

### SPNovaLED<sup>™</sup>

Featuring a staggering brilliance and significant flux output, the SPNovaLED<sup>™</sup> 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; typically 250 mA.
- > Low junction-to-solder point thermal resistance;  $R_{TH\ j_s} = 50\ K/W$ .
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > SP NovaLED are Class 1M LED products. Do not view directly with optical instrument.

### Applications:

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

**Optical Characteristics at Ta=25°C, If = 250mA**

Part Number	IV Bin	Intensity @ If=250mA (mcd)		Viewing Angle°
		Min.	Max.	
<b>NMRTB-USS-1</b>				
• Red	Z2	5,600	7,150	130
	AA	7,150	9,000	
• True Green	AB	9,000	11,250	
	AC	11,250	14,000	
• Blue	X2	2,240	2,850	
	Y1	2,850	3,550	

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

**Wavelength Grouping at Ta=25°C**

Color	Group	Wavelength distribution (nm)
Red	Full	620 - 630
True Green	A	521 - 526
	B	526 - 531
	C	531 - 536
Blue	A	465 - 470
	B	470 - 475

Dominant wavelength is measured with an accuracy of ± 1 nm.

**Electrical Characteristics at Ta=25°C**

Part Number	Vf @ If = 250mA			Vf @ If = 350mA
	Min. (V)	Typ. (V)	Max. (V)	Typ. (V)
<b>NMRTB-USS-1</b>				
• Red	2.2	2.5	2.8	2.6
• True Green	3.2	3.5	3.8	3.7
• Blue	3.2	3.4	3.8	3.6

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

## Correlation Between Luminous Intensity And Luminous Flux

Color	IV Bins	Luminous Intensity (mcd)		Luminous Flux (lm)	
		Min.	Max.	Min.	Max.
Red	Z2	5,600	7,150	16.8	21.5
	AA	7,150	9,000	21.5	27.0
True Green	AB	9,000	11,250	26.1	32.6
	AC	11,250	14,000	32.6	40.6
Blue	X2	2,240	2,850	5.94	7.55
	Y1	2,850	3,550	7.55	9.41

Note: Data provided above is based on approximation

## Material

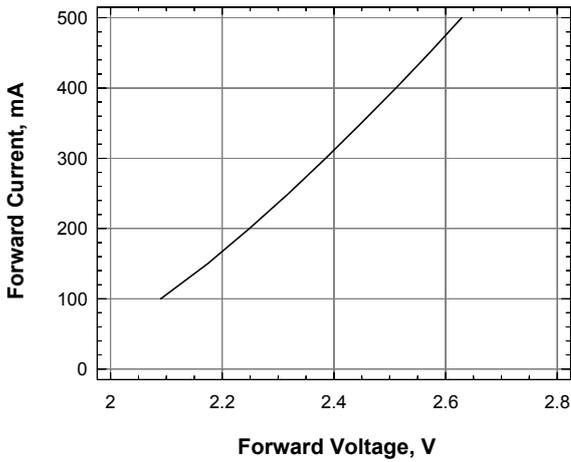
Material	
Lead-frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulate	Silicone Resin
Soldering Leads	Sn-Sn Plating

Note: Product has no lead (Pb) content.

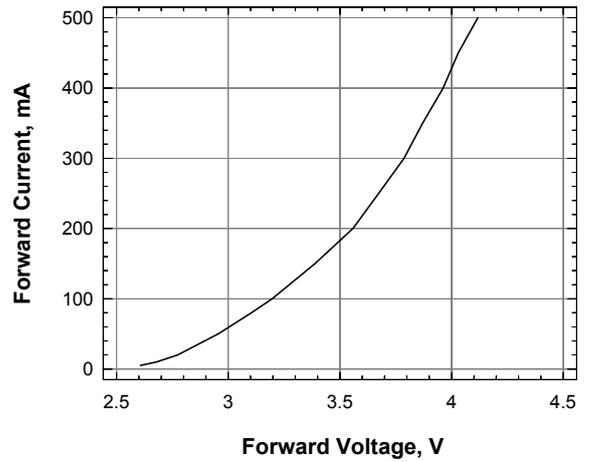
## Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current (per chip)	250	mA
Peak pulse current (per chip). (D ≤ 10%; Tp ≤ 10 msec)	500	mA
Reverse Voltage	Not designed for reverse bias drive	V
ESD Threshold (HBM)	2	kV
LED junction temperature	125	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C

