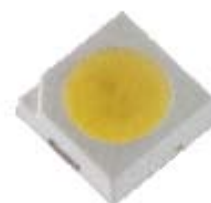


Primax™

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 (3.5 x 3.5 x 1.2 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 3.5 x 3.5 mm.
- > Ultra low height profile - 1.2mm.
- > Low thermal resistance.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.



Applications:

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

Optical Characteristics at Tj=25°C

Part Ordering Number	Color	Viewing Angle°	Luminous Flux @ 150mA (lm)		
			Min.	Typ.	Max.
NAW-BSG-PQ-1	White	120	23.5	30.6	39.8
● NAW-BSG-NP-1	White	120	18.1	25.0	30.6

● Not for new design

NOTE

1. Luminous intensity is measured with an accuracy of $\pm 11\%$.

2. Wavelength binning is carried for all units as per the wavelength-binning table. Only one wavelength group is allowed for each reel.

Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 150 mA		
	Min. (V)	Typ. (V)	Max. (V)
NAW-BSG	3.0	3.4	4.1

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

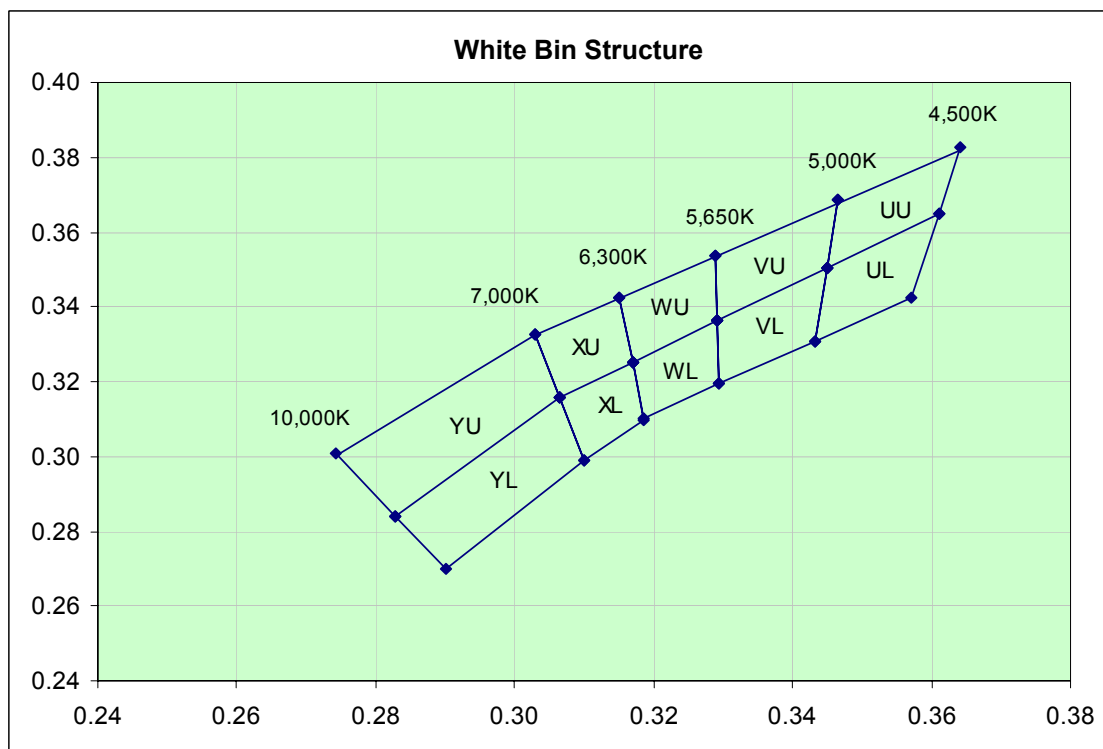
Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	180	mA
Peak pulse current	350	mA
Reverse voltage	Not designed for reverse bias	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}	125	K/W
- Junction / solder point, R _{th JS}	45	K/W
(Mounted on dual-sided FR4 in-house PCB ; total Cu area > 900 mm²)		

Characteristics

	Symbol	Part Number	Value	Unit
Temperature coefficient of V_F (typ) $I_F = 150\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 85\text{ }^{\circ}\text{C}$	TC_V	NAW-BSG	-3.70	mV / K
Temperature coefficient of I_V (typ) $I_F = 150\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 85\text{ }^{\circ}\text{C}$	TC_{IV}	NAW-BSG	-0.25	% / K
Temperature coefficient of C_x (typ) $I_F = 150\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 85\text{ }^{\circ}\text{C}$	TC_{Cx}	NAW-BSG	-0.00022	
Temperature coefficient of C_y (typ) $I_F = 150\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 85\text{ }^{\circ}\text{C}$	TC_{Cy}	NAW-BSG	-0.00016	

