

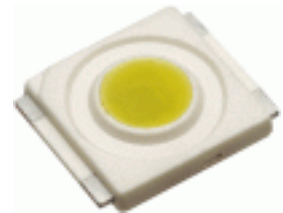
### SPNovaLED™

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; typical 50 lumens
- > 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;  $R_{th(jc)} = 18 \text{ K/W}$ .
- > 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:

- > 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 Flux @ IF = 350mA (lm)
<b>NPF-TSD-RS-1</b>	InGaN	<b>120</b>	<b>39.8 - 67.2</b>
• NPF-TSD-R2			39.8 - 45.2
• NPF-TSD-R3			45.2 - 51.7
• NPF-TSD-S2			51.7 - 59.0
• NPF-TSD-S3			59.0 - 67.2

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.

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

Part Number	Min. (V)	Vf @ If = 350mA	
		Typ. (V)	Max. (V)
NPF-TSD	3.0	3.5	4.0

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

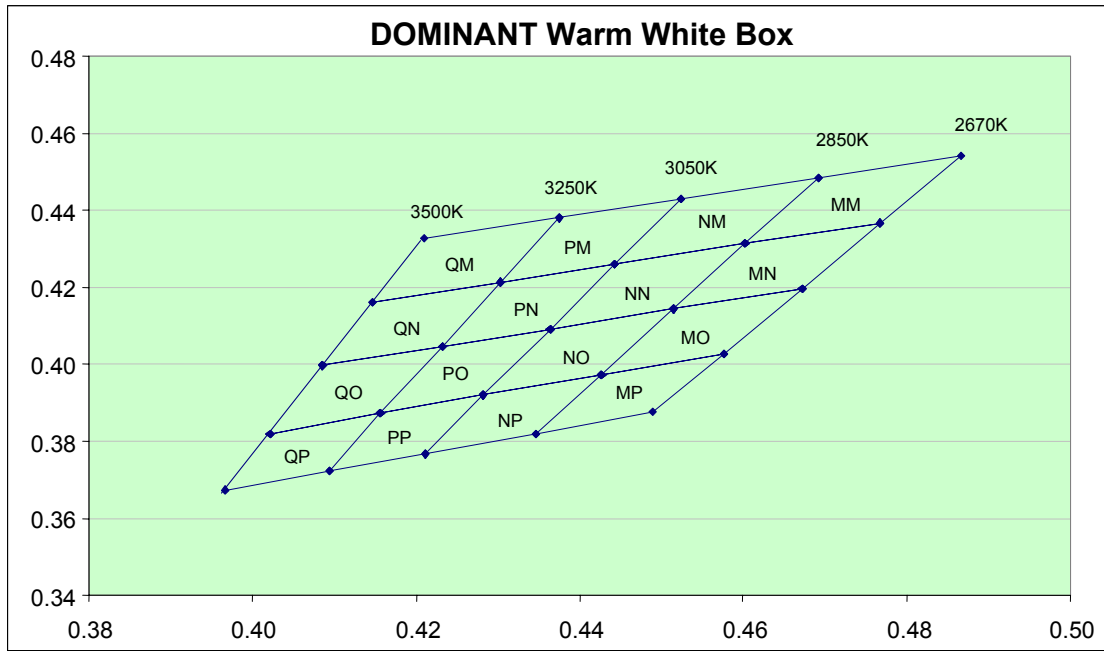
**Material**

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

## 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	125	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C

**Color Bin**

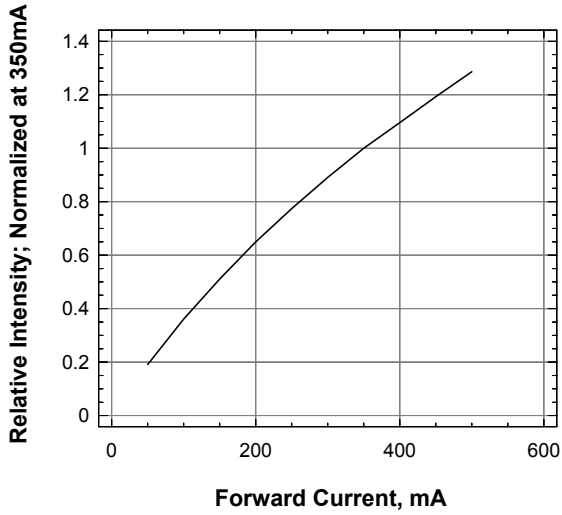


Chromaticity coordinate groups are measured with an accuracy of  $\pm 0.01$ .

