

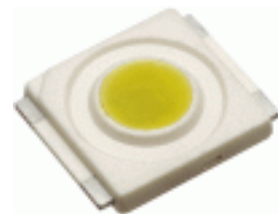
### SPNova™

Featuring a staggering brilliance and significant flux output, the SPNova™ 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 20 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 180 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.



### Applications:

- > Industrial: illuminated advertising.
- > Lighting: garden light, architecture lighting, general lighting. etc

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

Part Ordering Number	Color	Viewing Angle°	Luminous Flux @ 150mA (lm)		
			Min.	Typ.	Max.
NPF-MSD-NP-1	Warm White	120	18.1	23.5	30.6
● NPF-MSD-MN-1	Warm White	120	13.9	20.0	23.5

● Not for new design

NOTE

1. Luminous flux is measured with an accuracy of ± 11%.
2. Luminous flux is measured with a 25 ms pulse.
3. Only one color group is allowed for each reel.

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

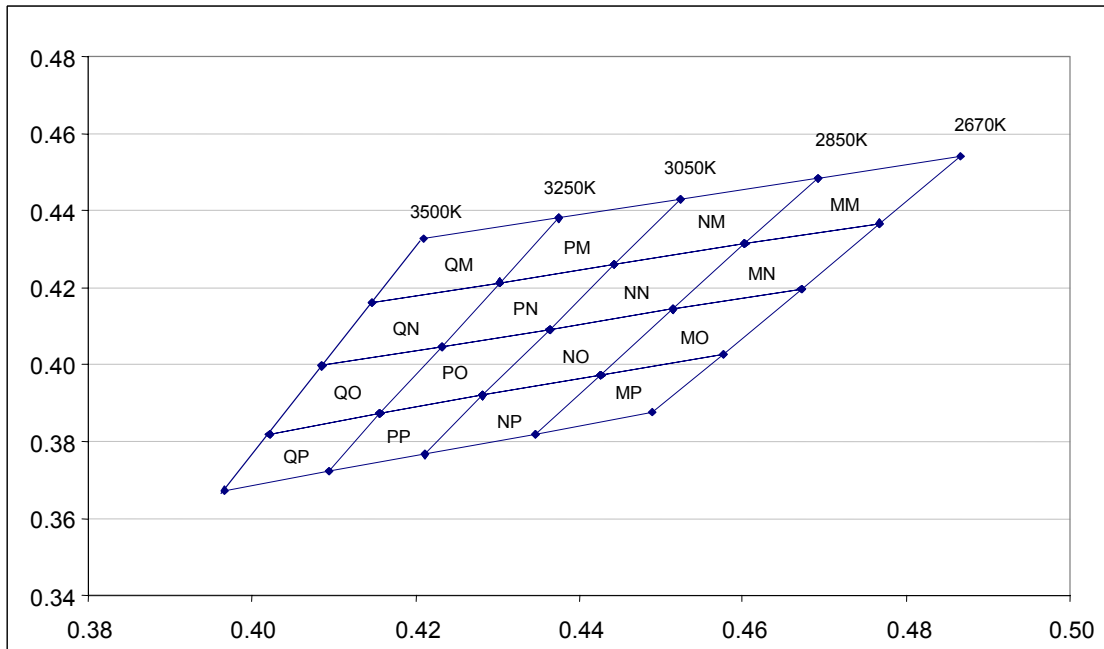
Part Number	Vf @ If = 150mA		
	Min. (V)	Typ. (V)	Max. (V)
NPF-MSD	3.1	3.6	4.1

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

**Absolute Maximum Ratings**

	Maximum Value	Unit
DC forward current	180	mA
Peak pulse current	500	mA
Reverse voltage	5	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

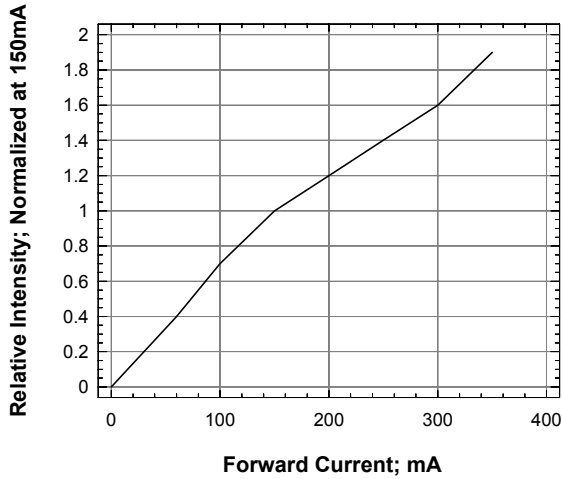
Bin		1	2	3	4
MM	Cx	0.469	0.487	0.477	0.460
	Cy	0.448	0.454	0.437	0.431
MN	Cx	0.460	0.477	0.467	0.451
	Cy	0.431	0.437	0.420	0.414
MO	Cx	0.451	0.467	0.458	0.443
	Cy	0.414	0.420	0.403	0.397
MP	Cx	0.443	0.458	0.449	0.435
	Cy	0.397	0.403	0.388	0.382

