DOMINANT™
Opto Technologies
Innovating Illumination

DATA SHEET :

Primax5™

150 InGaN White : NSW-FSC

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.



Features:



- > Super high brightness surface mount LED
- > 120° viewing angle.
- > Compact package outline (LxW) of 5.6 x 3.0 mm.
- > Ultra low height profile - 1.2mm.
- > Low thermal resistance.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Excellent reliability with nitride phosphor system.



Applications:

- > Lighting: garden light, architecture lighting, general lighting. etc
- > Backlighting (TFT LCD display), flash light, architectural lighting.

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Optical Characteristics at Tj=25°C

Part Ordering Number	Color	Viewing Angle°	CRI Typ.	Luminous Flux @ 150mA (lm)		
				Min.	Typ.	Max.
NSW-FSC-R3S-1	White	120	85	45.2	52.0	67.2

NOTE
1. Luminous intensity is measured with an accuracy of ± 11%.
2. Color binning is carried for all units as per the wavelength-binning table. Only one color group is allowed for each reel.
3. High color rendering index (CRI). Minimum CRI of 80.

Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 150 mA			Vr @ Ir = 10 µA
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
NSW-FSC	3.0	3.3	3.7	5.0

Forward Voltages are tested using a current pulse of 1 ms and has an accuracy of ± 0.1 V.

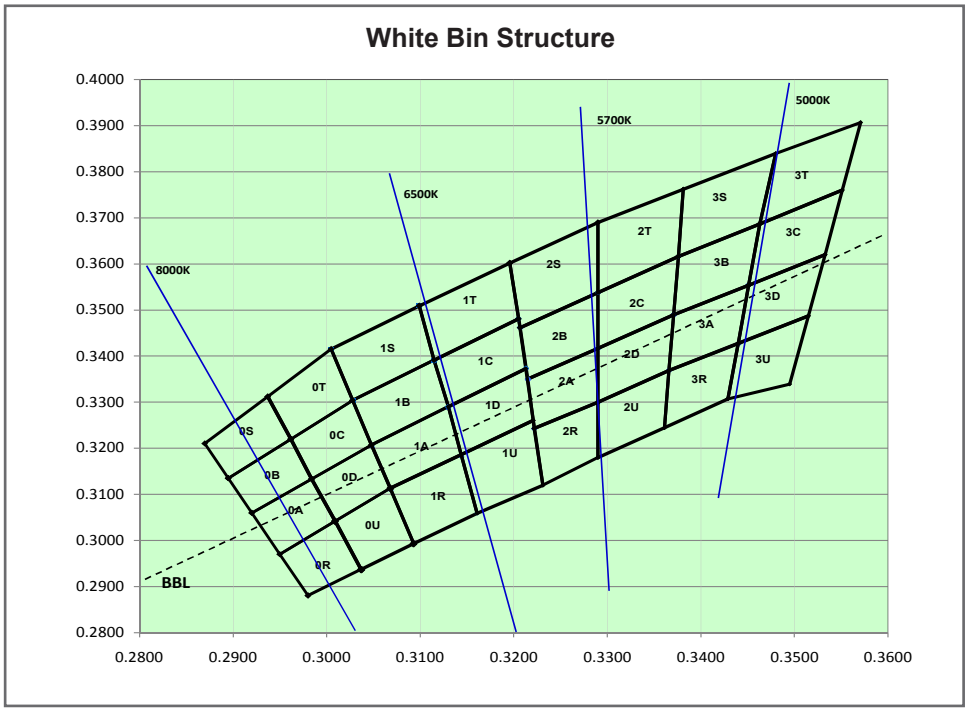
Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	180	mA
Peak pulse current	200	mA
Reverse voltage	5	V
ESD threshold (HBM)	2000	V
LED junction temperature	125	˚C
Operating temperature	-40 … +100	˚C
Storage temperature	-40 … +100	˚C
Thermal resistance		
- Junction / ambient, $R_{th\ JA}$	90	K/W
- Junction / solder point, $R_{th\ JS}$	25	K/W
(Mounted on dual-sided FR4 in-house PCB with plated through hole; total Cu area > 900 mm^2 per pad)		

Characteristics

	Symbol	Part Number	Value	Unit
Temperature coefficient of V_F (typ) I_F = 150mA; 0 ˚C <= T <= 100˚C	TC_V	NSW-FSC	-3.6	mV / K
Temperature coefficient of I_V (typ) I_F = 150mA; 0 ˚C <= T <= 100 ˚C	TC_{IV}	NSW-FSC	-0.16	% / K
Temperature coefficient of Cx (typ) I_F = 150mA; 0 ˚C <= T <= 100 ˚C	TC_{Cx}	NSW-FSC	-0.00008	
Temperature coefficient of Cy (typ) I_F = 150mA; 0 ˚C <= T <= 100 ˚C	TC_{Cy}	NSW-FSC	-0.00007	

NSW-FSC, White Color Grouping



Chromaticity coordinate groups are measured with an accuracy of ± 0.01.

