

SPNovaTM

Featuring a staggering brilliance and significant flux output, the SPNovaTM showcases the latest technological advent in this range. With its extremely high level of brightness and the ultra low high profile, which is only 1.5 mm are highly suitable for both conventional lighting and specialized application such as automotive signal lights, traffic lights, channel lights, tube lights and garden lights among others.



Features:

- > Super high brightness surface mount LED.
- > High flux output.
- > 130° viewing angle.
- > Compact package outline (LxWxH) of 6.0 x 6.0 x 1.5mm.
- > Ultra low height profile - 1.5 mm.
- > Designed for high current drive.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.

Applications:

- > Signage: Illuminated advertising, special effect lighting.
- > Lighting: garden light, architecture lighting, general lighting, etc

Optical Characteristics at Tj=25°C

Part Ordering Number	Color, λ_{dom} (nm)			Luminous Intensity @ IF = 250mA IV (mcd)								
	Chip #1	Chip #2	Chip #3	Chip #1			Chip #2			Chip #3		
				Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.
NMRTB-WSG-AAB+ABD+X2Y-1	Red 625nm	True Green 525nm	Blue 465nm	7150	9000	11250	9000	14000	18000	2240	3550	4500
● NMRTB-WSG-AAB+ABD+YZ1-1	Red 625nm	True Green 525nm	Blue 465nm	7150	9000	11250	9000	14000	18000	2850	4500	5600

● **Not for new design**

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

Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 250mA			Vf @ If = 350mA
	Min. (V)	Typ. (V)	Max. (V)	Typ. (V)
NMRTB-WSG-1				
• Red	2.0	2.3	2.8	2.4
• True Green	3.0	3.4	3.8	3.6
• Blue	3.0	3.4	3.8	3.6

Forward voltage, Vf is measured with a current pulse of 1 ms and an accuracy of $\pm 0.1V$.

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current (per chip)	250	mA
Peak pulse current (per chip). (D $\leq 10\%$; Tp ≤ 10 msec)	500	mA
Reverse voltage	5	V
ESD threshold (HBM)	2	kV
LED junction temperature	125	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C
Thermal resistance junction/solder point, Rth JS 3 chips on (Mounting On Dominant Star RGB MCPCB)	50	K/W

Characteristics

	Symbol		Value	Unit
Temperature coefficient of λ_{dom} (typ) $I_F = 20\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$	$TC_{\lambda_{dom}}$ (typ)	Red	0.06	nm / K
		True Green	0.03	nm / K
		Blue	0.03	nm / K
Temperature coefficient of V_F (typ) $I_F = 20\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$	TC_V	Red	-3.2	mV / K
		True Green	-2.2	mV / K
		Blue	-3.0	mV / K
Temperature coefficient of I_V (typ) $I_F = 20\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$	TC_{IV}	Red	-0.34	% / K
		True Green	-0.09	% / K
		Blue	0.03	% / K

Wavelength Grouping at $T_j=25^{\circ}\text{C}$

Color	Group	Wavelength distribution (nm)
Red	Full	620 - 630
True Green	A	520 - 525
	B	525 - 530
	C	530 - 535
Blue	A	460 - 465
	B	465 - 470
	C	470 - 475

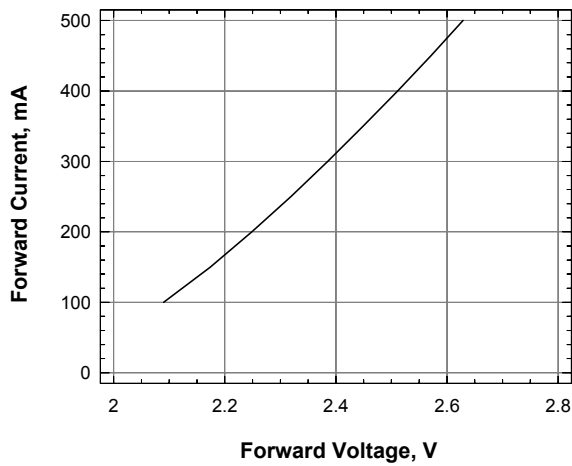
Dominant wavelength is measured with an accuracy of $\pm 1\text{ nm}$.