NAW-BSG, White Color Grouping



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

Bin		1	2	3	4
YU	Cx	0.274	0.283	0.307	0.303
	Cy	0.301	0.284	0.316	0.333
YL	Cx	0.283	0.290	0.310	0.307
	Cy	0.284	0.270	0.299	0.316
XU	Cx	0.303	0.307	0.317	0.315
	Cy	0.333	0.316	0.325	0.343
XL	Cx	0.307	0.310	0.319	0.317
	Cy	0.316	0.299	0.310	0.325
WU	Cx	0.315	0.317	0.329	0.329
	Cy	0.343	0.325	0.336	0.354
WL	Cx	0.317	0.319	0.329	0.329
	Cy	0.325	0.310	0.319	0.336
VU	Cx	0.329	0.329	0.345	0.347
	Cy	0.354	0.336	0.350	0.368
VL	Cx	0.329	0.329	0.343	0.345
	Cy	0.336	0.319	0.331	0.350
UU	Cx	0.347	0.345	0.361	0.364
	Cy	0.368	0.350	0.365	0.383
UL	Cx	0.345	0.343	0.357	0.361
	Cy	0.350	0.331	0.343	0.365

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

Luminous Intensity Group at Tj=25°C

Brightness Group	Luminous Flux @ IV (lm)
N2	18.1...20.6
N3	20.6...23.5
P2	23.5...26.8
P3	26.8...30.6
Q2	30.6...34.8
Q3	34.8...39.8

Luminous intensity is measured with an accuracy of $\pm 11\%$.

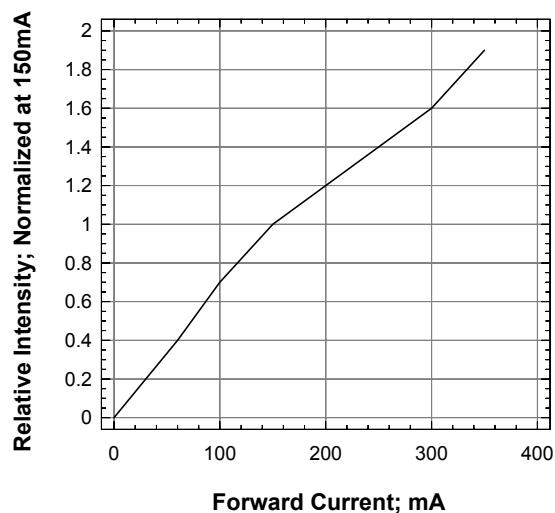
Vf Binning (Optional)

Vf Bin @ 150mA	Forward Voltage (V)
V1	3.00 ... 3.30
V2	3.30 ... 3.60
V3	3.60 ... 3.90
V4	3.90 ... 4.10

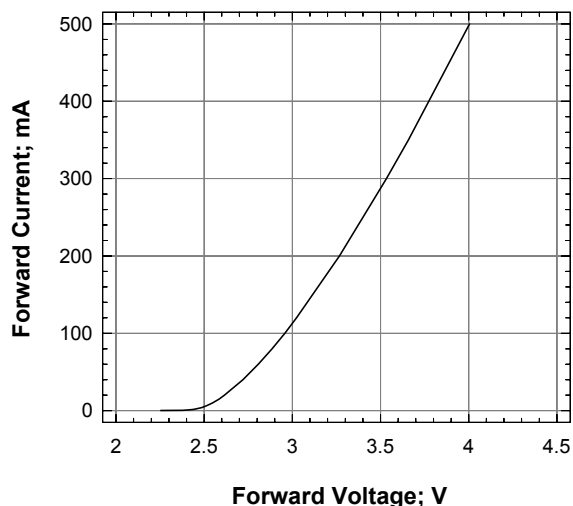
Forward voltage, Vf is measured with an accuracy of ± 0.1 V.

