

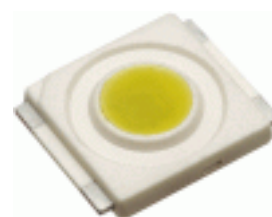
SPNovaLED™

Featuring a staggering brilliance and significant flux output, the SPNovaLED™ 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, 35 lumens (typical).
- > 120° 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 350 mA.
- > Low thermal resistance; $R_{th(j-s)} = 20 \text{ K/W}$.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > SPNovaLED 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

Part Ordering Number	Chip Technology / Color	Viewing Angle°	Luminous Intensity @ IF = 350mA (mcd)
NPW-USD-AAC-1	InGaN	120	7150.0 - 14000.0
• NPW-USD-AA			7150.0 - 9000.0
• NPW-USD-AB			9000.0 - 11250.0
• NPW-USD-AC			11250.0 - 14000.0
NPW-USD-AD-1			14000.0 - 18000.0
• NPW-USD-AD			14000.0 - 18000.0

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 Ta=25°C

Part Number	Vf @ If = 350mA			Vr @ Ir = 10uA
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
NPW-USD	3.0	3.6	4.0	5

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

Material

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

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	350	mA
Peak pulse current	1000	mA
Reverse Voltage	5	V
ESD Threshold (HBM)	2000	V
LED junction temperature	120	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C

Correlated Color Temperature (CCT)

Color Bin	Minimum CCT (K)	Maximum CCT (K)
Y3	4500	5000
Y2	5000	5500
Y1	5500	6000
X3	6000	7000
X2	7000	8000
X1	8000	9000

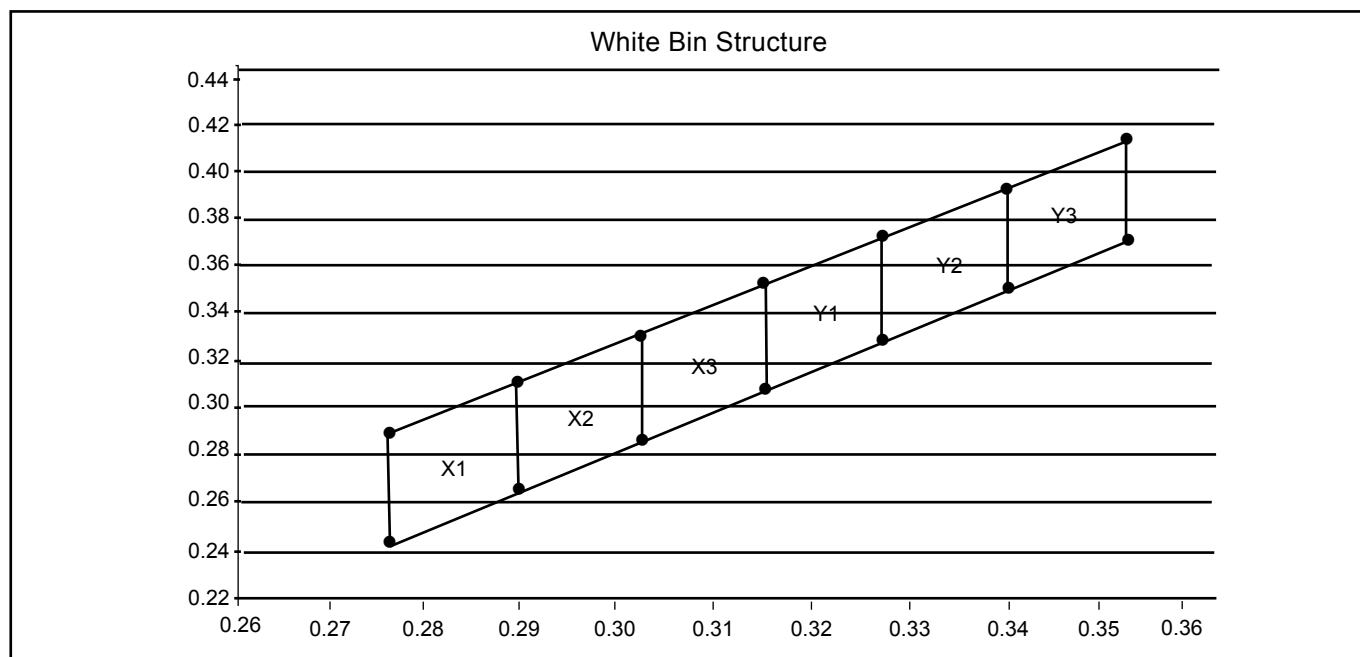
Note: CCT values provided for each of the color bins are an approximation based on correlation.

Correlation Between Luminous Intensity And Luminous Flux

IV Bin	Luminous Intensity (mcd)		Luminous Flux (lm)	
	Min	Max	Min	Max
AA	7150	9000	20.0	25.0
AB	9000	11250	25.0	31.5
AC	11250	14000	31.5	39.0
AD	14000	18000	39.0	50.0

Note: Data provided above is based on approximation.