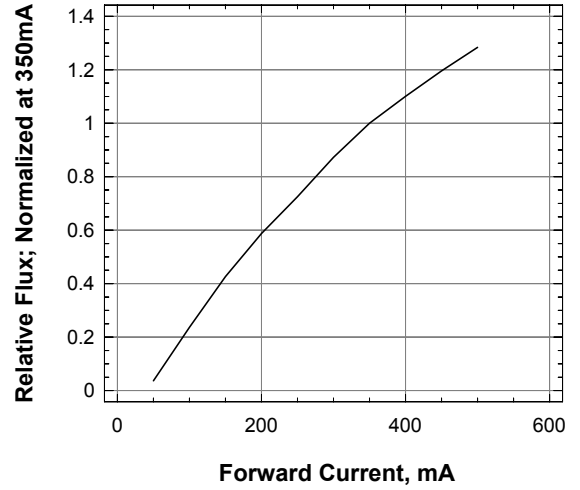
Bin		1	2	3	4
QM	Cx	0.421	0.437	0.430	0.415
	Cy	0.433	0.438	0.421	0.416
QN	Cx	0.415	0.430	0.423	0.409
	Cy	0.416	0.421	0.405	0.400
QO	Cx	0.409	0.423	0.416	0.402
	Cy	0.400	0.405	0.387	0.382
QP	Cx	0.402	0.416	0.409	0.397
	Cy	0.382	0.387	0.372	0.367
PM	Cx	0.437	0.452	0.444	0.430
	Cy	0.438	0.443	0.426	0.421
PN	Cx	0.430	0.444	0.436	0.423
	Cy	0.421	0.426	0.409	0.405
PO	Cx	0.423	0.436	0.428	0.416
	Cy	0.405	0.409	0.392	0.387
PP	Cx	0.416	0.428	0.421	0.409
	Cy	0.387	0.392	0.377	0.372
NM	Cx	0.452	0.469	0.460	0.444
	Cy	0.443	0.448	0.431	0.426
NN	Cx	0.444	0.460	0.451	0.436
	Cy	0.426	0.431	0.414	0.409
NO	Cx	0.436	0.451	0.443	0.428
	Cy	0.409	0.414	0.397	0.392
NP	Cx	0.428	0.443	0.435	0.421
	Cy	0.392	0.397	0.382	0.377

Bin		1	2	3	4
MM	Cx	0.469	0.487	0.477	0.460
	Cy	0.448	0.454	0.437	0.431
MN	Cx	0.460	0.477	0.467	0.451
	Cy	0.431	0.437	0.420	0.414
MO	Cx	0.451	0.467	0.458	0.443
	Cy	0.414	0.420	0.403	0.397
MP	Cx	0.443	0.458	0.449	0.435
	Cy	0.397	0.403	0.388	0.382

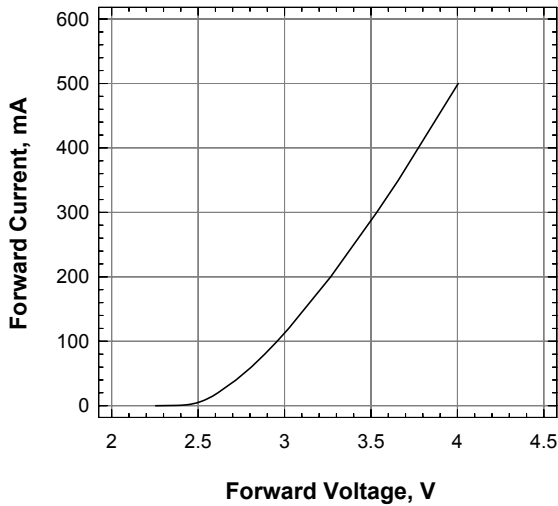
**Relative Intensity Vs Forward Current**



