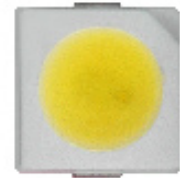


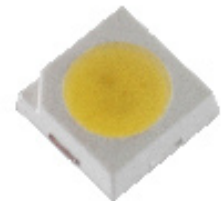
Primax™

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.
● NAF-BSG-NP-1	Warm White	120	18.1	23.0	30.6
NAF-BSG-PQ-1	Warm White	120	23.5	30.0	39.8
● NAF-BSG-MN-MK	Warm White	120	13.9	18.0	23.5
NAF-BSG-NP-MK	Warm White	120	18.1	23.0	30.6

● Not for new design

NOTE

1. Luminous intensity is measured with an accuracy of ± 11%.
2. Wavelength binning is carried for all units as per the wavelength-binning table. Only one wavelength group is allowed for each reel.
3. NAF-BSG-NP-1 and NAF-BSG-PQ-1 is only available for CCT range of N to R.
4. NAF-BSG-MN-MK and NAF-BSG-NP-MK the selection for CCT range of K to M.

Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 150 mA		
	Min. (V)	Typ. (V)	Max. (V)
NAF-BSG	3.0	3.6	4.1

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

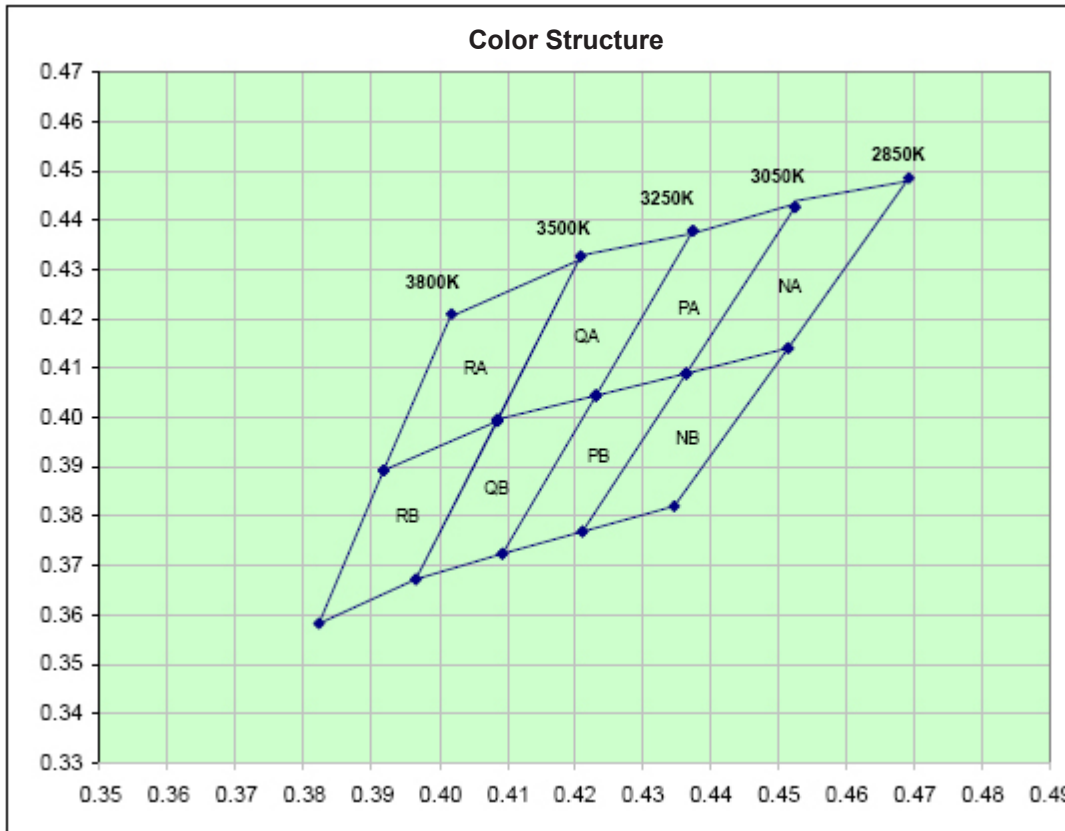
Absolute Maximum Ratings

	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 mm ²)		

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	NAF-BSG	-2.80	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}	NAF-BSG	-0.20	% / 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}	NAF-BSG	-0.00003	
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}	NAF-BSG	0.00002	

