DOMINANT™
Opto Technologies
Innovating Illumination

DATA SHEET :

PrimaxPlus

180 InGaN White : MBWW-KZHG-L1P2

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.
> Corrosion resistance for automotive exterior applications.
> Compliance to automotive standard; AEC-Q101.
> Superior corrosion resistant.

Applications:

> Automotive: Exterior application: eg: DRL, Position Lamp, Signal Lighting, Fog lamp, Rear Combination Lights (RCLs), Reverse lamp.
> Automotive: Interior application: eg: Dome Lamp, Trunk Lamp.

Optical Characteristics at Tj=25°C

Part Ordering Number	Color	Viewing Angle°	Luminous Flux @ 180mA (lm) Appx. 1.2		
			Min.	Typ.	Max.
MBWW-KZHG-UV3-L1P2	White	120	87.4	105.0	147.7

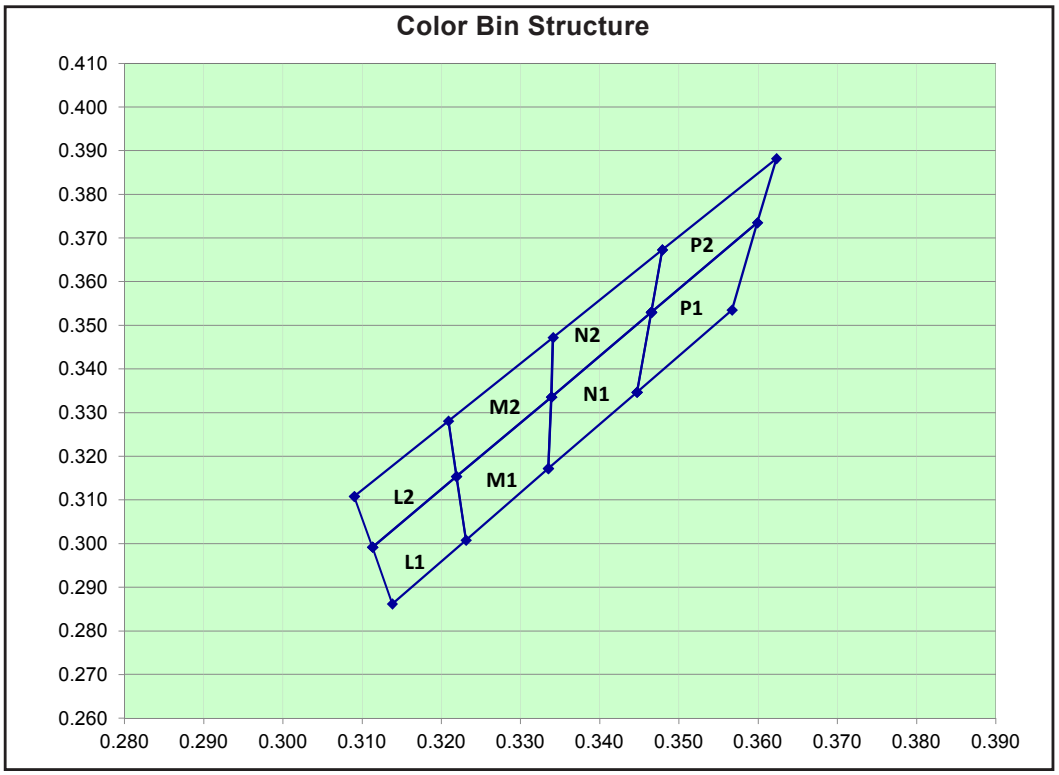
Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 180 mA Appx. 3.1		
	Min. (V)	Typ. (V)	Max. (V)
MBWW-KZHG	5.6	6.2	6.8

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	250	mA
Peak pulse current (tp<=10μs , Duty cycle=0.10)	300	mA
Reverse voltage	Not designed for reverse bias	V
ESD threshold (HBM)	4000	V
LED junction temperature	150	˚C
Operating temperature	-40 … +125	˚C
Storage temperature	-40 … +125	˚C
Thermal resistance - Real Thermal Resistance Junction / solder point, $R_{th\ JS\ real}$ (typ = 13) - Electrical Thermal Resistance Junction / solder point, $R_{th\ JS\ el}$ (typ = 9) (Mounting on DOMINANT standard PCB)	 18 12	 K/W K/W

MBWW-KZHG, Color Grouping *Appx. 2.1*



Bin		1	2	3	4
L1	Cx	0.3113	0.3138	0.3231	0.3219
	Cy	0.2992	0.2862	0.3008	0.3154
L2	Cx	0.3090	0.3113	0.3219	0.3209
	Cy	0.3108	0.2992	0.3154	0.3281
M1	Cx	0.3219	0.3231	0.3335	0.3339
	Cy	0.3154	0.3008	0.3172	0.3336
M2	Cx	0.3209	0.3219	0.3339	0.3341
	Cy	0.3281	0.3154	0.3336	0.3472
N1	Cx	0.3335	0.3339	0.3465	0.3447
	Cy	0.3172	0.3336	0.3530	0.3347
N2	Cx	0.3339	0.3341	0.3479	0.3465
	Cy	0.3336	0.3472	0.3673	0.3530
P1	Cx	0.3447	0.3465	0.3599	0.3567
	Cy	0.3347	0.3530	0.3735	0.3535
P2	Cx	0.3465	0.3479	0.3623	0.3599
	Cy	0.3530	0.3673	0.3882	0.3735

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 purposed.