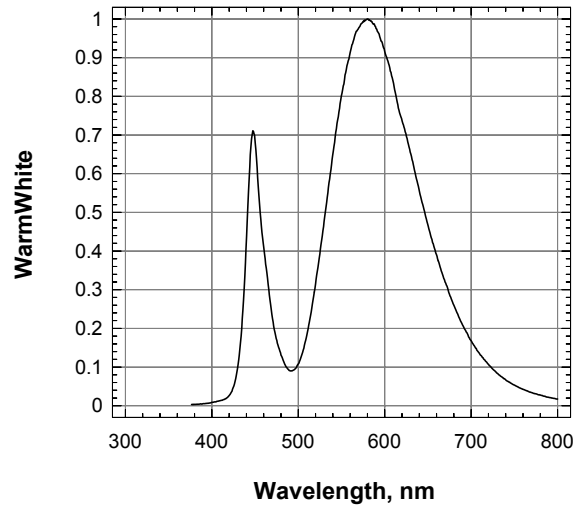
**Relative Flux Vs Forward Current**



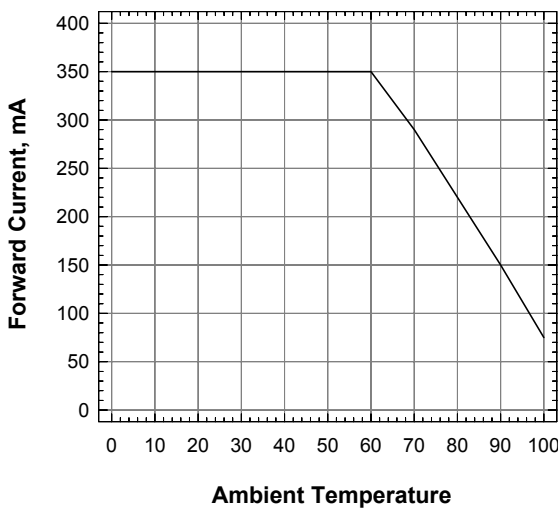
**Forward Current Vs Forward Voltage**



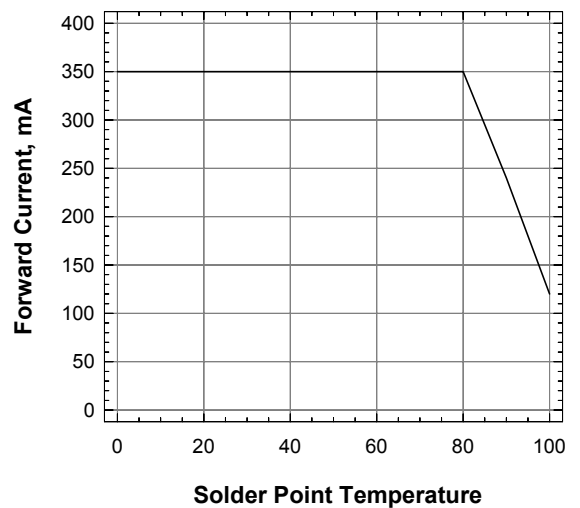
**Relative Spectral Emission**



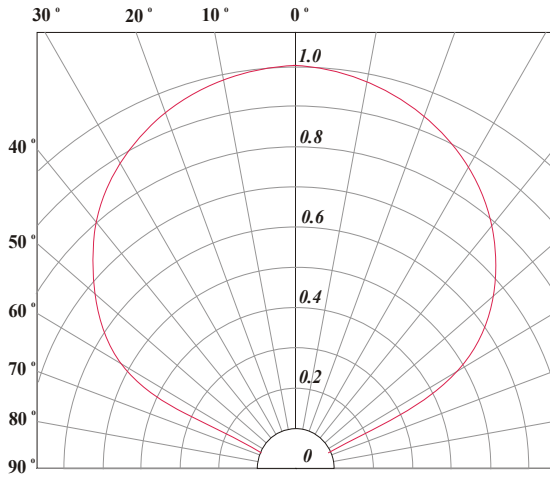
**Forward Current Vs Ambient Temperature (Rja=40K/W)**



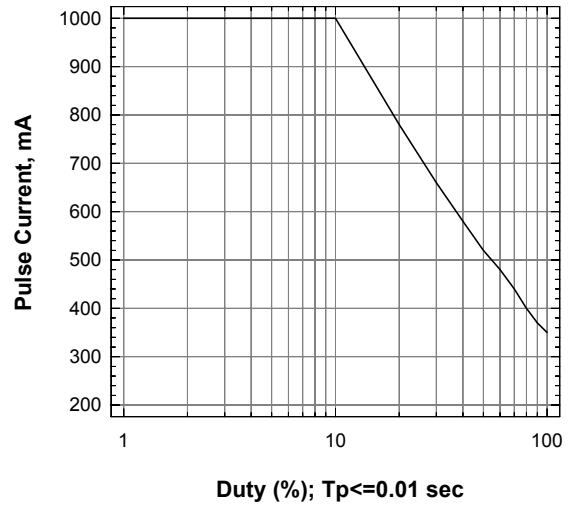
**Forward Current Vs Solder Point Temperature**



