

### 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.
- > 45° viewing angle.
- > Compact package outline (LxWxH) of 6.0 x 6.0.
- > Designed for high current drive; Maximum 350 mA.
- > Low thermal resistance;  $R_{th(jc)} = 20$  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:

- > Automotive: exterior applications, eg: Center High Mounted Stop Light (CHMSL), Rear Combination Lights (RCLs), Signal lighting, Fog-lamp, etc.
- > Communication: indicator and backlight in mobilephone.
- > Industry: white goods (eg: Oven, microwave, etc.).
- > Lighting: garden light, architecture lighting, general lighting. etc

**Optical Characteristics at Tj=25°C**

Part Ordering Number	Chip Technology / Color	Viewing Angle°	Luminous Intensity @ IF = 350mA (mcd)
NPB-US4-AAC-1*	InGaN	45	7150.0 - 14000.0
• NPB-US4-AA	Blue, 470		7150.0 - 9000.0
• NPB-US4-AB			9000.0 - 11250.0
• NPB-US4-AC			11250.0 - 14000.0
<b>NPB-US4-ACE-1</b>			<b>11250.0 - 22400.0</b>
• NPB-US4-AC			11250.0 - 14000.0
• NPB-US4-AD			14000.0 - 18000.0
• NPB-US4-AE			18000.0 - 22400.0

\* Not for new design

**NOTE**

- Luminous intensity is measured with an accuracy of ± 11%.
- Wavelength binning is carried for all units as per the wavelength-binning table. Only one wavelength group is allowed for each reel.

**Wavelength Grouping at Tj=25°C**

Color	Group	Wavelength distribution (nm)
NPB; Blue	Full	464 - 476
	A	464 - 470
	B	470 - 476

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

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

Part Number	Color	Vf @ If = 350mA	
		Typ. (V)	Max. (V)
NPB-US4	Blue	3.6	4.0

Forward voltages are measure using a current pulse of 1 ms and with an accuracy of ± 0.1V.

**Material**

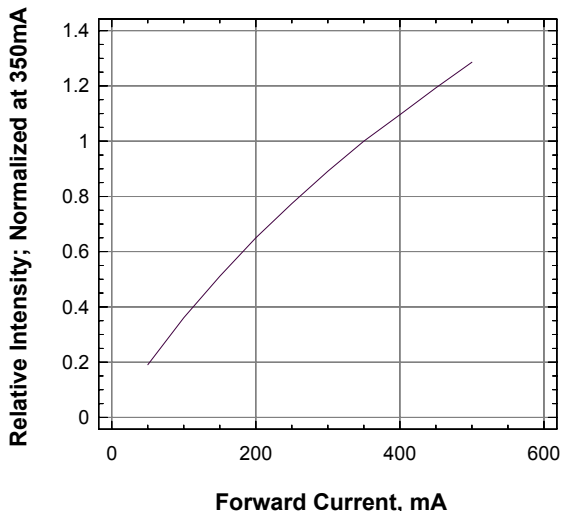
Material	
Lead-Frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulate	Silicone Resin
Soldering Leads	Sn-Sn Plating

Note: Product has no lead (Pb) content

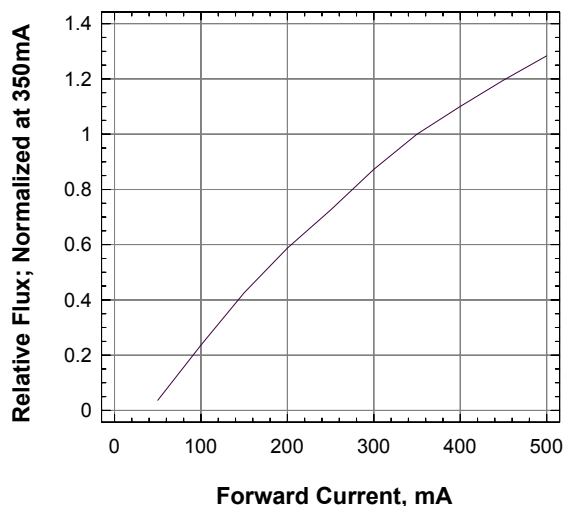
**Absolute Maximum Ratings**

	Maximum Value	Unit
DC forward current.	350	mA
Peak pulse current	1000	mA
Reverse voltage	Not designed for reverse bias	V
ESD threshold (HBM)	2000	V
LED junction temperature	120	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C