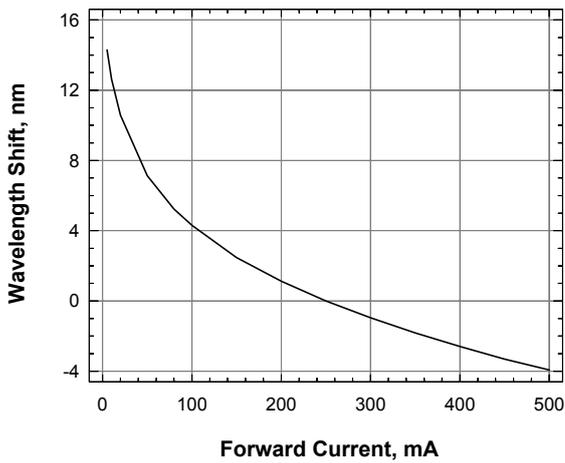
**Forward Current Vs Forward Voltage (Red)**



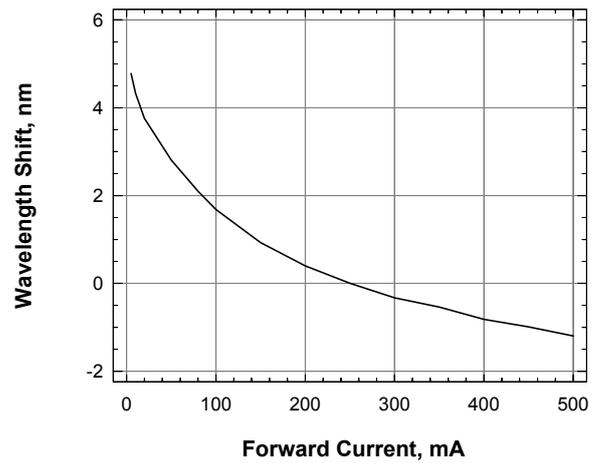
**Forward Current Vs Forward Voltage (Blue and True Green)**



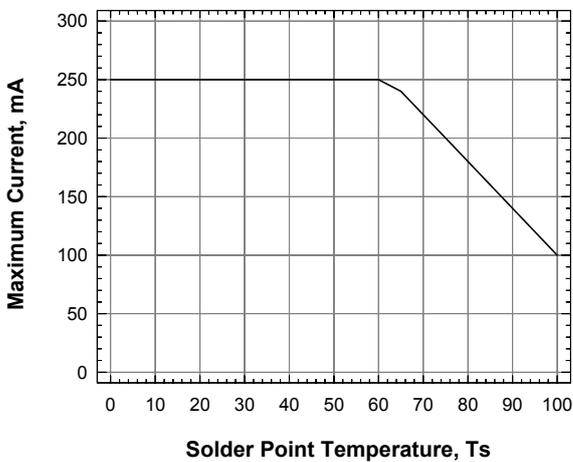
**Wavelength Shift Vs Forward Current (True Green)**



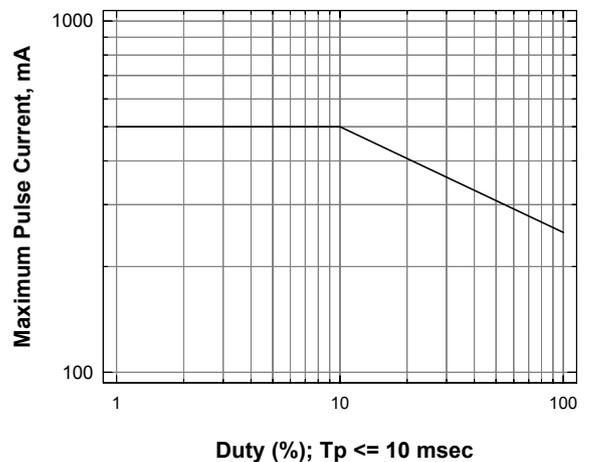
**Wavelength Shift Vs Forward Current (Blue)**



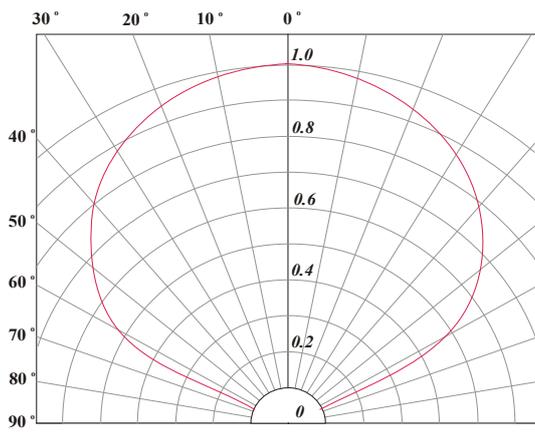
**Maximum Current Vs Solder Point Temperature**