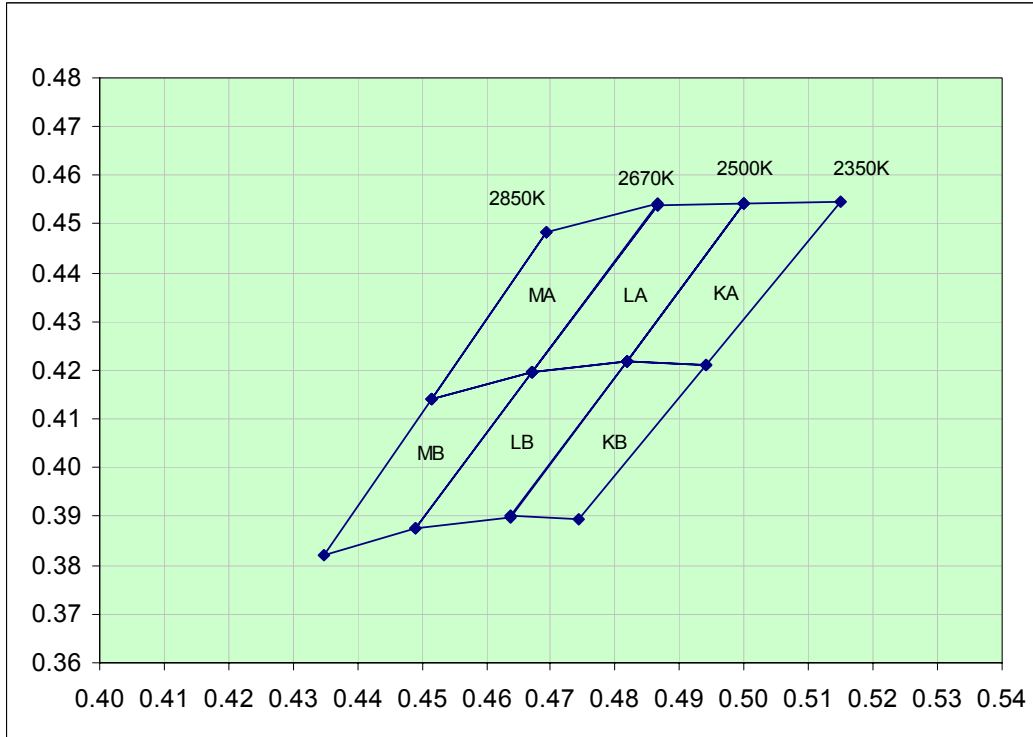
NAF-BSG, Warm White Color Grouping



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

Bin					
RA	Cx	0.402	0.392	0.409	0.421
	Cy	0.421	0.389	0.399	0.433
RB	Cx	0.392	0.382	0.397	0.409
	Cy	0.389	0.358	0.367	0.399
QA	Cx	0.421	0.409	0.423	0.437
	Cy	0.433	0.400	0.405	0.438
QB	Cx	0.409	0.397	0.409	0.423
	Cy	0.400	0.367	0.372	0.405
PA	Cx	0.437	0.423	0.436	0.452
	Cy	0.438	0.405	0.409	0.443
PB	Cx	0.423	0.409	0.421	0.436
	Cy	0.405	0.372	0.377	0.409
NA	Cx	0.452	0.436	0.451	0.469
	Cy	0.443	0.409	0.414	0.448
NB	Cx	0.436	0.421	0.435	0.451
	Cy	0.409	0.377	0.382	0.414

NAF-BSG, Warm White Color Grouping



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

Bin					
MA	Cx	0.4693	0.4515	0.4671	0.4866
	Cy	0.4485	0.4143	0.4197	0.4541
MB	Cx	0.4515	0.4347	0.4490	0.4671
	Cy	0.4143	0.3821	0.3876	0.4197
LA	Cx	0.4865	0.4671	0.4817	0.5000
	Cy	0.4540	0.4196	0.4219	0.4542
LB	Cx	0.4671	0.4490	0.4637	0.4817
	Cy	0.4196	0.3876	0.3900	0.4219
KA	Cx	0.5000	0.4817	0.4941	0.5150
	Cy	0.4542	0.4219	0.4210	0.4545
KB	Cx	0.4817	0.4637	0.4744	0.4941
	Cy	0.4219	0.3900	0.3895	0.4210

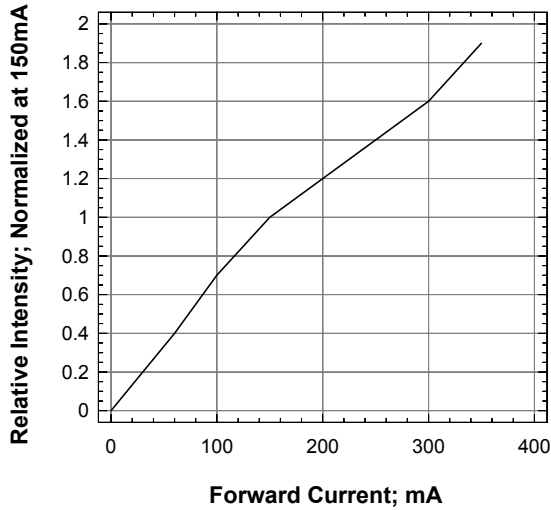
InGaN wavelength is very sensitive to drive current. Operating at lower current is not recommended and may yield unpredictable performance. Current pulsing should be used for dimming purposes