Bin		1	2	3	4
0A	Cx	0.2950	0.2920	0.2984	0.3009
	Cy	0.2970	0.3060	0.3133	0.3042
0R	Cx	0.2980	0.2950	0.3009	0.3037
	Cy	0.2880	0.2970	0.3042	0.2937
1A	Cx	0.3048	0.3130	0.3144	0.3068
	Cy	0.3207	0.3290	0.3186	0.3113
1R	Cx	0.3068	0.3144	0.3161	0.3093
	Cy	0.3113	0.3186	0.3059	0.2993
2A	Cx	0.3215	0.3290	0.3290	0.3222
	Cy	0.3350	0.3417	0.3300	0.3243
2R	Cx	0.3222	0.3290	0.3290	0.3231
	Cy	0.3243	0.3300	0.3180	0.3120
3A	Cx	0.3371	0.3451	0.3440	0.3366
	Cy	0.3490	0.3554	0.3427	0.3369
3R	Cx	0.3366	0.3440	0.3429	0.3361
	Cy	0.3369	0.3428	0.3307	0.3245
0B	Cx	0.2920	0.2895	0.2962	0.2984
	Cy	0.3060	0.3135	0.3220	0.3133
0S	Cx	0.2895	0.2870	0.2937	0.2962
	Cy	0.3135	0.3210	0.3312	0.3220
1B	Cx	0.3028	0.3115	0.3130	0.3048
	Cy	0.3304	0.3391	0.3290	0.3207
1S	Cx	0.3005	0.3099	0.3115	0.3028
	Cy	0.3415	0.3509	0.3391	0.3304

Bin		1	2	3	4
2B	Cx	0.3207	0.3290	0.3290	0.3215
	Cy	0.3462	0.3538	0.3417	0.3350
2S	Cx	0.3196	0.3290	0.3290	0.3207
	Cy	0.3602	0.3690	0.3538	0.3462
3B	Cx	0.3376	0.3463	0.3451	0.3371
	Cy	0.3616	0.3687	0.3554	0.3490
3S	Cx	0.3381	0.3480	0.3463	0.3376
	Cy	0.3762	0.3840	0.3687	0.3616
0C	Cx	0.2984	0.2962	0.3028	0.3048
	Cy	0.3133	0.3220	0.3304	0.3207
0T	Cx	0.2962	0.2937	0.3005	0.3028
	Cy	0.3220	0.3312	0.3415	0.3304
1C	Cx	0.3115	0.3205	0.3213	0.3130
	Cy	0.3391	0.3481	0.3373	0.3290
1T	Cx	0.3099	0.3196	0.3205	0.3115
	Cy	0.3509	0.3602	0.3481	0.3391
2C	Cx	0.3290	0.3376	0.3371	0.3290
	Cy	0.3538	0.3616	0.3490	0.3417
2T	Cx	0.3290	0.3381	0.3376	0.3290
	Cy	0.3690	0.3762	0.3616	0.3538
3C	Cx	0.3463	0.3551	0.3533	0.3451
	Cy	0.3687	0.3760	0.3620	0.3554
3T	Cx	0.3480	0.3571	0.3551	0.3463
	Cy	0.3840	0.3907	0.3760	0.3687
0D	Cx	0.2984	0.3048	0.3068	0.3009
	Cy	0.3133	0.3207	0.3113	0.3042
0U	Cx	0.3037	0.3009	0.3068	0.3093
	Cy	0.2937	0.3042	0.3113	0.2993
1D	Cx	0.3130	0.3213	0.3221	0.3144
	Cy	0.3290	0.3373	0.3261	0.3186
1U	Cx	0.3144	0.3221	0.3231	0.3161
	Cy	0.3186	0.3261	0.3120	0.3059
2D	Cx	0.3290	0.3371	0.3366	0.3290
	Cy	0.3417	0.3490	0.3369	0.3300
2U	Cx	0.3290	0.3366	0.3361	0.3290
	Cy	0.3300	0.3369	0.3245	0.3180
3D	Cx	0.3451	0.3533	0.3515	0.3440
	Cy	0.3554	0.3620	0.3487	0.3427
3U	Cx	0.3440	0.3515	0.3495	0.3429
	Cy	0.3428	0.3487	0.3339	0.3307

Dominant color coordinate is measured with an accuracy of ± 0.01.

Luminous Intensity Group

Brightness Group	Luminous Flux IV (lm)
R3	45.2 ... 51.7
S2	51.7 ... 59.0
S3	59.0 ... 67.2

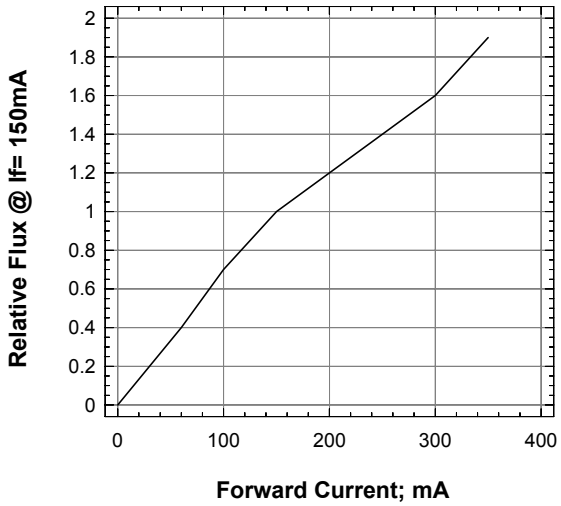
Luminous intensity is measured with an accuracy of ± 11%.

