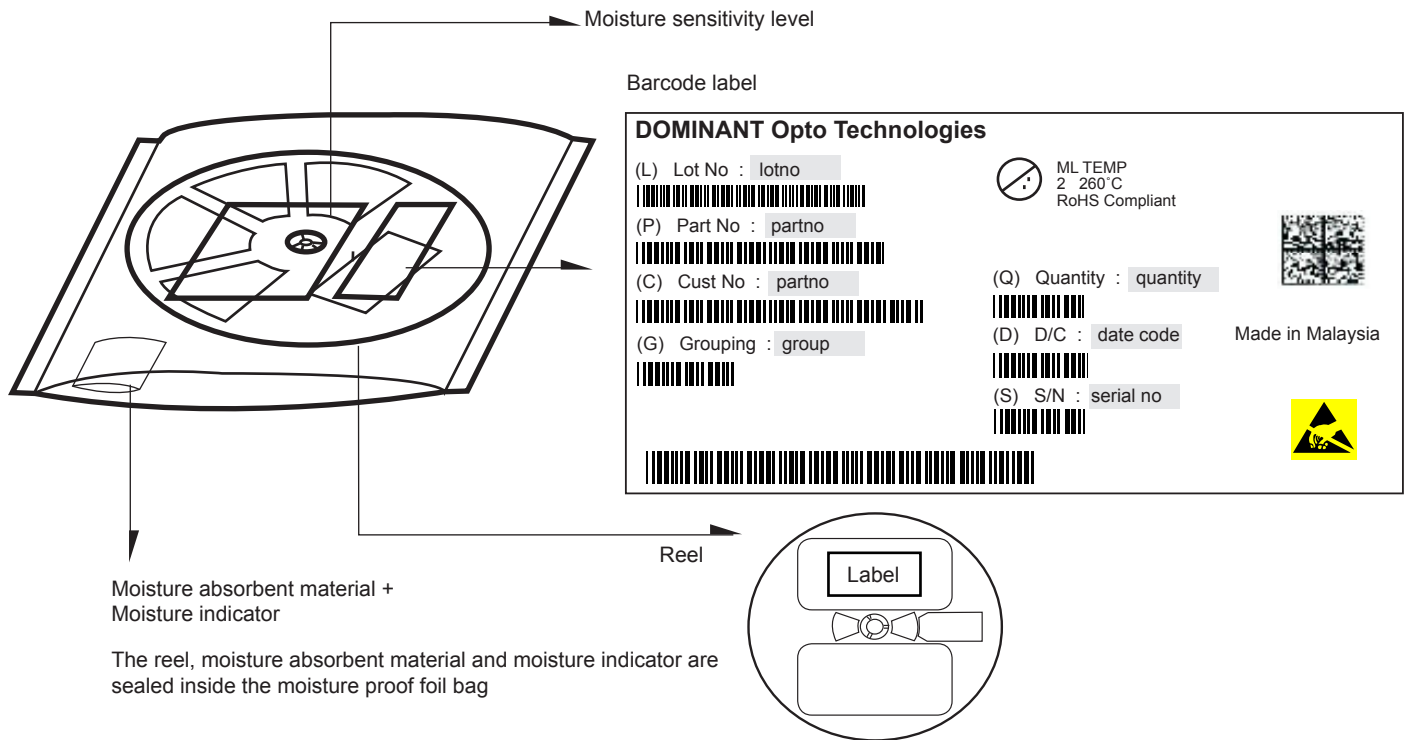
- Reels come in quantity of 3000 units.
- Reel diameter is 180