Luminous Intensity Group at Tj=25^{0}C

Brightness Group	Luminous Flux (lm) *Appx. 1.2*
U2	87.4 ... 99.4
U3	99.4 ... 113.6
V2	113.6 ... 129.2
V3	129.2 ... 147.7

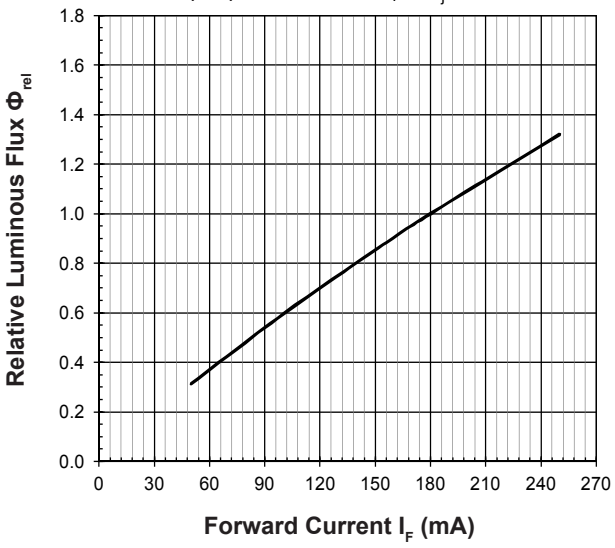
Vf Binning (Optional)

Vf Bin @ 180mA	Forward Voltage (V) *Appx. 3.1*
V1	5.6 ... 5.8
V2	5.8 ... 6.0
V3	6.0 ... 6.2
V4	6.2 ... 6.4
V5	6.4 ... 6.6
V6	6.6 ... 6.8

Please consult sales and marketing for special part number to incorporate Vf binning.

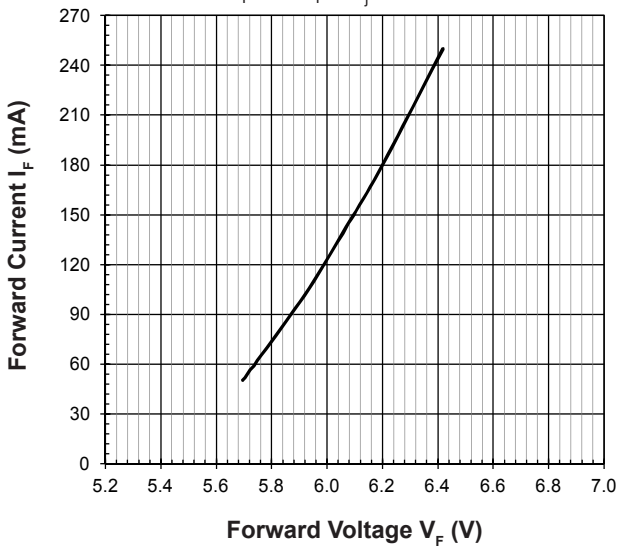
Relative Luminous Flux Vs Forward Current