Vf Binning

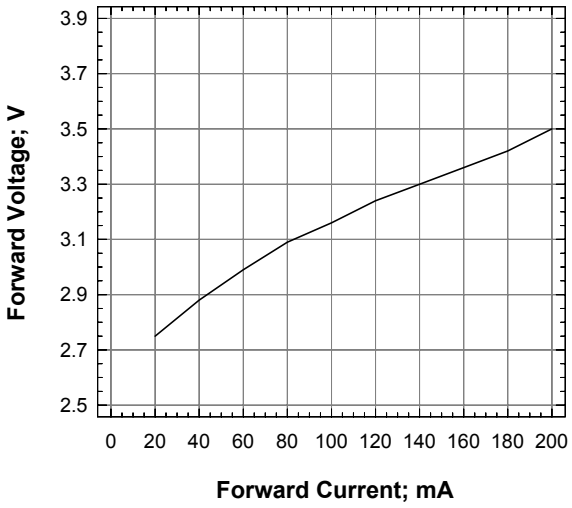
Vf Bin @ 150mA	Forward Voltage (V)
V1	3.00 ... 3.10
V2	3.10 ... 3.20
V3	3.20 ... 3.30
V4	3.30 ... 3.40
V5	3.40 ... 3.50
V6	3.50 ... 3.60
V7	3.60 ... 3.70

Forward voltage, Vf is measured with an accuracy of ± 0.1 V.

