

Primax

Synonymous with function and performance, enter the Primax, the new era of high intensity illumination in LED. With its high flux output and high luminous intensity, Primax transcends today LED lightings technology and how we perceive it. The small package outline (3.7 x 3.5 x 0.8 mm) and high intensity make it an ideal choice for backlighting, signage, exterior automotive lighting and decorative lighting.



Features:

- > Super high brightness surface mount LED
- > 120° viewing angle.
- > Compact package outline (LxW) of 3.7 x 3.5 mm.
- > Ultra low height profile - 0.8mm.
- > Low thermal resistance.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Superior corrosion resistant.



Applications:

- > Backlighting (TFT LCD display), flash light, architectural lighting.

Optical Characteristics at Tj=25°C

Part Ordering Number	Color	Viewing Angle°	Luminous Flux @ 150mA (lm) <i>Appx. 1.2</i>		
			Min.	Typ.	Max.
MBWW-KSG-7T6U-1	White	120	71.8	82.0	93.4

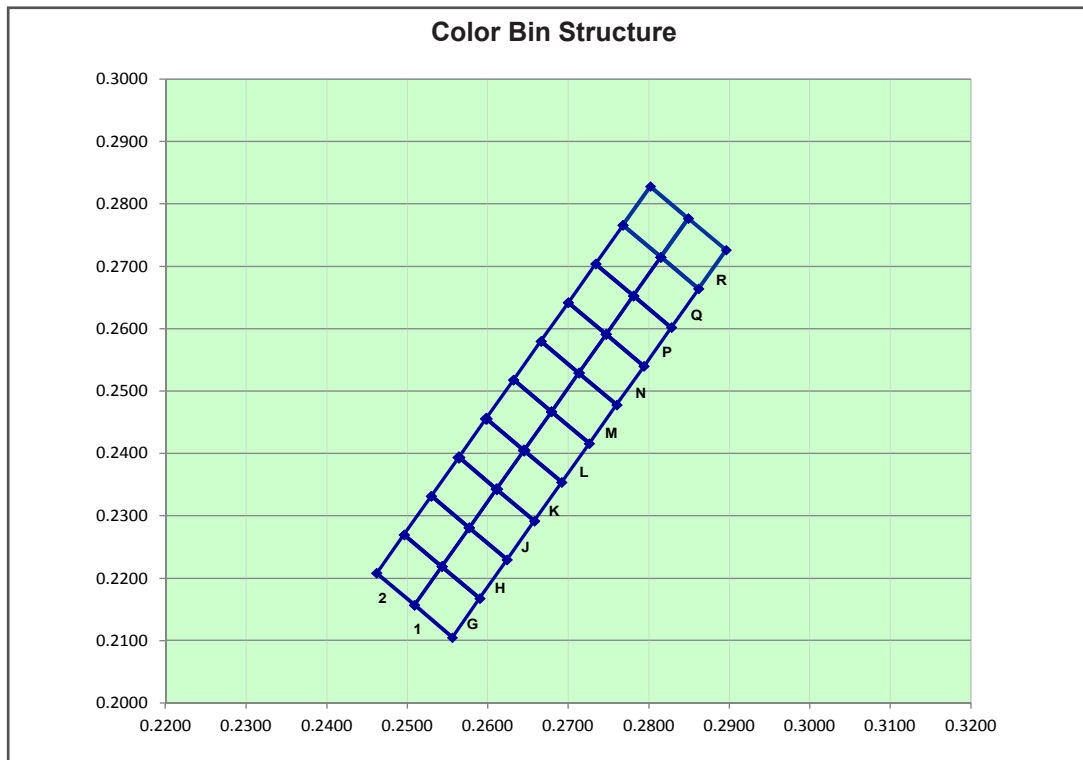
Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 150 mA <i>Appx. 3.1</i>			Vr @ Ir = 10uA
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
MBWW-KSG	6.0	6.5	7.2	5

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	180	mA
Peak pulse current	200	mA
Reverse voltage	5	V
ESD threshold (HBM)	1000	V
LED junction temperature	150	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C