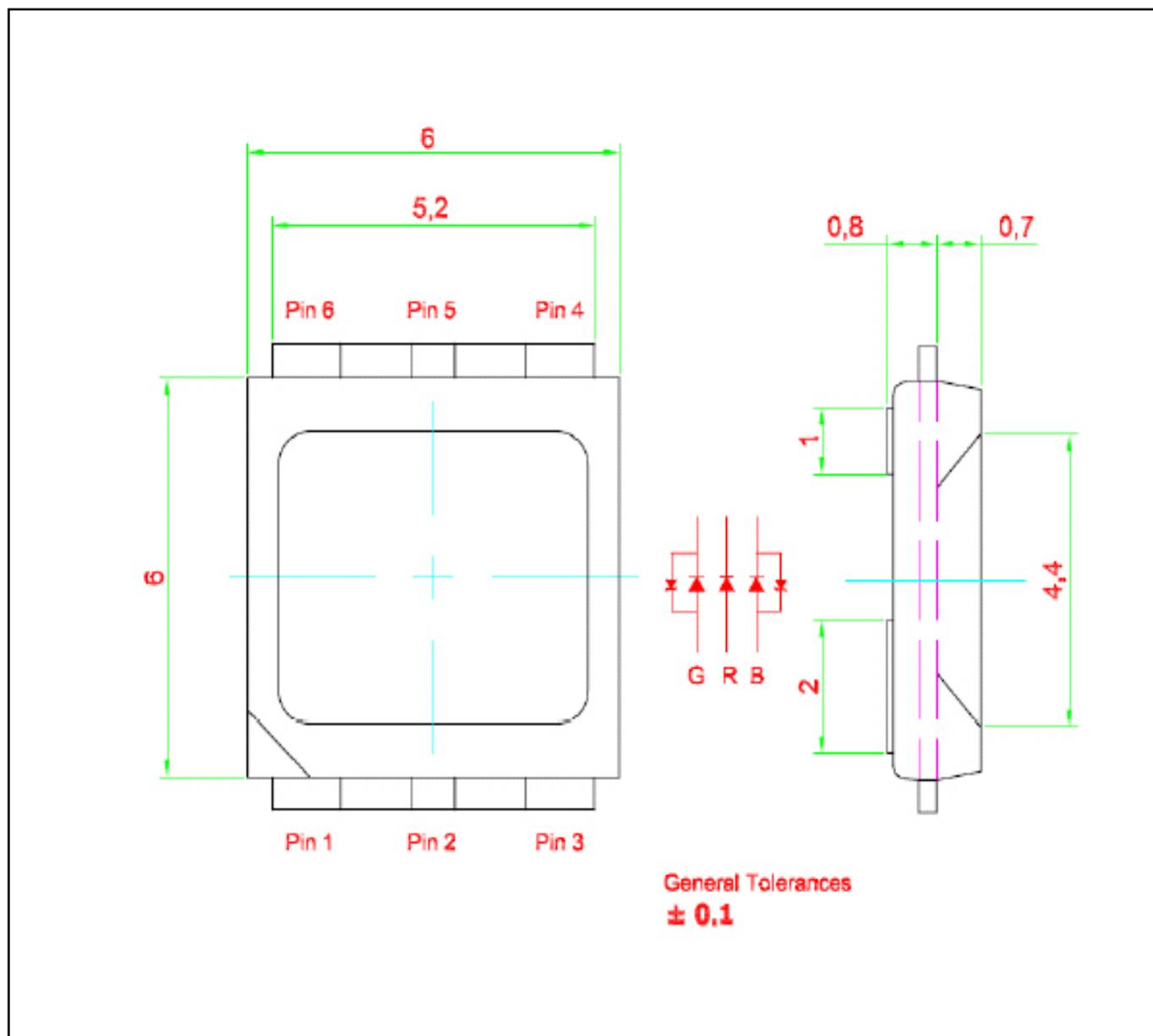
**Maximum Pulse Current Vs Duty Cycle**



**Radiation Pattern**