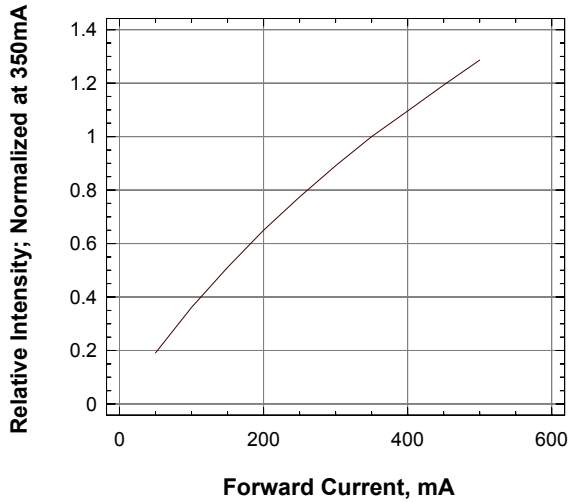
Color Bin



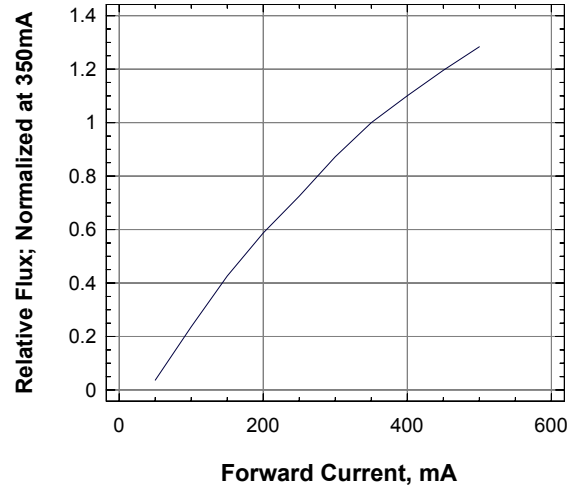
Chromaticity coordinate groups are measured with an accuracy of ± 0.01 .

Bin		1	2	3	4
X1	Cx	0.278	0.290	0.290	0.278
	Cy	0.243	0.265	0.310	0.288
X2	Cx	0.290	0.303	0.303	0.290
	Cy	0.265	0.286	0.331	0.310
X3	Cx	0.303	0.315	0.315	0.303
	Cy	0.286	0.308	0.353	0.331
Y1	Cx	0.315	0.328	0.328	0.315
	Cy	0.308	0.330	0.375	0.353
Y2	Cx	0.328	0.340	0.340	0.323
	Cy	0.330	0.351	0.396	0.375
Y3	Cx	0.340	0.353	0.353	0.340
	Cy	0.351	0.373	0.418	0.396