Luminous Intensity Group at $T_j= 25^{\circ}\text{C}$

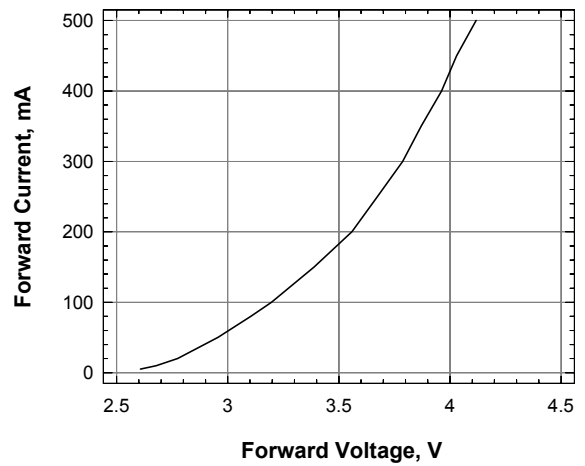
Color	IV Bins	Luminous Intensity (mcd)	
		Min.	Max.
Red	AA	7150	9000
	AB	9000	11250
True Green	AB	9000	11250
	AC	11250	14000
	AD	14000	18000
Blue	X2	2240	2850
	Y1	2850	3550
	Y2	3550	4500
	Z1	4500	5600

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

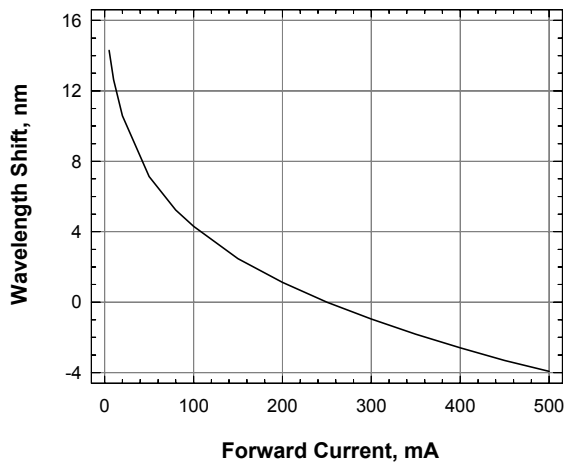
Forward Current Vs Forward Voltage (Red)



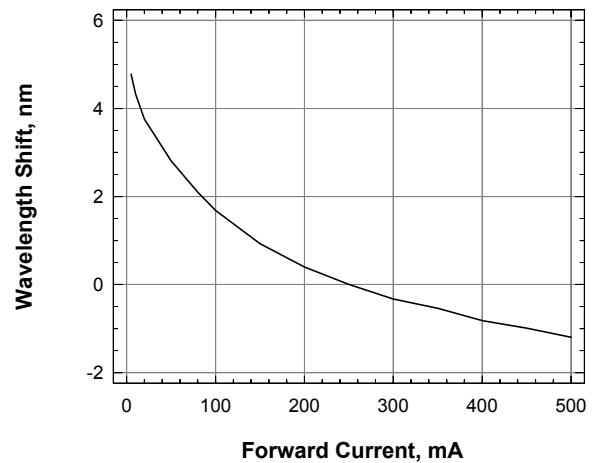
Forward Current Vs Forward Voltage (Blue and True Green)



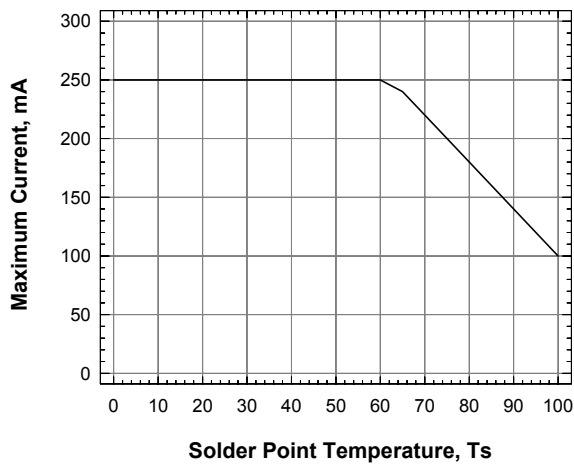
Wavelength Shift Vs Forward Current (True Green)