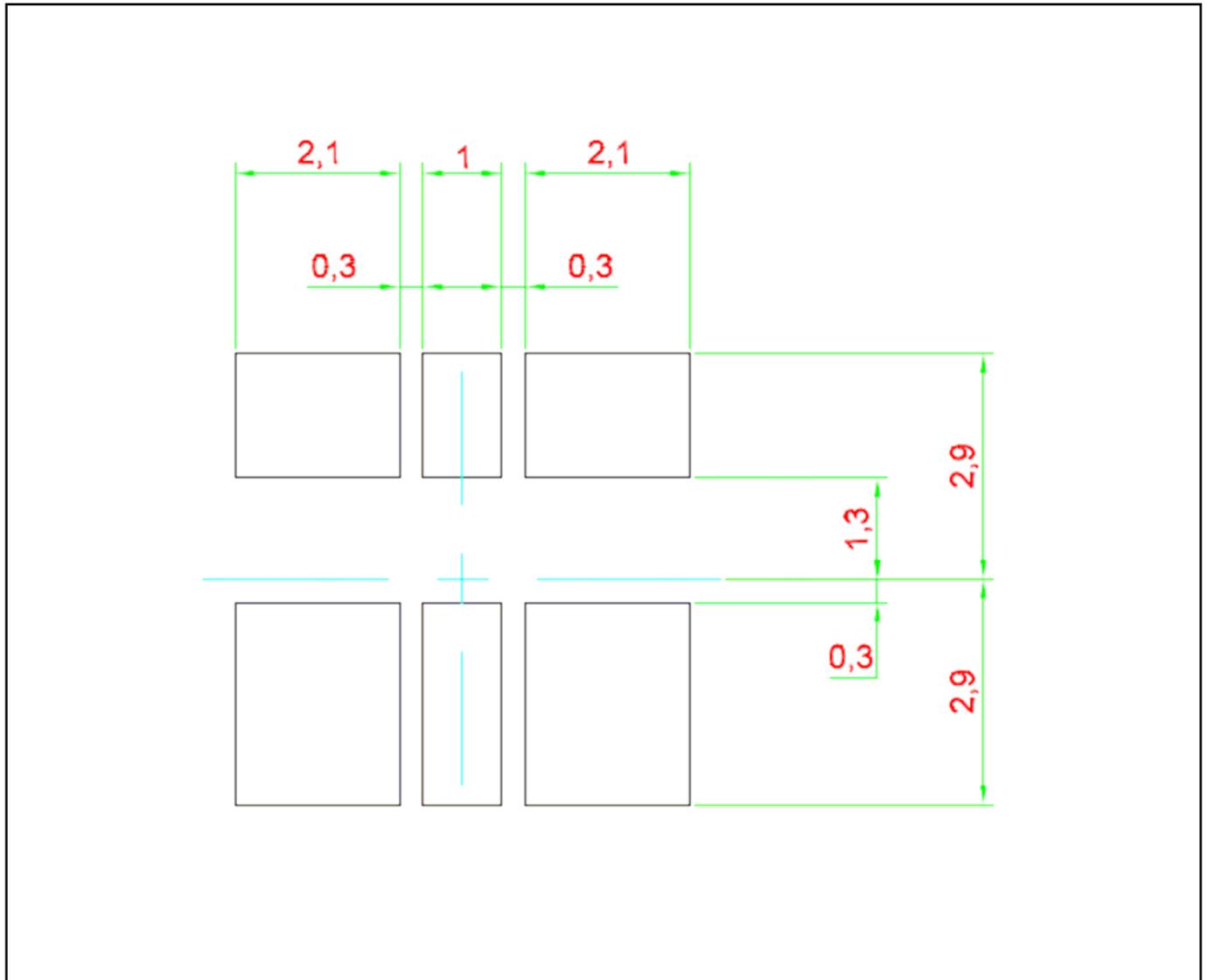


**SPNovaLED™ • RGB : 250 Package Outlines**



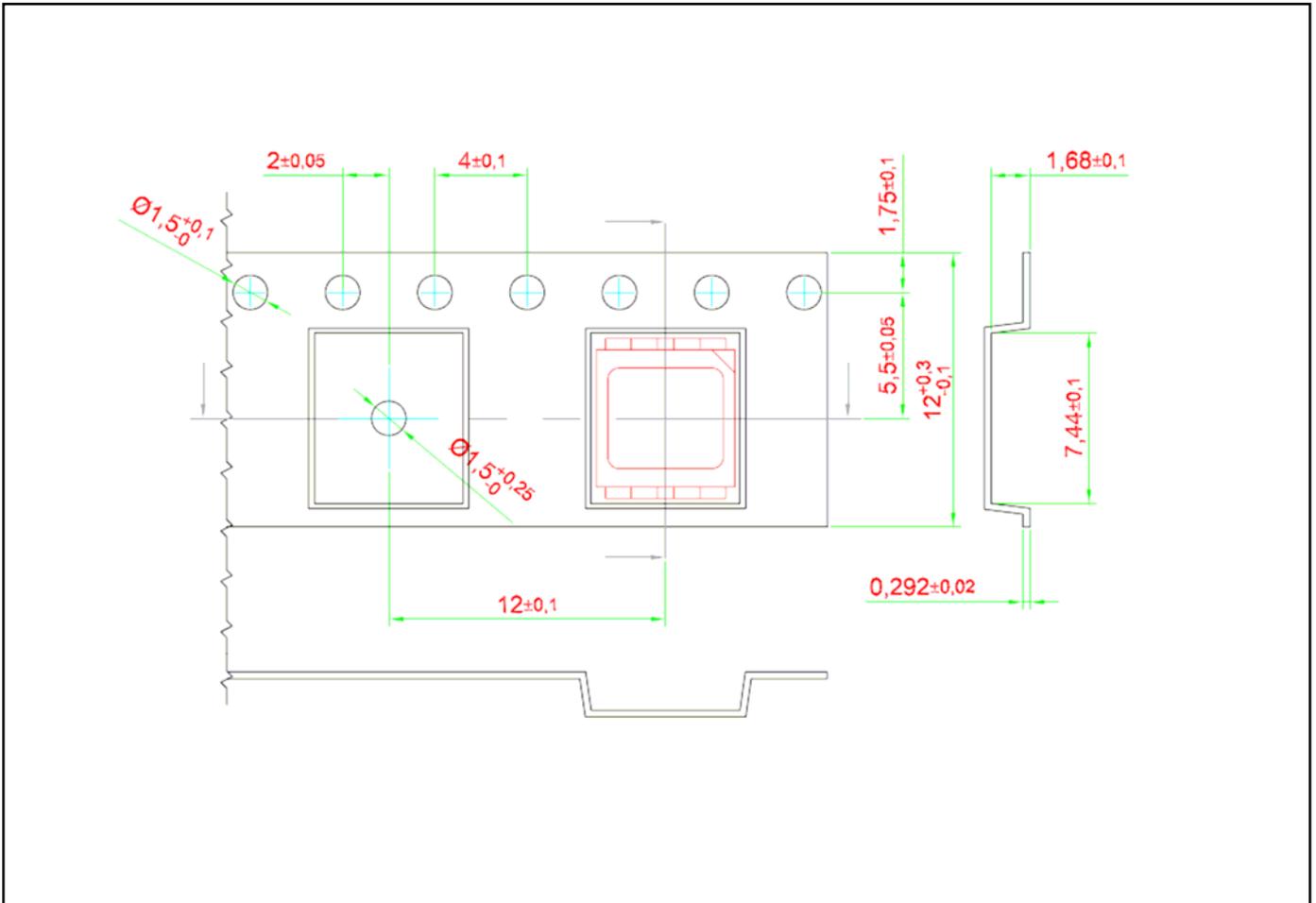
