

### 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 @ 120mA (lm) <i>Appx. 1.2</i>		
			Min.	Typ.	Max.
SEW-YZSH-8Q9R-1	White	120	34.8	42.5	51.7

Notes:

Typ Flux, chromaticity coordinate: Cx 0.287, Cy 0.278.

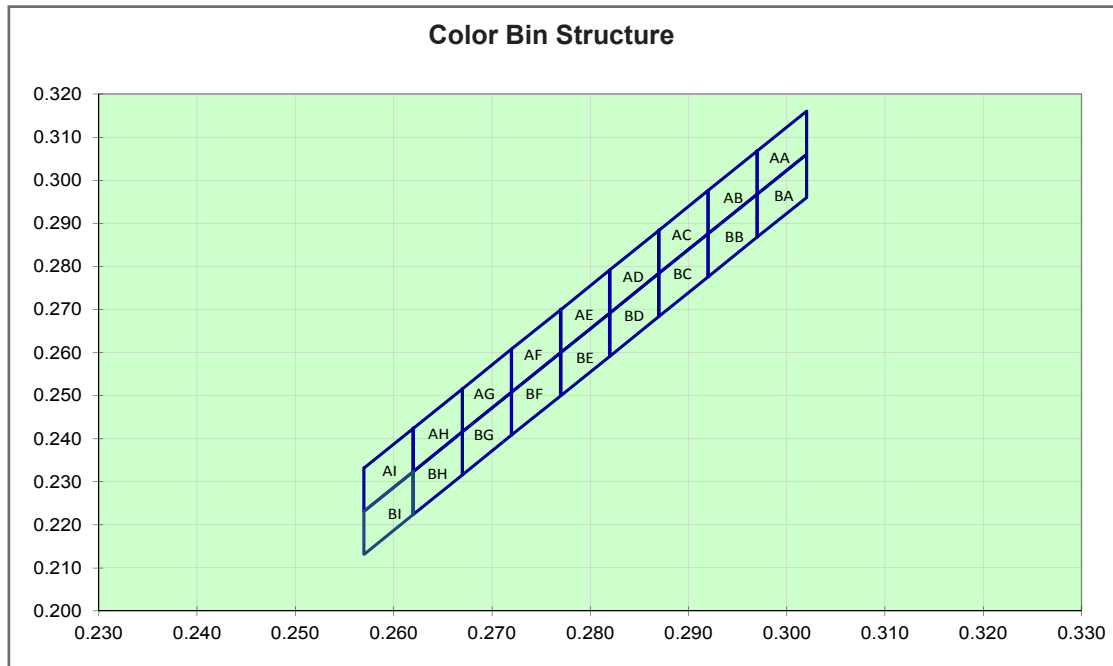
**Electrical Characteristics at Tj=25°C**

Part Number	Vf @ If = 120 mA <i>Appx. 3.1</i>		
	Min. (V)	Typ. (V)	Max. (V)
SEW-YZSH	2.8	3.1	3.4

**Absolute Maximum Ratings**

	Maximum Value	Unit
DC forward current	200	mA
Peak pulse current (tp ≤ 10µs, Duty cycle = 0.1)	400	mA
Reverse voltage	Not for reserve bias	V
ESD threshold (HBM)	8000	V
LED junction temperature	120	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C
Power dissipation (at room temperature)	680	mW
Thermal resistance - Junction / solder point, R <sub>th JS</sub> (typ = 17) (Mounted on dual sided FR4 in house PCB, total Cu area >900mm <sup>2</sup> )	24	K/W

**SEW-YZSH, 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

<b>Bin</b>		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
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

InGaN wavelength is very sensitive to drive current. Operating at lower current is not recommended and may yield unpredictable performance current pulsing should be used for dimming purposes.

**Luminous Intensity Group**

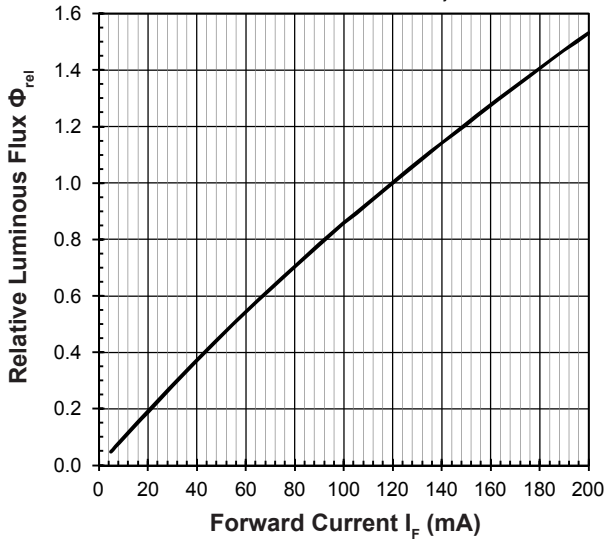
Brightness Group	Luminous Flux <i>Appx. 1.2</i> (lm)
8Q	34.8 ... 37.3
9Q	37.3 ... 39.8
6R	39.8 ... 42.5
7R	42.5 ... 45.2
8R	45.2 ... 48.4
9R	48.4 ... 51.7