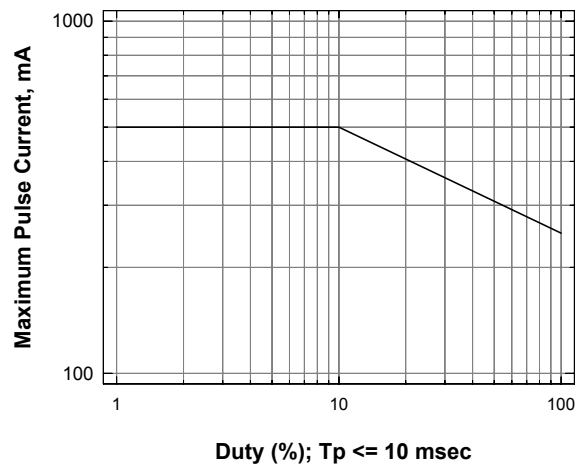
Wavelength Shift Vs Forward Current (Blue)



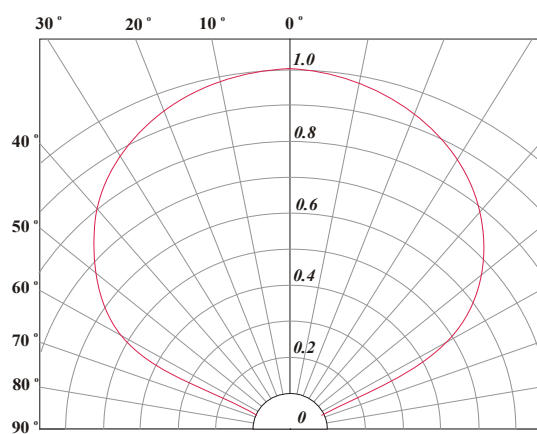
Maximum Current Vs Solder Point Temperature