## Solder Pad Design

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

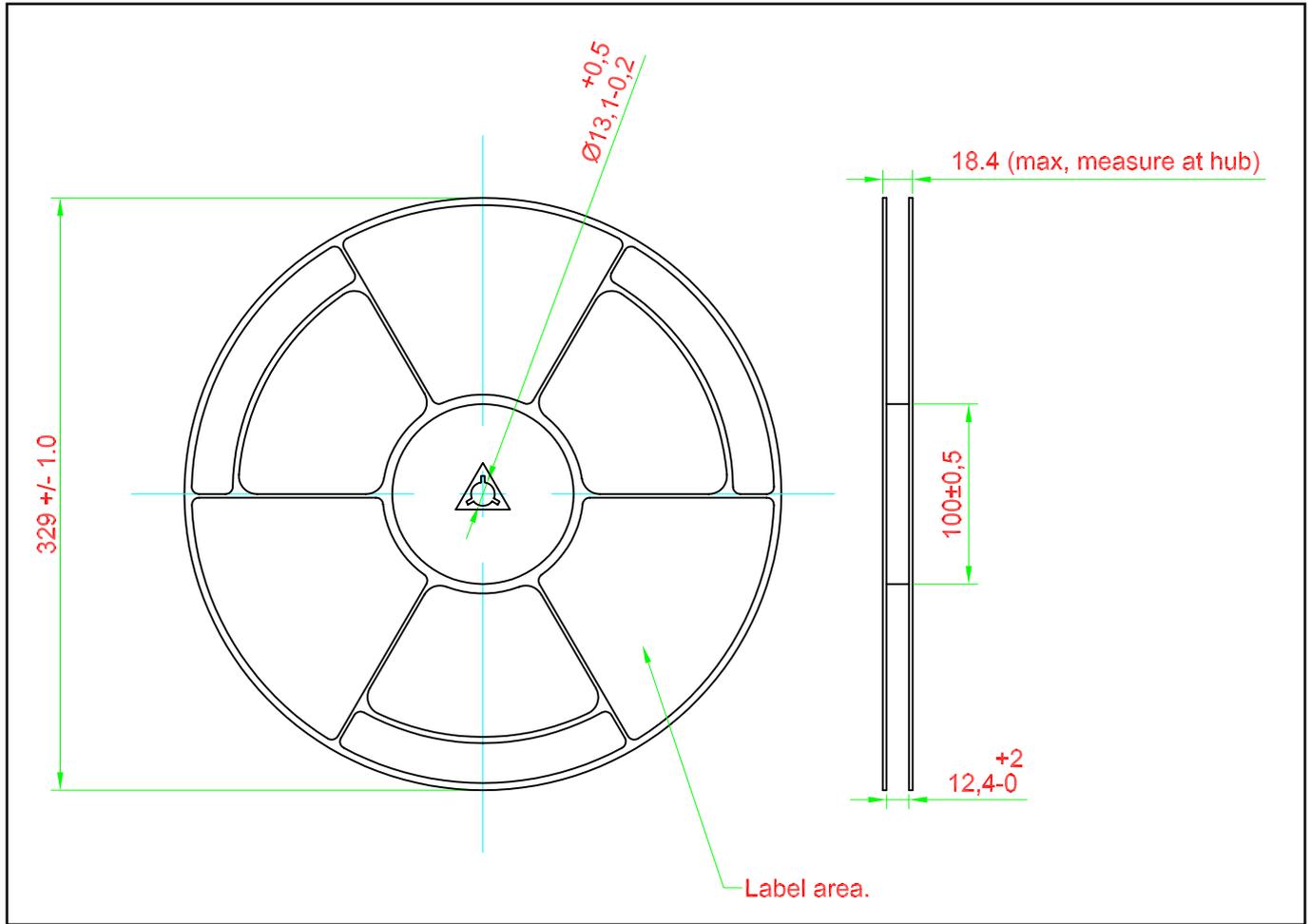