Luminous Flux Group at T_j=25°C

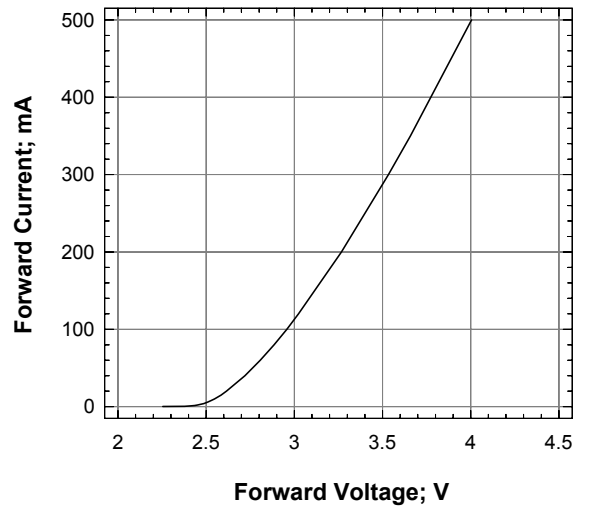
Brightness Group	Luminous Flux IV (lm)
M2	13.9...15.8
M3	15.8...18.1
N2	18.1...20.6
N3	20.6...23.5
P2	23.5...26.8
P3	26.8...30.6
Q2	30.6...34.8
Q3	34.8...39.8