MBWW-KSG, Color Grouping *Appx. 2.1*



Bin		1	2	3	4
2G	Cx	0.2462	0.2509	0.2543	0.2496
	Cy	0.2208	0.2157	0.2219	0.2270
1G	Cx	0.2509	0.2556	0.2590	0.2543
	Cy	0.2157	0.2105	0.2168	0.2219
2H	Cx	0.2496	0.2543	0.2577	0.2530
	Cy	0.2270	0.2219	0.2281	0.2332
1H	Cx	0.2543	0.2590	0.2624	0.2577
	Cy	0.2219	0.2168	0.2230	0.2281
2J	Cx	0.2530	0.2577	0.2611	0.2564
	Cy	0.2332	0.2281	0.2343	0.2394
1J	Cx	0.2577	0.2624	0.2658	0.2611
	Cy	0.2281	0.2230	0.2292	0.2343
2K	Cx	0.2564	0.2611	0.2645	0.2598
	Cy	0.2394	0.2343	0.2405	0.2456
1K	Cx	0.2611	0.2658	0.2692	0.2645
	Cy	0.2343	0.2292	0.2354	0.2405
2L	Cx	0.2598	0.2645	0.2679	0.2632
	Cy	0.2456	0.2405	0.2467	0.2518
1L	Cx	0.2645	0.2692	0.2726	0.2679
	Cy	0.2405	0.2354	0.2416	0.2467

Bin		1	2	3	4
2M	Cx	0.2632	0.2679	0.2713	0.2666
	Cy	0.2518	0.2467	0.2529	0.2580
1M	Cx	0.2679	0.2726	0.2760	0.2713
	Cy	0.2467	0.2416	0.2478	0.2529
2N	Cx	0.2666	0.2713	0.2747	0.2700
	Cy	0.2580	0.2529	0.2591	0.2642
1N	Cx	0.2713	0.2760	0.2794	0.2747
	Cy	0.2529	0.2478	0.2540	0.2591
2P	Cx	0.2700	0.2747	0.2781	0.2734
	Cy	0.2642	0.2591	0.2653	0.2704
1P	Cx	0.2747	0.2794	0.2828	0.2781
	Cy	0.2591	0.2540	0.2602	0.2653
2Q	Cx	0.2734	0.2781	0.2815	0.2768
	Cy	0.2704	0.2653	0.2715	0.2766
1Q	Cx	0.2781	0.2828	0.2862	0.2815
	Cy	0.2653	0.2602	0.2664	0.2715
2R	Cx	0.2768	0.2815	0.2849	0.2802
	Cy	0.2766	0.2715	0.2777	0.2828
1R	Cx	0.2815	0.2862	0.2896	0.2849
	Cy	0.2715	0.2664	0.2726	0.2777

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.

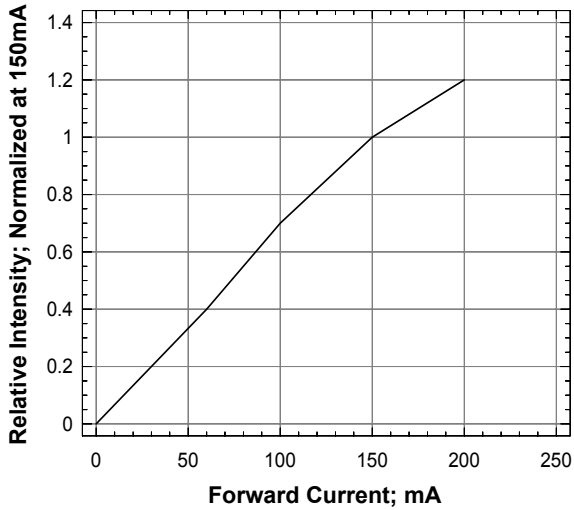
Luminous Intensity Group at Tj=25°C

Brightness Group	Luminous Flux (lm) <small>Appx. 1.2</small>
7T	71.8 ... 76.5
8T	76.5 ... 81.9
9T	81.9 ... 87.4
6U	87.4 ... 93.4

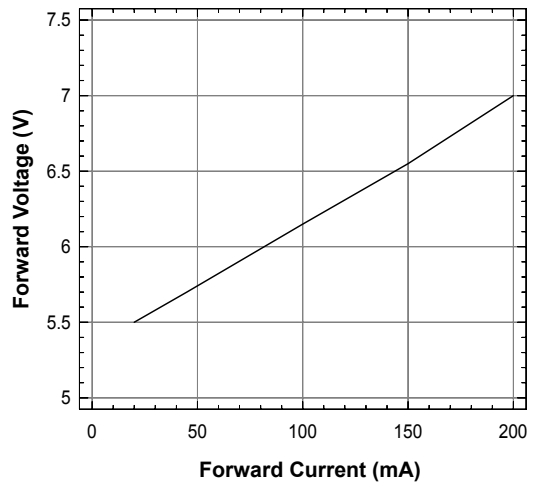
Vf Binning

Vf Bin @ 150mA	Forward Voltage (V) <small>Appx. 3.1</small>
V1	6.00 ... 6.20
V2	6.20 ... 6.40
V3	6.40 ... 6.60
V4	6.60 ... 6.80
V5	6.80 ... 7.00
V6	7.00 ... 7.20