$\Phi_V/\Phi_V(180mA) = f(I_F)$; $T_j = 25°C$



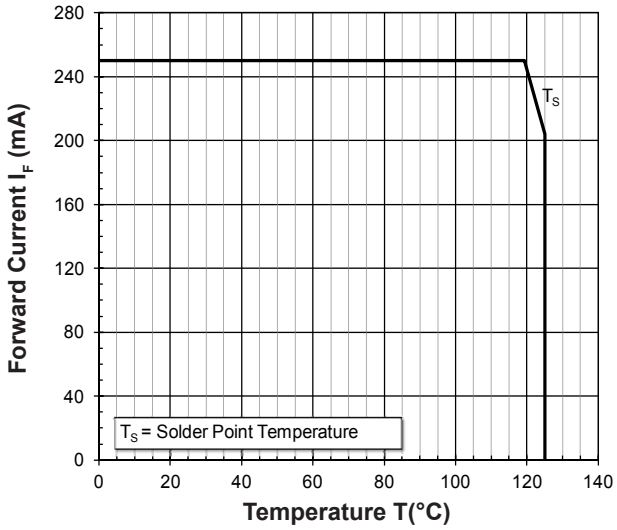
Forward Current Vs Forward Voltage

$I_F = f(V_F)$; $T_j = 25°C$



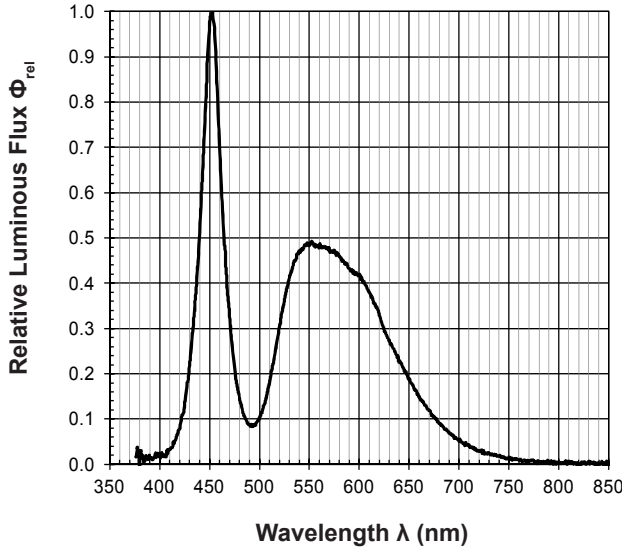
Maximum Current Vs Temperature

$I_F=f(T)$



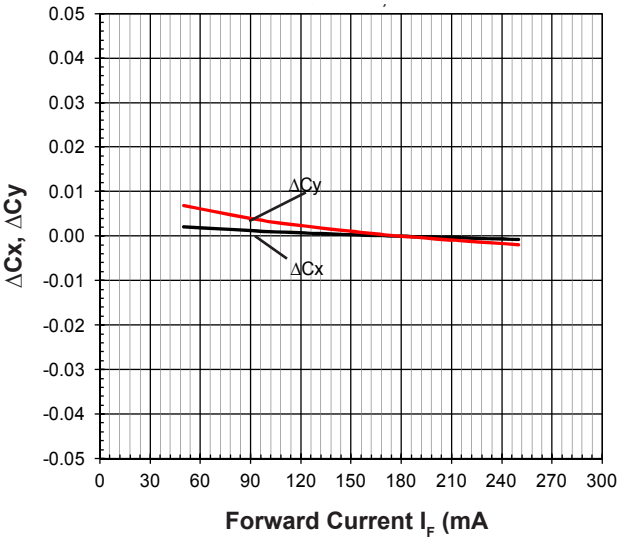
Relative Spectral Emission

$\Phi_{rel} = f(\lambda)$; $T_j = 25°C$; $I_F = 180mA$



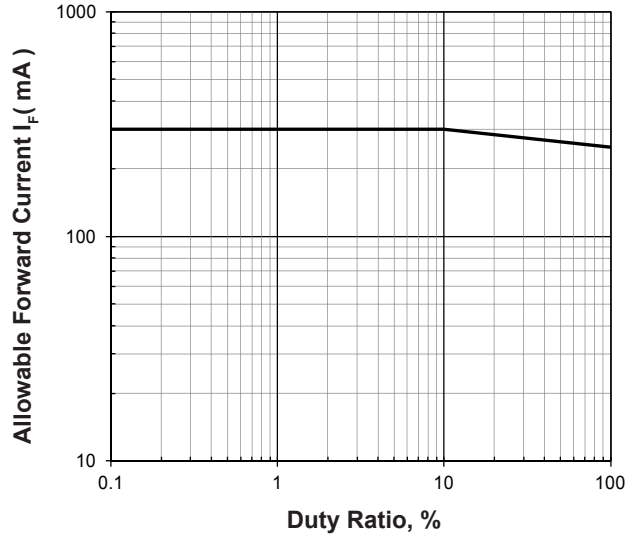
Chromaticity Coordinate Shift Vs Forward Current

$\Delta Cx, \Delta Cy = f(I_F)$; $T_j = 25°C$

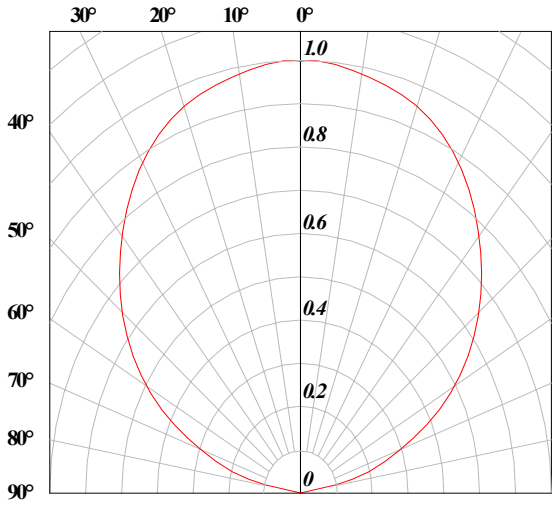


Allowable Forward Current Vs Duty Ratio

($T_j = 25°C$; $t_p \leq 10\mu s$)