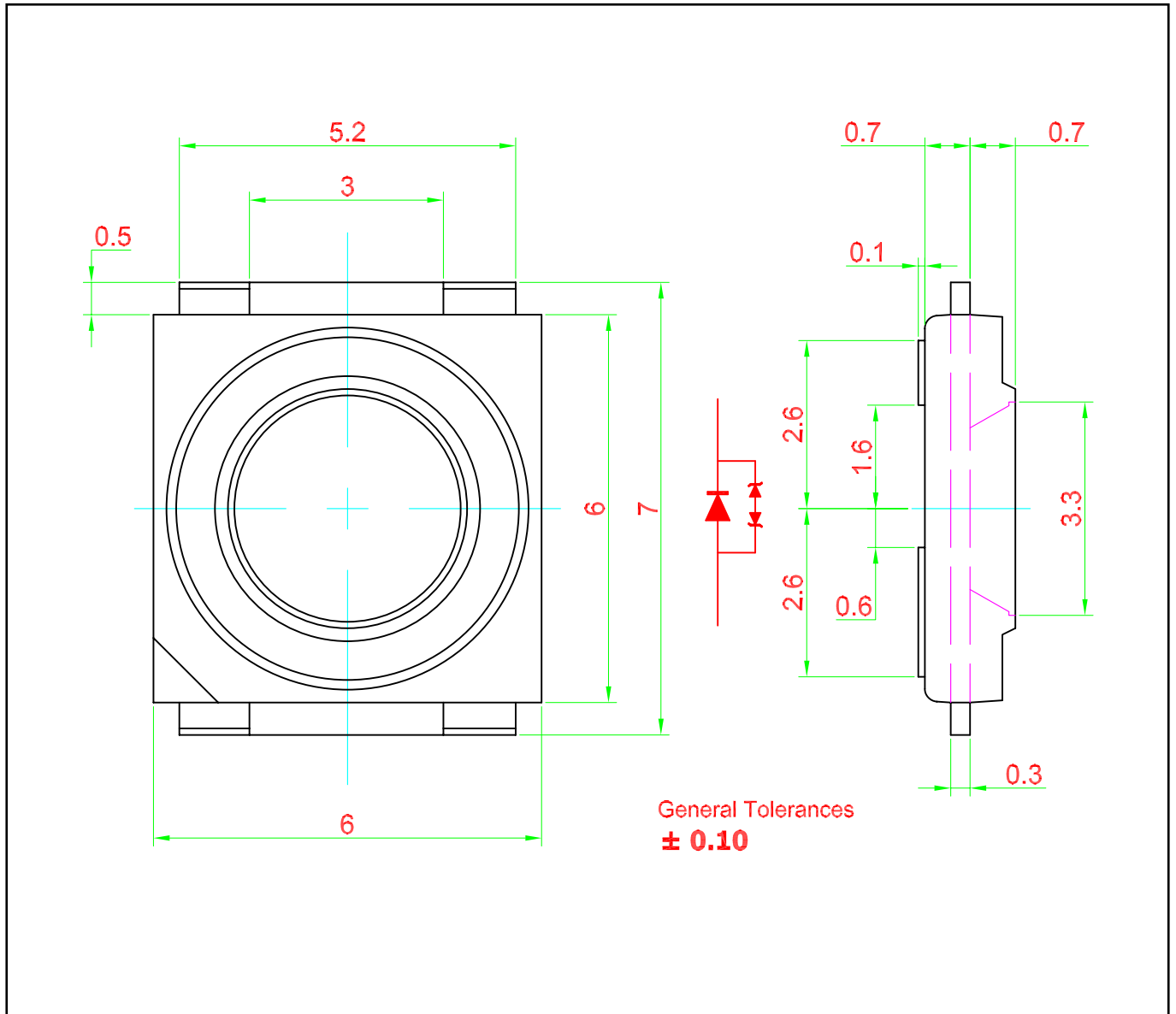
**Radiation Pattern**



**Maximum Permissible Pulse Current,**

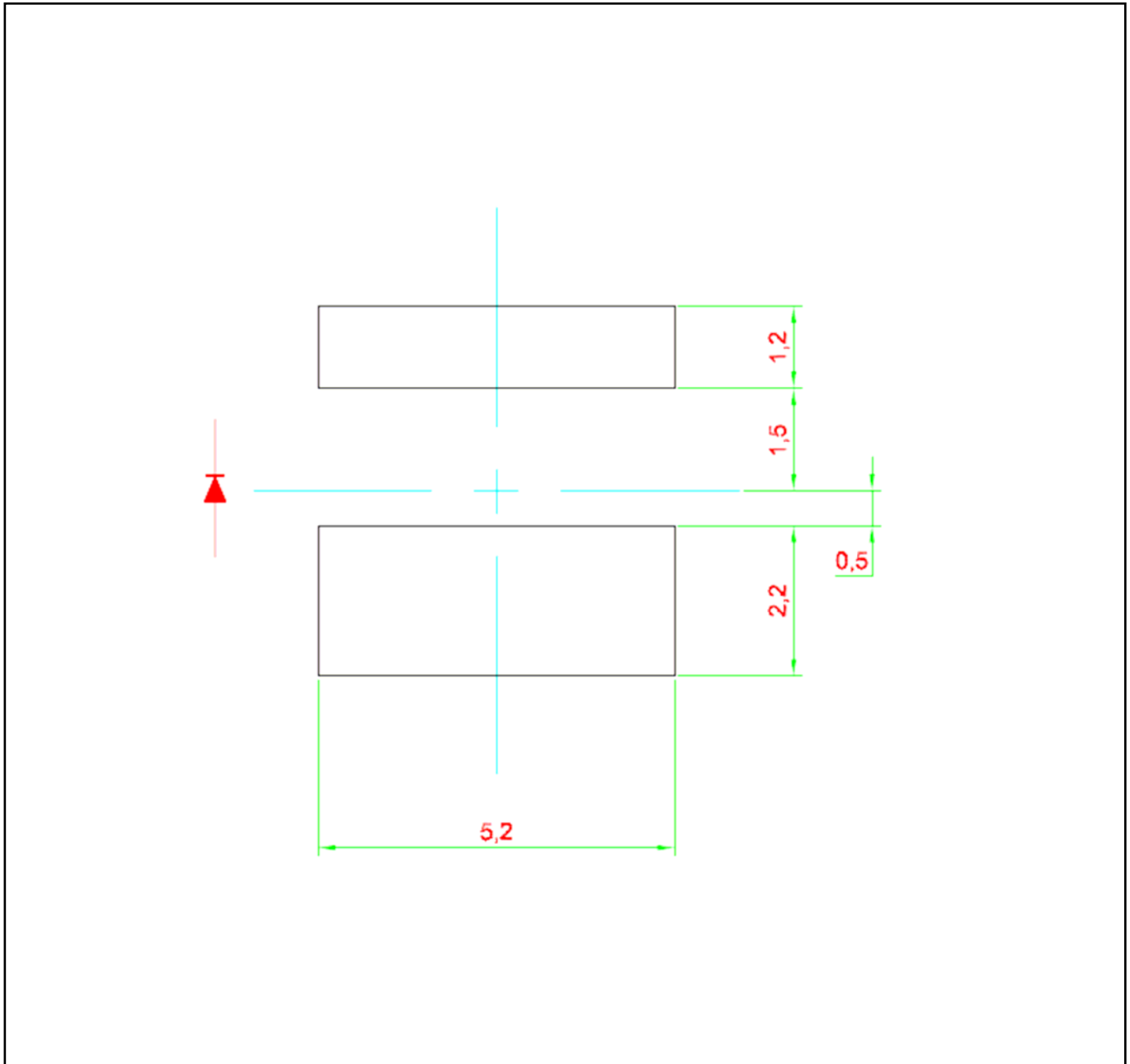