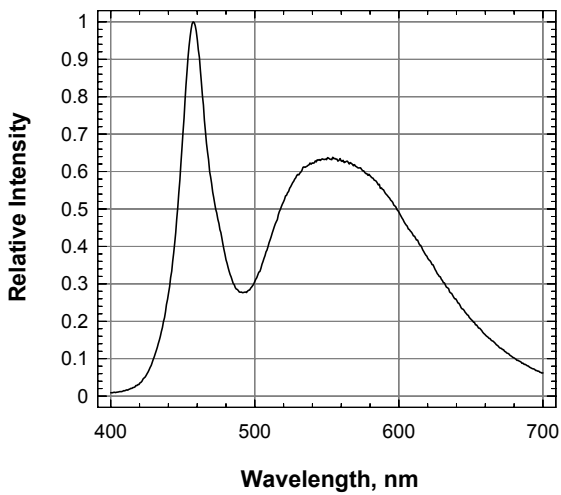
Relative Intensity Vs Forward Current



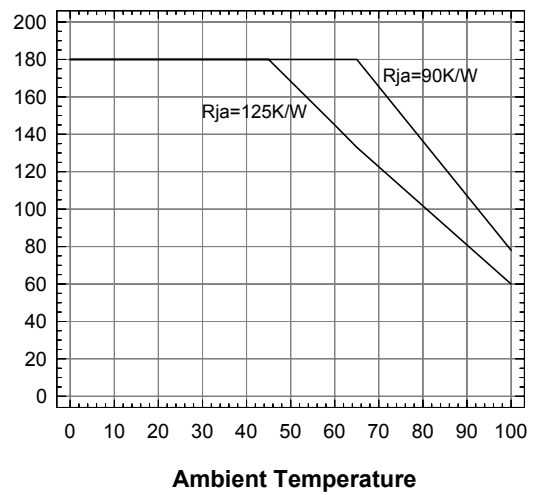
Forward Voltage Vs Forward Current



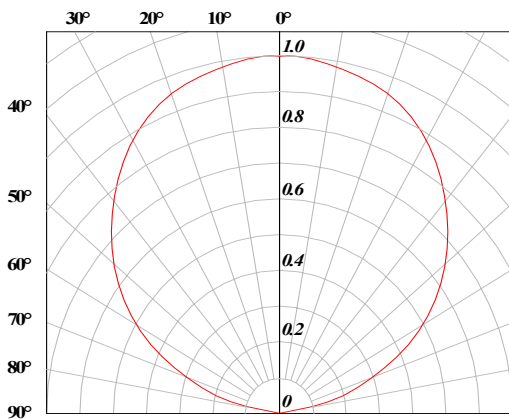
Relative Intensity Vs Wavelength



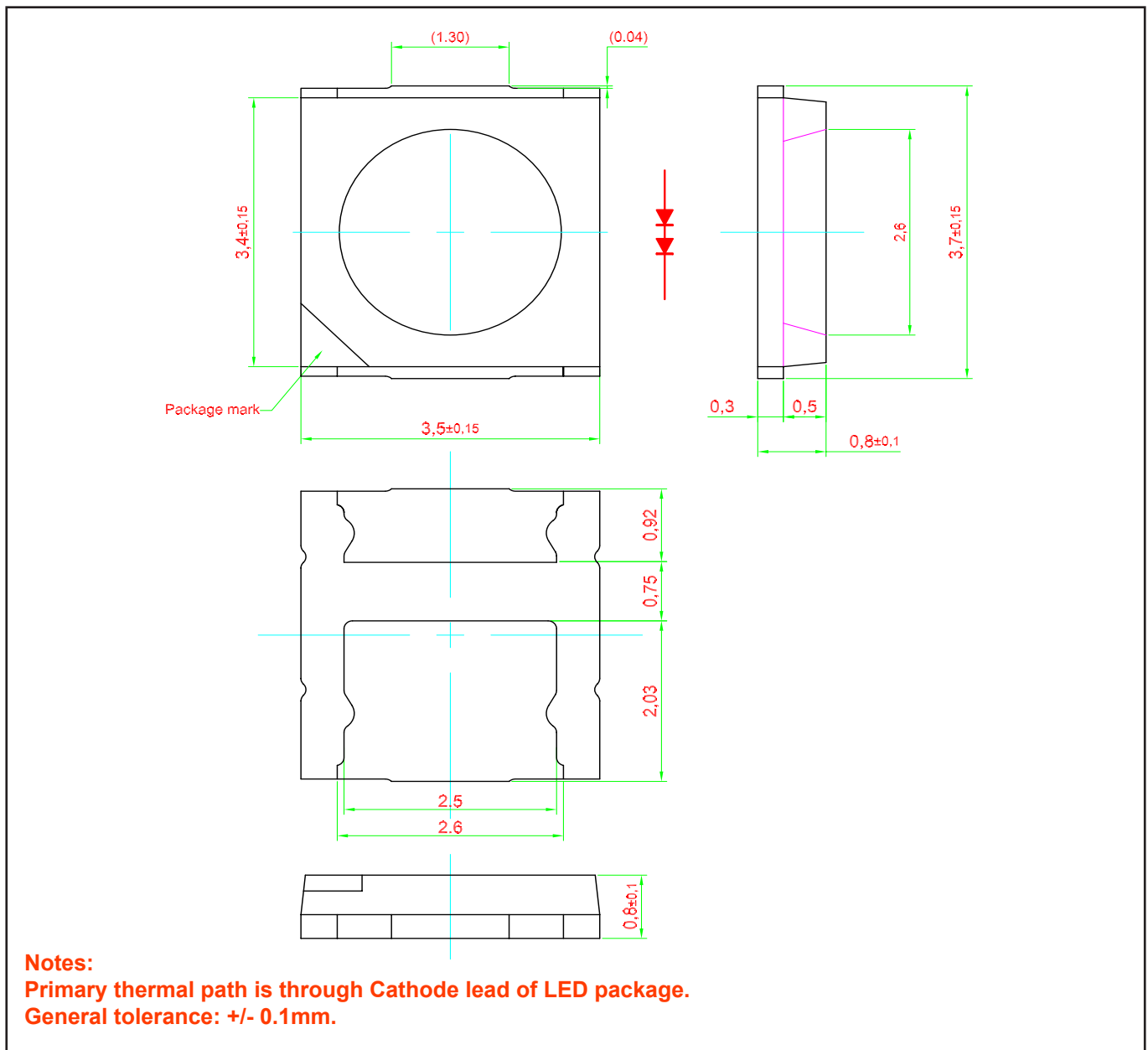