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

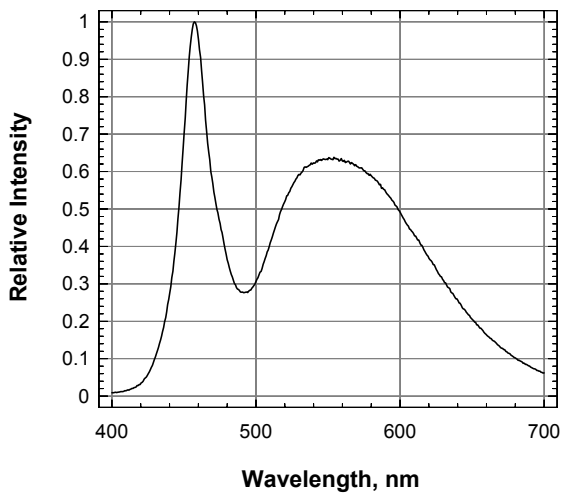
Relative Intensity Vs Forward Current



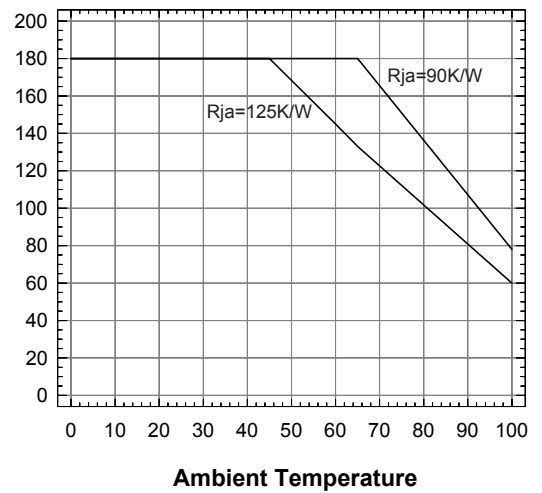
Forward Current vs Forward Voltage