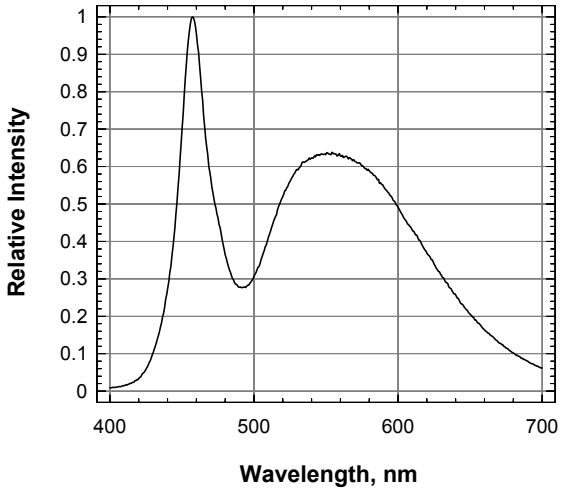
Relative Flux Vs Forward Current



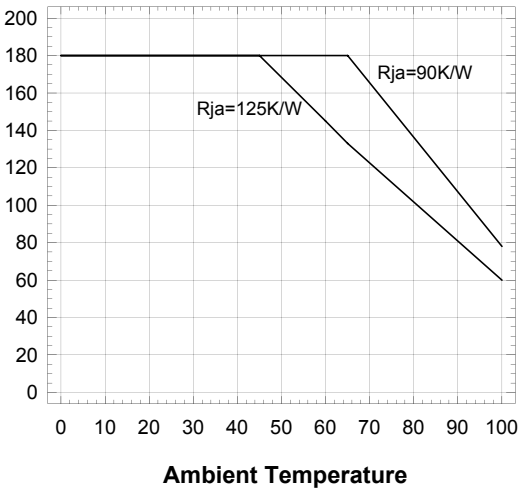
Forward Voltage Vs Forward Current



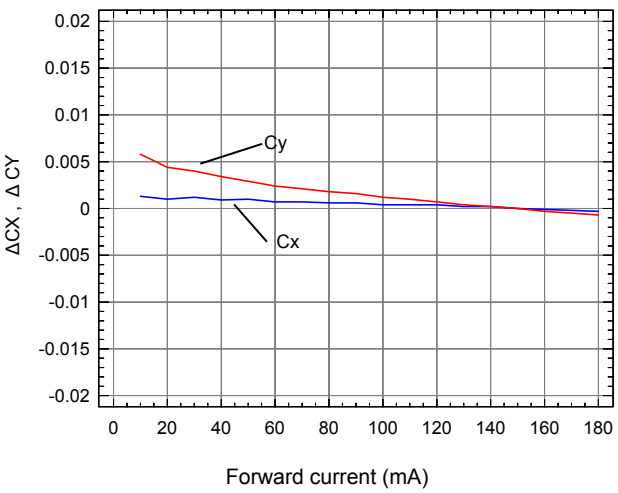
Relative Intensity Vs Wavelength



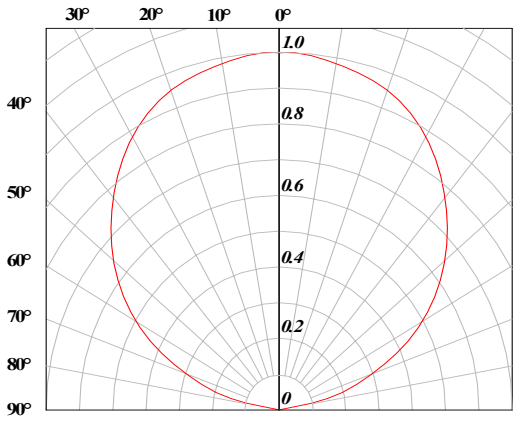
Forward Current Vs Ambient Temperature



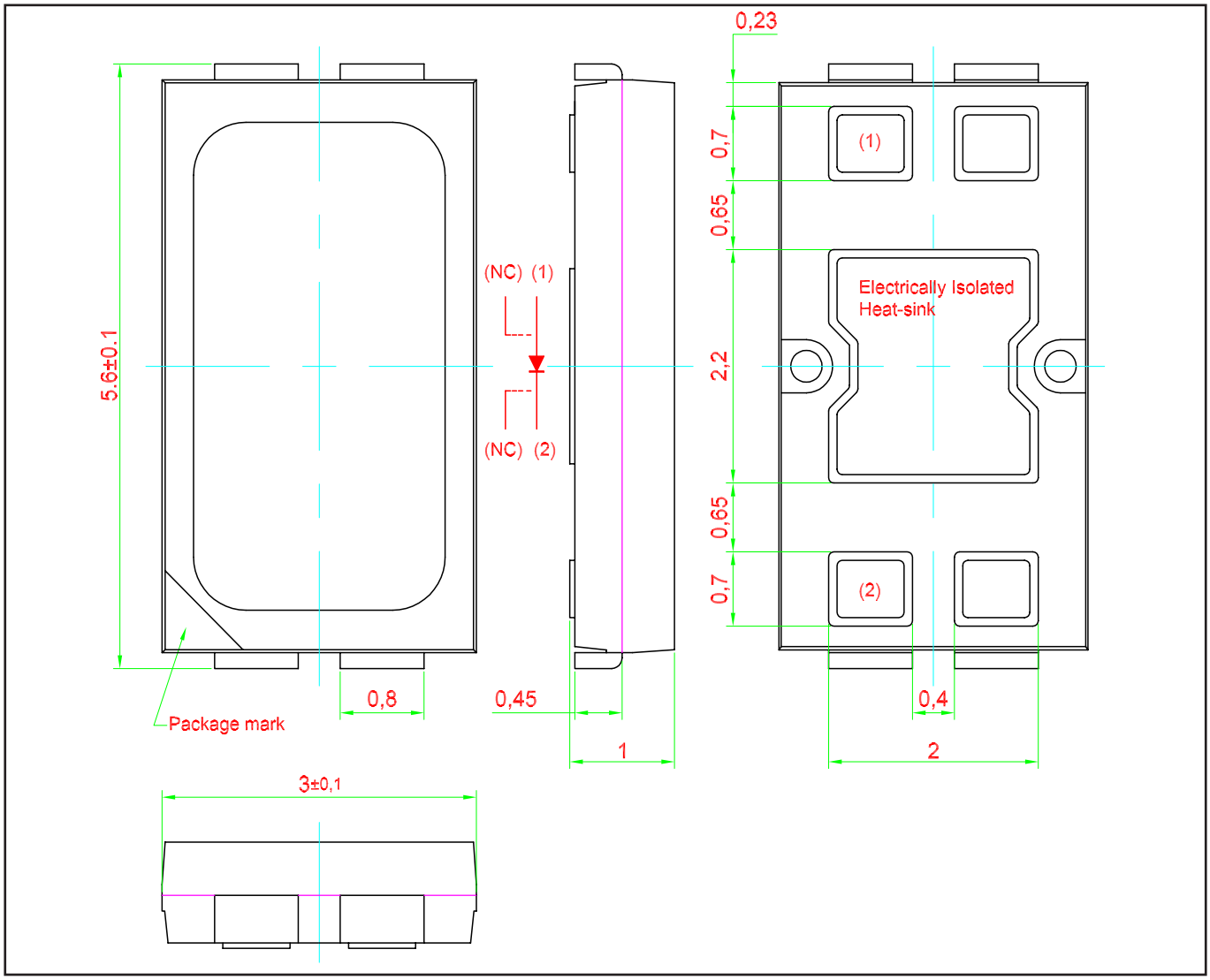
Chromaticity vs Forward Current Test Result