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

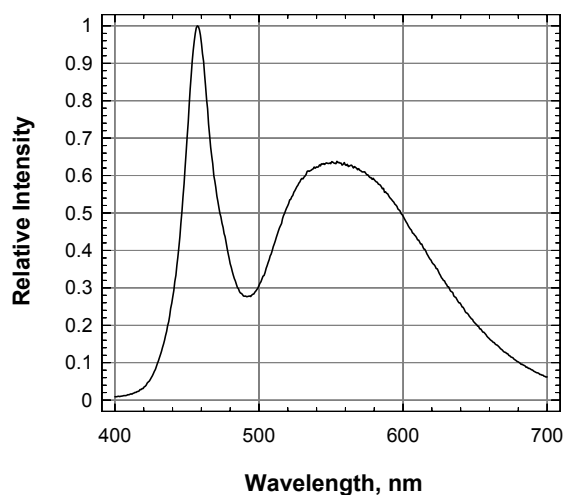
Relative Intensity Vs Forward Current



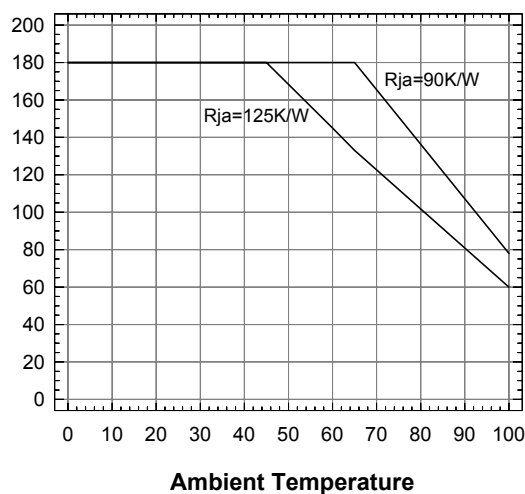
Forward Current vs Forward Voltage