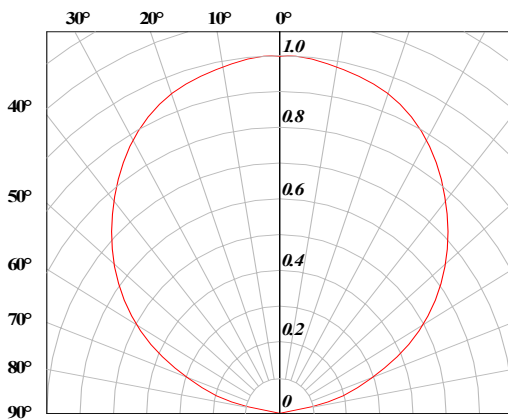
Relative Intensity Vs Wavelength



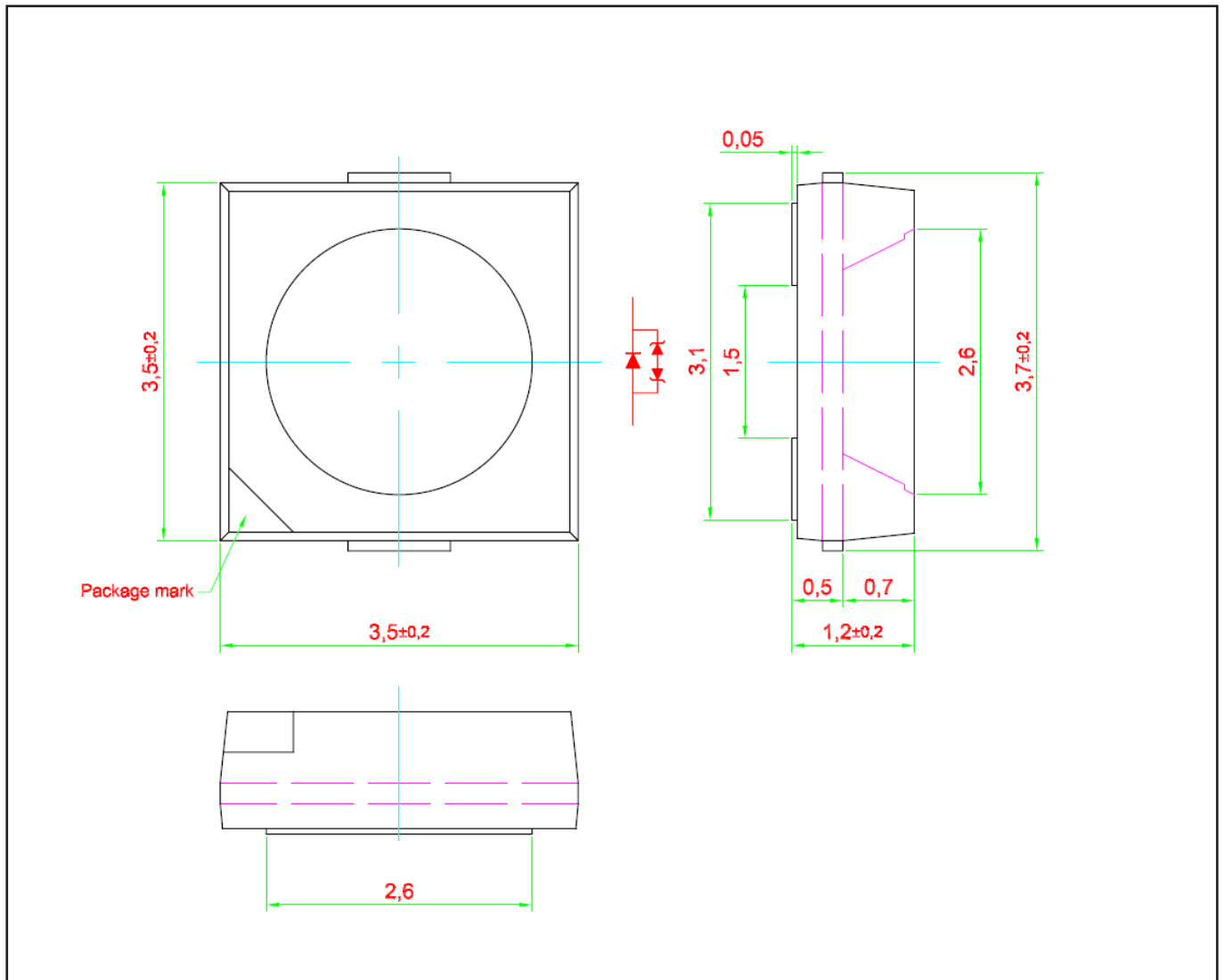
Forward Current Vs Ambient Temperature



Radiation Pattern



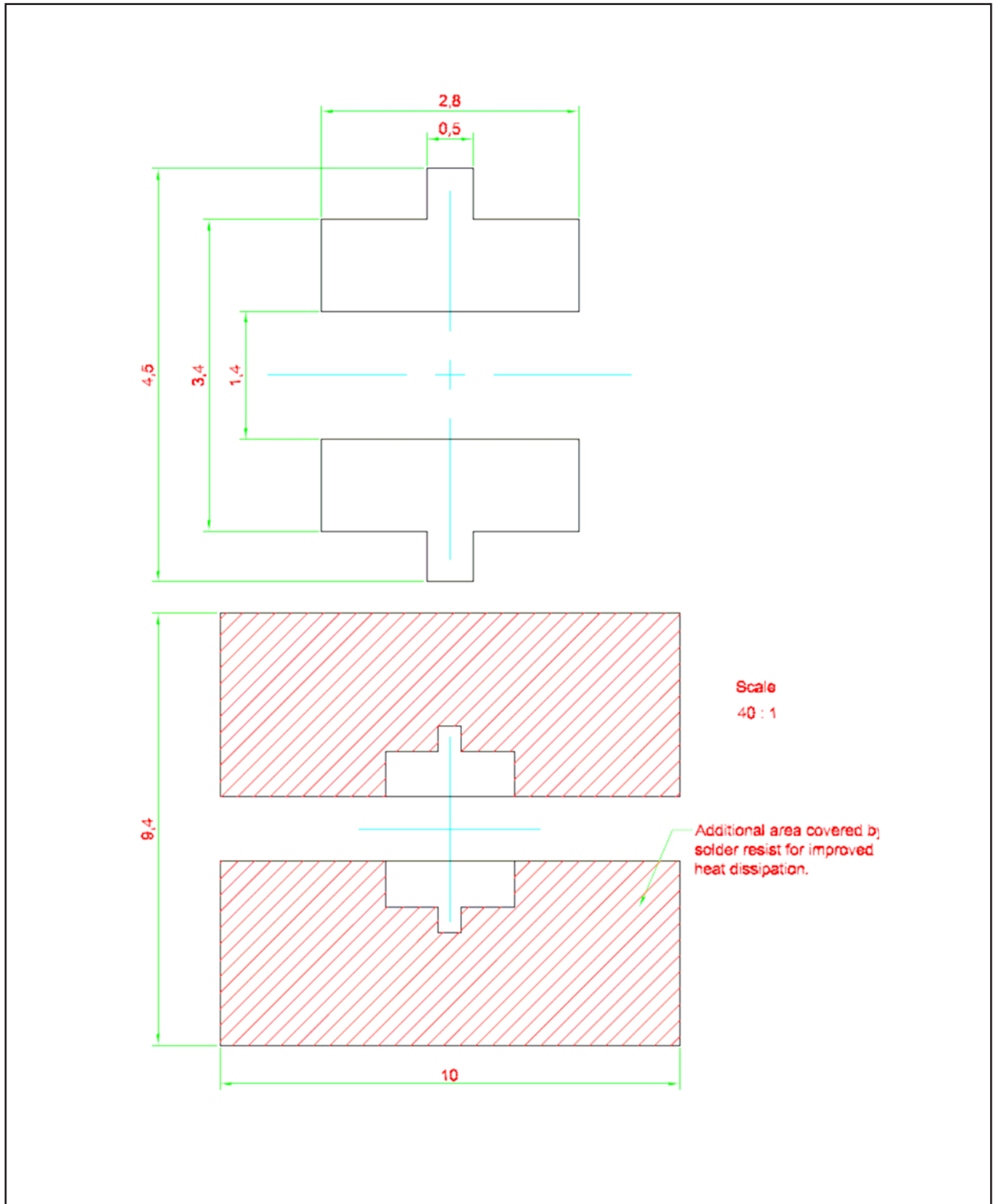