### Taping and orientation

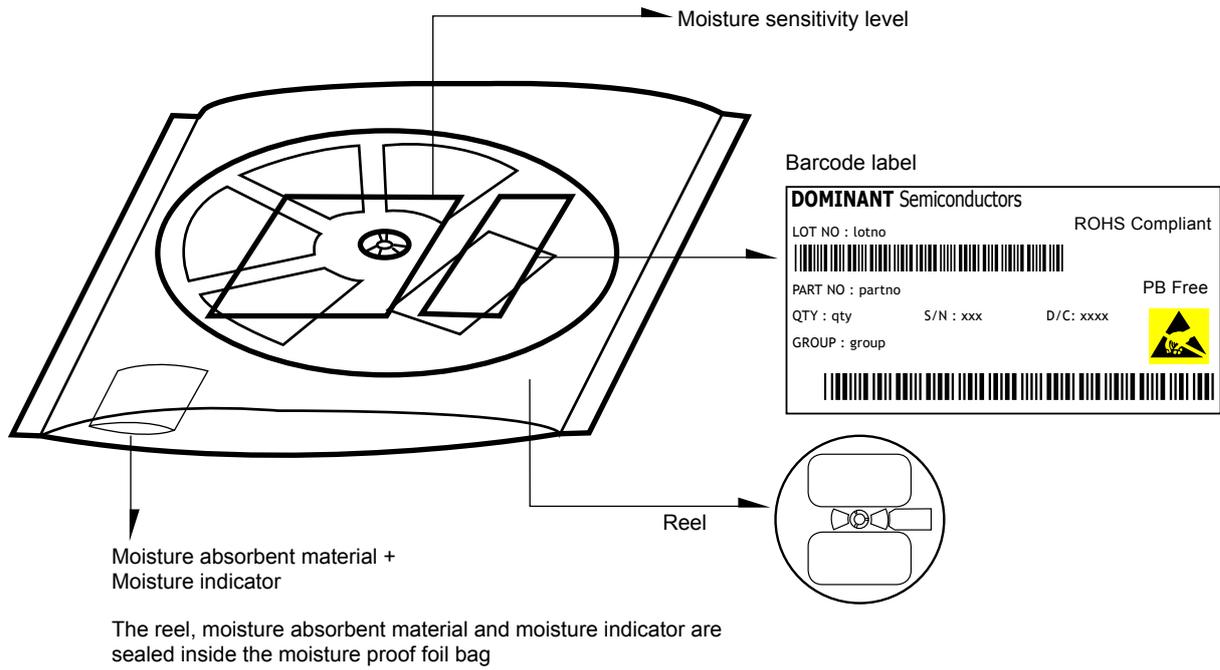
- Reels come in quantity of 1000 units.
- Reel diameter is 330 mm.