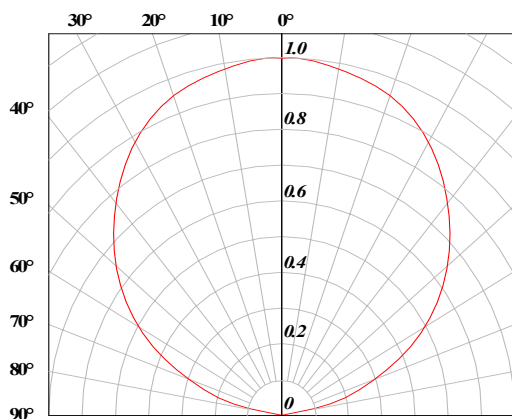
Relative Intensity Vs Wavelength



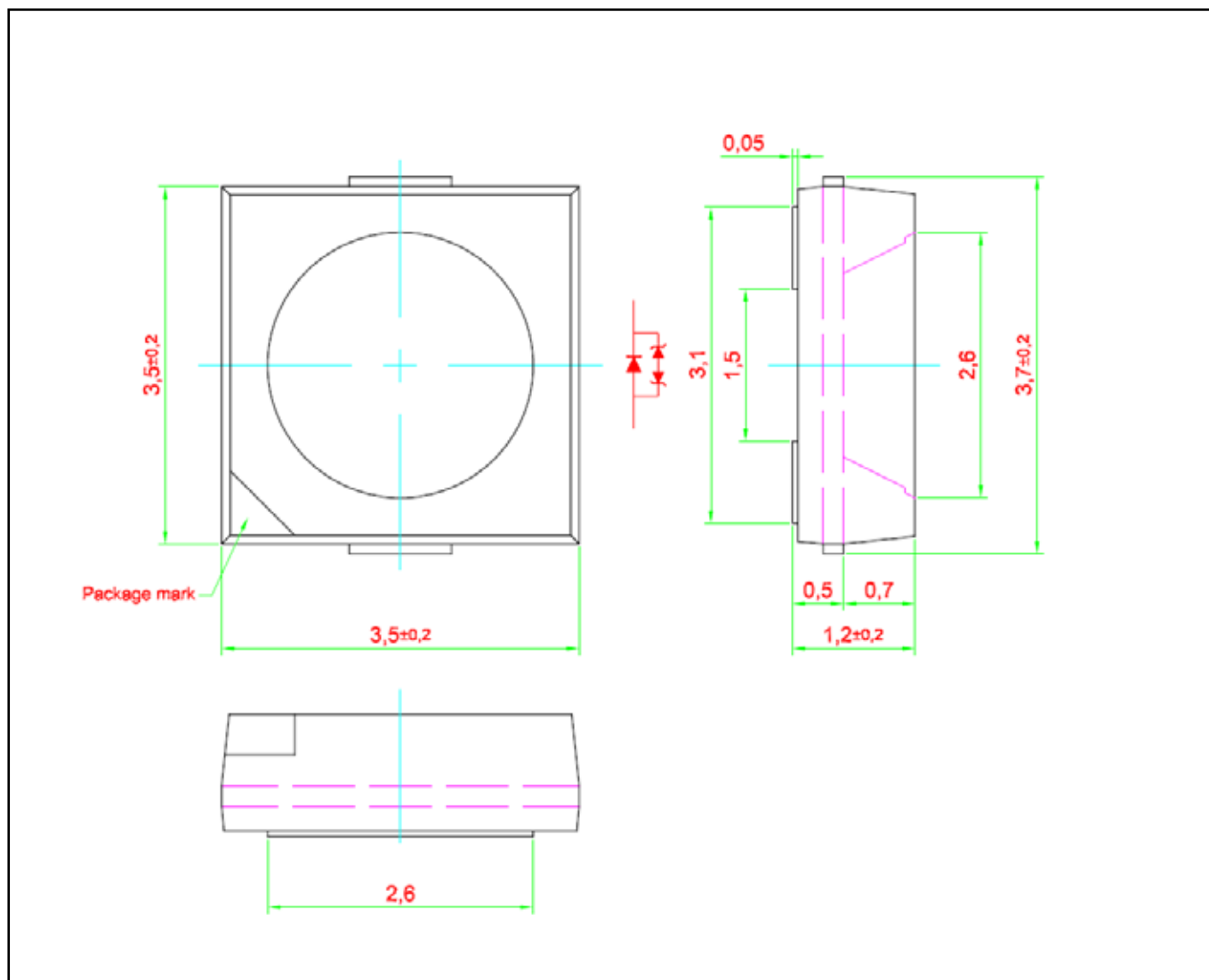
Forward Current Vs Ambient Temperature



Radiation Pattern



Primax™ • 150 InGaN White : NAW-BSG Package Outlines