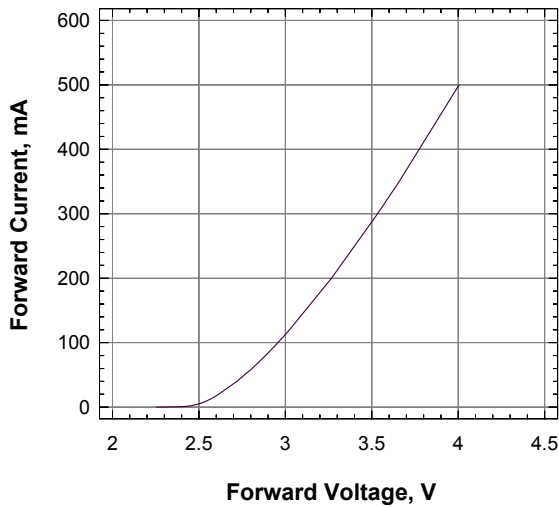
Relative Intensity Vs Forward Current



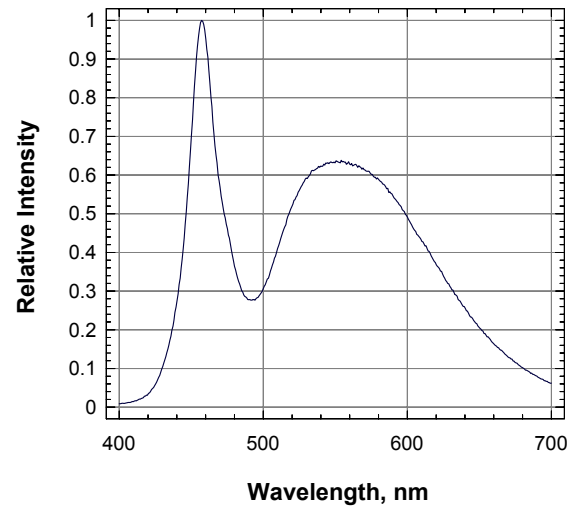
Relative Flux Vs Forward Current



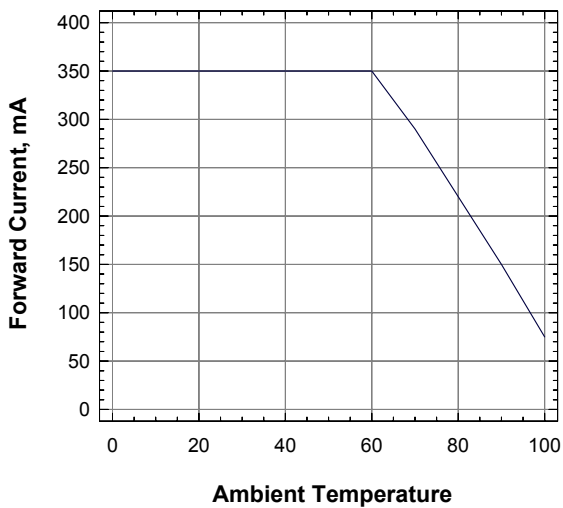
Forward Current Vs Forward Voltage



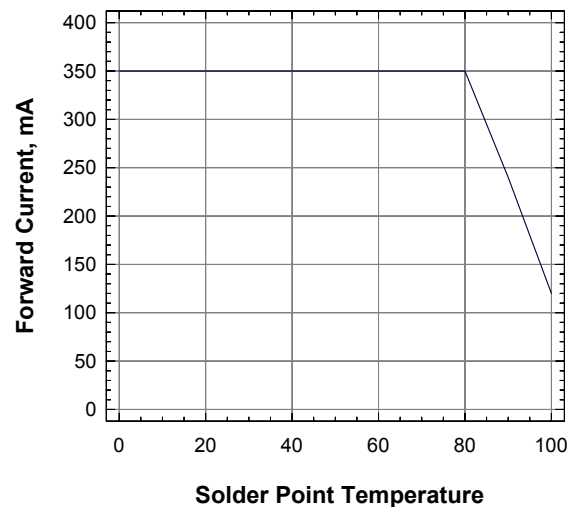
Relative Spectral Emission



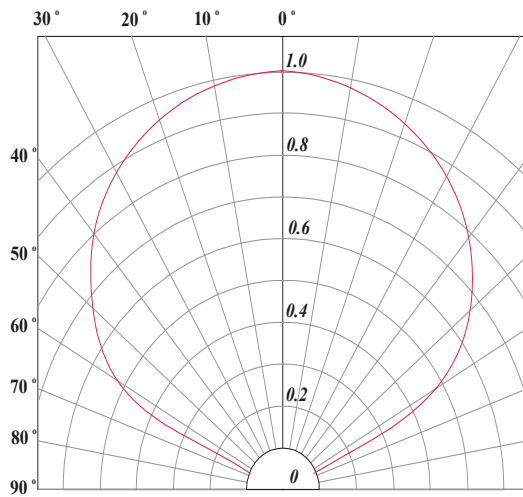
Forward Current Vs Ambient Temperature



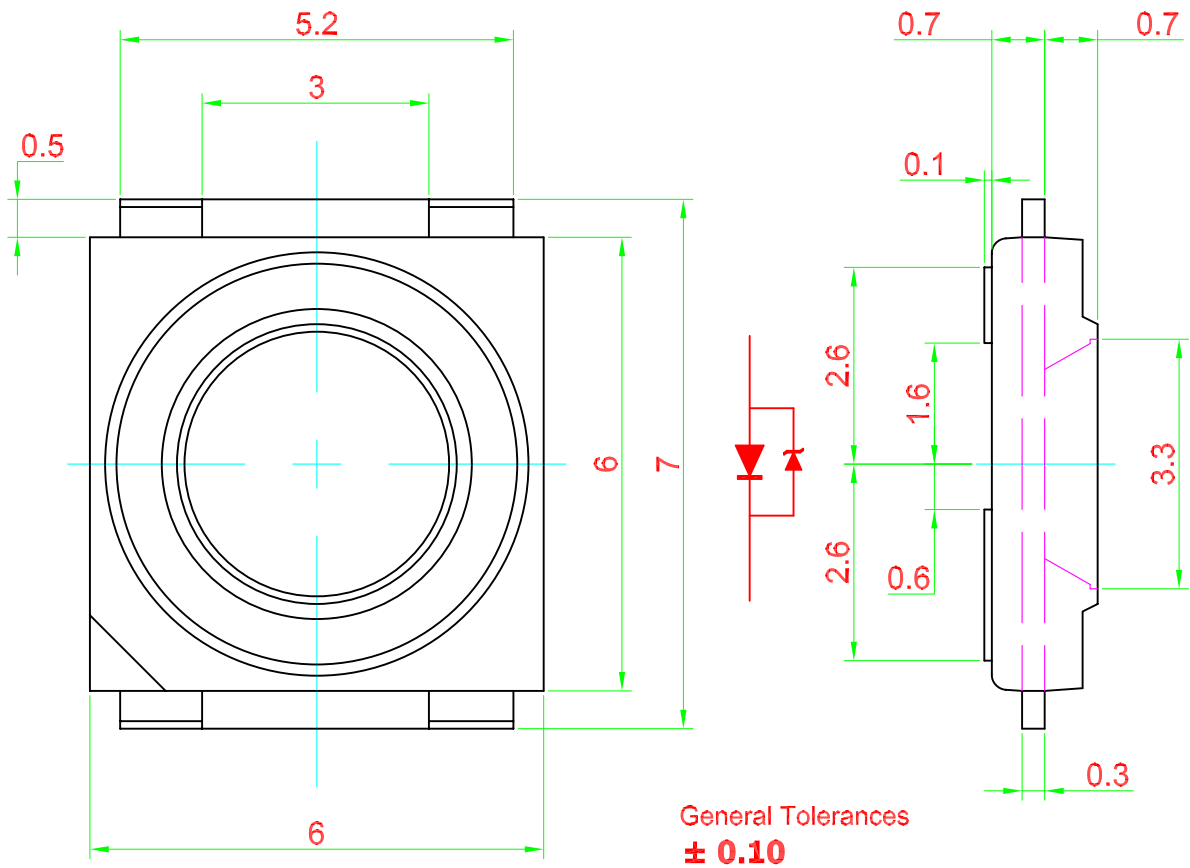
Forward Current Vs Solder Point Temperature