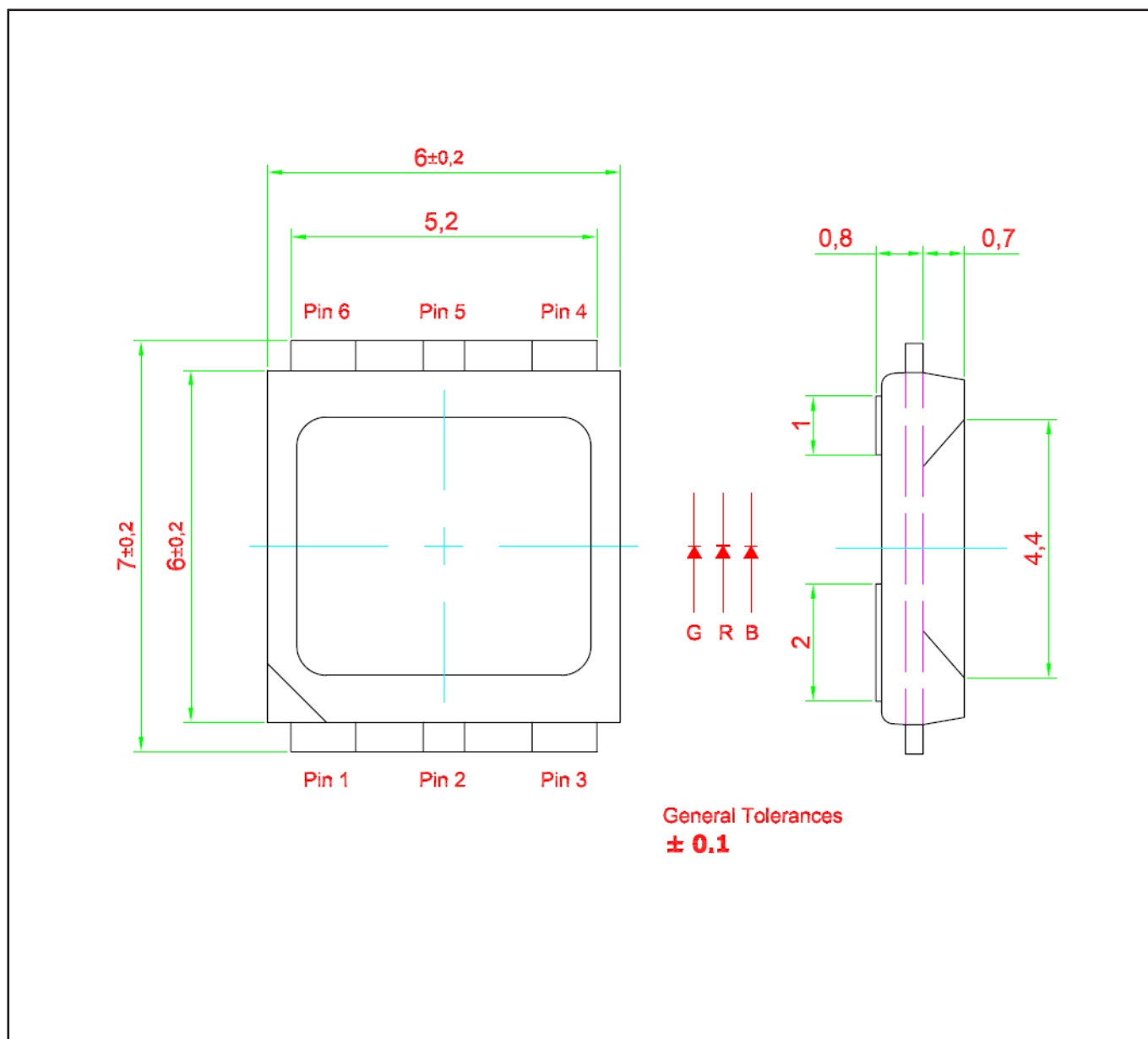
Maximum Pulse Current Vs Duty Cycle



Radiation Pattern



SPNova™ • RGB : 250 NMRTB-WSG Package Outlines



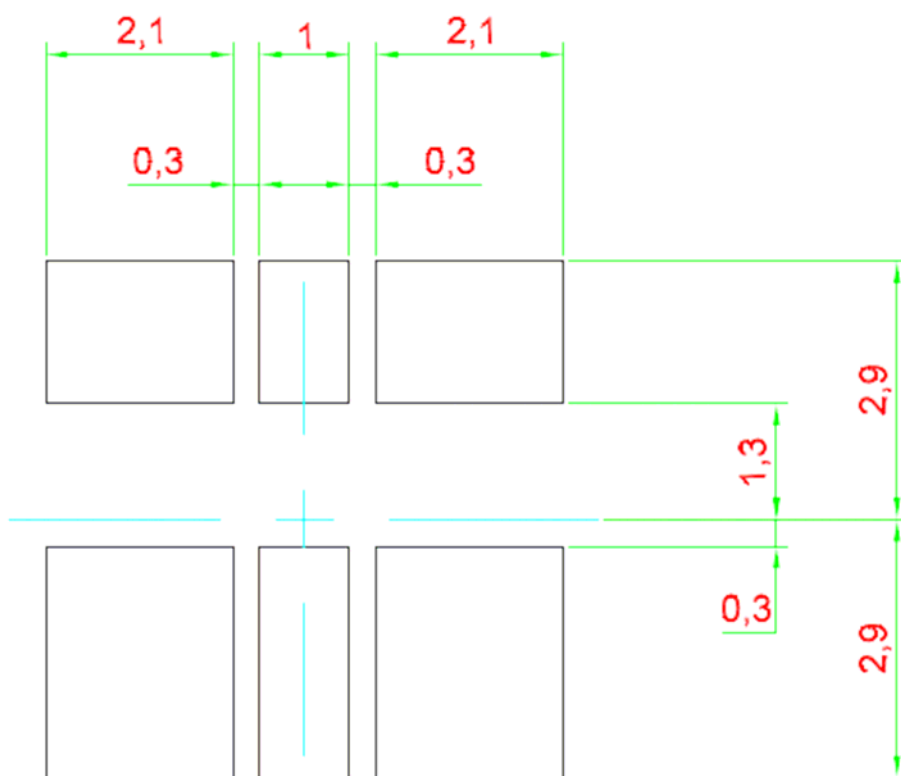
Material

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

Note: Product has no lead (Pb) content.