**Vf Binning**

Vf Bin @ 120mA	Forward Voltage (V) <i>Appx. 3.1</i>
V2	2.80 ... 2.90
V3	2.90 ... 3.00
V4	3.00 ... 3.10
V5	3.10 ... 3.20
V6	3.20 ... 3.30
V7	3.30 ... 3.40

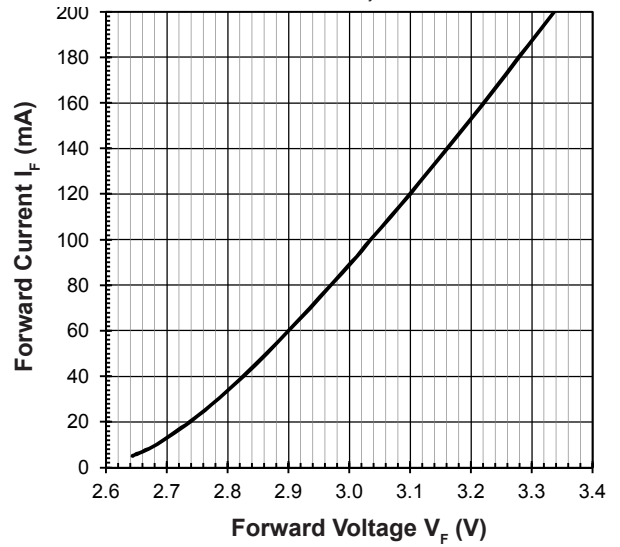
**Relative Luminous Flux Vs Forward Current**