Primax™ • 150 InGaN Warm White : NAF-BSG Package Outlines



Material

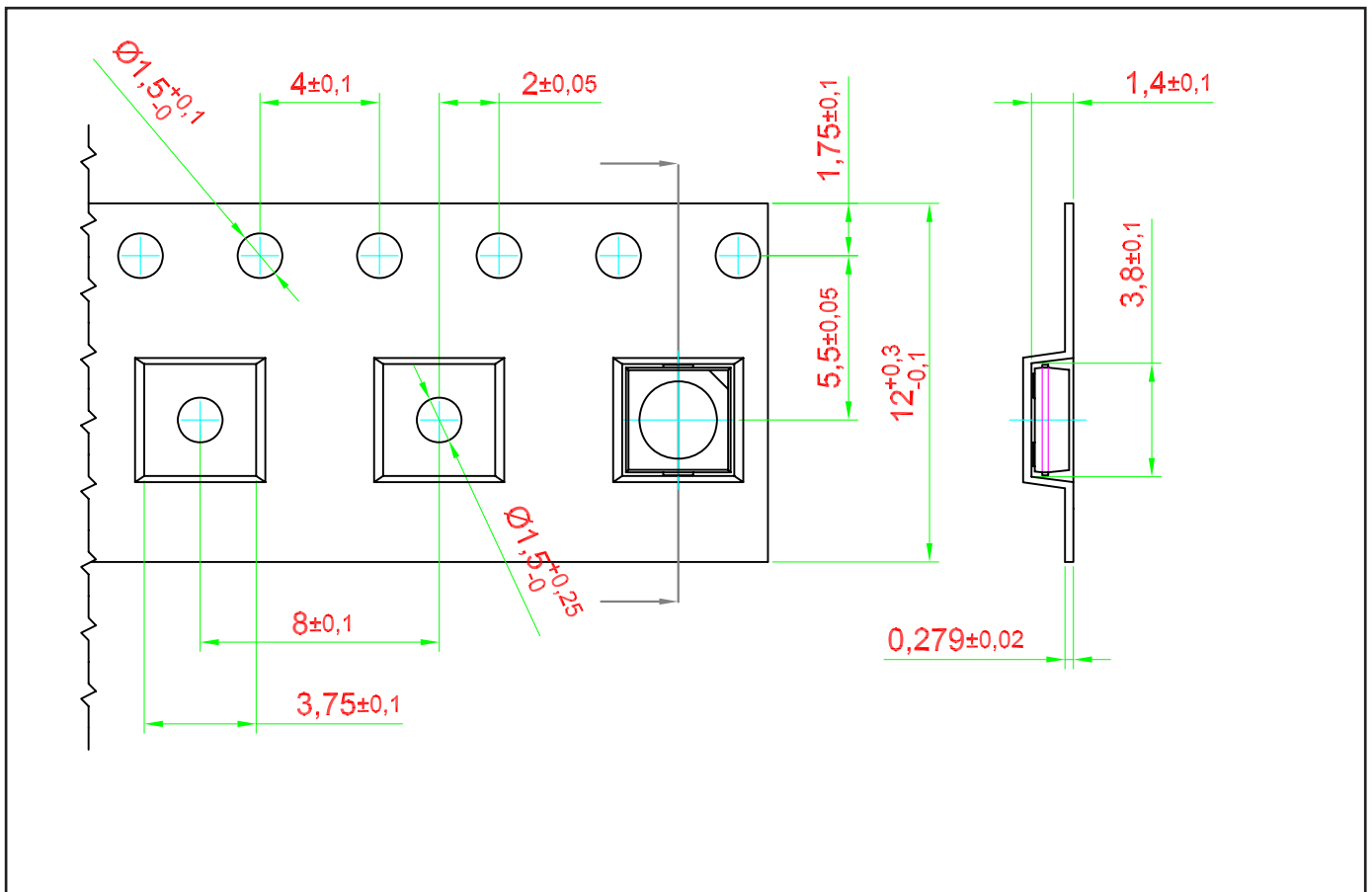
Material	
Lead-frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulant	Silicone Resin
Soldering Leads	Sn-Sn Plating