Material

Material

Lead-frame

Cu Alloy With Ag Plating

Package

High Temperature Resistant Plastic, PPA

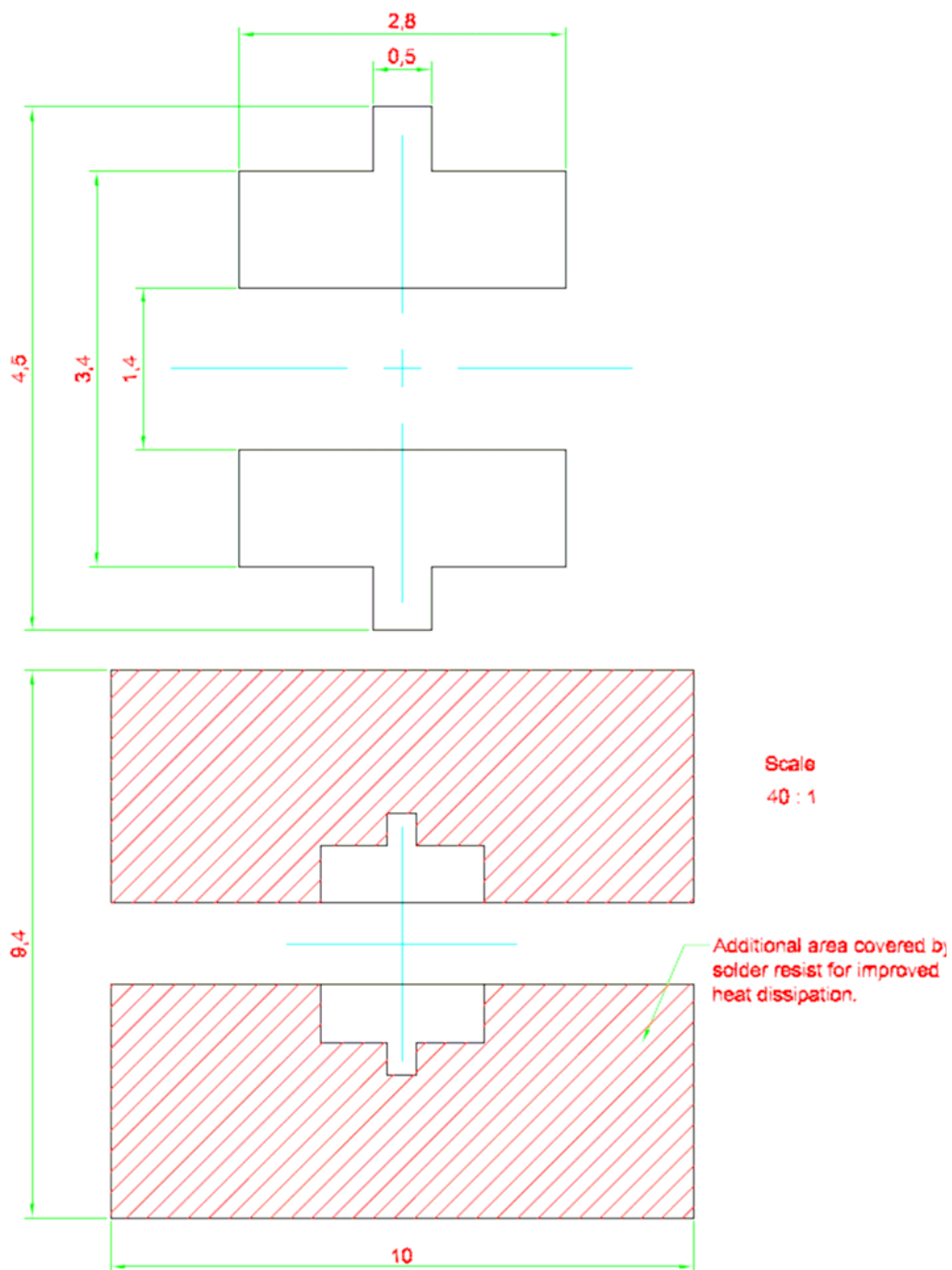
Encapsulant

Silicone Resin

Soldering Leads

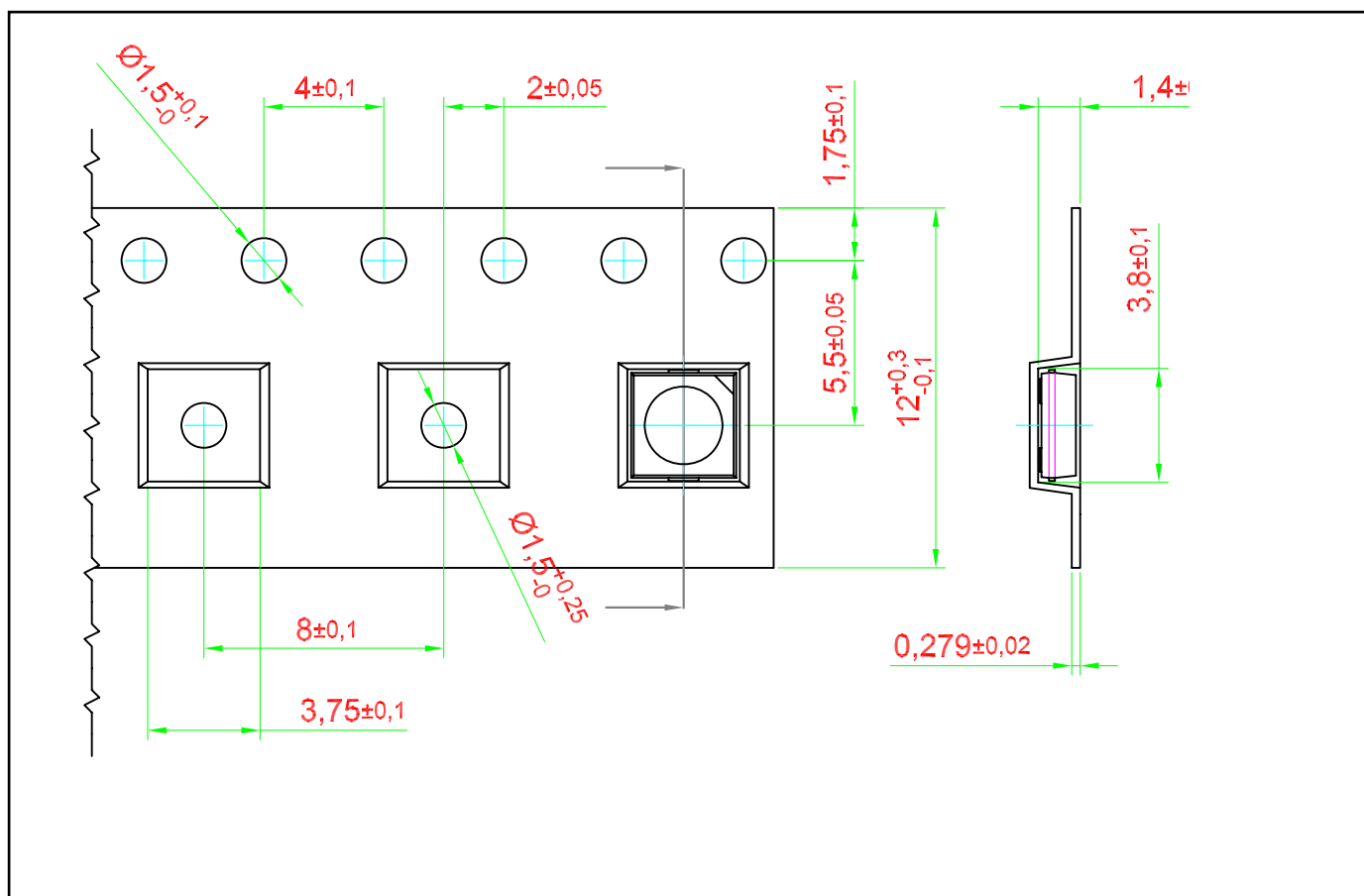