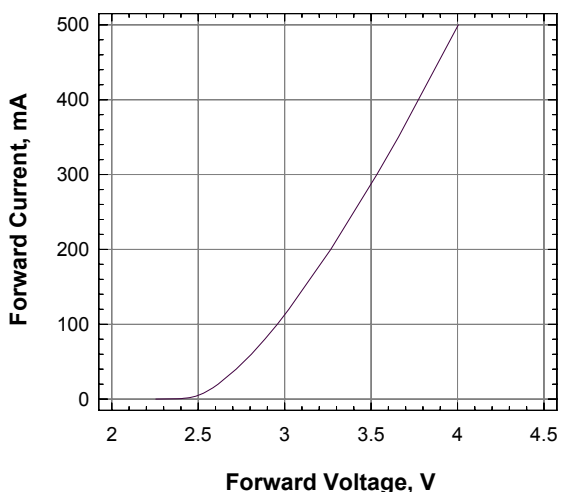
**Relative Intensity Vs Forward Current**



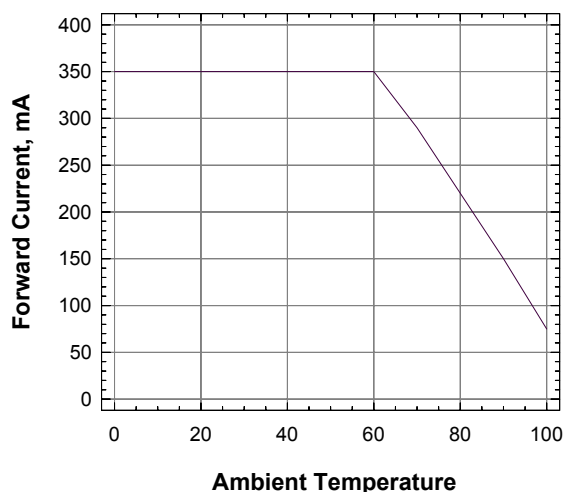
**Relative Flux Vs Forward Current**



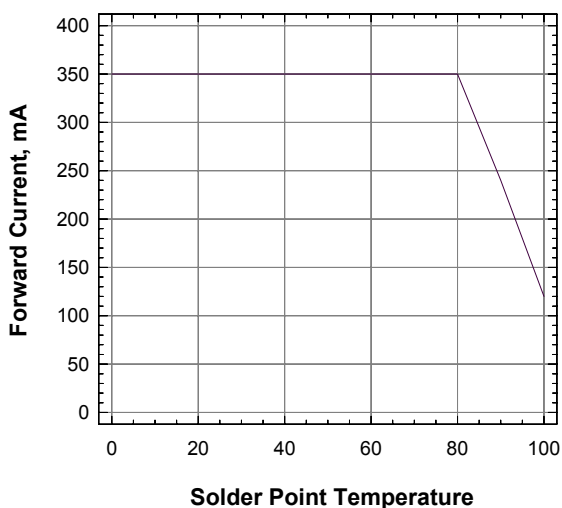
**Forward Current Vs Forward Voltage**



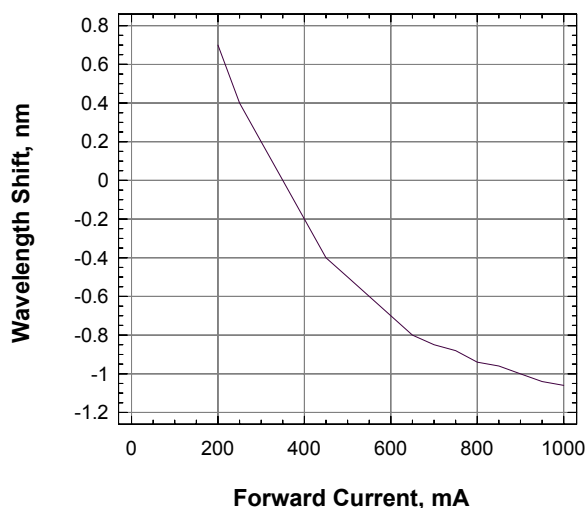
**Forward Current Vs Ambient Temperature (Rja=40K/W)**