Radiation Pattern



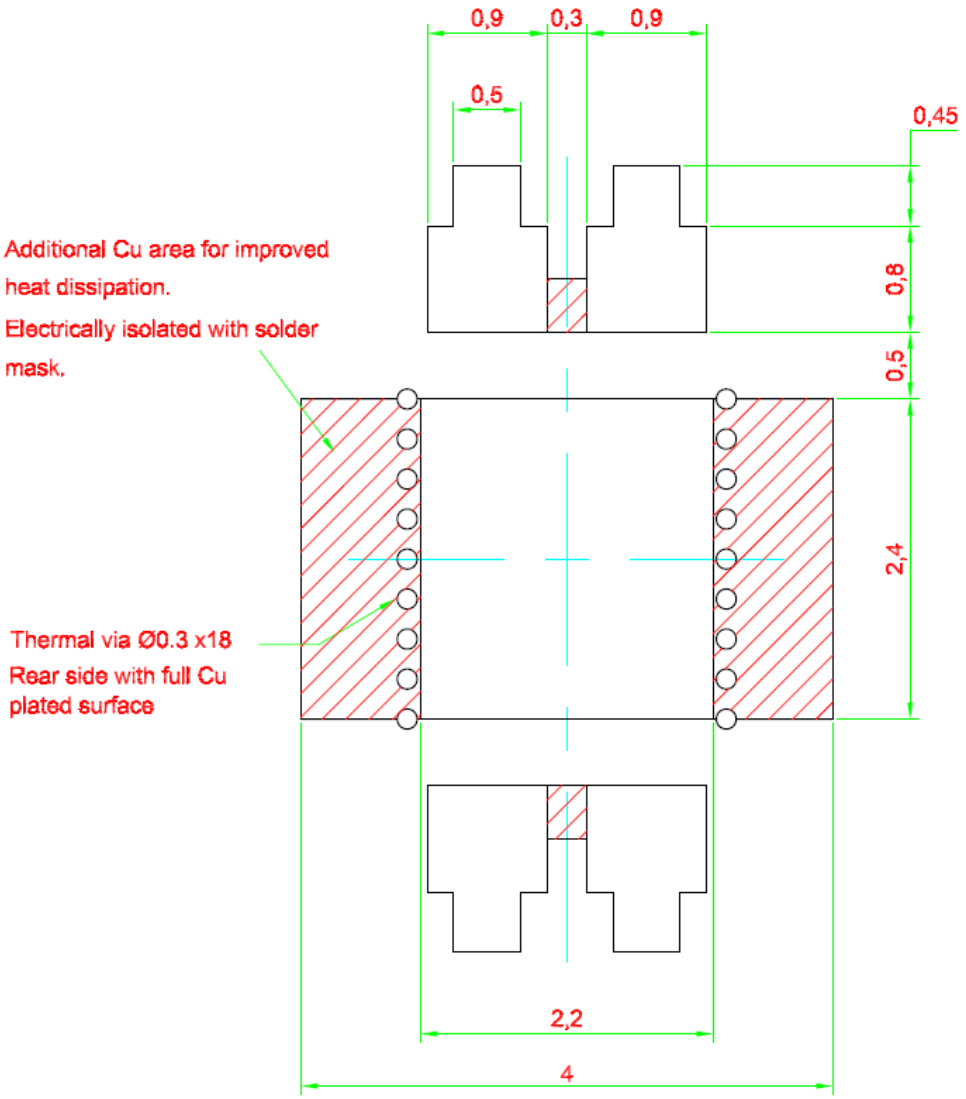
Primax5™ • 150 InGaN White: NSW-FSC Package Outlines