Radiation Pattern

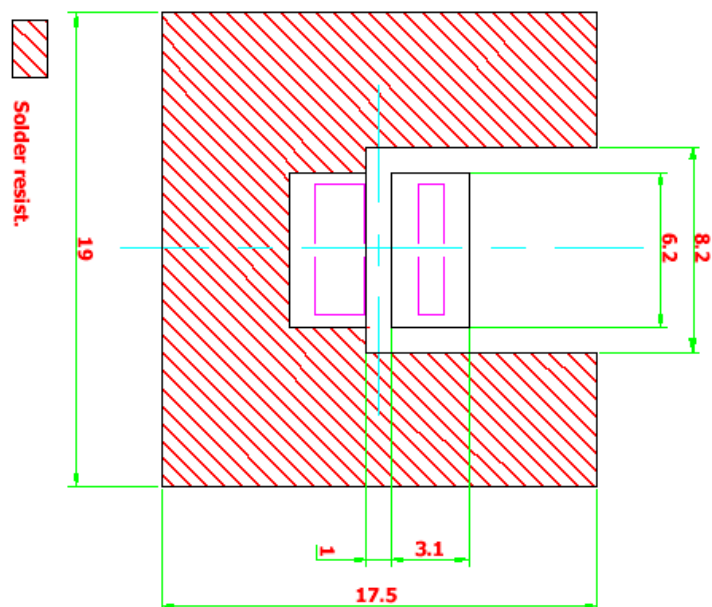


SPNovaLED™ • InGaN White : 350 mA Package Outlines

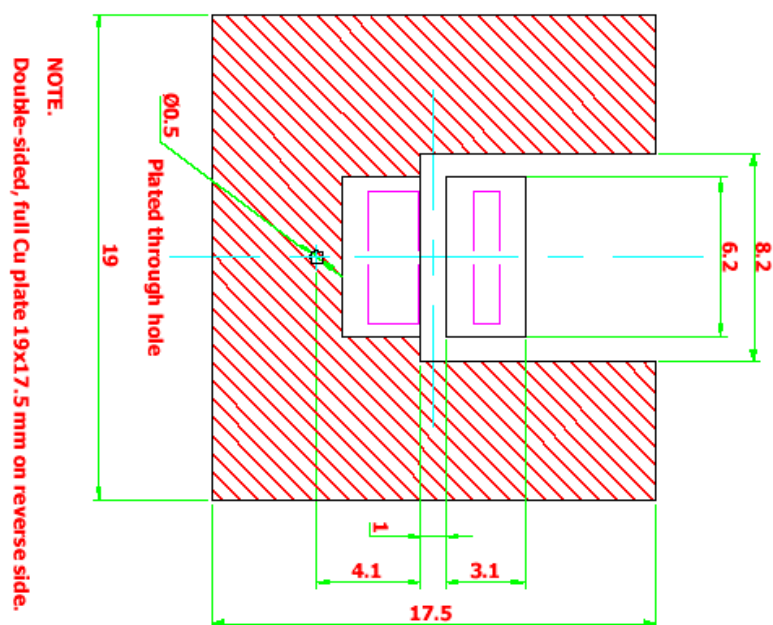


Solder Pad Design

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.