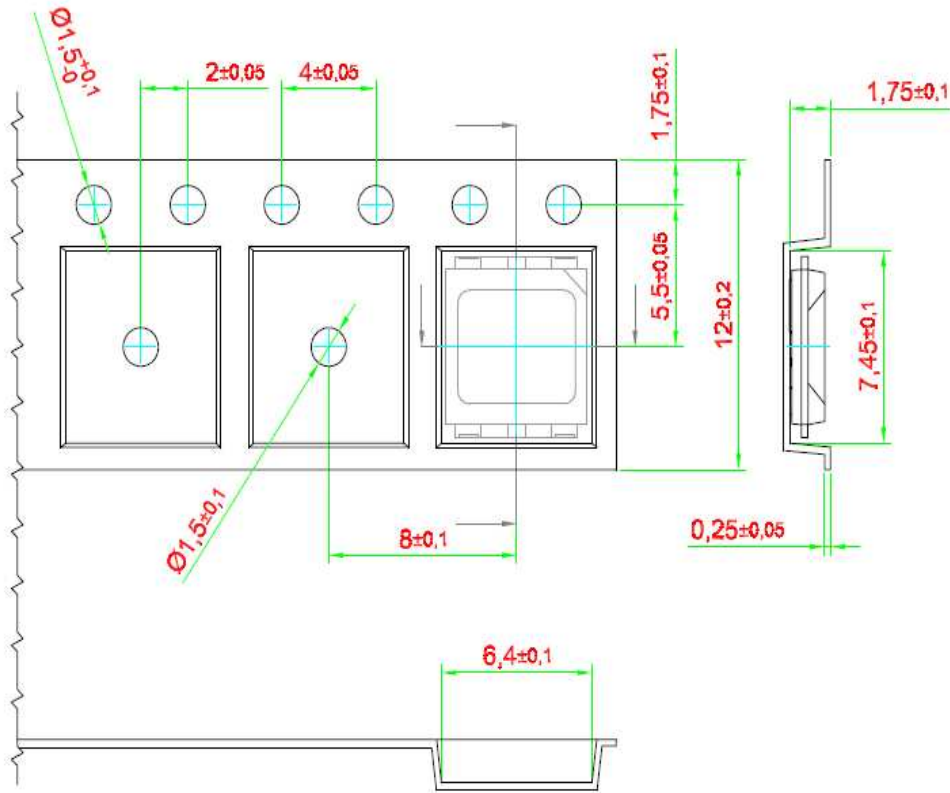
Solder Pad Design

Note: Metal core circuit board (MCPCB) is highly recommended for applications. Please consult sales and marketing for additional information.