Recommended Solder Pad

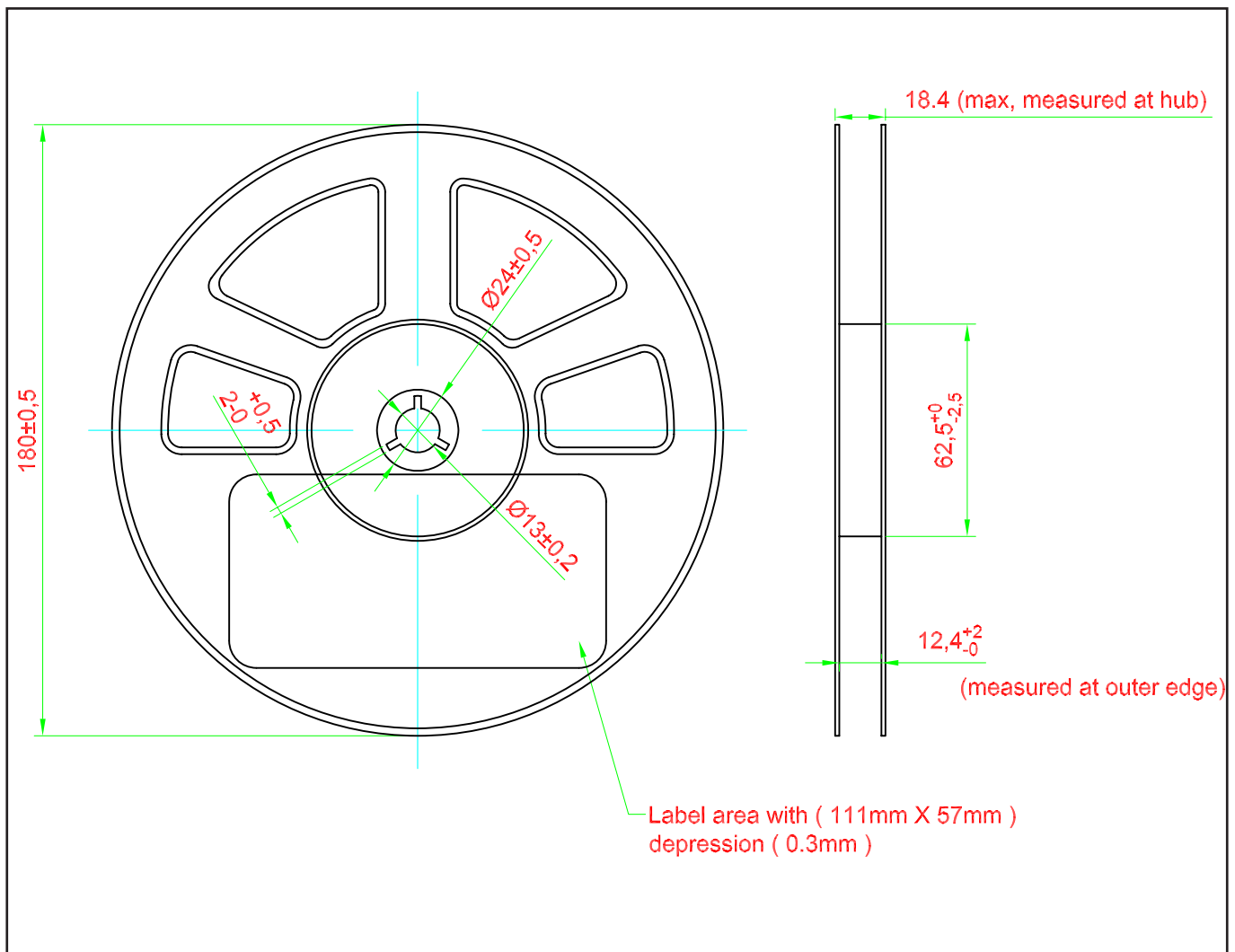


Taping and orientation

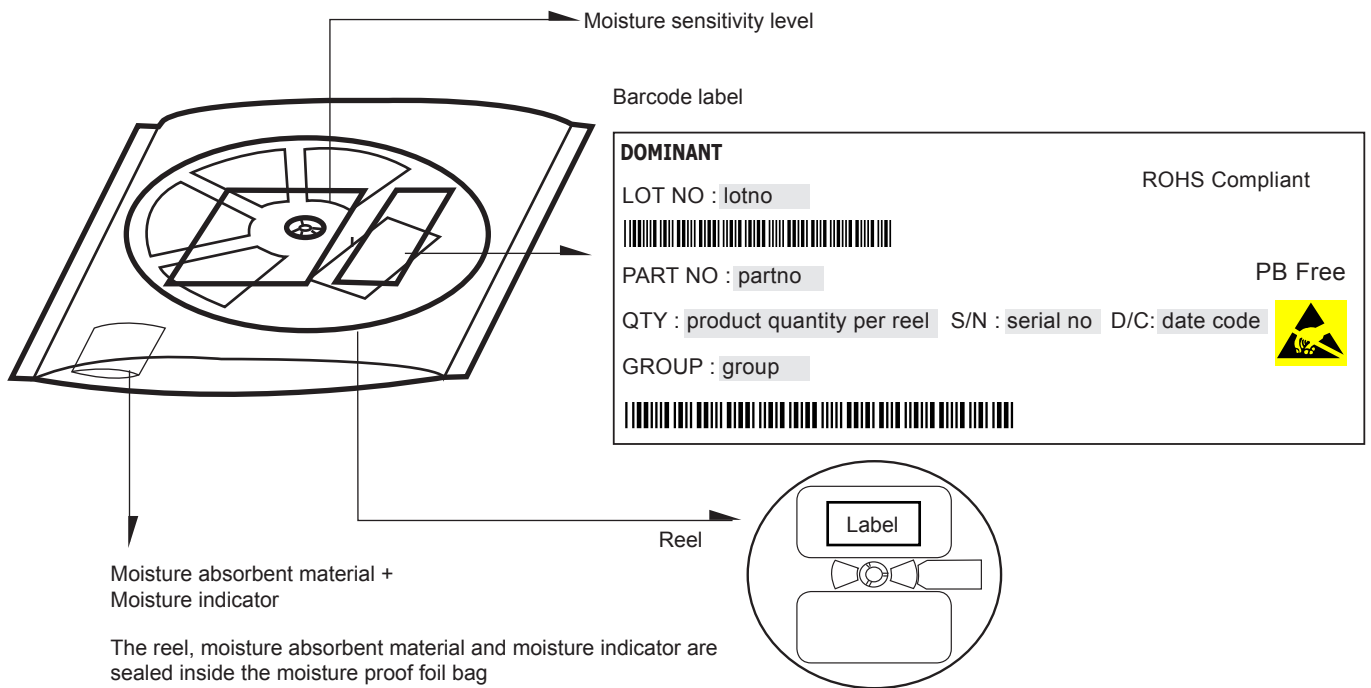
- Reels come in quantity of 1000 units.
- Reel diameter is 180 mm.