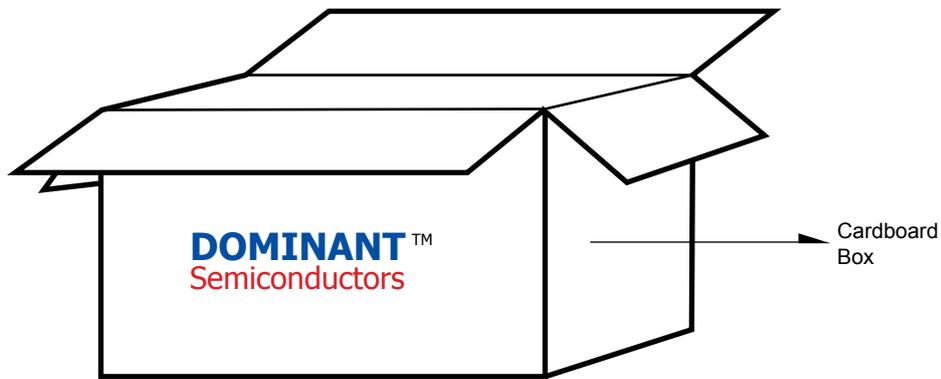
**Packaging Specification**



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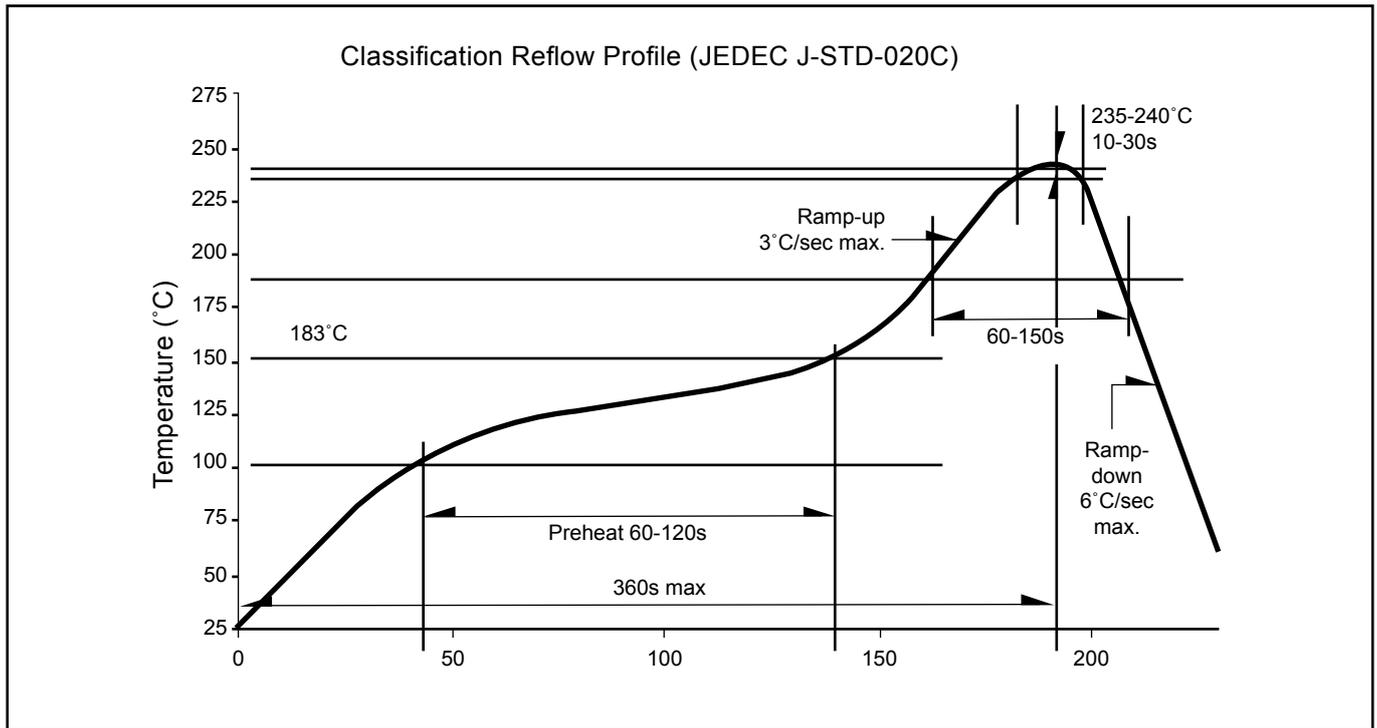
	Average 1pc SPNovaLED	1 completed bag (1000pcs)
Weight (gram)	0.188	600 ± 10