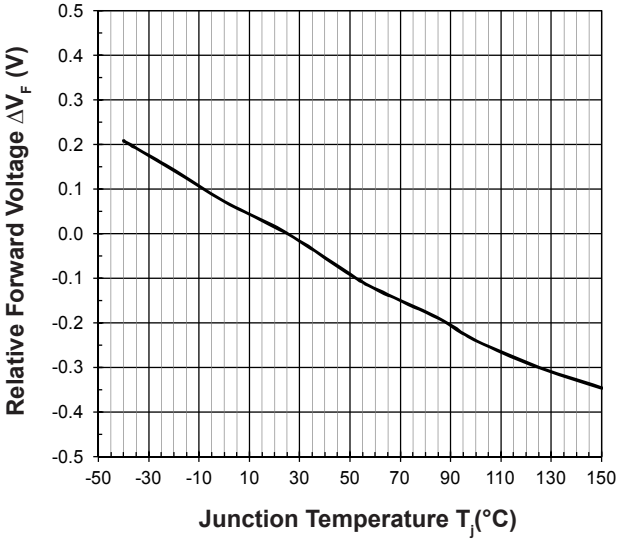


Radiation Pattern



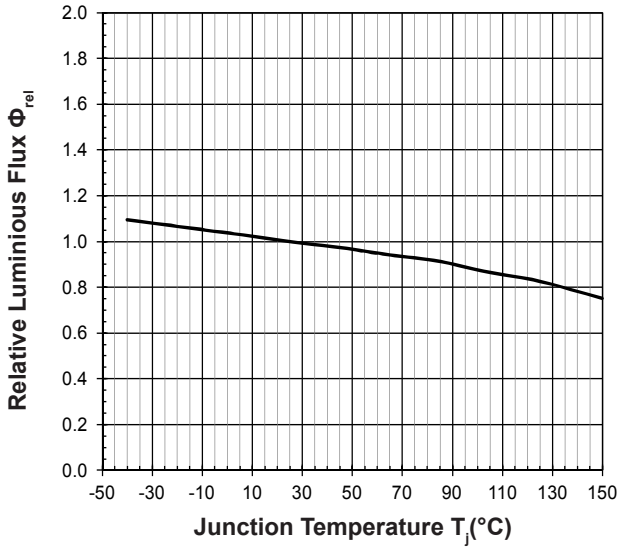
Relative Forward Voltage Vs Junction Temperature

$\Delta V_F = V_F - V_F(25°C) = f(T_j)$; I_F =180mA



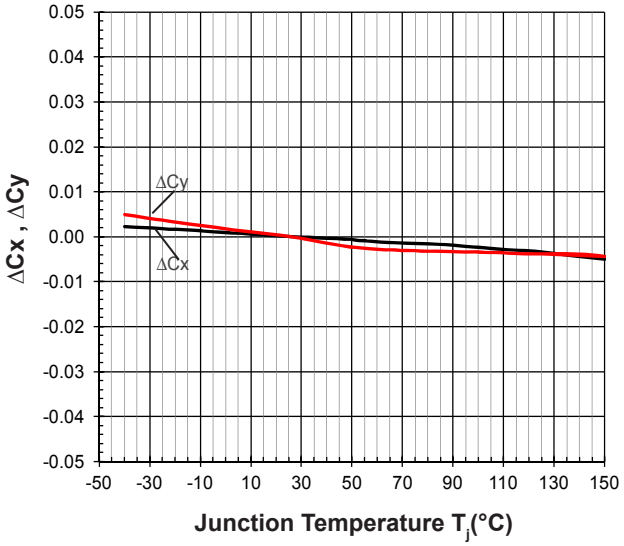
Relative Luminious Flux Vs Junction Temperature