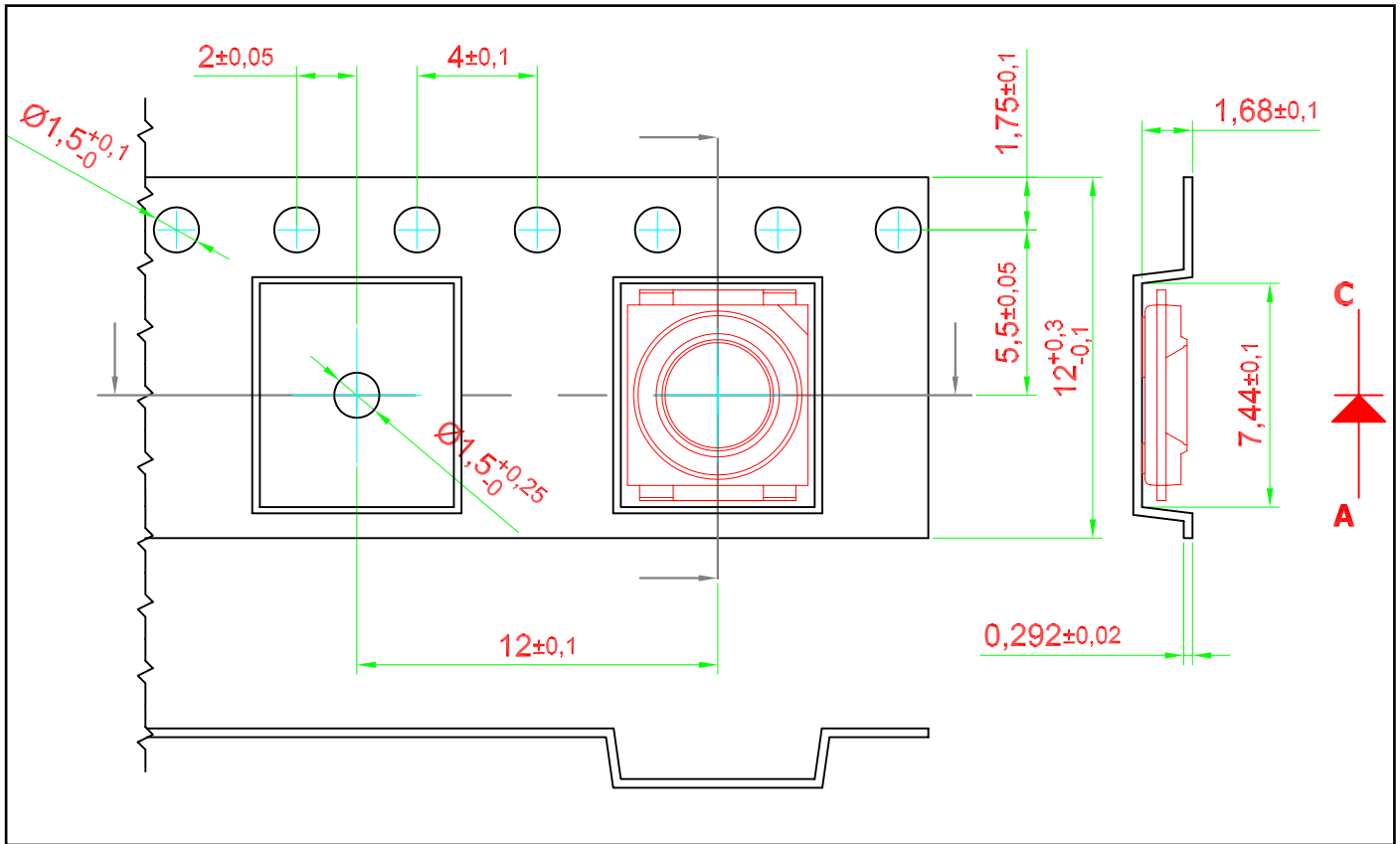


Recommended Solder Pad Design For Better Heat Dissipation

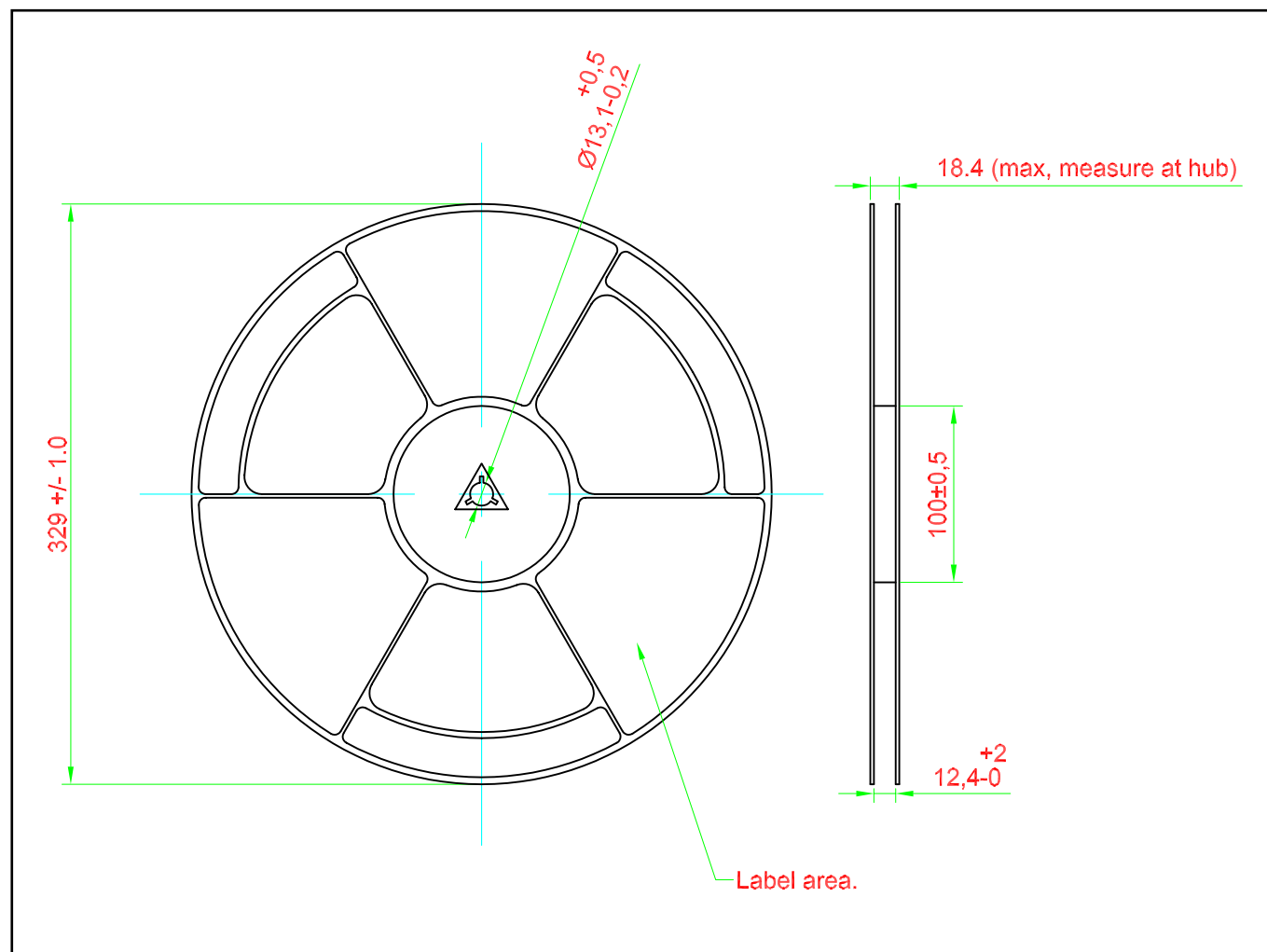