Forward Current Vs Ambient Temperature



Radiation Pattern



Primax • 150 InGaN White: MBWW-KSG Package Outlines

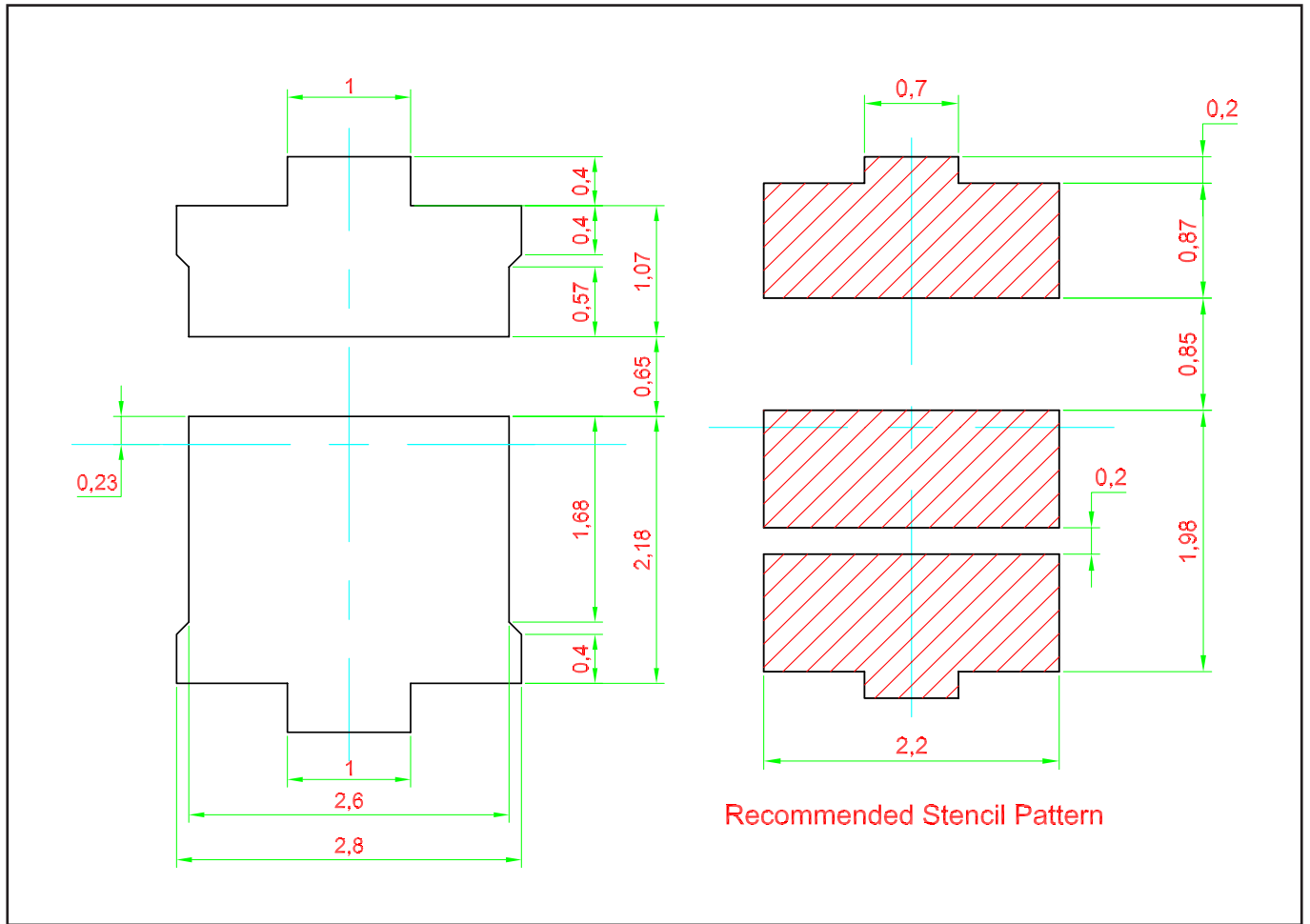


Material

Material	
Lead-frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulant	Silicone Resin
Soldering Leads	Ag Plating