**SPNovaLED™ • InGaN Warm White High Lumens : 350 mA Package Outlines**



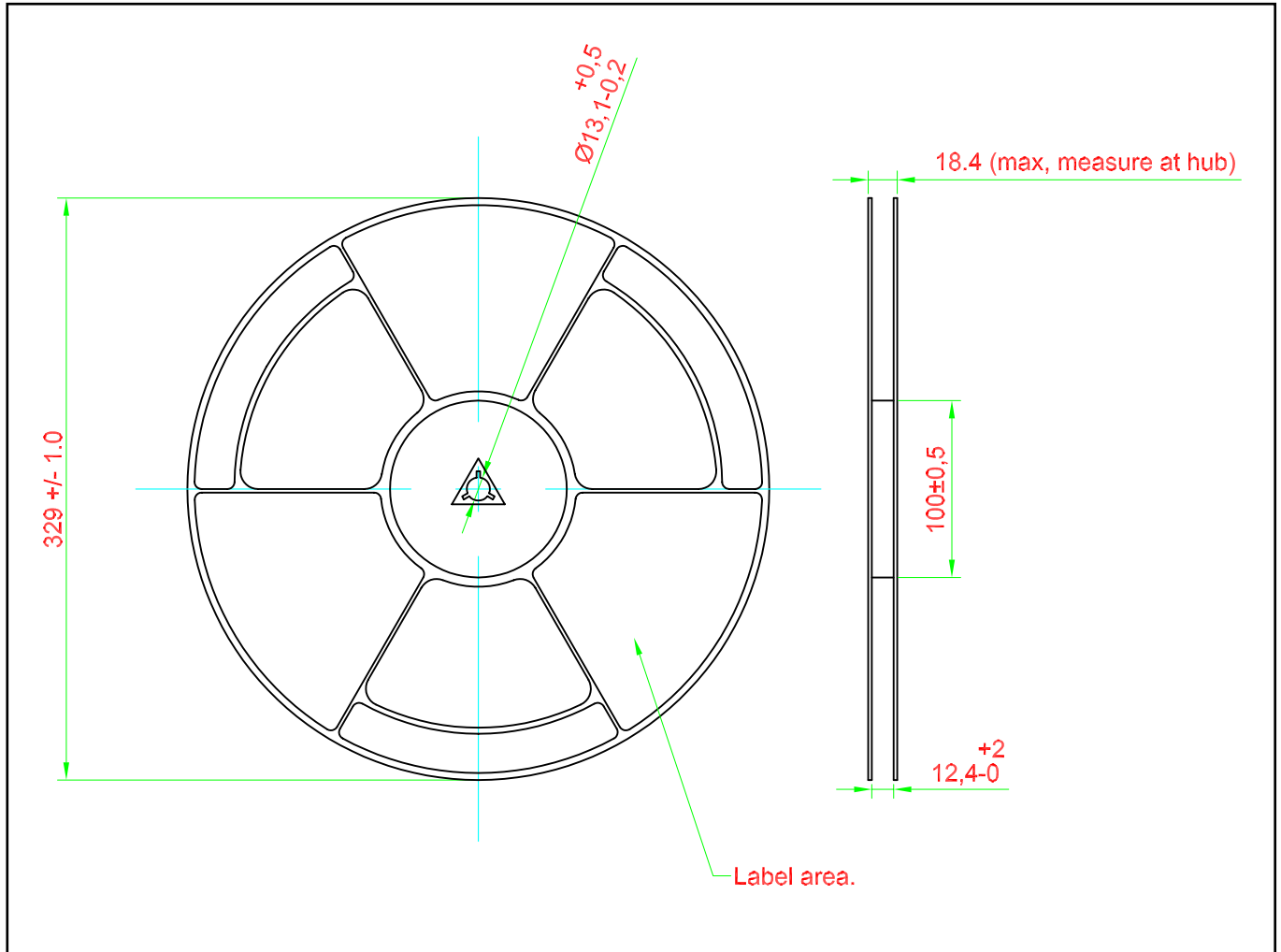
## Solder Pad Design

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