Taping and orientation

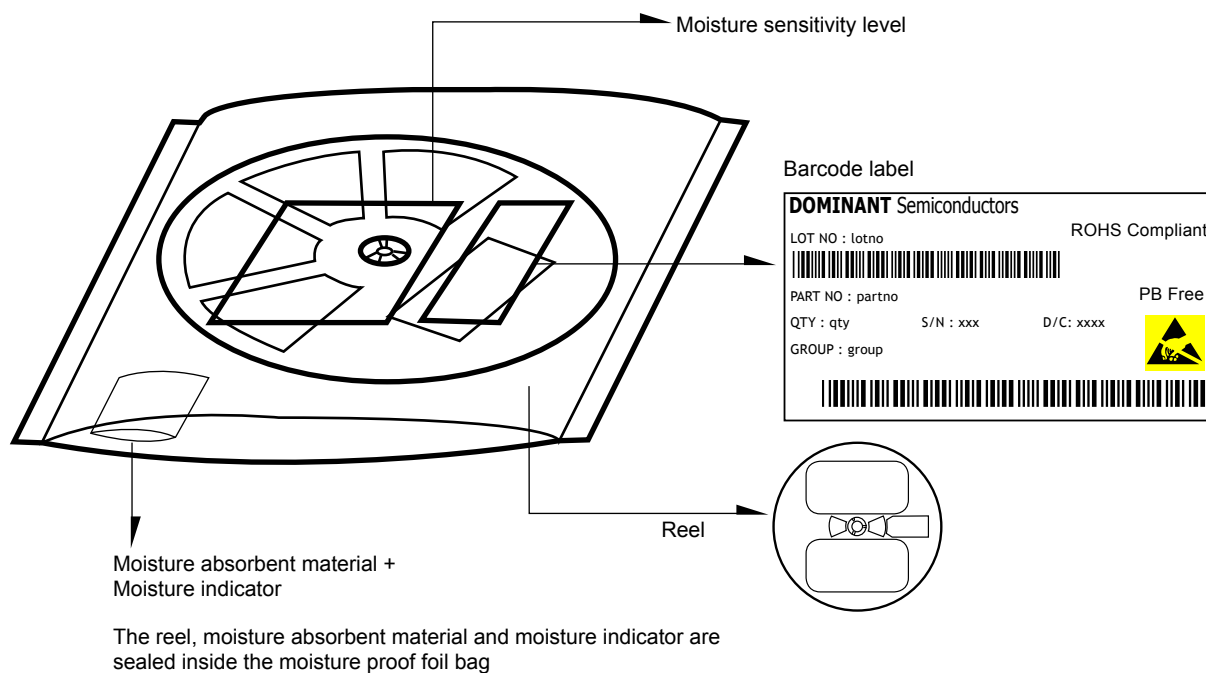
- Reels come in quantity of 2000 units.
- Reel diameter is 330 mm.