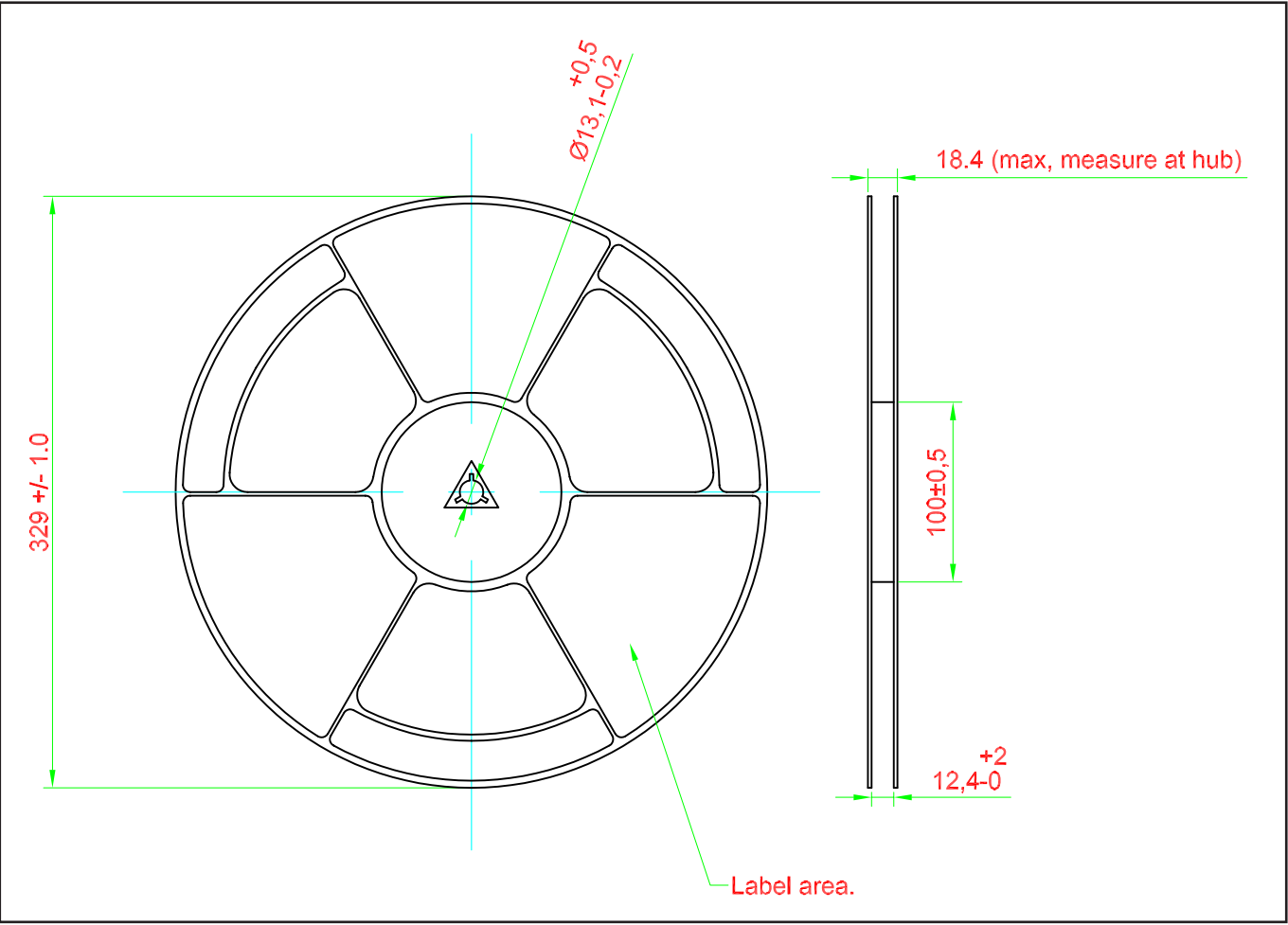


Taping and orientation

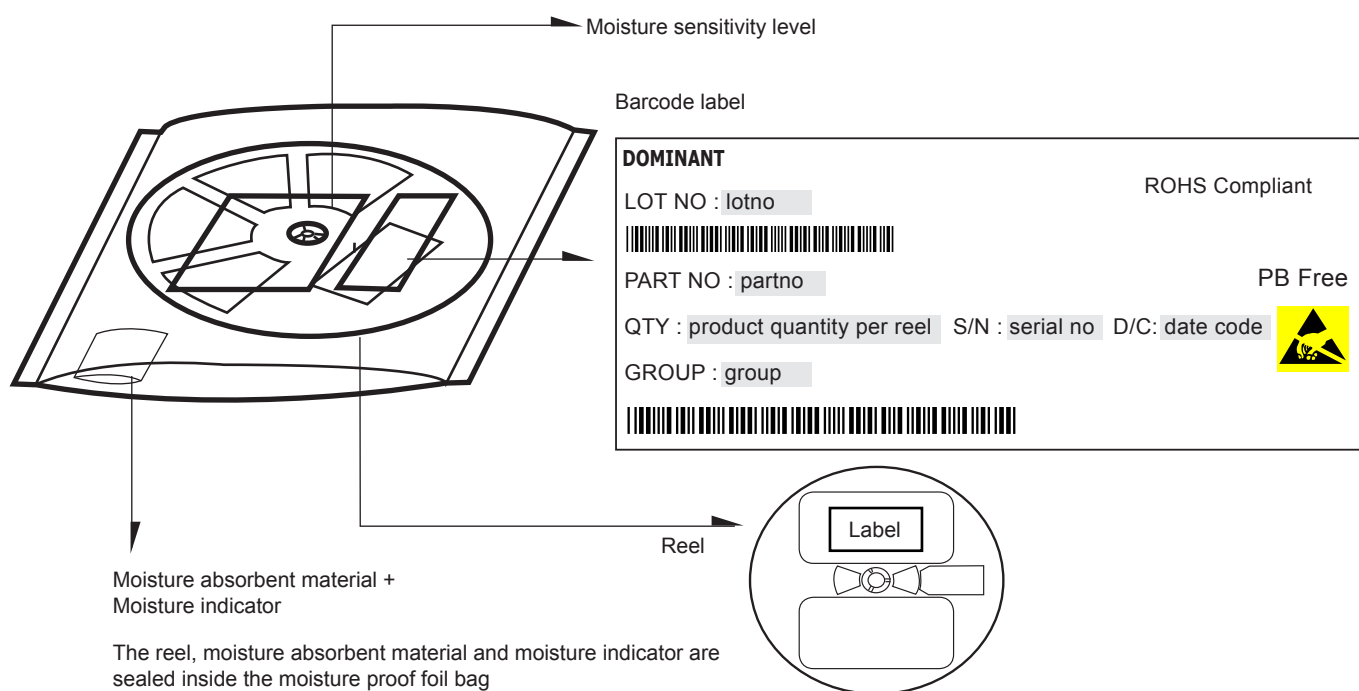
- Reels come in quantity of 2000 units.
- Reel diameter is 330 mm.