$\Phi V/\Phi V(25°C) = f(T_j)$; I_F = 180mA

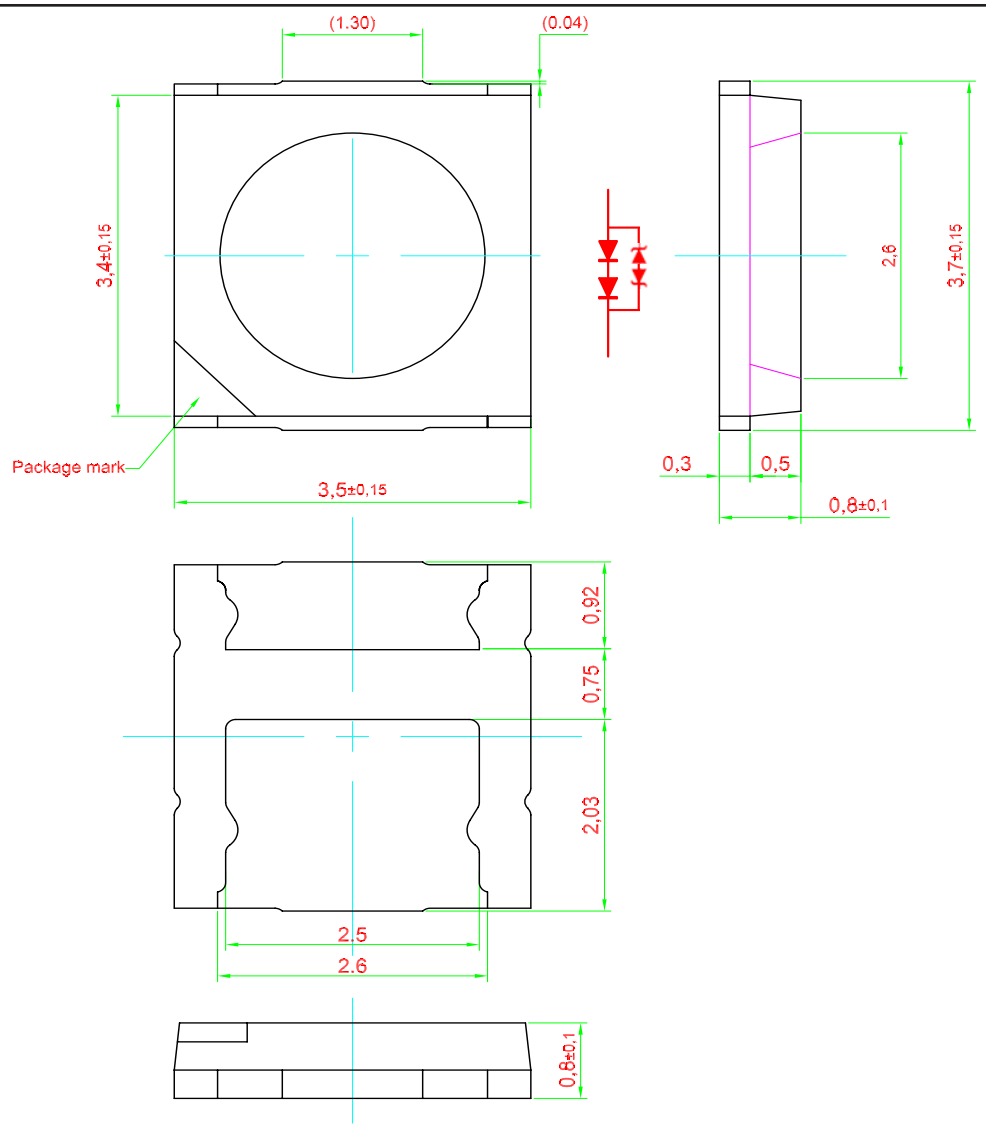


Chromaticity Coordinate Shift Vs Junction Temperature

$\Delta Cx, \Delta Cy = f(T_j)$; I_F = 180mA



PrimaxPlus • 180 InGaN White: MBWW-KZHG-L1P2 Package Outlines



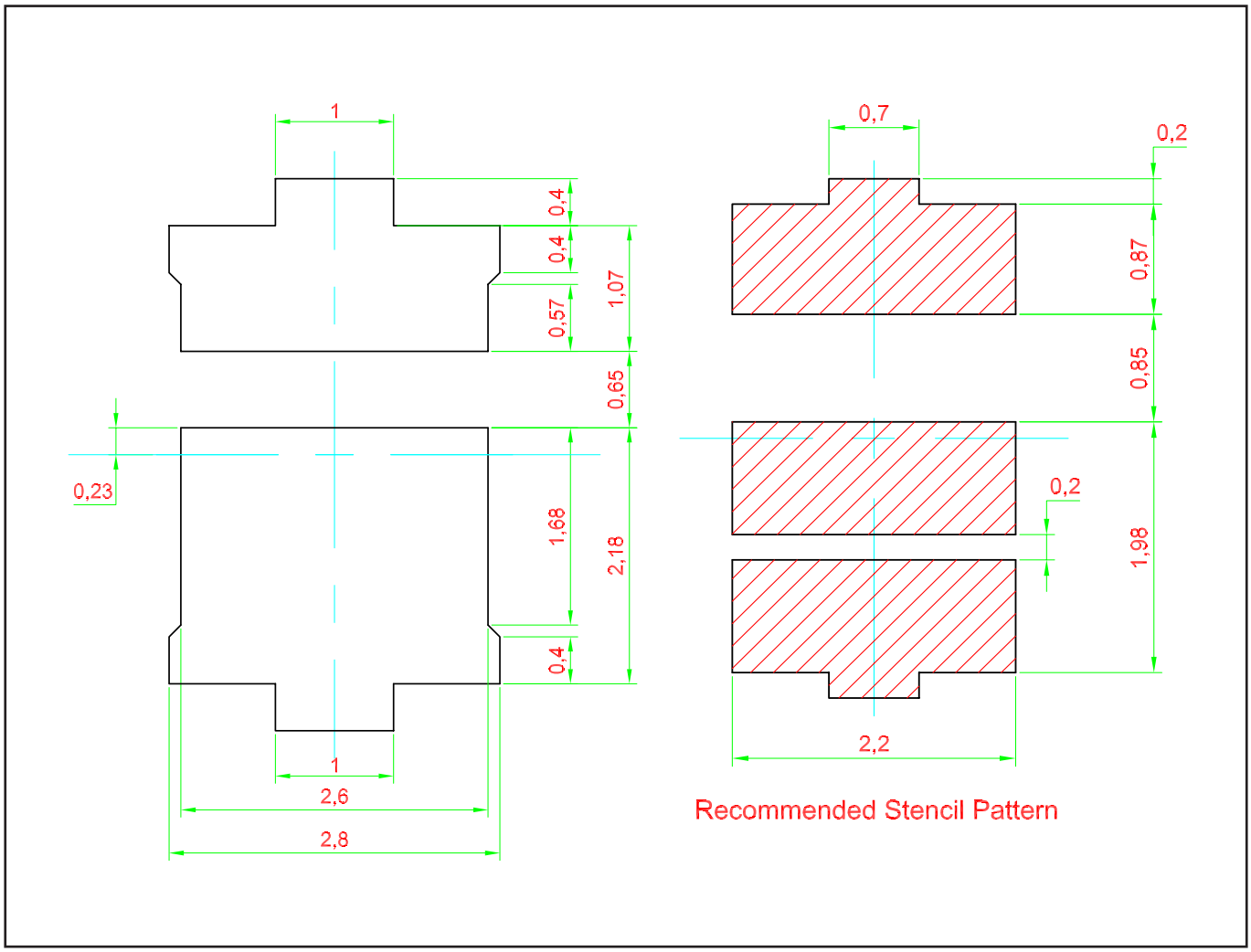
Notes:
Primary thermal path is through Cathode lead of LED package.
General tolerance: +/- 0.1mm.