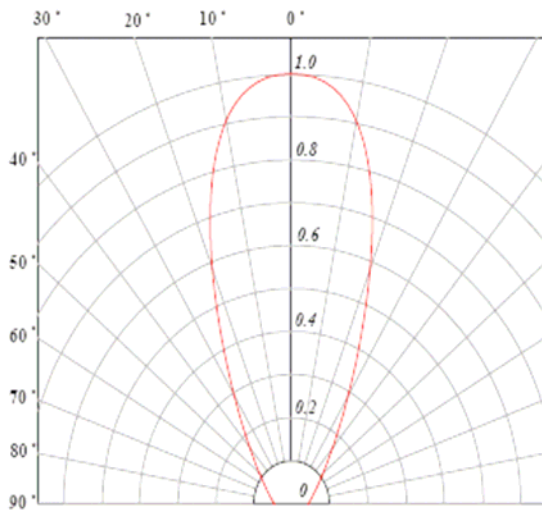
**Forward Current Vs Solder Point Temperature**



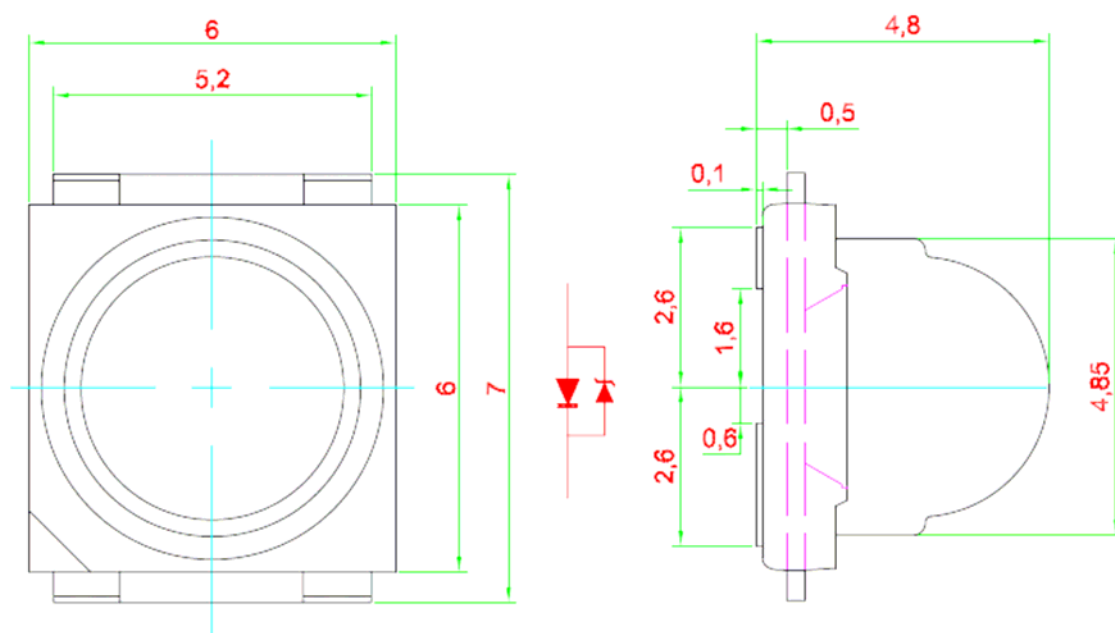
**Dominant Wavelength Shift Vs Forward Current**