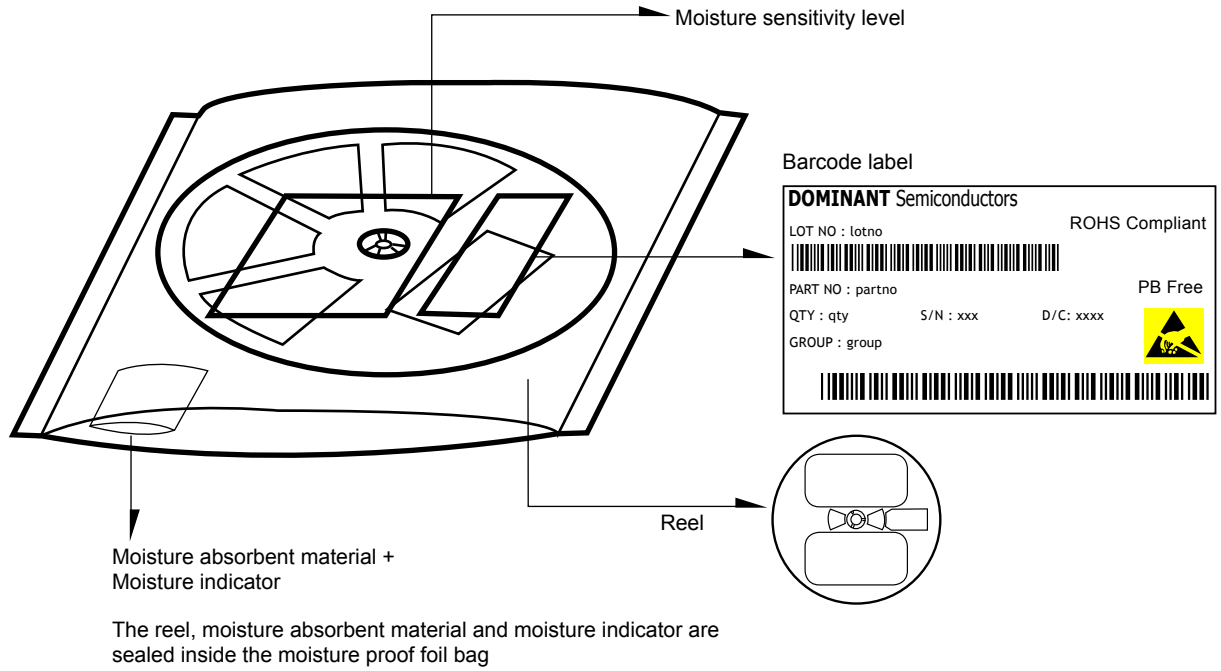




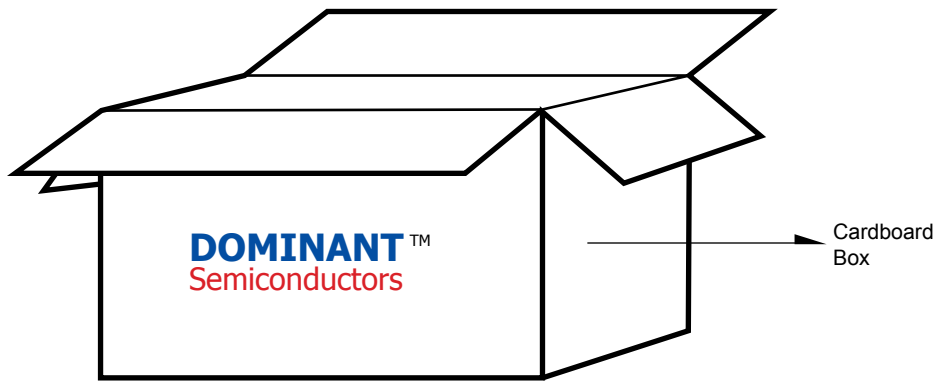
**Packaging Specification**