Material

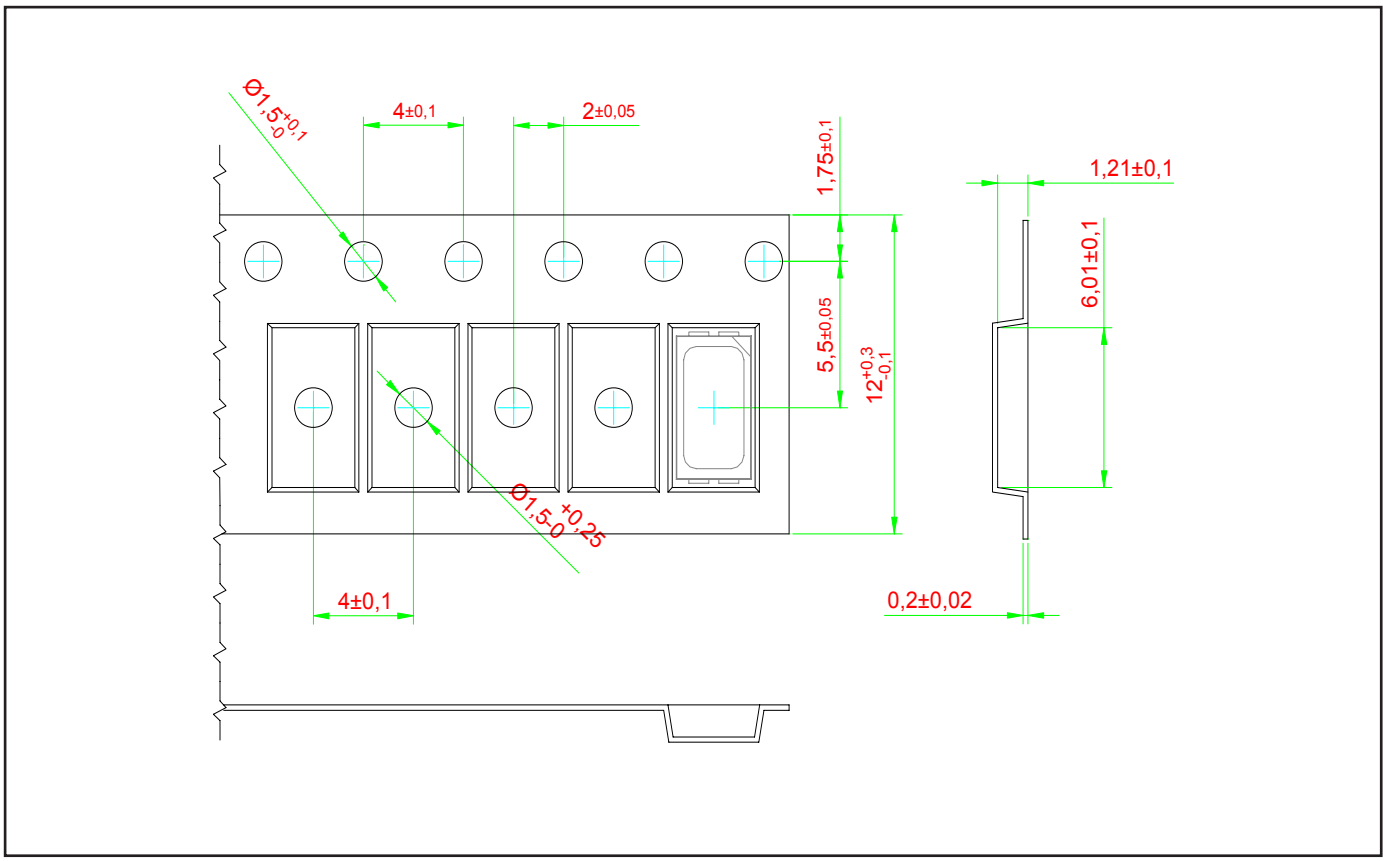
	Material
Lead-frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulant	Silicone Resin
Soldering Leads	Ag Plating