$\Phi_v/\Phi_v(120\text{mA}) = f(I_F); T_j = 25^\circ\text{C}$



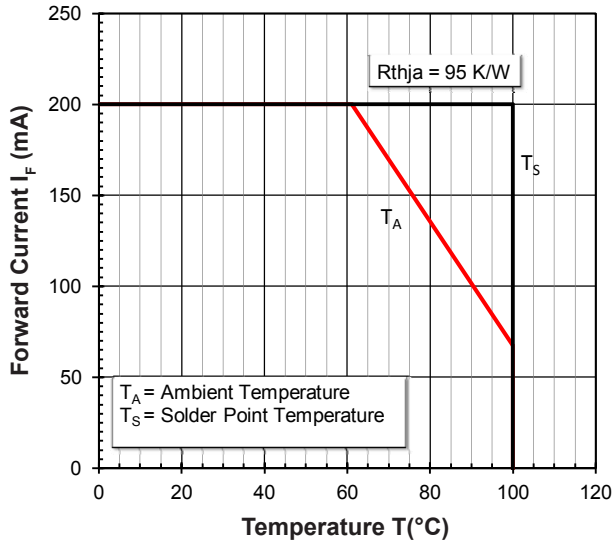
**Forward Current Vs Forward Voltage**

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



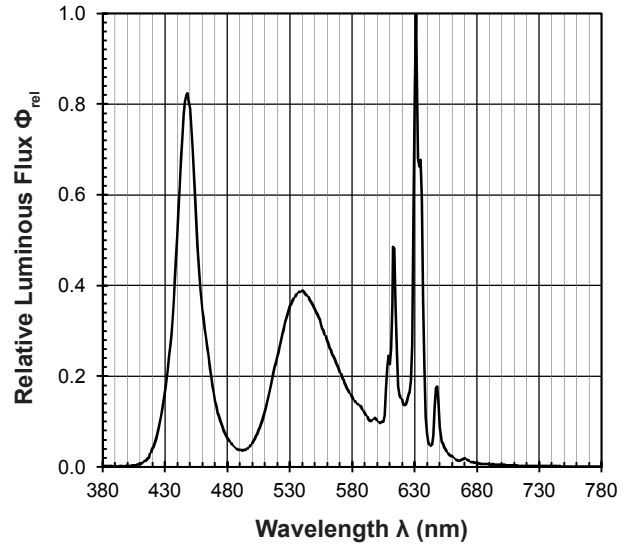
**Maximum Current Vs Temperature**

$I_F = f(T)$



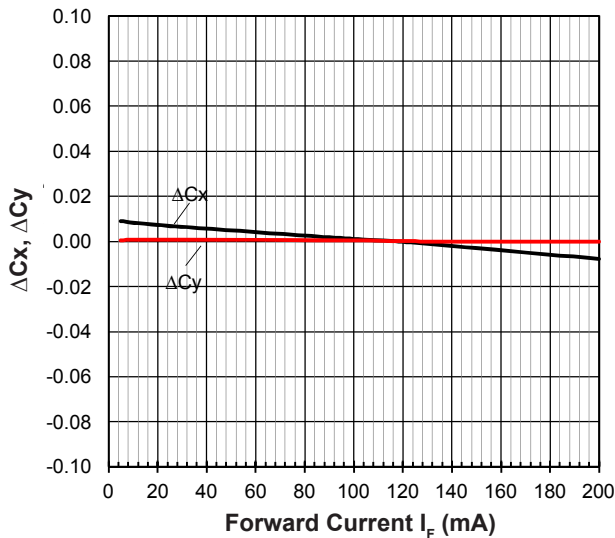
**Relative Spectral Emission**

$\Phi_{rel} = f(\lambda); T_j = 25^\circ\text{C}; I_F = 120\text{mA}$



**Chromaticity Coordinate Shift Vs Forward Current**

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

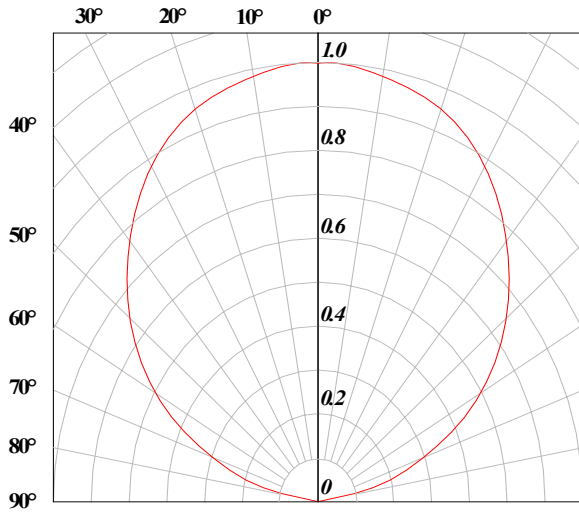


**Allowable Forward Current Vs Duty Ratio**

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

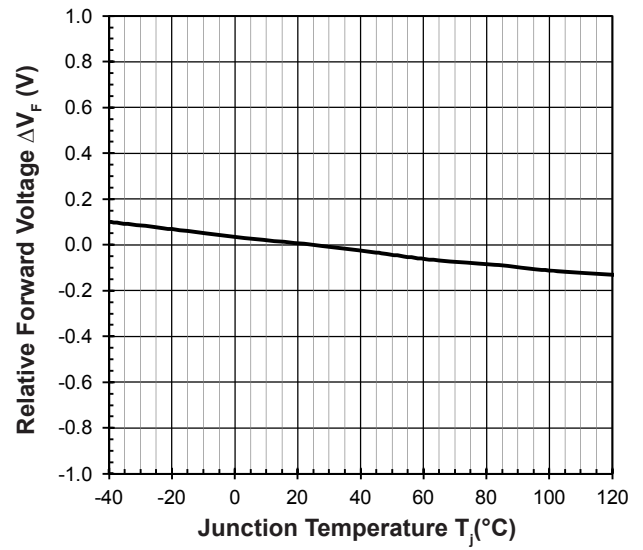


**Radiation Pattern**



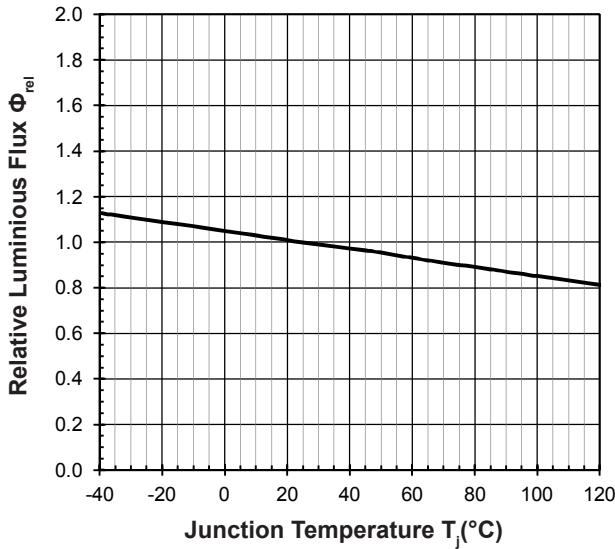
**Relative Forward Voltage Vs Junction Temperature**

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 120\text{mA}$$



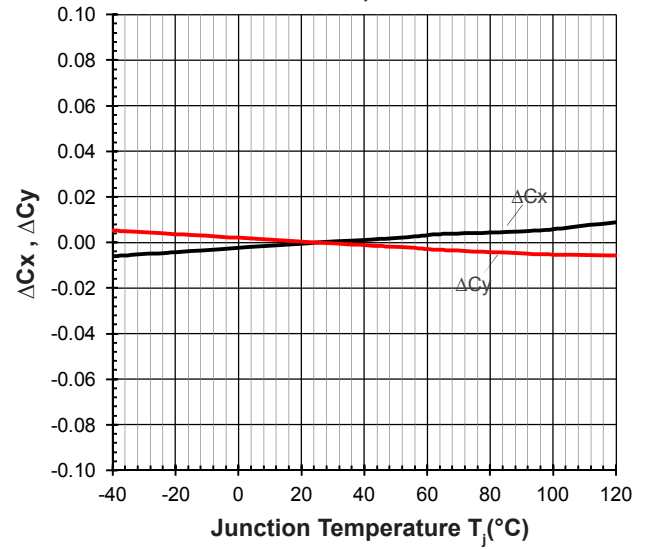
**Relative Luminous Flux Vs Junction Temperature**