**Radiation Pattern**



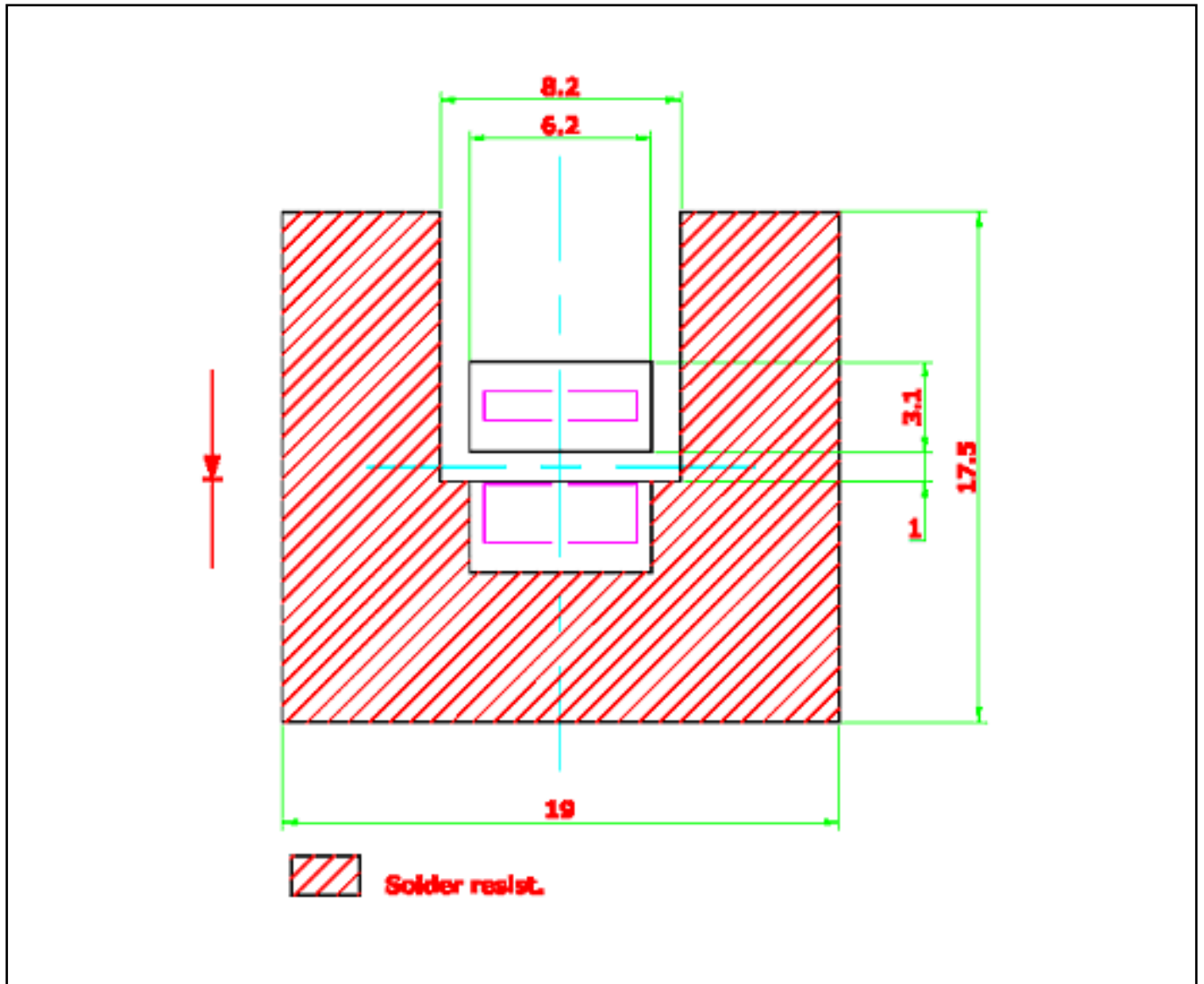
**SPNovaLED™ • InGaN with Lens : 350 Package Outlines**