Sn-Sn Plating

Recommended Solder Pad

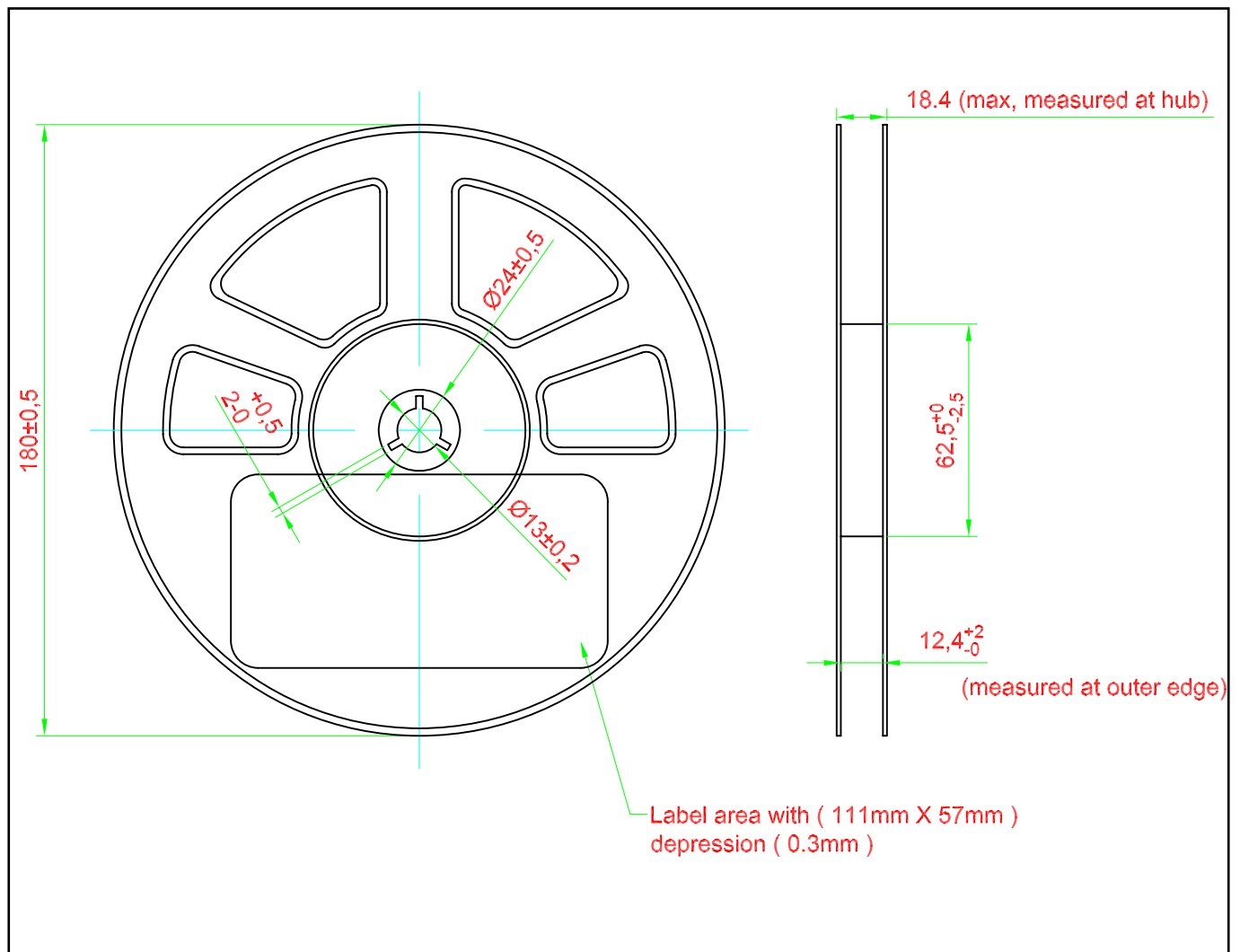


Taping and orientation

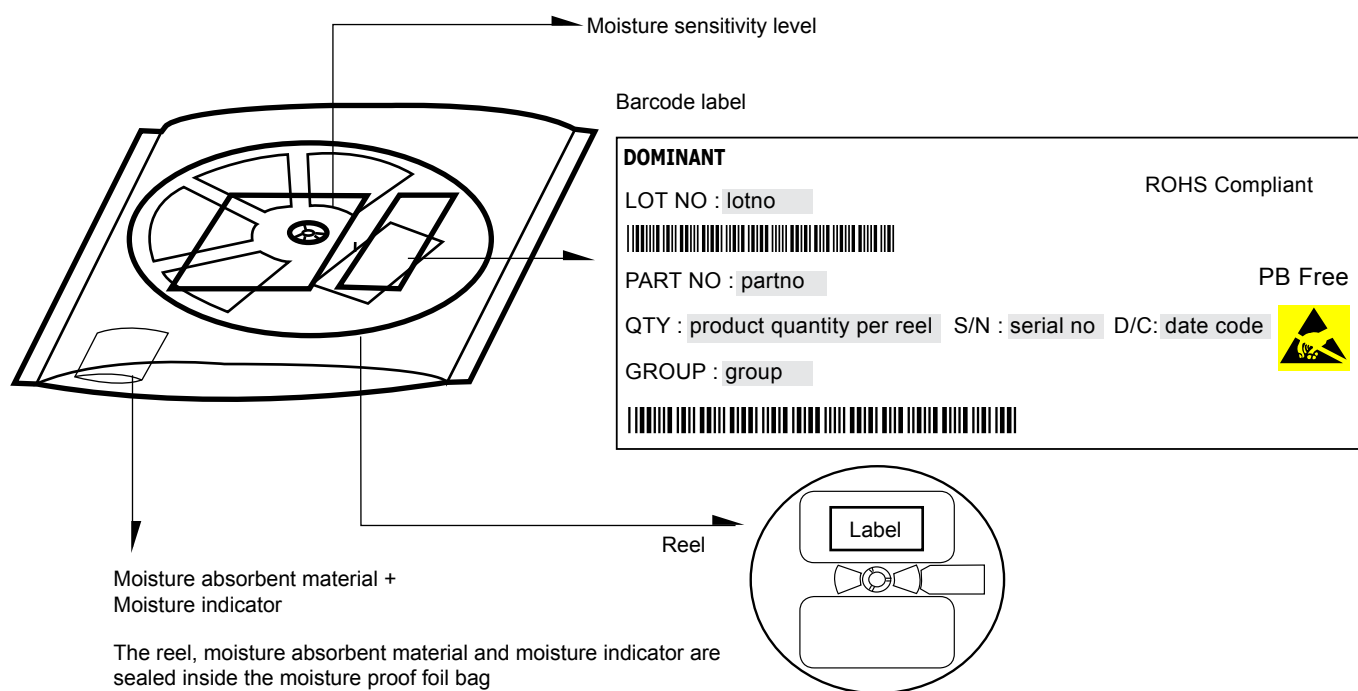
- Reels come in quantity of 1000 units.
- Reel diameter is 180 mm.