Recommended Solder Pad

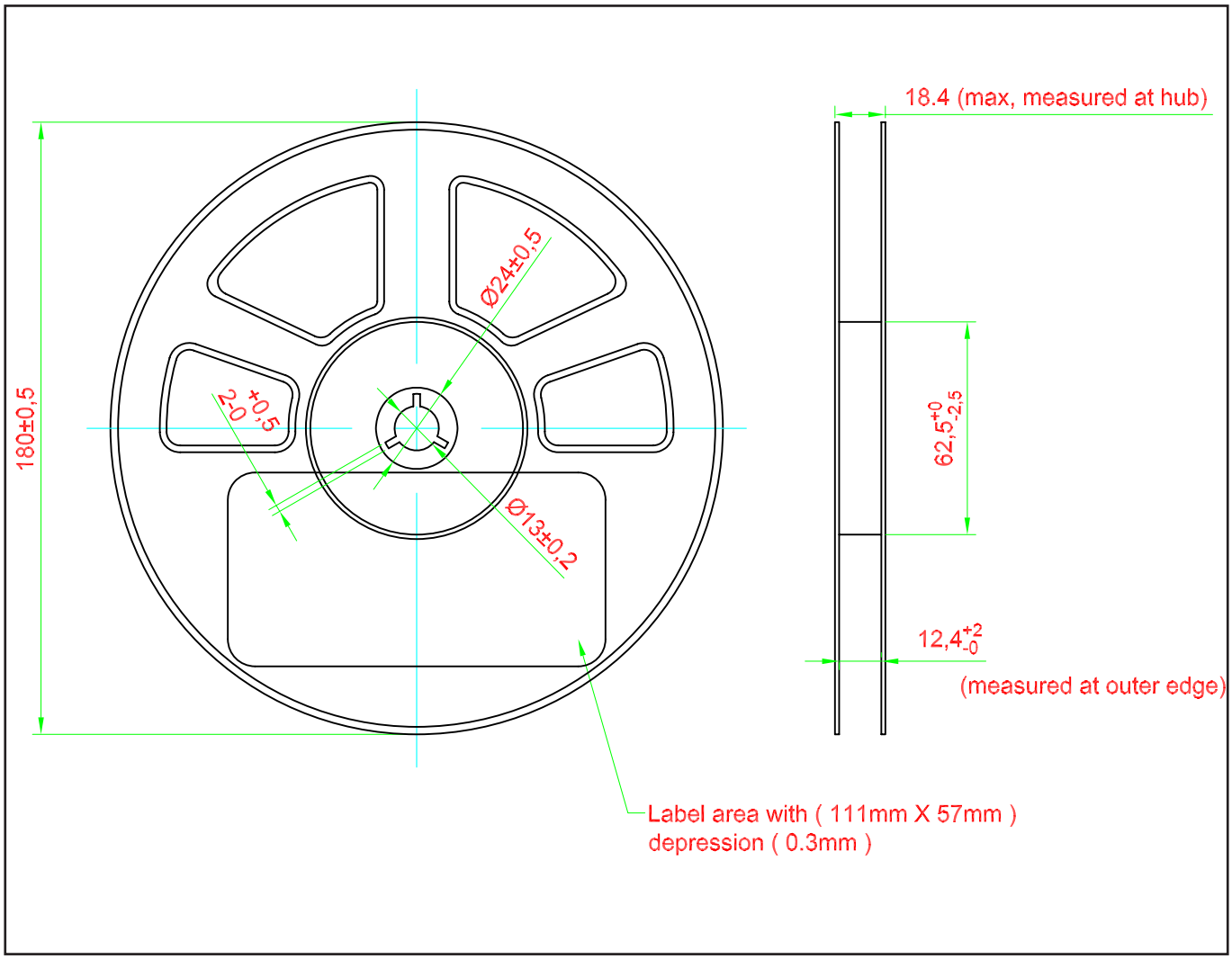


Taping and orientation

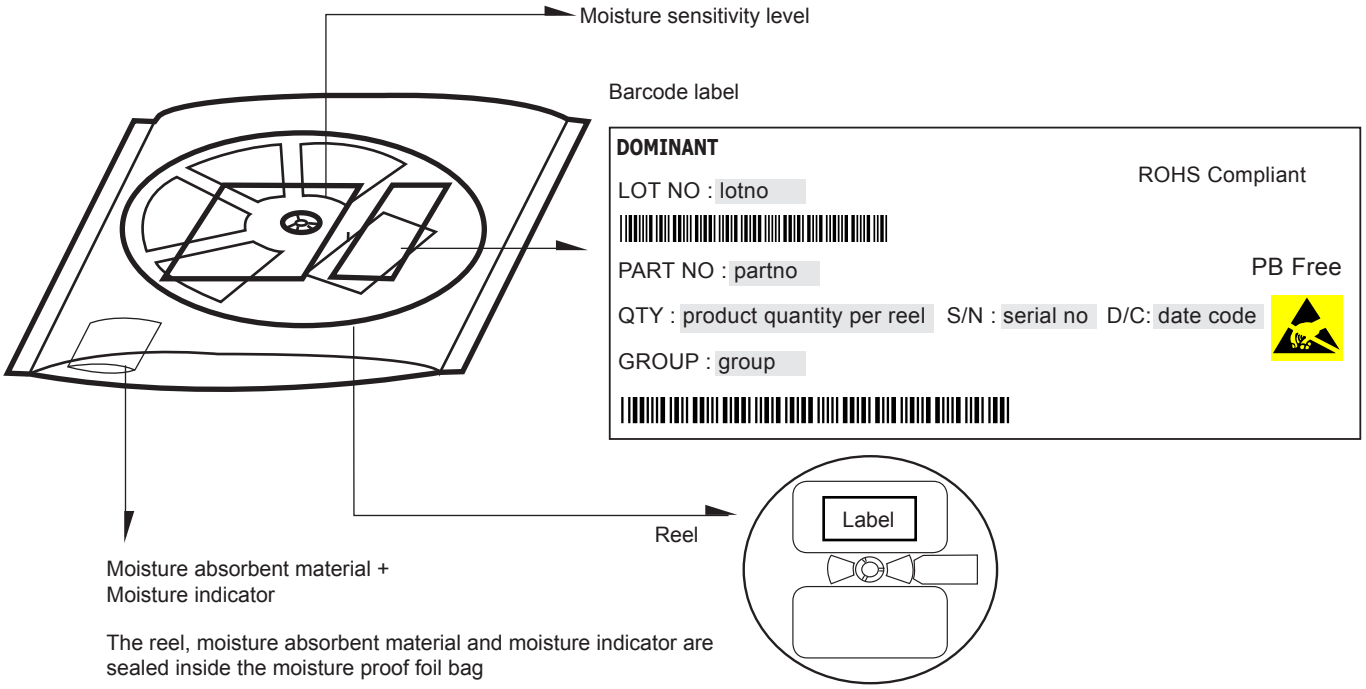
- Reels come in quantity of 2000 units.
- Reel diameter is 180mm.