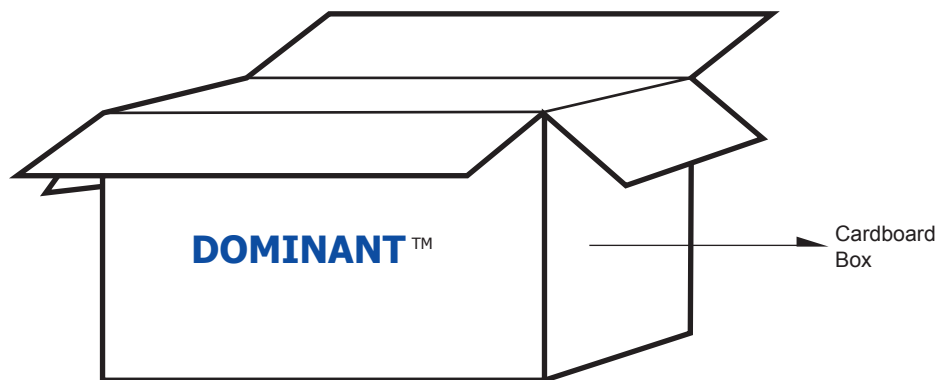
Packaging Specification



Packaging Specification



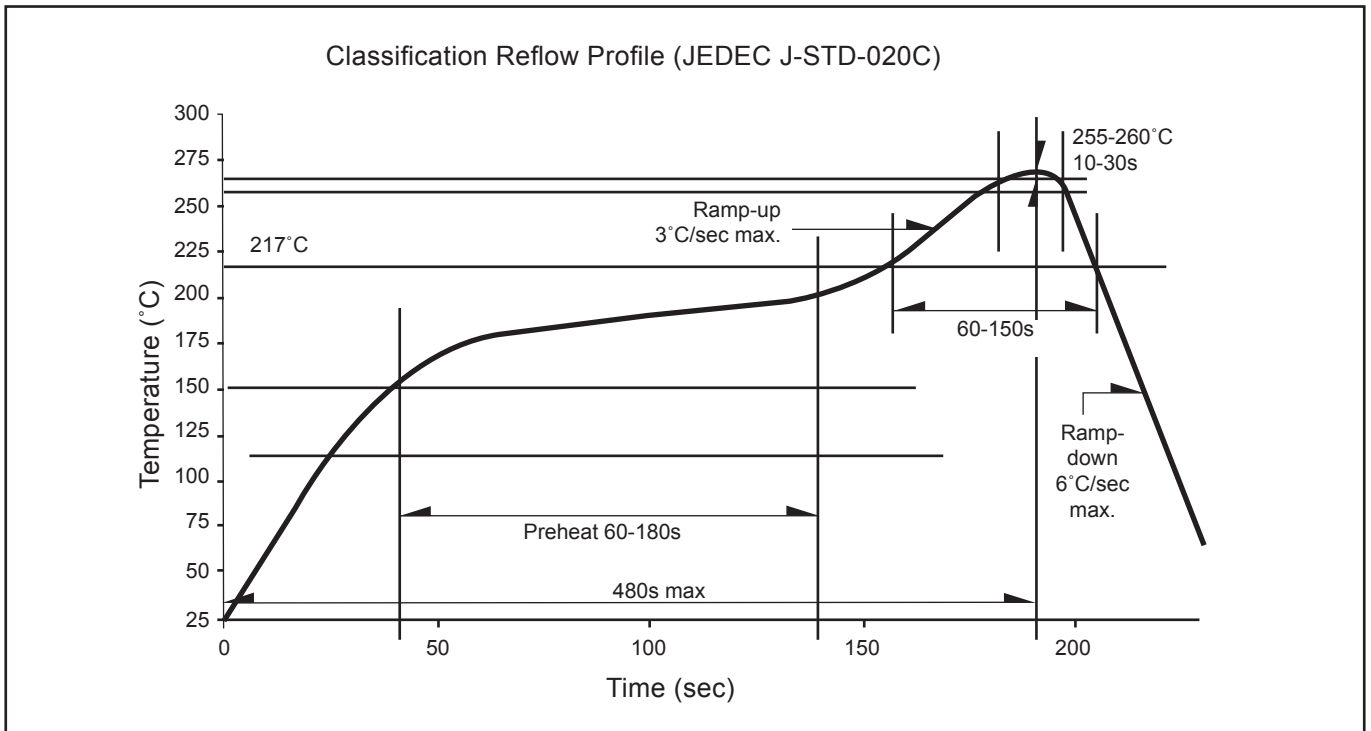
	Average 1pc SpicePlus 3014	1 completed bag (3000pcs)
Weight (gram)	0.011	200 ± 10



For SpicePlus 3014

Cardboard Box Size	Dimensions (mm)	Empty Box Weight (kg)	Reel / Box
Super Small	325 x 225 x 190	0.38	9 reels MAX
Small	325 x 225 x 280	0.54	15 reels MAX
Medium	570 x 440 x 230	1.46	60 reels MAX
Large	570 x 440 x 460	1.92	120 reels MAX

Recommended Pb-free Soldering Profile



Appendix

1) **Brightness:**

- 1.1 Luminous intensity is measured with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (according to GUM with a coverage factor of $k=3$).
- 1.2 Luminous flux is measured with an internal reproducibility of $\pm 8\%$ and an expanded uncertainty of $\pm 11\%$ (according to GUM with a coverage factor of $k=3$).

2) **Color:**

- 2.1 Chromaticity coordinate groups are measured with an internal reproducibility of ± 0.005 and an expanded uncertainty of ± 0.01 (accordingly to GUM with a coverage factor of $k=3$).
- 2.2 DOMINANT wavelength is measured with an internal reproducibility of $\pm 0.5\text{nm}$ and an expanded uncertainty of $\pm 1\text{nm}$ (accordingly to GUM with a coverage factor of $k=3$).

3) **Voltage:**

- 3.1 Forward Voltage, V_f is measured with an internal reproducibility of $\pm 0.05\text{V}$ and an expanded uncertainty of $\pm 0.1\text{V}$ (accordingly to GUM with a coverage factor of $k=3$).

Revision History

Page	Subjects	Date of Modification
-	Initial Release	27 Dec 2016
1, 8	Typo Error on Features Typo Error on Package Outline	26 May 2017

NOTE

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About Us

DOMINANT Opto Technologies is a dynamic company that is amongst the world's leading automotive LED manufacturers. With an extensive industry experience and relentless pursuit of innovation, DOMINANT's state-of-art manufacturing and development capabilities have become a trusted and reliable brand across the globe. More information about DOMINANT Opto Technologies, a ISO/TS 16949 and ISO 14001 certified company, can be found under <http://www.dominant-semi.com>.

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