Material

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

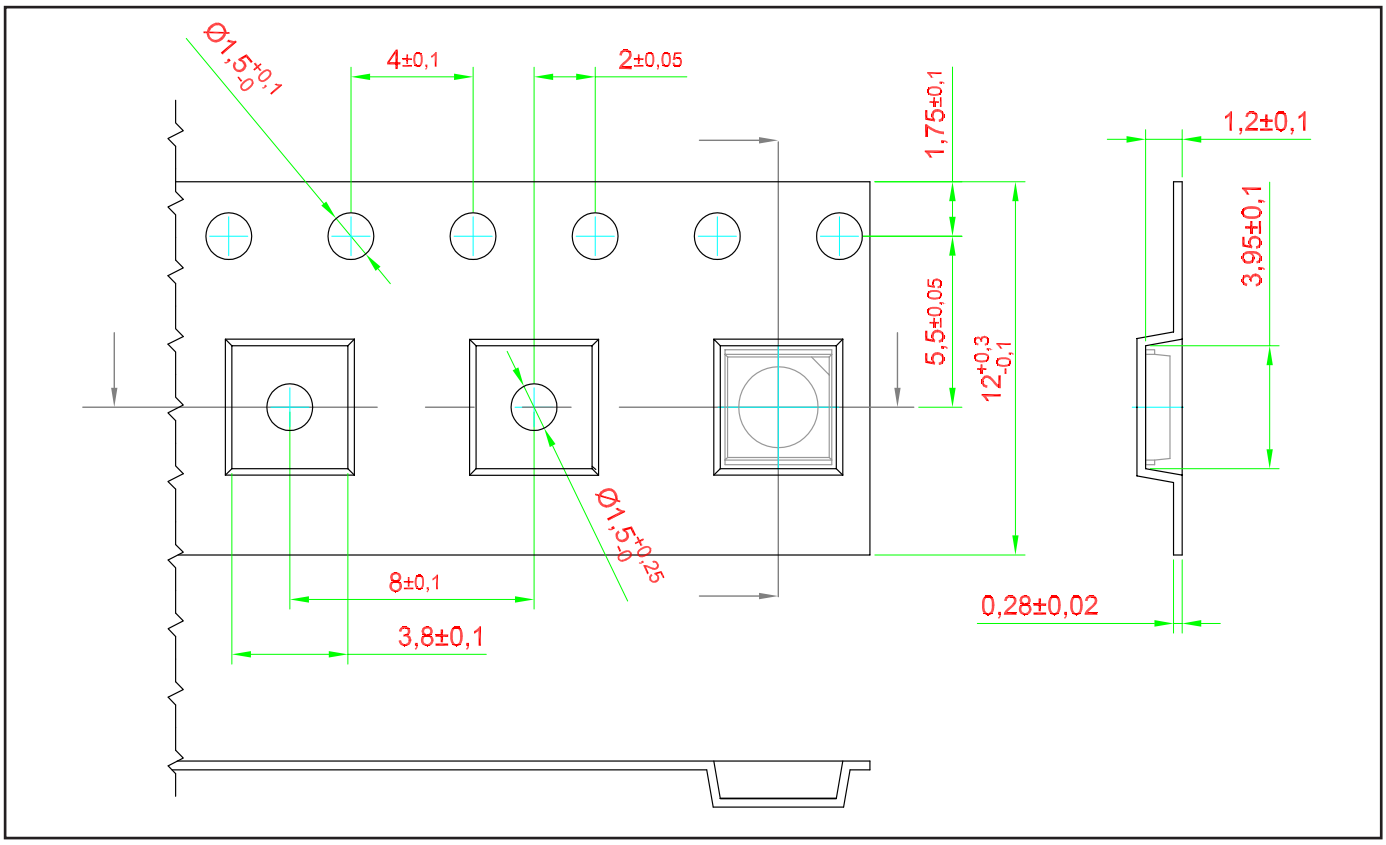
Note: This product is Pb free

Recommended Solder Pad