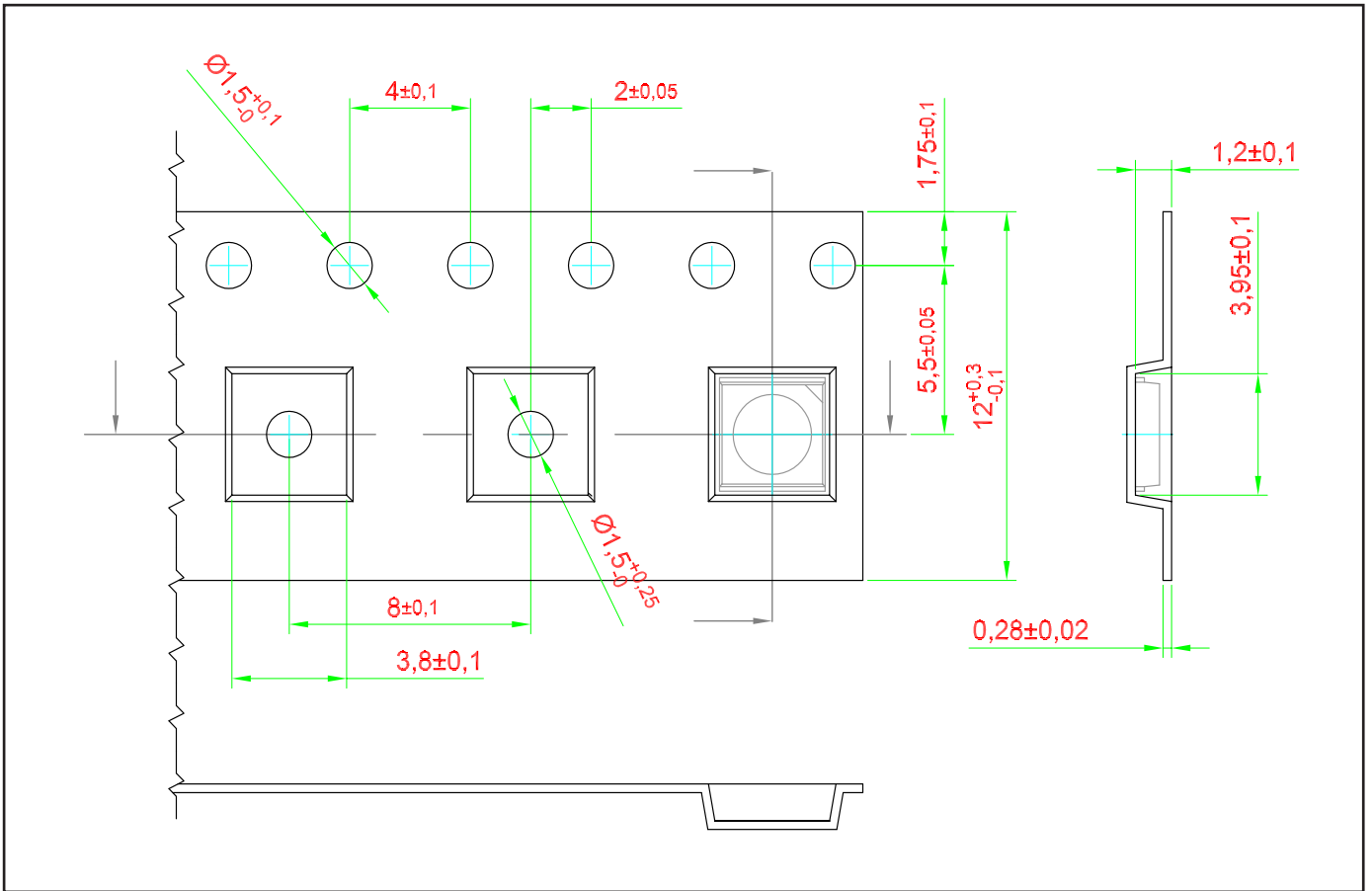
Note: This product is Pb free

Recommended Solder Pad