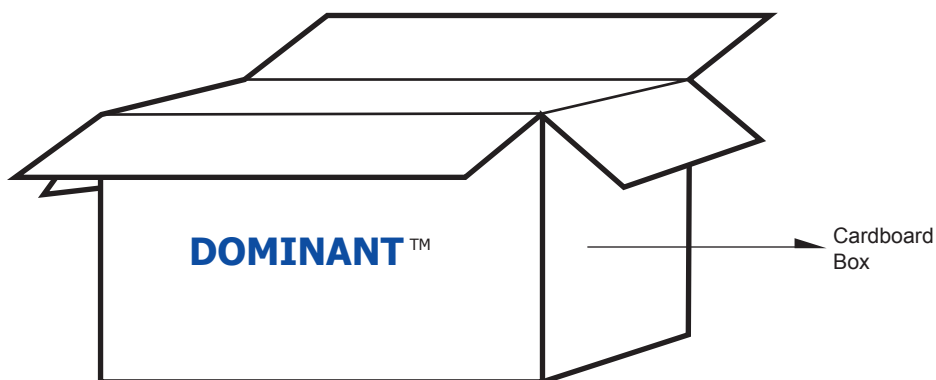
Packaging Specification



Packaging Specification



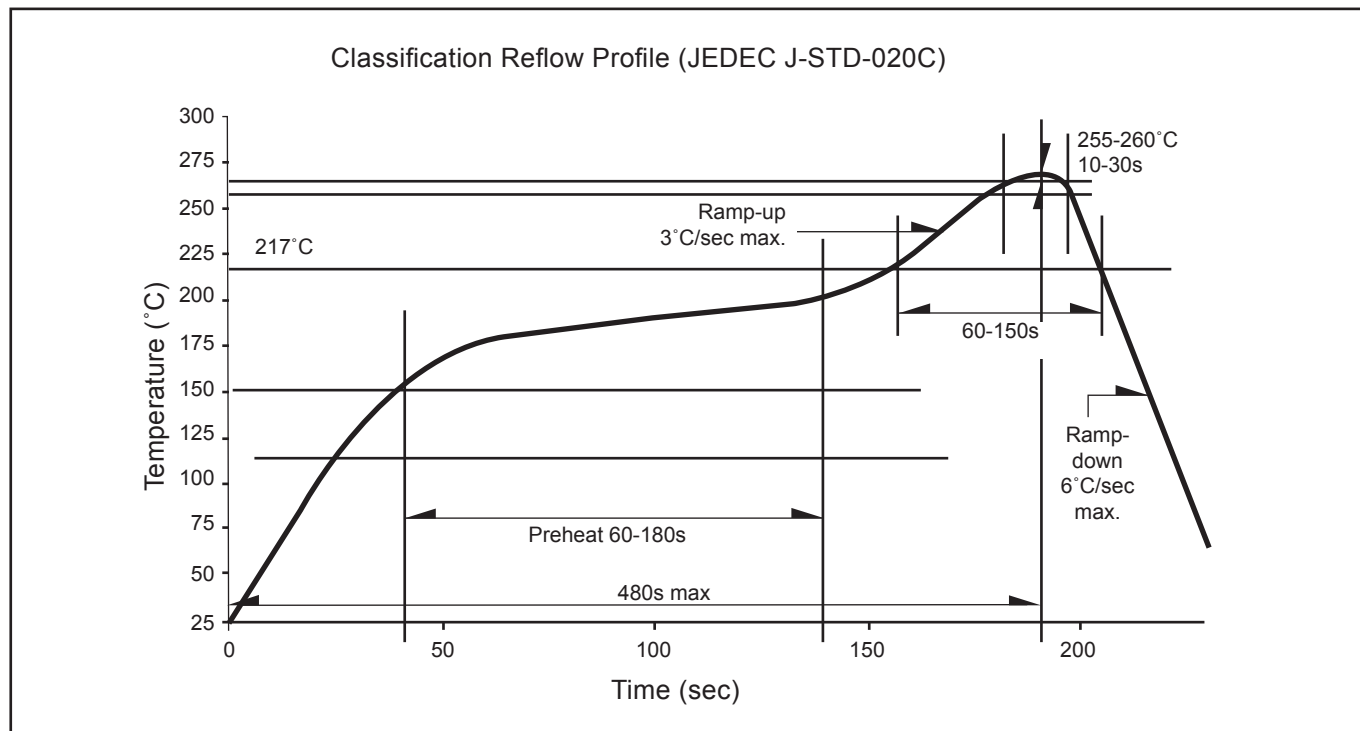
	Average 1pc SPNova	1 completed bag (2000pcs)
Weight (gram)	0.188	800 ± 10