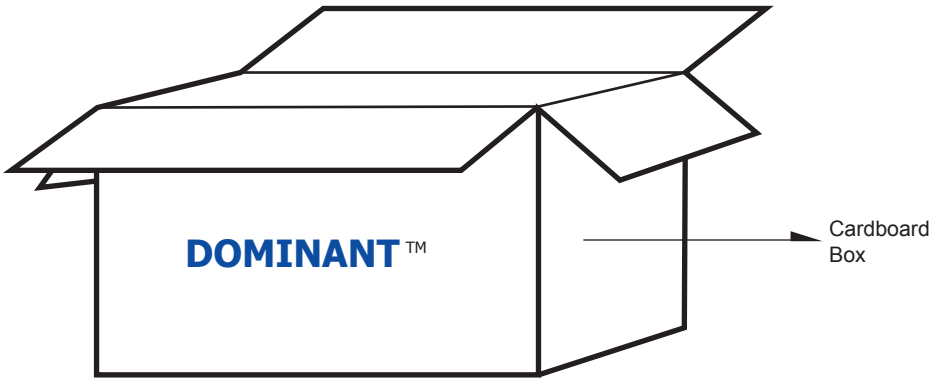
Packaging Specification



Packaging Specification



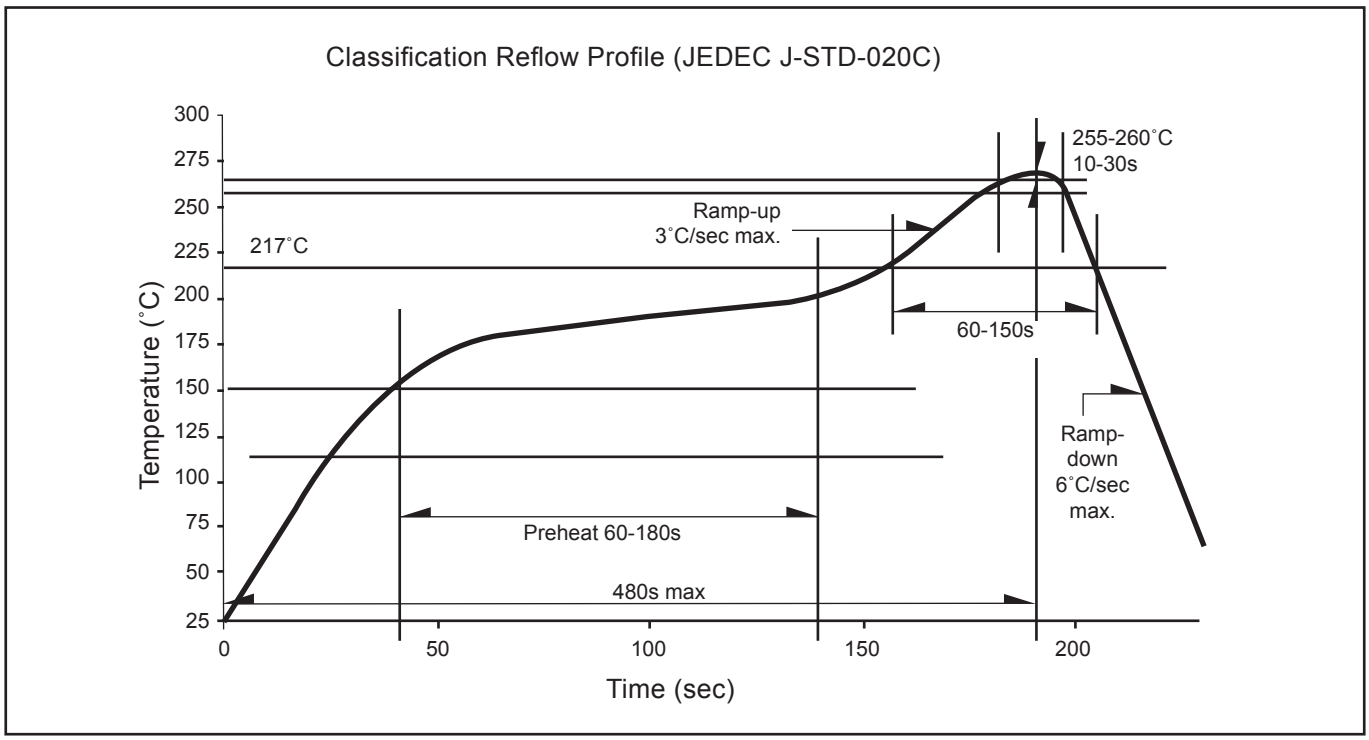
	Average 1pc Primax5	1 completed bag (2000pcs)
Weight (gram)	**0.041**	**200 ± 10**



For Primax5™

Cardboard Box Size	Dimensions (mm)	Empty Box Weight (kg)	Reel / Box	Quantity / Box (pcs)
Small	300 x 250 x 250	0.58	15 reels MAX	30,000 MAX
Large	416 x 516 x 476	1.74	96 reels MAX	192,000 MAX

Recommended Pb-free Soldering Profile



Revision History

Page	Subjects	Date of Modification
-	Initial Release	16 May 2012
6, 7	Add graph: Chromaticity vs Forward Current Test Result Update package outline	15 Oct 2012
3	Add Characteristic	30 Aug 2013

NOTE

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DOMINANT Opto Technologies is a dynamic Malaysian Corporation that is among the world's leading SMT LED Manufacturers. An excellence – driven organization, it offers a comprehensive product range for diverse industries and applications. Featuring an internationally certified quality assurance acclaim, DOMINANT's extra bright LEDs are perfectly suited for various lighting applications in the automotive, consumer and communications as well as industrial sectors. With extensive industry experience and relentless pursuit of innovation, DOMINANT's state-of-art manufacturing, research and testing capabilities have become a trusted and reliable brand across the globe. More information about DOMINANT Opto Technologies can be found on the Internet at http://www.dominant-semi.com.

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