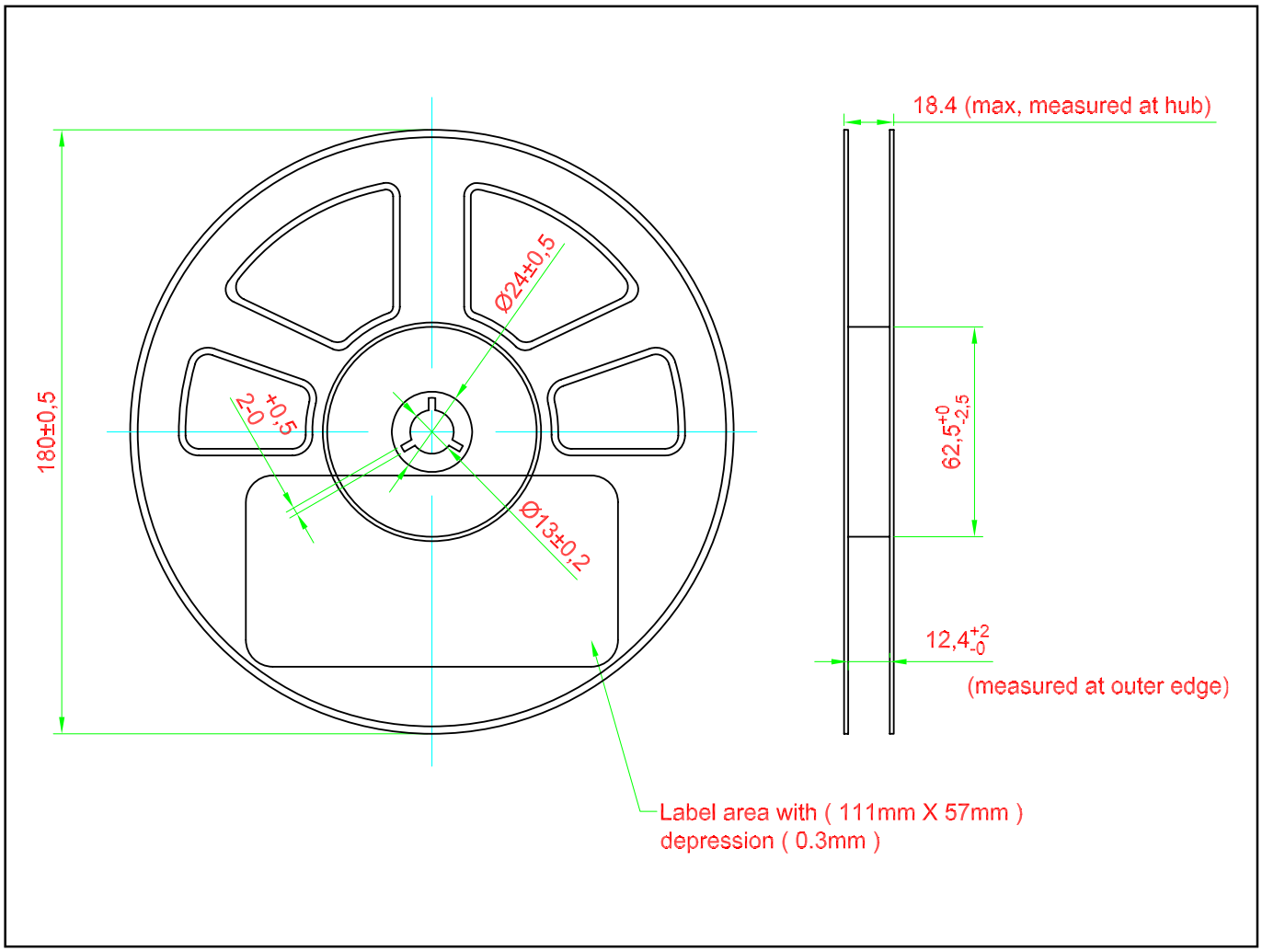


Taping and orientation

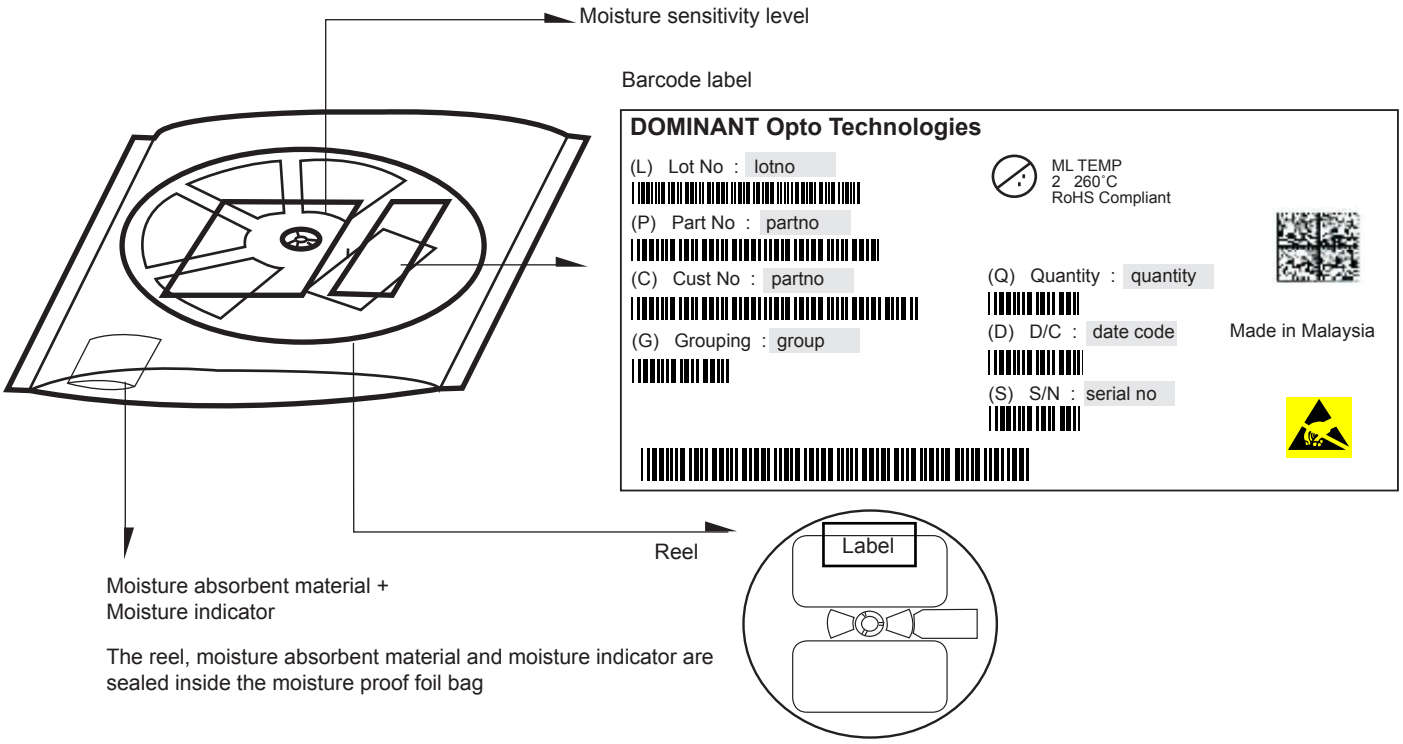
- Reels come in quantity of 1000 units.
- Reel diameter is 180 mm.