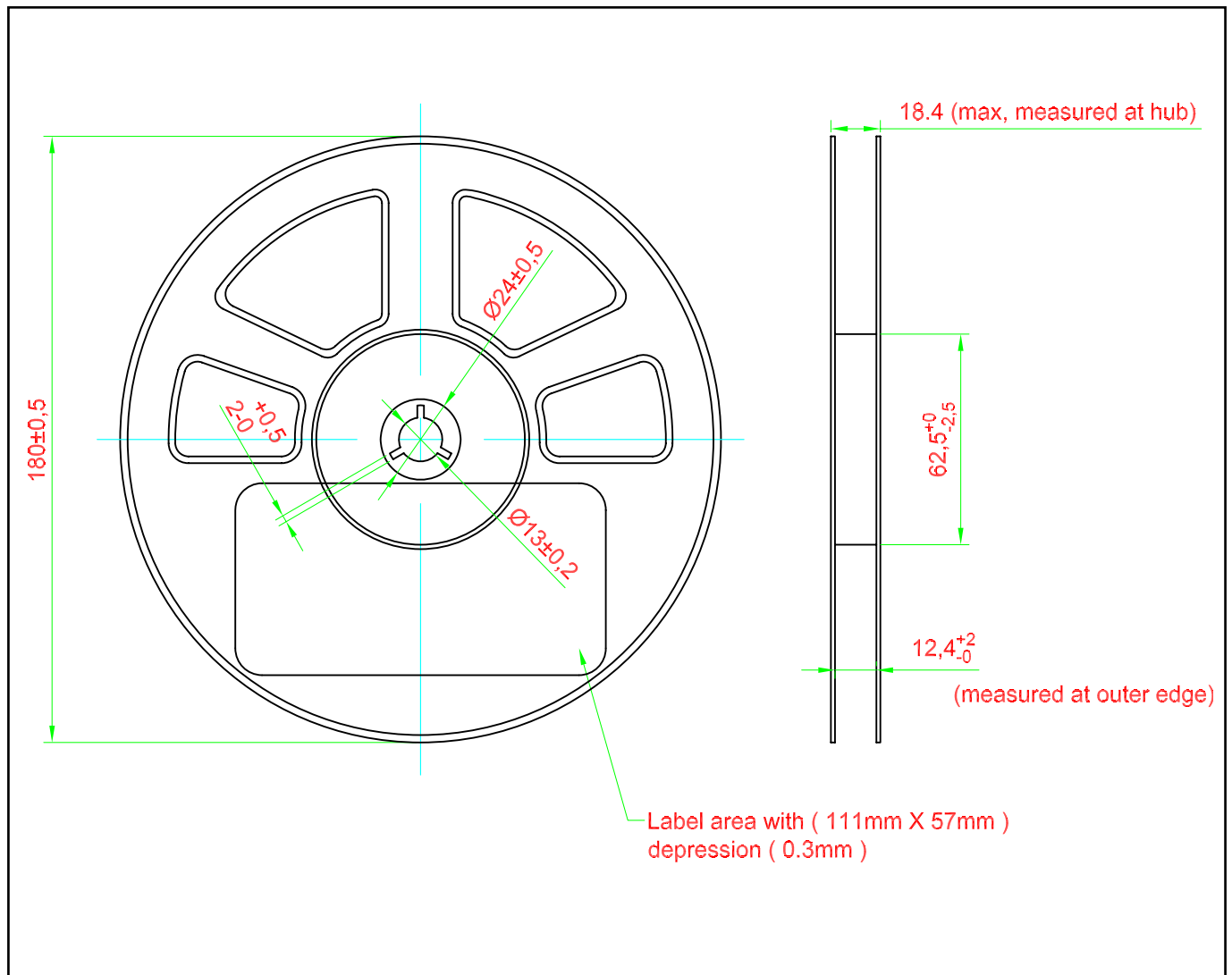


Taping and orientation