General Tolerances  
**± 0.20**

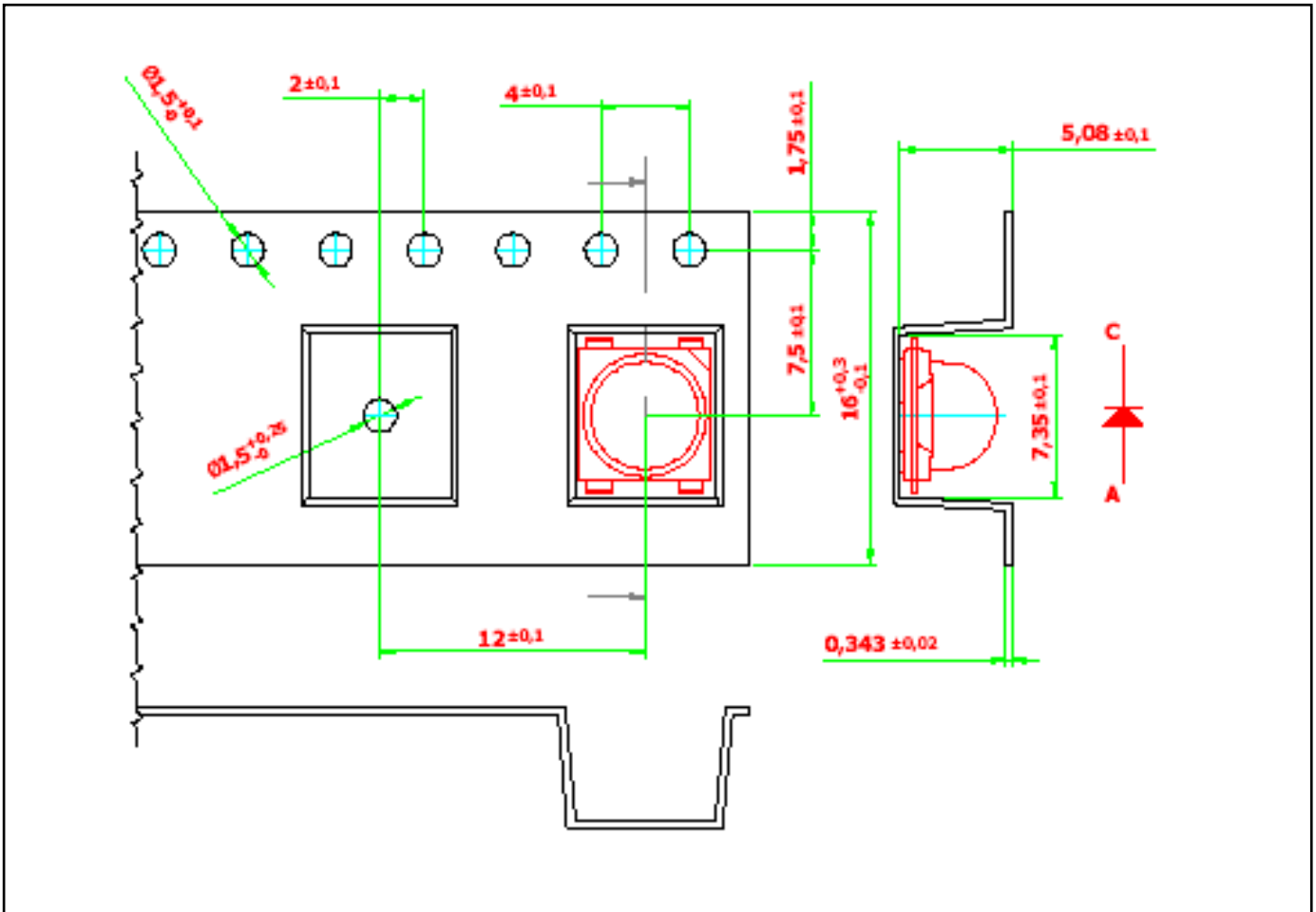
### Solder Pad Design

Note: Unit to unit pitching must not be less than 25 mm. Metal core circuit board (MCPCB) is highly recommended for high density applications. Please consult sales and marketing for additional information.