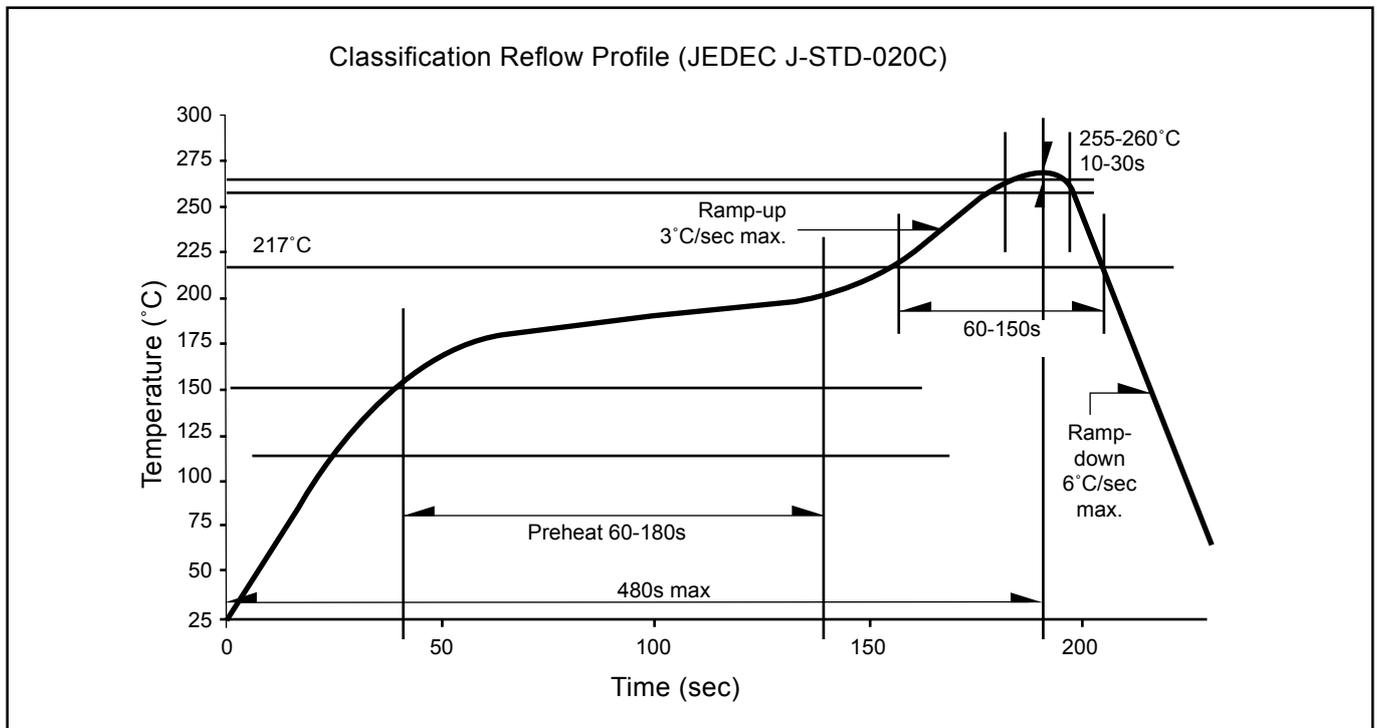
**For SPNovaLED™**

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	20,000 MAX

**Recommended Sn-Pb IR-Reflow Soldering Profile**



**Recommended Pb-free Soldering Profile**



**Revision History**

Page	Subjects	Date of Modification
-	- Change New Format	08 Feb 2007
1	- Add $R_{TH_{js}} = 50 \text{ K/W}$	08 Feb 2007
2	- Amendment on Wavelength Grouping for Red and True Green	08 Feb 2007

**NOTE**

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## About Us

DOMINANT Semiconductors 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 Semiconductors can be found on the Internet at <http://www.dominant-semi.com>.

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