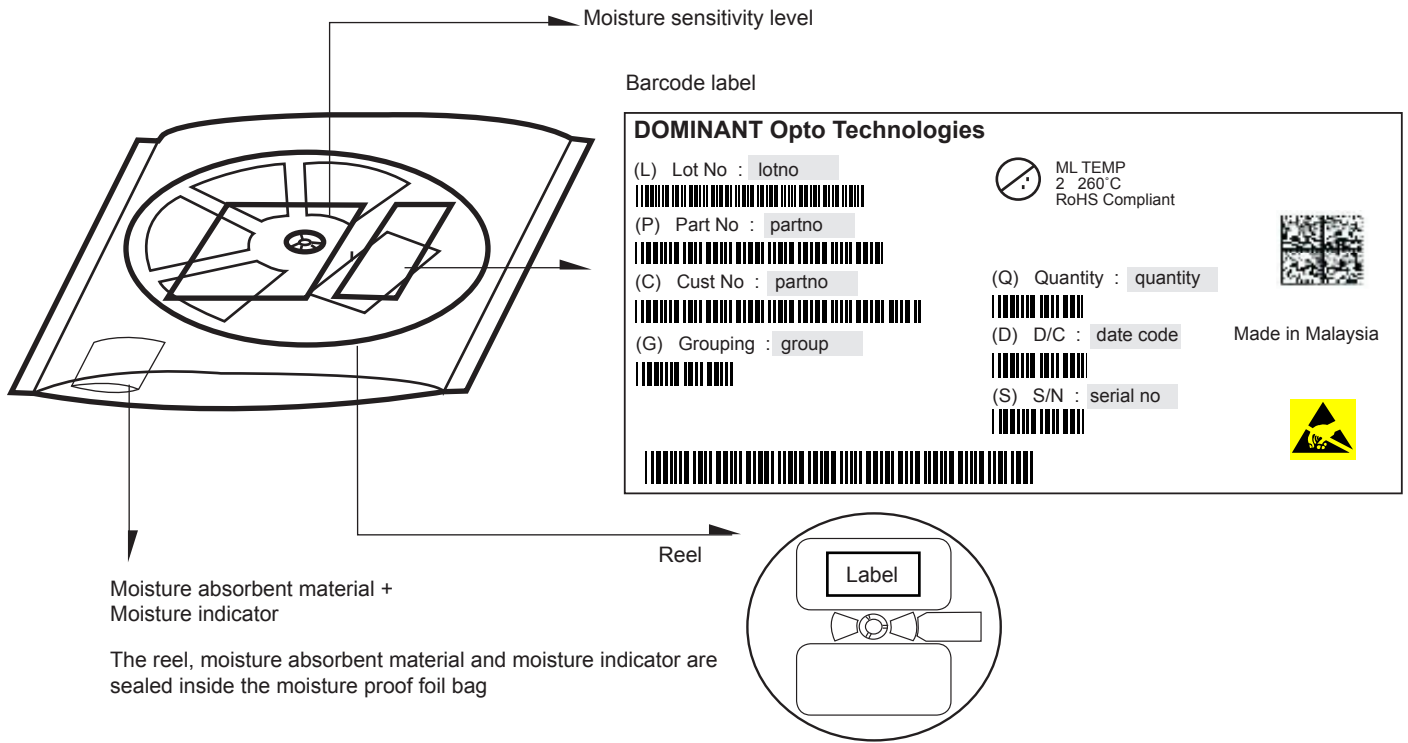
- Reels come in quantity of 1000 units.
- Reel diameter is 180 mm.