$$\Phi_V/\Phi_V(25^\circ\text{C}) = f(T_j); I_F = 120\text{mA}$$

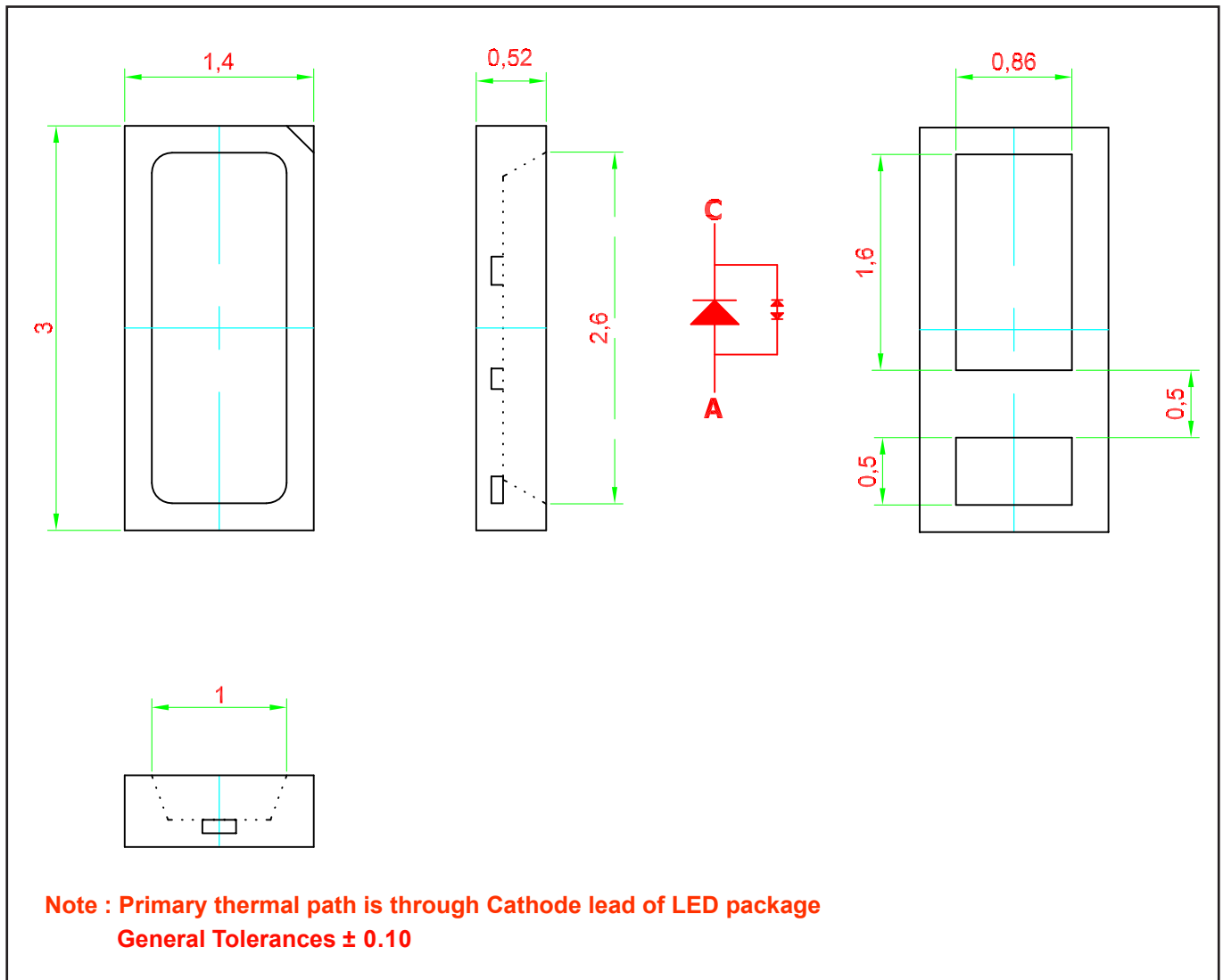


**Chromaticity Coordinate Shift Vs Junction Temperature**

$$\Delta C_x, \Delta C_y = f(T_j); I_F = 120\text{mA}$$