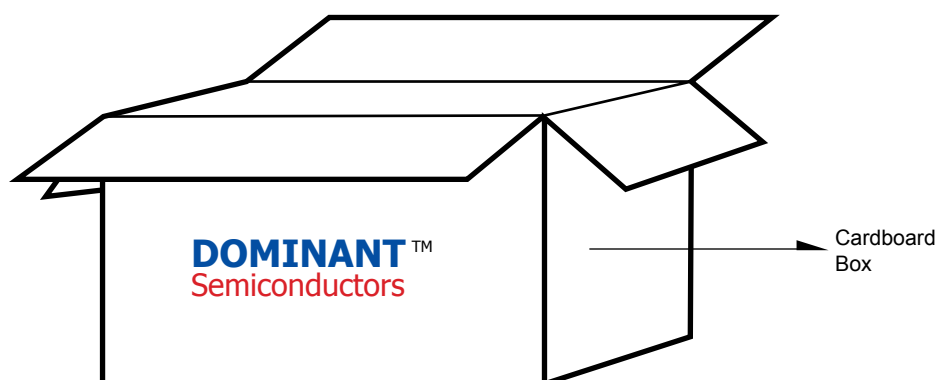
Packaging Specification



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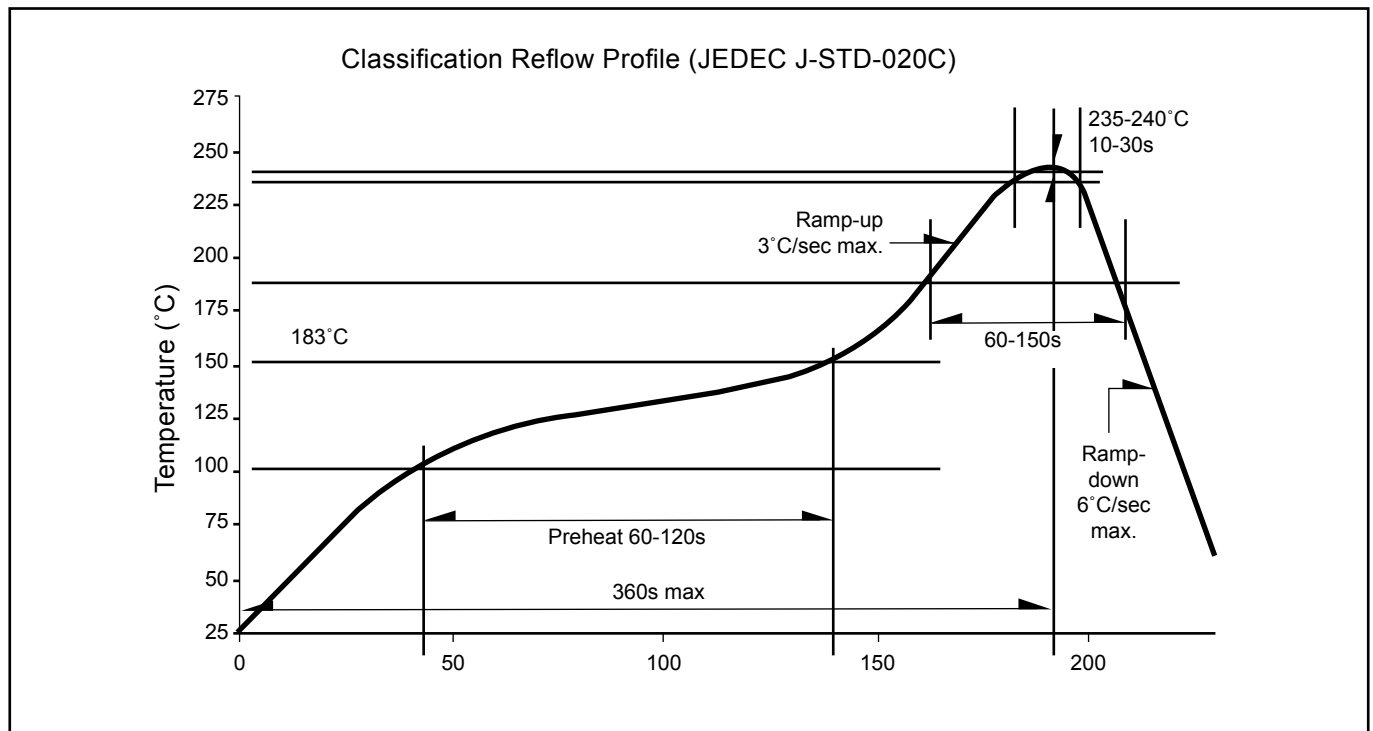
	Average 1pc SPNovaLED	1 completed bag (2000pcs)
Weight (gram)	0.188	800 ± 10