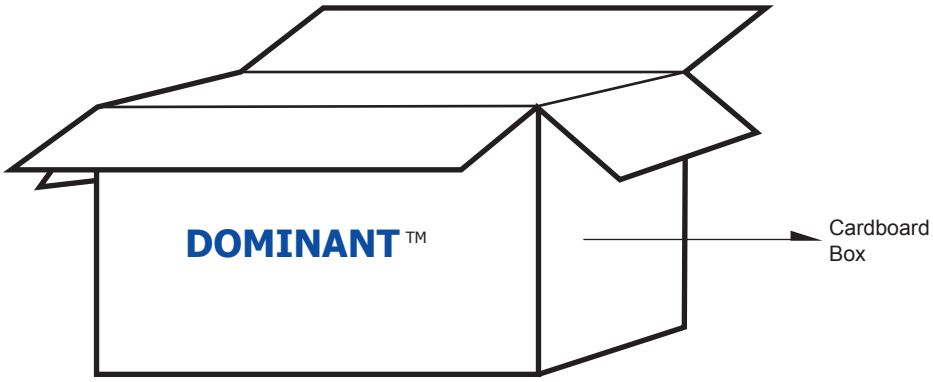
Packaging Specification



Packaging Specification



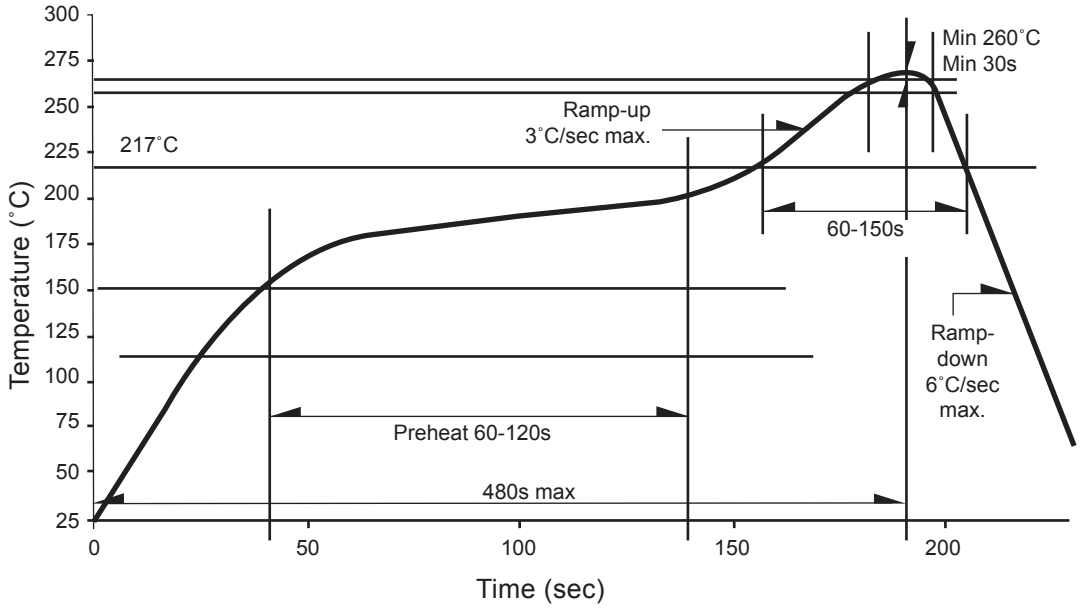
	Average 1pc PrimaxPlus	1 completed bag (1000pcs)
Weight (gram)	**0.034**	**230 ± 10**



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 ± 8 % and an expanded uncertainty of ± 11 % (according to GUM with a coverage factor of k=3).

1.2 Luminous flux is measured with an internal reproducibility of ± 8 % and an expanded uncertainty of ± 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 ± 0.5nm and an expanded uncertainty of ± 1nm (accordingly to GUM with a coverage factor of k=3).

3) Voltage:

3.1 Forward Voltage, Vf is measured with an internal reproducibility of ± 0.05V and an expanded uncertainty of ± 0.1V (accordingly to GUM with a coverage factor of k=3).

Revision History

Page	Subjects	Date of Modification
-	Initial Release	24 Mar 2017
7	Update on Peak Pulse Current 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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