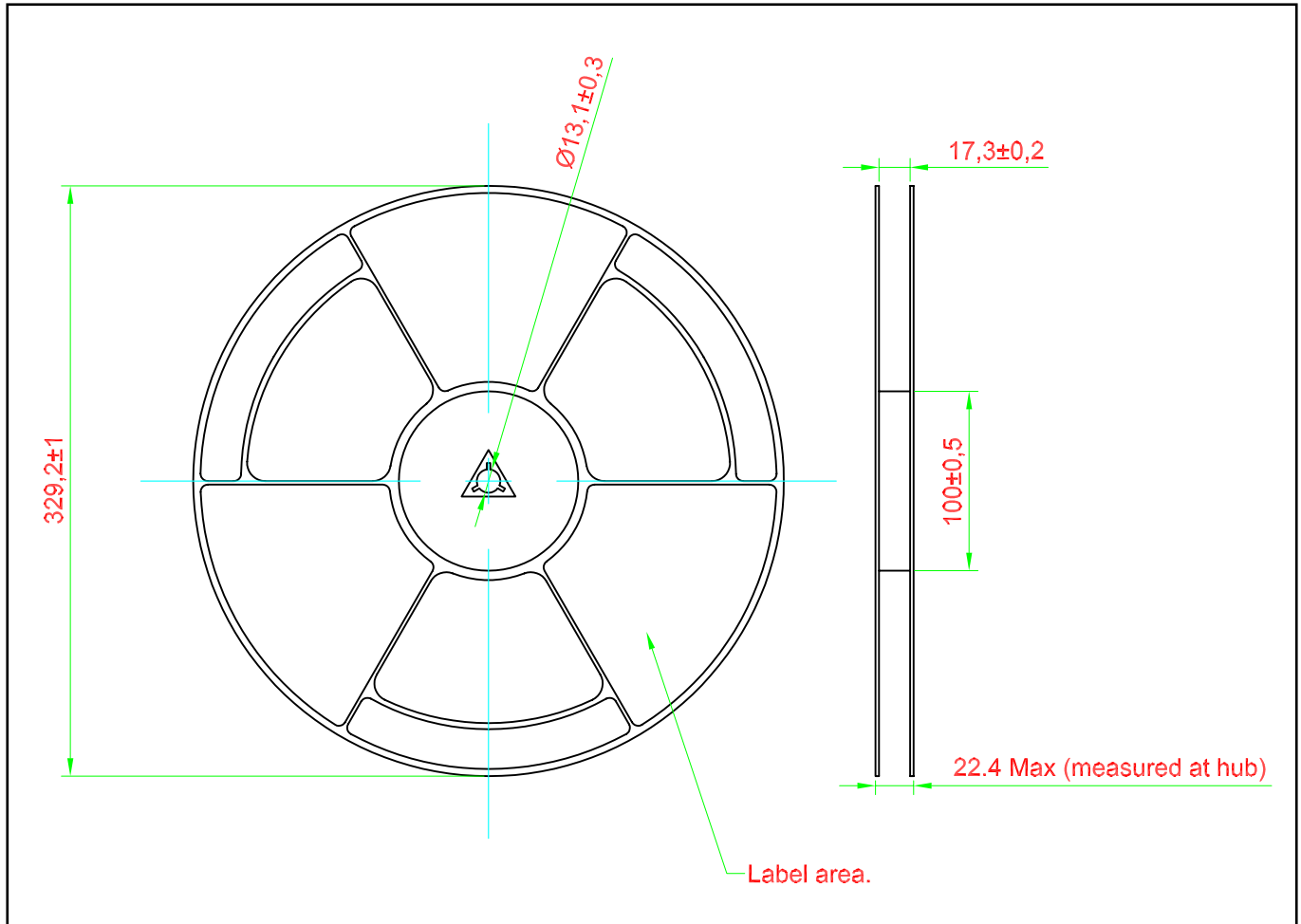
**Taping and orientation**

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

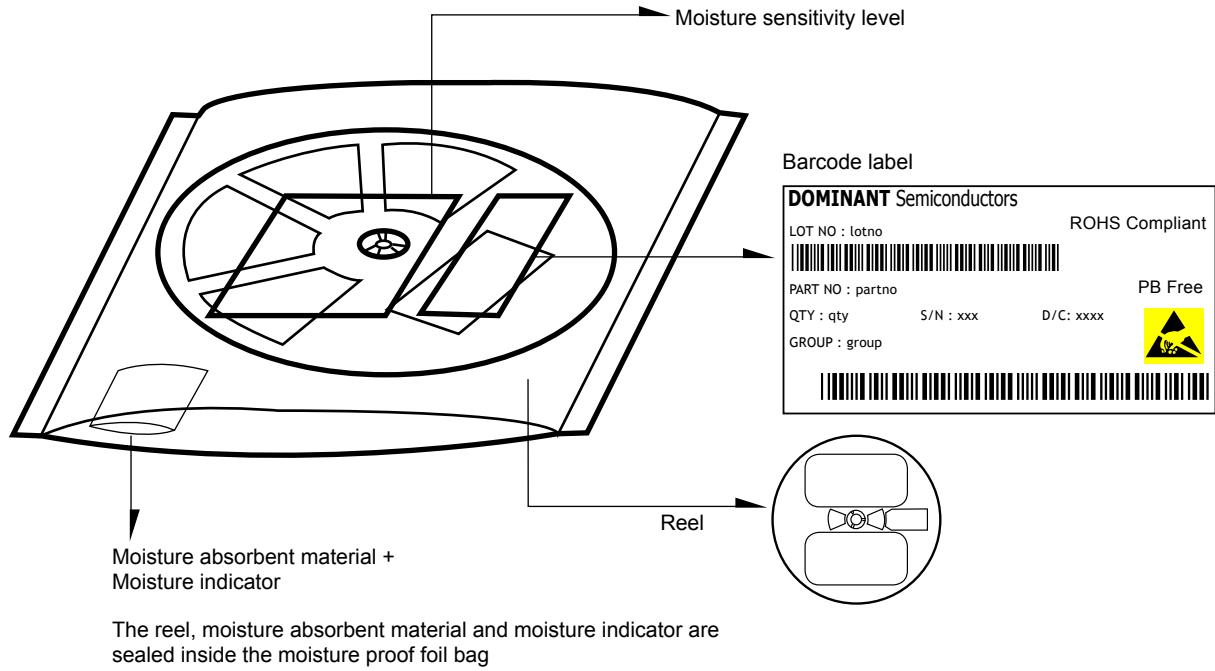




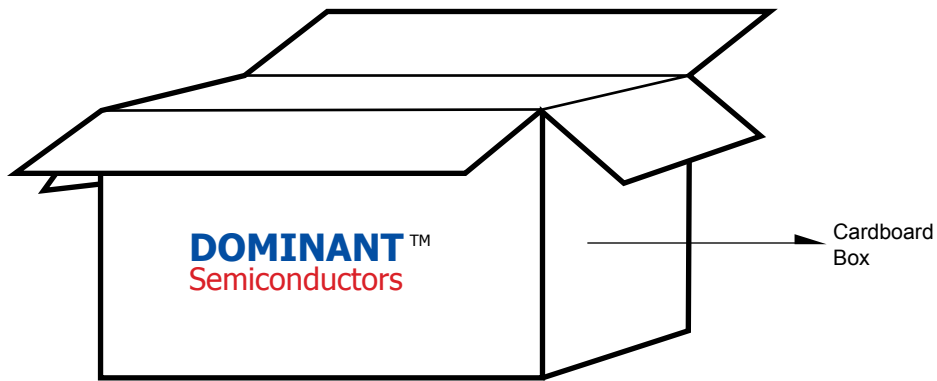