For SPNova™

Cardboard Box Size	Dimensions (mm)	Empty Box Weight (kg)	Reel / Box	Quantity / Box (pcs)
Large	416 x 516 x 476	1.74	20 reels MAX	40,000 MAX

Recommended Pb-free Soldering Profile



Revision History

Page	Subjects	Date of Modification
-	Initial release	06 Oct 2010
2	Not for new design: NMRTB-WSG-AAB+ABD+YZ1-1 Add new partno: NMRTB-WSG-AAB+ABD+X2Y-1	20 Oct 2010
3	Add characteristics	05 Apr 2011
3	Update red color wavelength group	11 May 2011
-	Correction on SPNova	07 Jul 2011
13	Correction on SPNova	22 Aug 2011
2	Add Thermal Resistance	28 Sep 2011
8, 10	Update Carrier Tape Update quantity per reel	21 Sep 2012

NOTE

All the information contained in this document is considered to be reliable at the time of publishing. However, DOMINANT Opto Technologies does not assume any liability arising out of the application or use of any product described herein.

DOMINANT Opto Technologies reserves the right to make changes to any products in order to improve reliability, function or design.

DOMINANT Opto Technologies products are not authorized for use as critical components in life support devices or systems without the express written approval from the Managing Director of DOMINANT Opto Technologies.

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>.

Please contact us for more information:

Head Quarter

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

DOMINANT Opto Technologies Sdn. Bhd. Shanghai Representative Office

Rm 305, Hongwell International Plaza No. 1600 Zhong Shan(W) Rd, Xuhui District, Shanghai, China 200235
Tel: +86 21 5403 5655, +86 21 5403 5818 Fax: +86 21 5403 6055
E-mail: sales_china@dominant-semi.com

DOMINANT Opto Technologies Sdn. Bhd. Shenzhen Representative Office

Rm 1808, Block B, South International Plaza No 3013, Yitian Road, Futian District, Shenzhen, 518048 P.R. China
Tel: +86 755 8282 1781
E-mail: sales_china@dominant-semi.com

DOMINANT Korea Sales Office

DOMINANT Semiconductors Korea Inc.
RM 211 SUNTEAK CITY APT. 513-15 Sangdaewon-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do, 462-725, Korea
Tel: +82-31-701-5203 Fax: +82-31-701-5204
E-mail: sales_korea@dominant-semi.com

DOMINANT U.S.A Sales Office

25 Rockaway Road, 08833 Lebanon, New Jersey, USA
Tel: (908) 439-9930 Cell: (908) 343-5810 Fax: (908) 439-9929
E-mail: don.wendel@dominant-semi.com

DOMINANT Europe Sales Office

DOMINANT Semiconductors Europe GmbH
Raiffeisenstr. 38, 74906 Bad Rappenau Germany
Tel: +49 (0) 7264-89010-10 / +49 (0) 7264-89010-11 Cell: +49 173-6907370 / +49 173-6907751
Fax: +49 (0) 7264-89010-29
E-mail: gerd.wachno@dominant-semi.eu; hartmut.wettengl@dominant-semi.eu

DOMINANT India Sales Office

C-11,Vasanth Business Centre #86, TTK Road, Alwarpet Chennai - 600 018, INDIA
Tel: 91-44-42030616 / 516 Cell: 91-9444920537 Fax: 91-9444920616
E-mail: pravat.behera@dominant-semi.com