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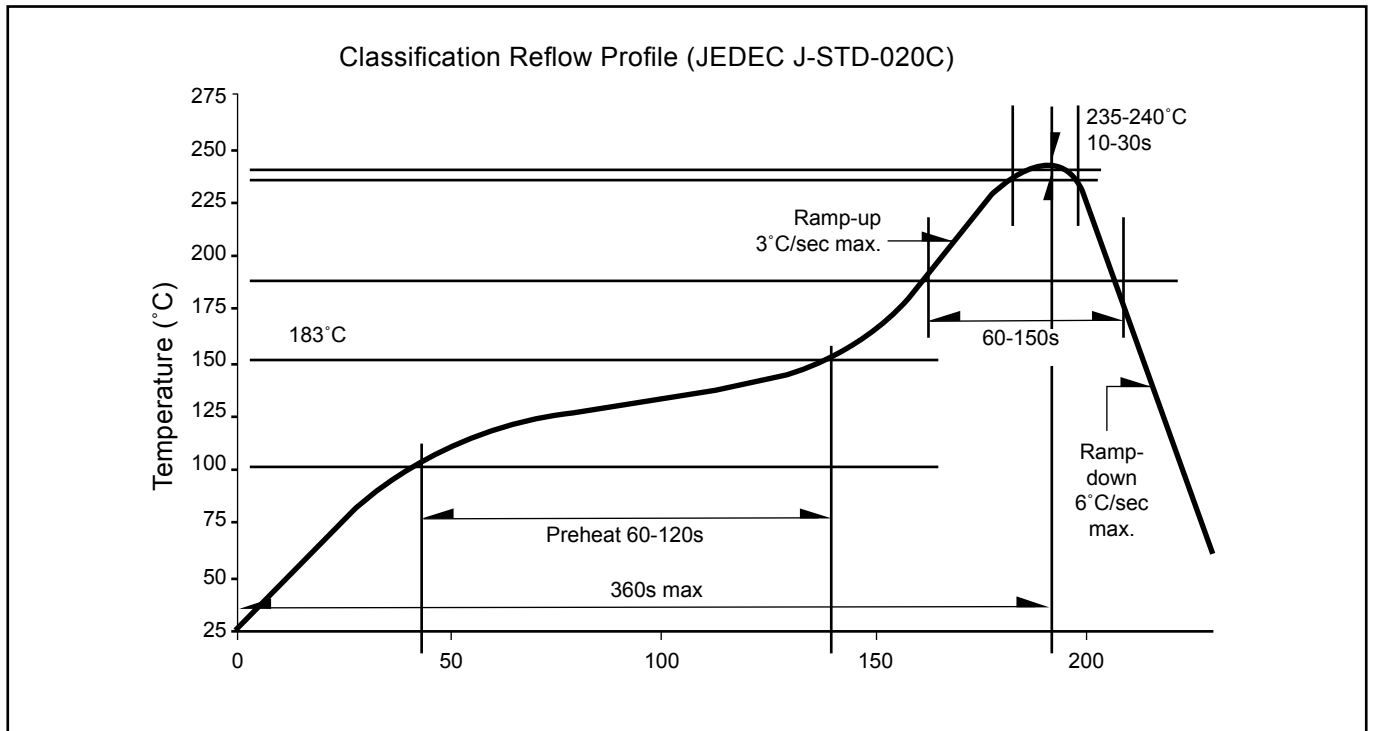
	Average 1pc SPNovaLED	1 completed bag (2000pcs)
Weight (gram)	0.188	800 ± 10