**Packaging Specification**



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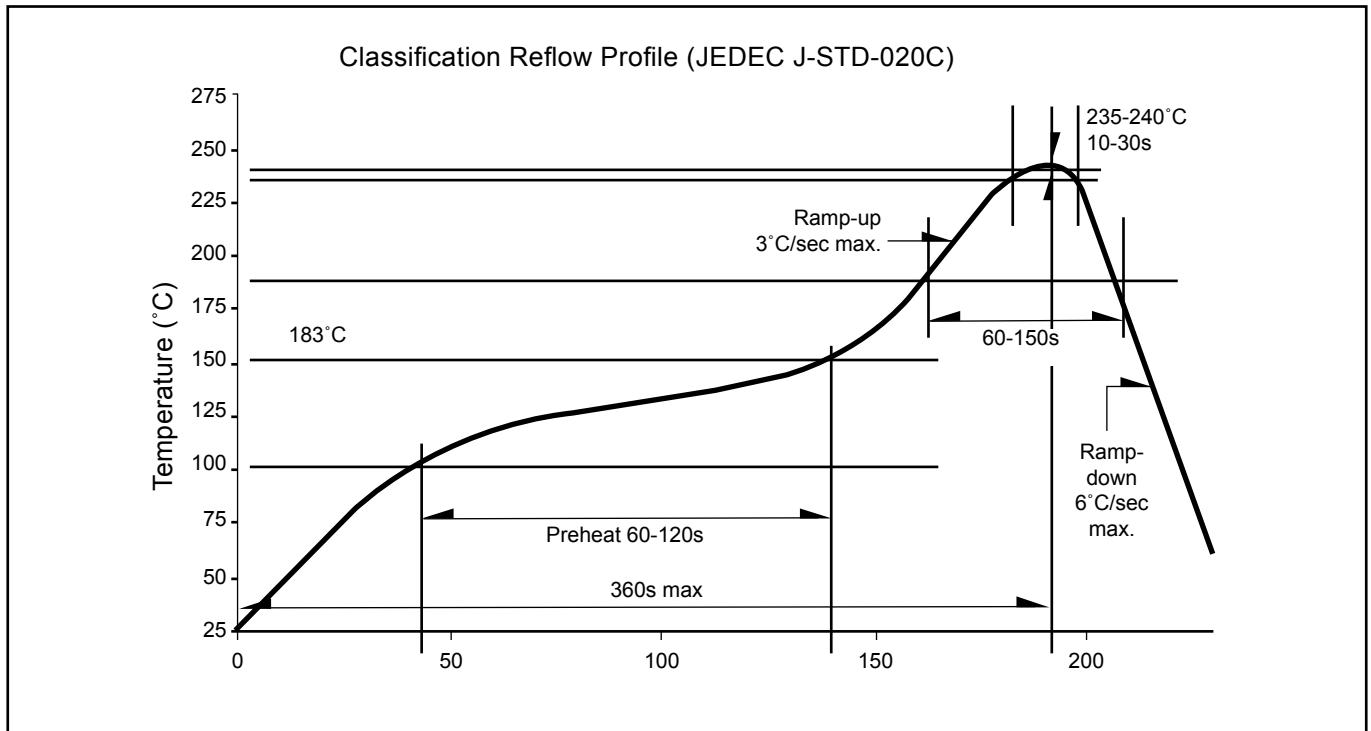
	Average 1pc SPNovaLED	1 completed bag (1000pcs)
Weight (gram)	0.248	600 ± 10