**SpicePlus 3014 • InGaN White: SEW-YZSH Package Outlines**

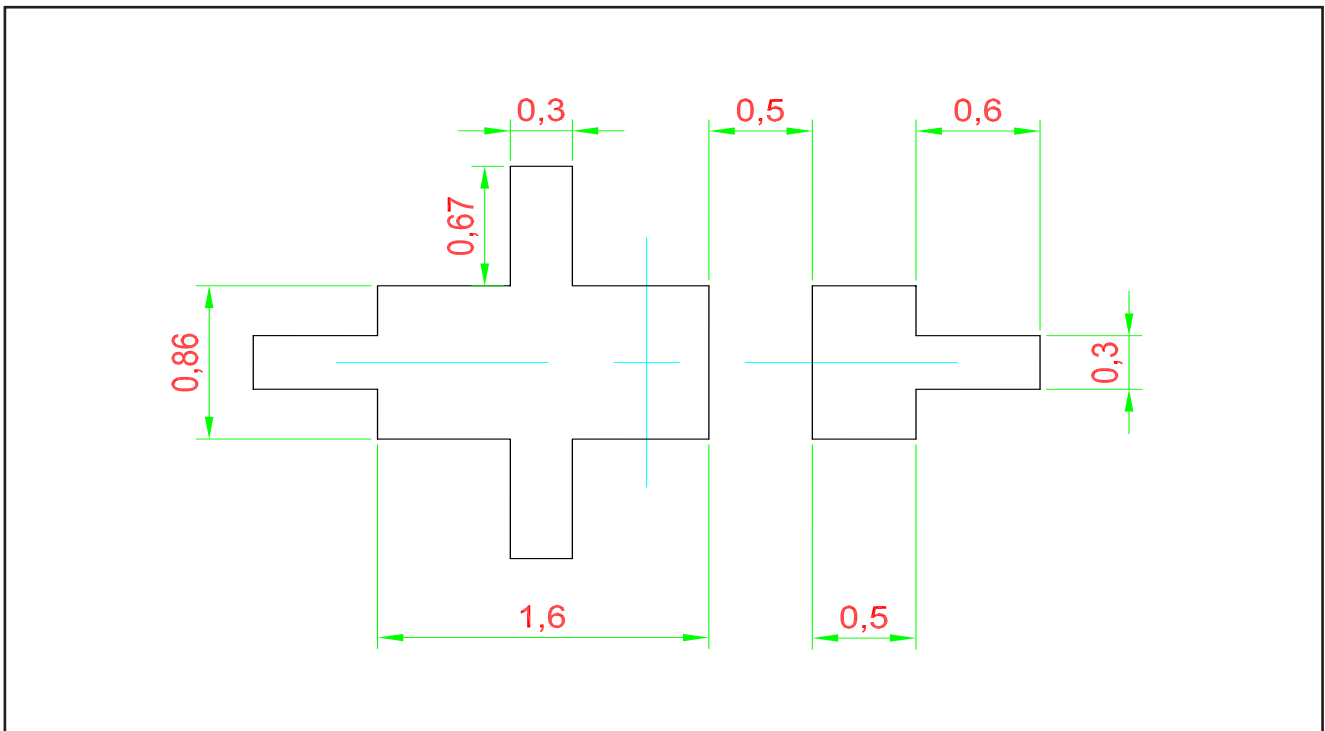


**Material**

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

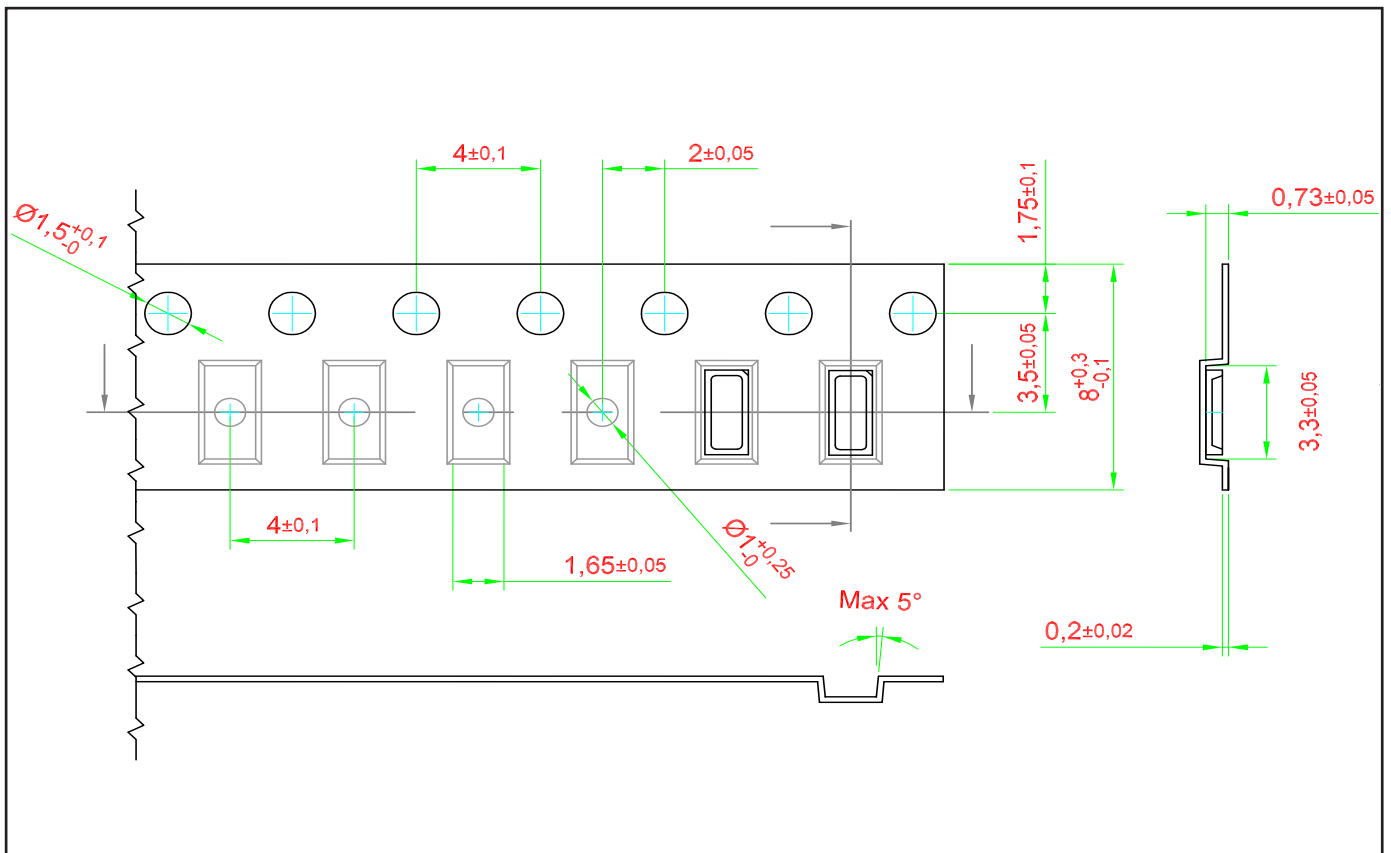