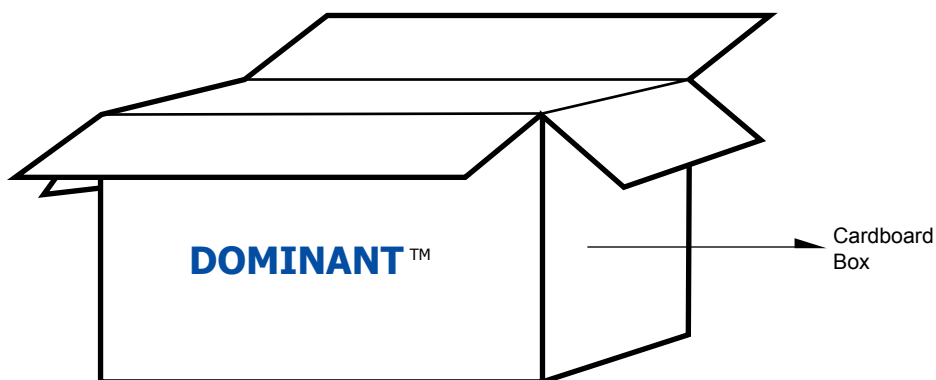
Packaging Specification



Packaging Specification



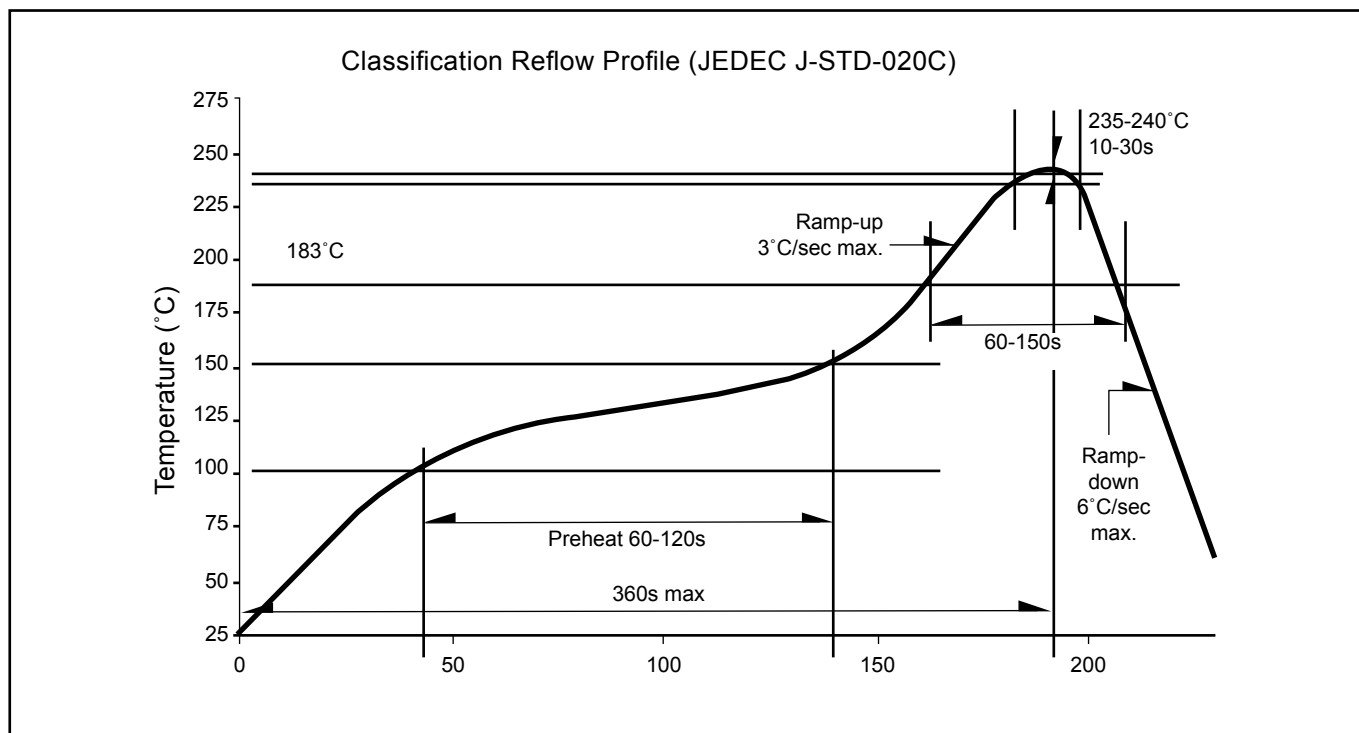
	Average 1pc Primax	1 completed bag (1000pcs)
Weight (gram)	0.041	160 ± 10