Packaging Specification

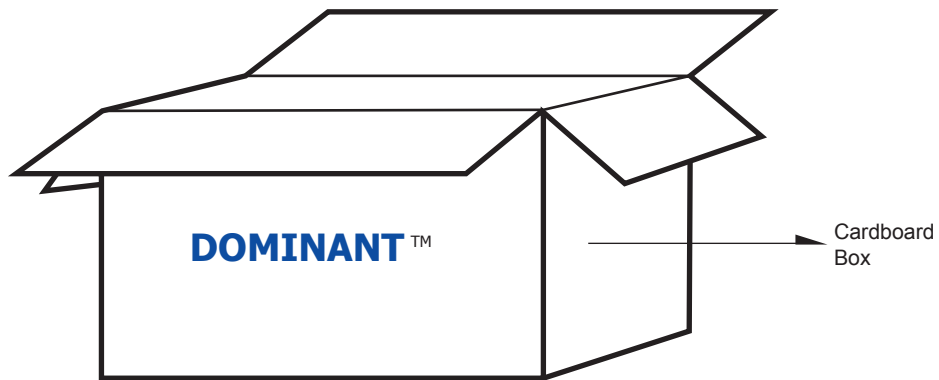


Packaging Specification



Average 1pc PrimaxPlus **1 completed bag (1000pcs)**

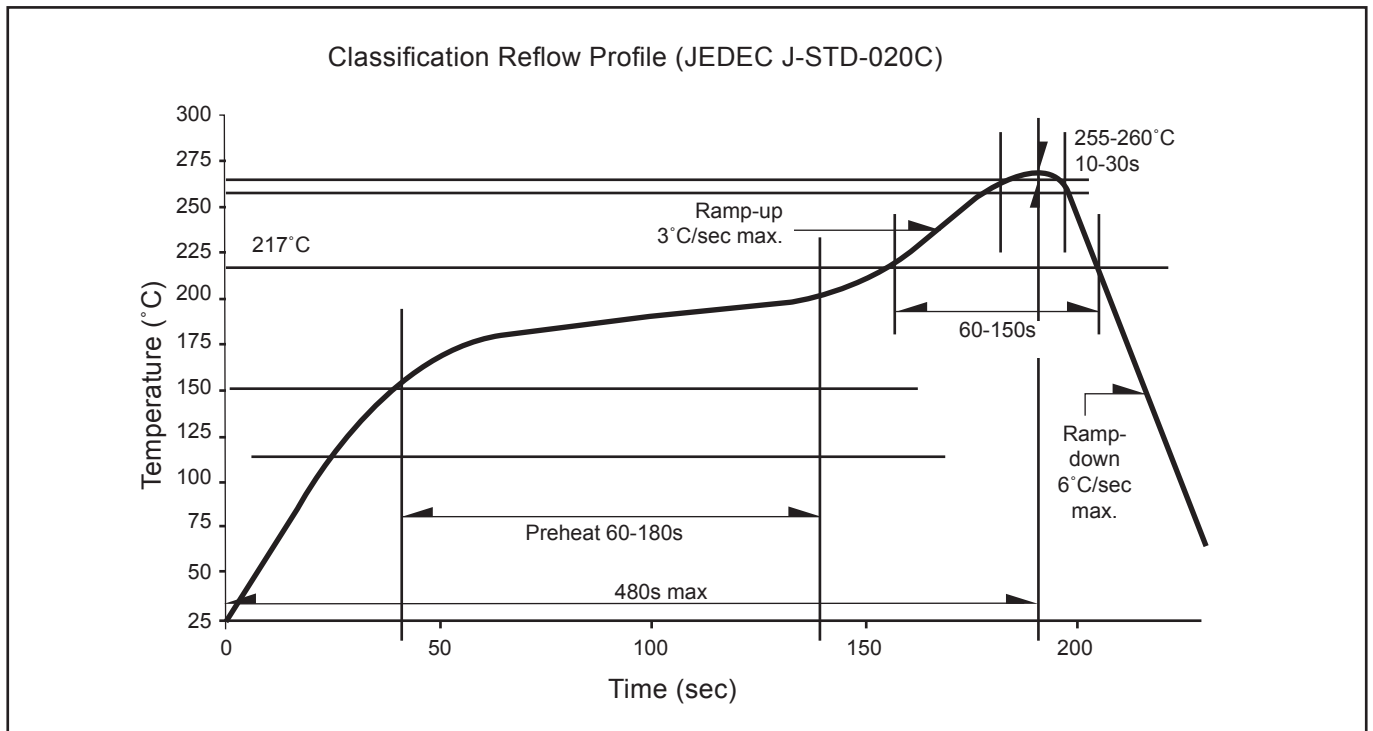
Weight (gram)	0.034	230 ± 10
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For PrimaxPlus

Cardboard Box Size	Dimensions (mm)	Empty Box Weight (kg)	Reel / Box
Super Small	325 x 225 x 190	0.38	7 reels MAX
Small	325 x 225 x 280	0.54	11 reels MAX
Medium	570 x 440 x 230	1.46	48 reels MAX
Large	570 x 440 x 460	1.92	96 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	05 Oct 2012
6	Update graph: Relative Intensity Vs Forward Current	31 May 2013
9	Update Carrier Tape	14 Nov 2013
1, 7, 8, 11, 13	Add Features Update on Package Outline Update Recommended Solder Pad Update Package Specification Add Appendix	17 Mar 2017
7	Update Package Outline	17 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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