**Recommended Solder Pad**

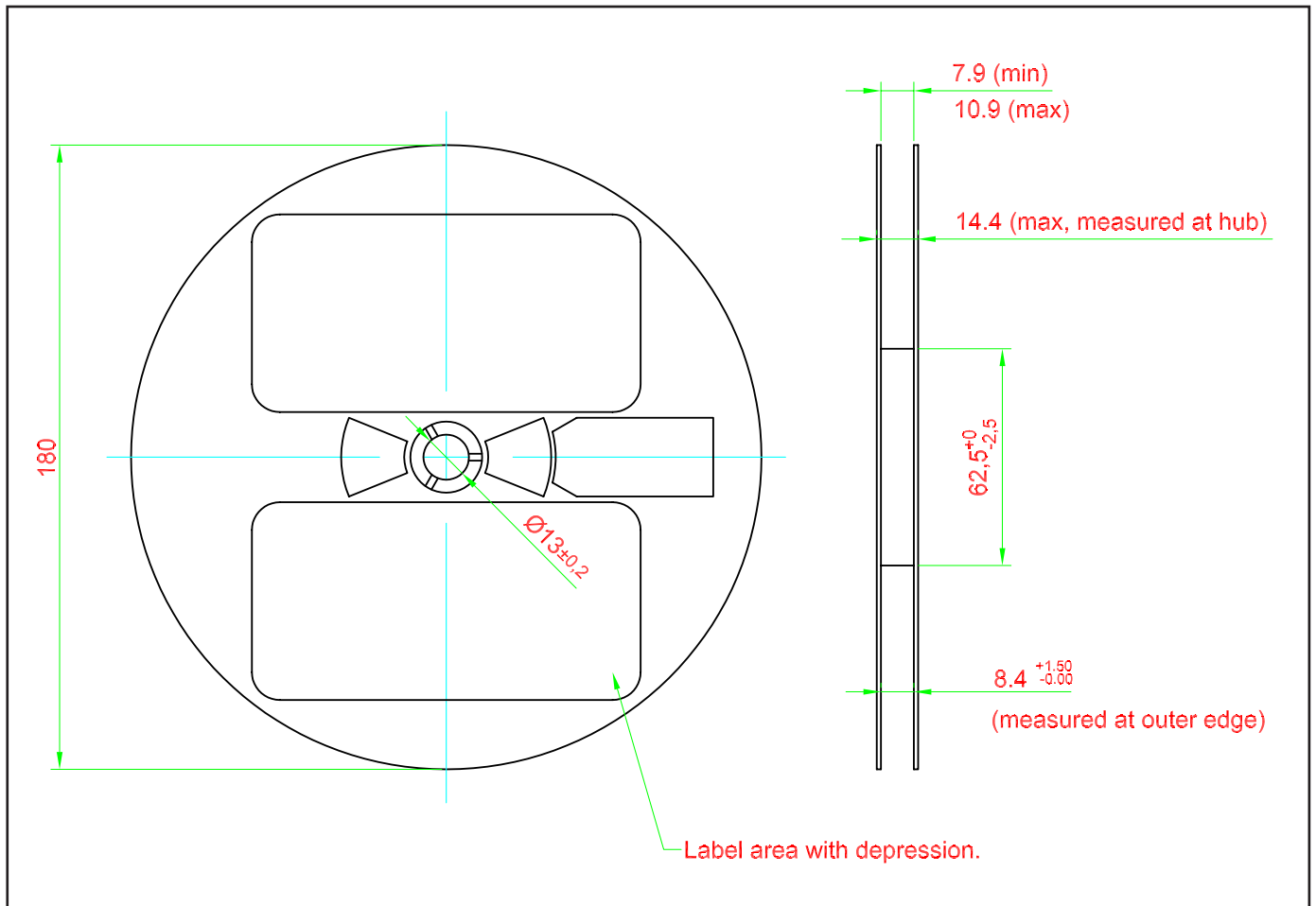


**Taping and orientation**

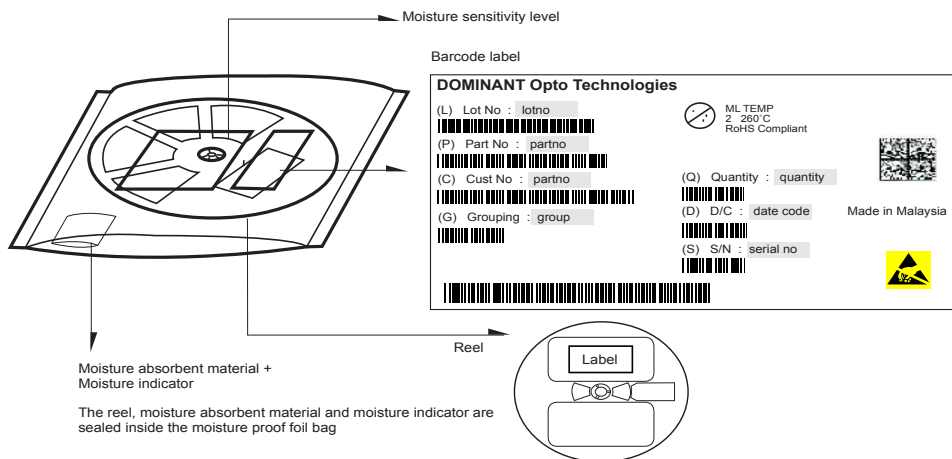
- Reels come in quantity of 3000 units.
- Reel diameter is 180



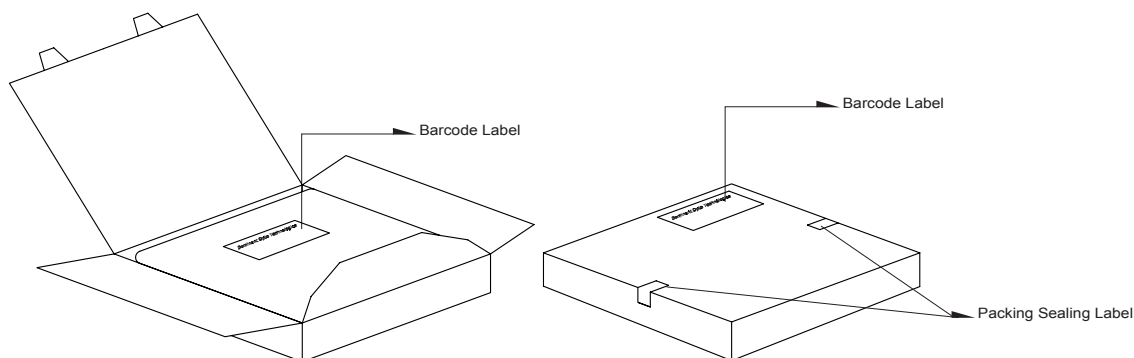
**Packaging Specification**



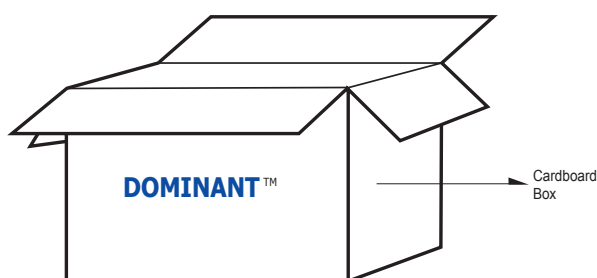
**Packaging Specification**



	<b>Average 1pc SpicePlus 3014</b>	<b>1 completed bag (3000pcs)</b>
<b>Weight (gram)</b>	<b>0.007</b>	<b>200 ± 10</b>