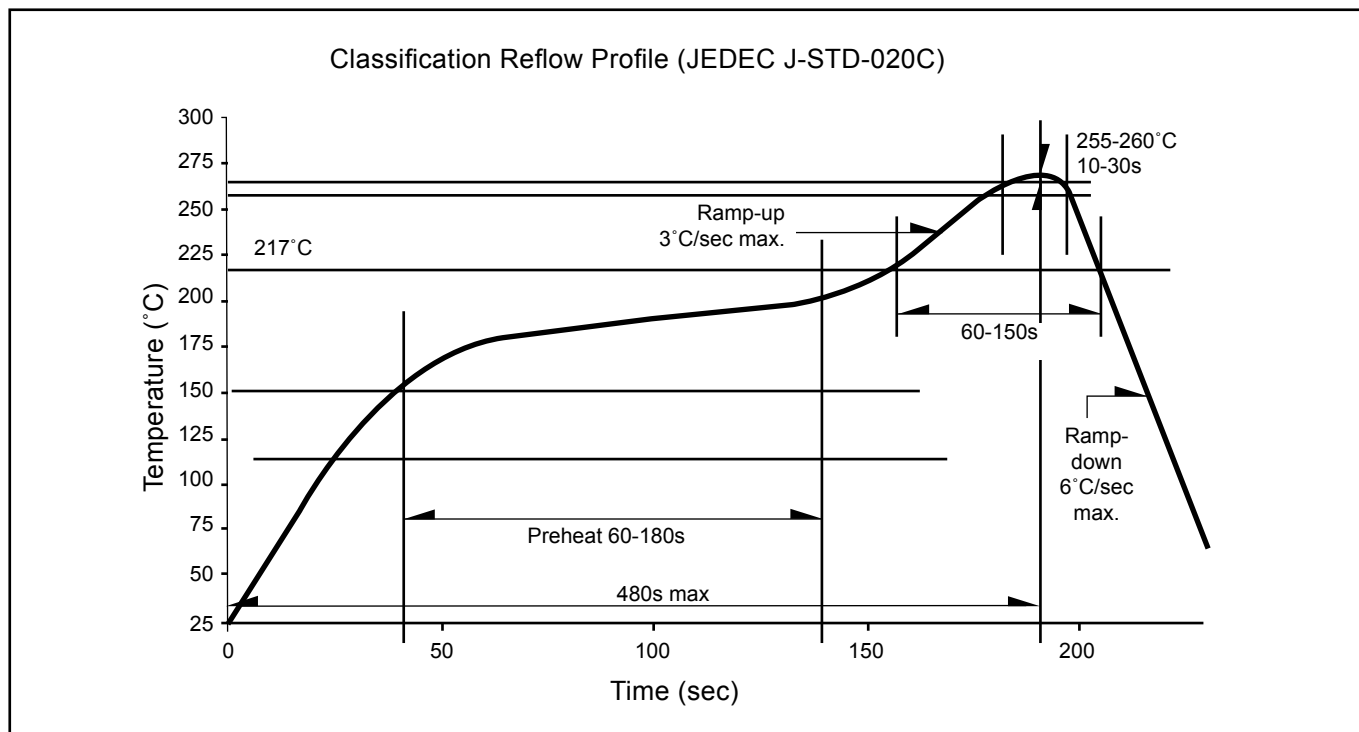
For Primax™

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	15,000 MAX
Large	416 x 516 x 476	1.74	96 reels MAX	96,000 MAX

Recommended Sn-Pb IR-Reflow Soldering Profile



Recommended Pb-free Soldering Profile



Revision History

Page	Subjects	Date of Modification
-	Initial Release	27 Apr 2009
2	Add Thermal Resistance	25 May 2009
4	Add Vf Binning Option	28 Oct 2009
1	Update Product Photo	12 Nov 2009
8,9	Carrier Tape and Reel Dimension Changed	05 Mar 2010
3	Add Characteristics	12 Nov 2010
2	Add new partno --> NAW-BSG-PQ-1; Not for new design --> NAW-BSG-NP-1	05 Jan 2011

NOTE

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About Us

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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