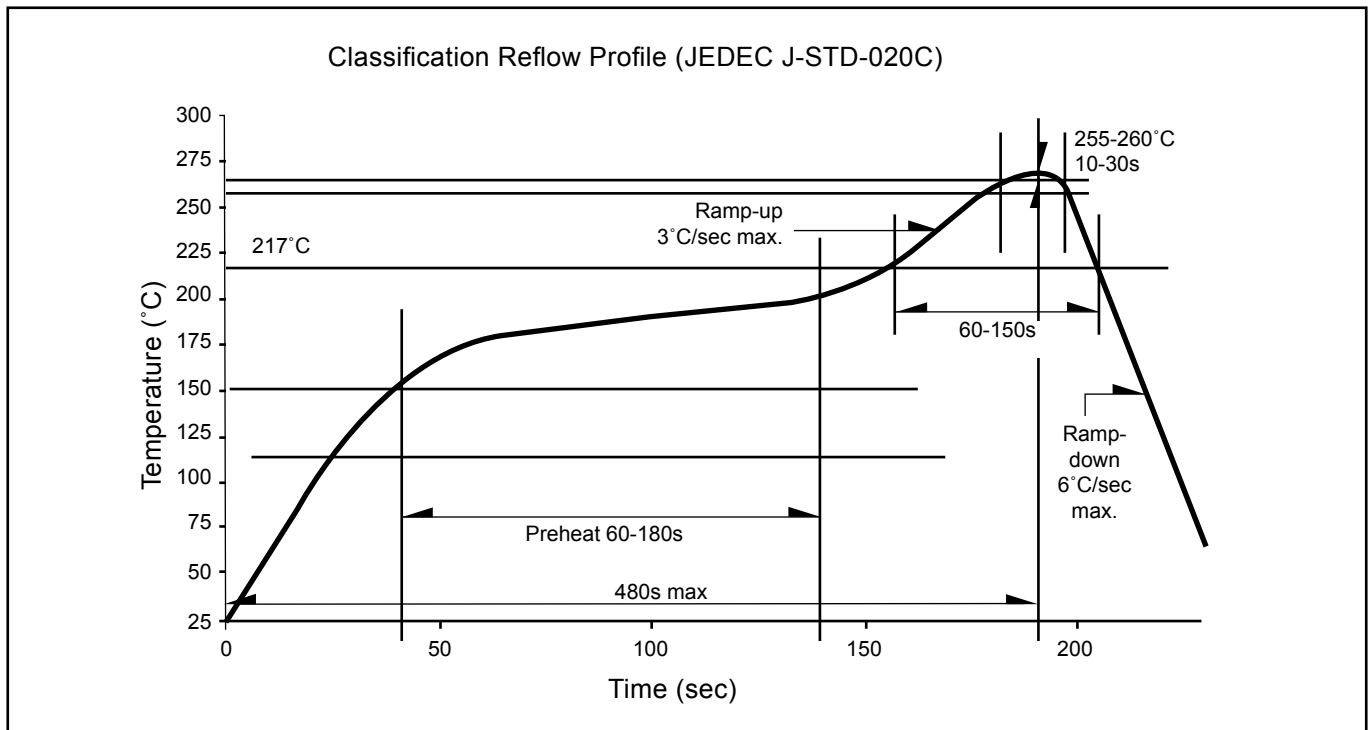
**For SPNovaLED™**

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
-	Initial Release	13 Jun 2007
2	- Add new part number: NPB-US4-ACE-1 - NPB-US4-AAC-1 --> Not for new design	24 Dec 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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