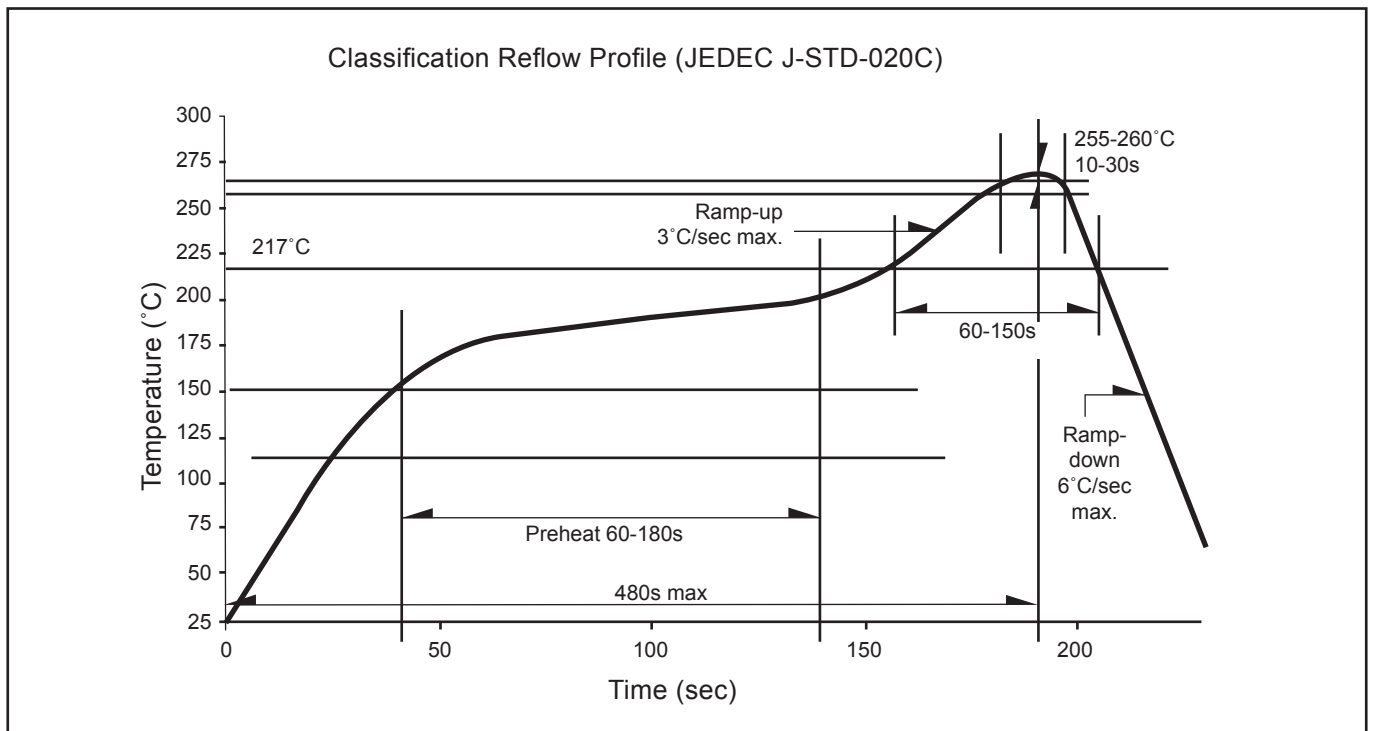
	<b>Dimensions (mm)</b>
<b>Packing Box</b>	<b>210 x 210 x 16</b>



**For SpicePlus 3014**

<b>Cardboard Box Size</b>	<b>Dimensions (mm)</b>	<b>Empty Box Weight (kg)</b>	<b>Reel / Box</b>
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 at current pulse 25 ms(typ) 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 at current pulse 25 ms(typ) with an internal reproducibility of  $\pm 8\%$  and an expanded uncertainty of  $\pm 11\%$  (according to GUM with a coverage factor of  $k=3$ ).
- 1.3 Radiant intensity is measured at current pulse 25 ms(typ) with an internal reproducibility of  $\pm 8\%$  and an expanded uncertainty of  $\pm 11\%$  (according to GUM with a coverage factor of  $k=3$ ).
- 1.4 Radiant flux is measured at current pulse 25 ms(typ) 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 at current pulse 25 ms(typ) with an internal reproducibility of  $\pm 0.005$  and an expanded uncertainty of  $\pm 0.01$  (accordingly to GUM with a coverage factor of  $k=3$ ).
- 2.2 Dominant wavelength is measured at current pulse 25 ms(typ) 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 when a current pulse of 8 ms(typ) 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  $k=3$ ).

### 4) **Typical Values:**

- 4.1 At special conditions of LED manufacturing processes, typical data or calculated correlations of technical parameters only reflect the statistical figures. But not necessarily correspond to the actual parameters of each single product, which could differ from the typical data or calculated correlations or the typical characteristic line. These typical data may change whenever technical improvements happen.

### 5) **Tolerance of Measure**

- 5.1 In the drawing, normally the tolerances used are at  $\pm 0.1$  with the dimension measurement unit in mm.



## 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>.

### **Please contact us for more information:**

DOMINANT Opto Technologies Sdn. Bhd  
Lot 6, Batu Berendam, FTZ Phase III, 75350 Melaka, Malaysia.  
Tel: +606 283 3566 Fax: +606 283 0566  
E-mail: [sales@dominant-semi.com](mailto:sales@dominant-semi.com)