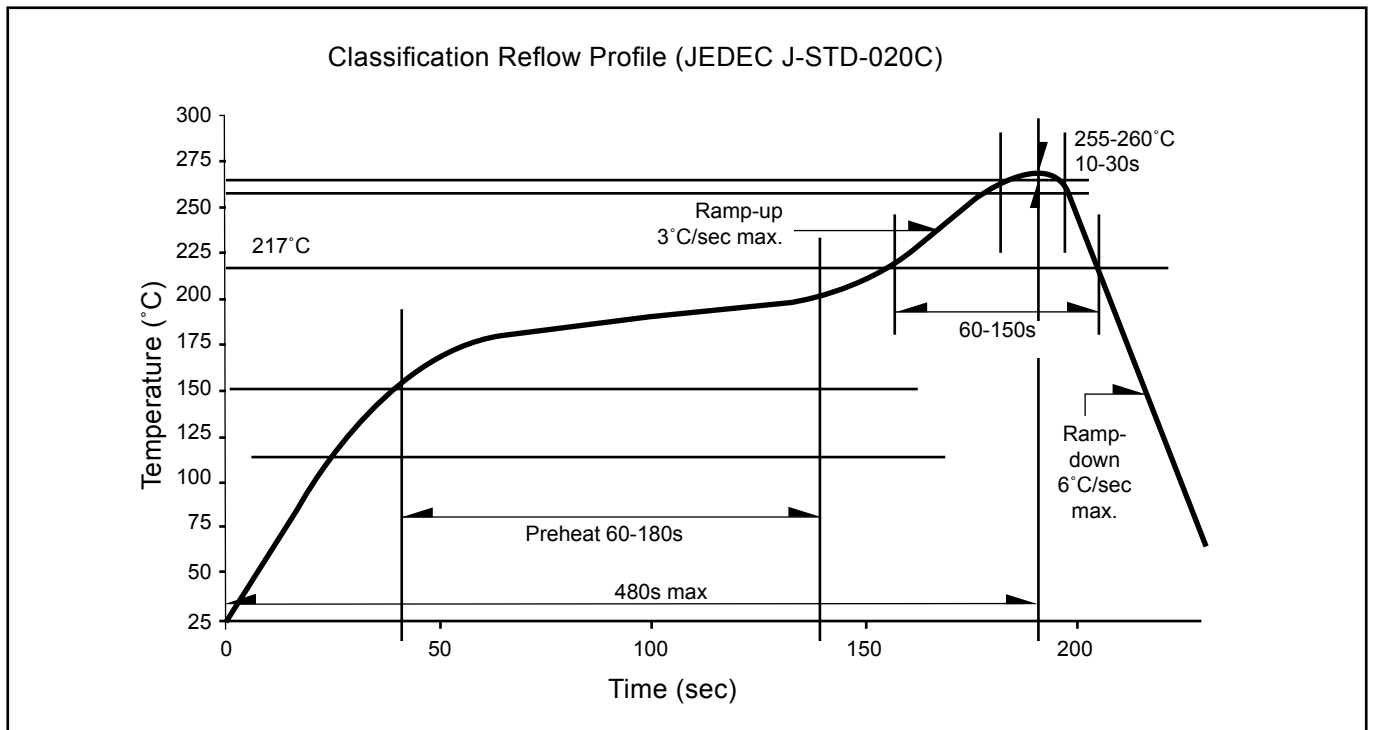
**For SPNovaLED™**

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
-	Initial Release	13 Sep 2006
2,4	Update Luminous Intensity to Luminous Flux - Update color bin structure	18 Mar 2008

**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](mailto:sales@dominant-semi.com)

#### DOMINANT Semiconductors Malaysia Sdn. Bhd. Shanghai Representative Office

DOMINANT Semiconductors (Shenzhen) Co. Ltd.  
Rm 1007, DaZhong Building, No. 1515 Zhong Shan (W) Rd, Shanghai, China 200235  
Tel: +86 21 6428 6428 Fax: +86 21 6428 6880  
E-mail: [sales\\_china@dominant-semi.com](mailto:sales_china@dominant-semi.com)

#### DOMINANT Korea Sales Office

DOMINANT Semiconductors Korea Inc.  
#709, Yatap Leaders Bldg., 342-1 Yatap-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, 463-828 Korea.  
Tel: +82-31-701-5203 Fax: +82-31-701-5204  
E-mail: [sales\\_korea@dominant-semi.com](mailto: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](mailto: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](mailto:gerd.wachno@dominant-semi.eu); [hartmut.wettengl@dominant-semi.eu](mailto: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](mailto:pravat.behera@dominant-semi.com)