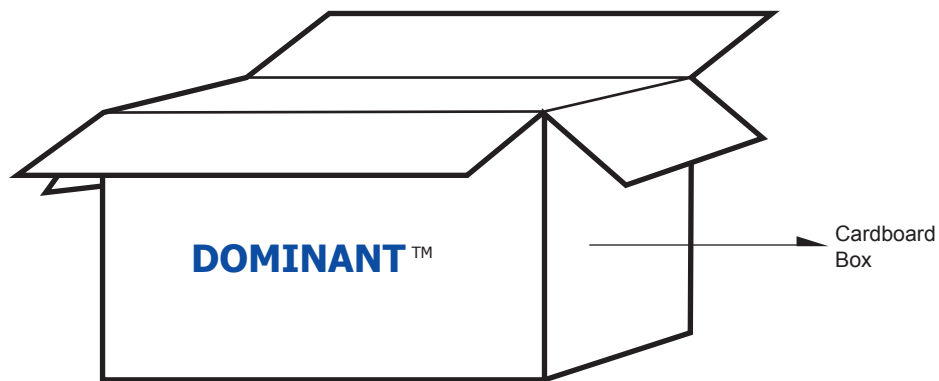
Packaging Specification



Packaging Specification



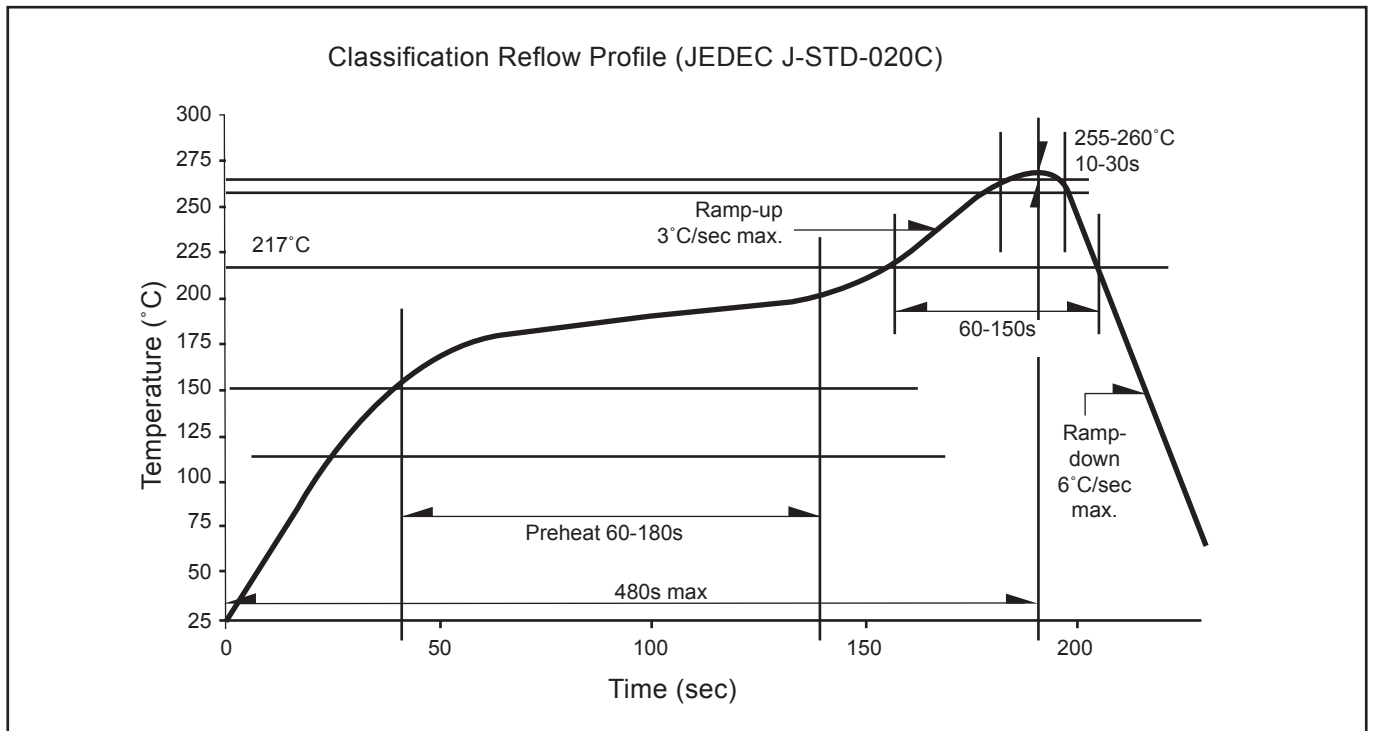
	Average 1pc Primax	1 completed bag (1000pcs)
Weight (gram)	0.041	160 ± 10



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 Pb-free Soldering Profile



Revision History

Page	Subjects	Date of Modification
-	Initial Release	02 Jun 2009
1	Update Product Photo	12 Nov 2009
10,11	Carrier Tape and Reel Dimension Changed	05 Mar 2010
2	Not for new design: NAF-BSG-NP-1; NAF-BSG-MN-MK Add partno: NAF-BSG-PQ-1; NAF-BSG-NP-MK	23 Jun 2011
3	Add Characteristics	13 Jun 2014

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>.

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