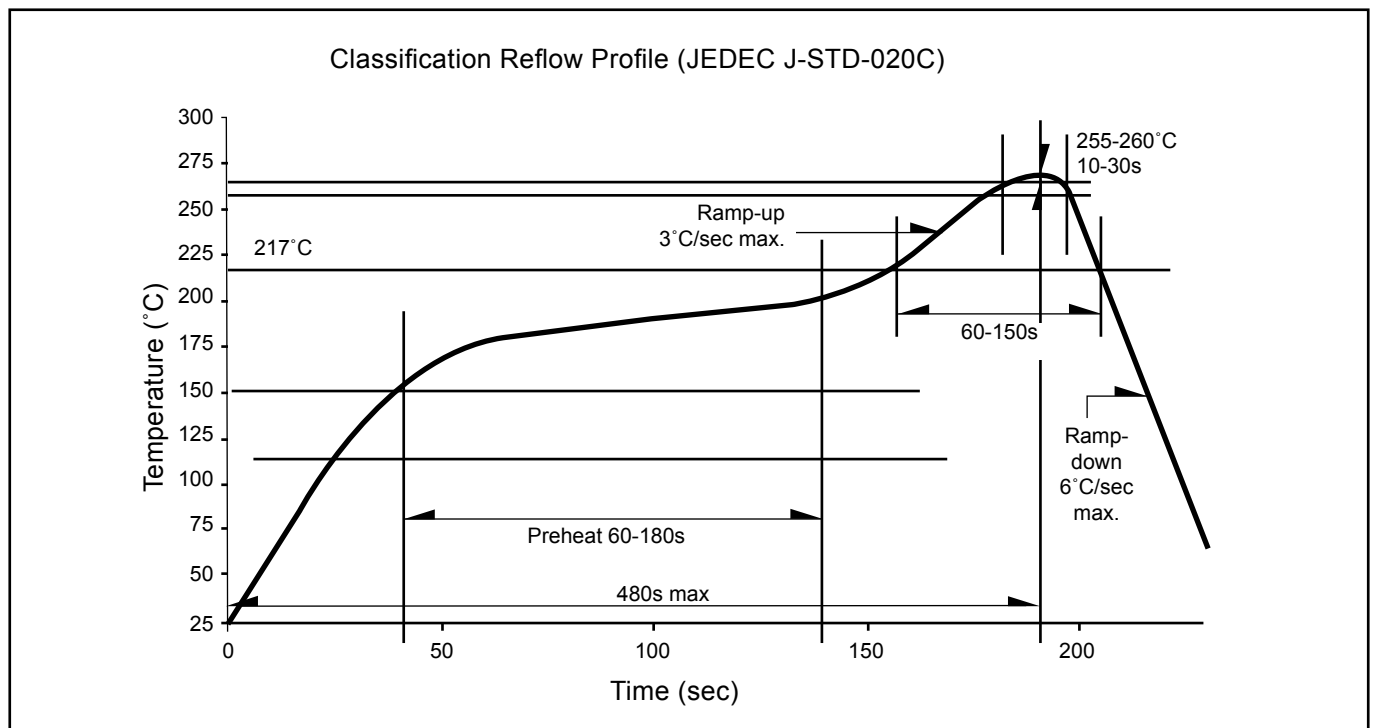
For SPNovaLED™

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	40,000 MAX

Recommended Sn-Pb IR-Reflow Soldering Profile



Recommended Pb-free Soldering Profile



Revision History

Page	Subjects	Date of Modification
-	New Format	02 Dec 2005
2	Add New PartNo: NPW-USD-AD-1	26 Oct 2006
2	Add Min Value (3.0 V) for Vf	19 Jan 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>.

Please contact us for more information:

Head Quarter

DOMINANT Semiconductors 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 China Sales Office

DOMINANT Semiconductors (Shenzhen) Co. Ltd.
24BC Newbaohui Building, No. 1007 West Nanhai Blvd., Nanshan, Shenzhen, China P.C. 518054
Tel: +86 (755) 86031785 / +86 (755) 86031786 Fax: +86 (755) 86031789
E-mail: sales_china@dominant-semi.com

DOMINANT Korea Sales Office

DOMINANT Semiconductors Korea Inc.
902 Sunil Technopia, 440 Sangdaewon-dong, Jungwon-gu, Sunghnam-si, Kyunggi-do, Korea 462726
Tel: 82-31-777-3978 Fax: 82-31-777-3976
E-mail: sales_korea@dominant-semi.com