**Luminous Flux Group at Tj=25°C**

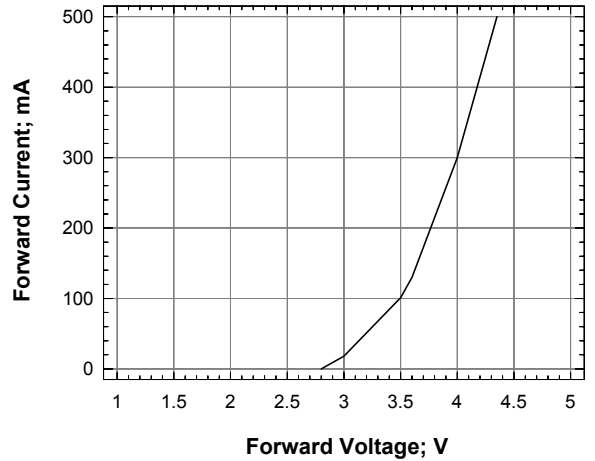
Brightness Group	Luminous Flux (lm)
M2	13.9...15.8
M3	15.8...18.1
N2	18.1...20.6
N3	20.6...23.5
P2	23.5...26.8
P3	26.8...30.6

Luminous flux is measured with an accuracy of ± 11%.

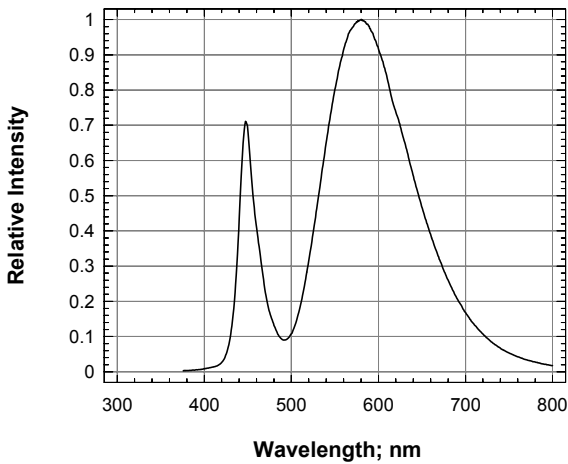
**Relative Intensity Vs Forward Current**



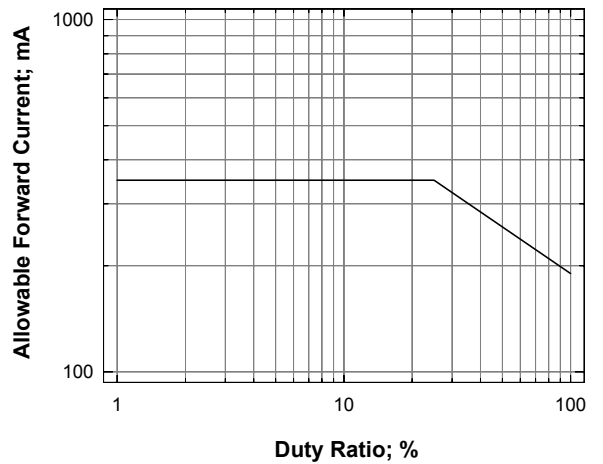
**Forward Current Vs Forward Voltage**



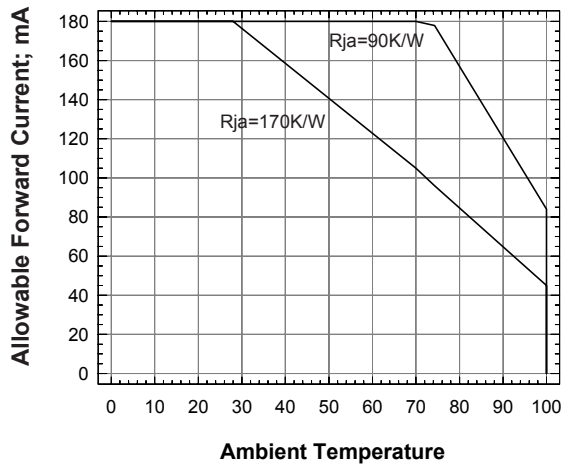
**Relative Spectral Emission**



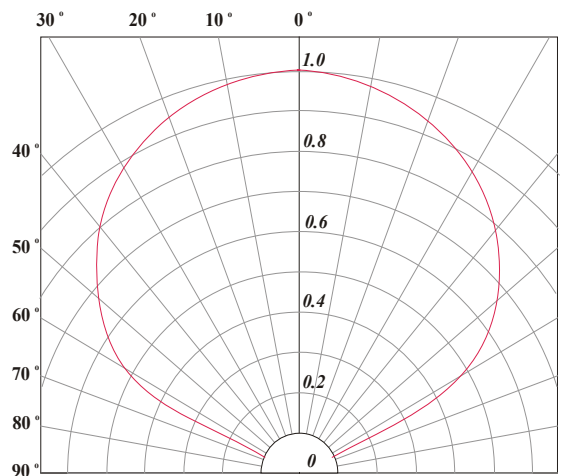
**Allowable Forward Current Vs Duty Ratio**



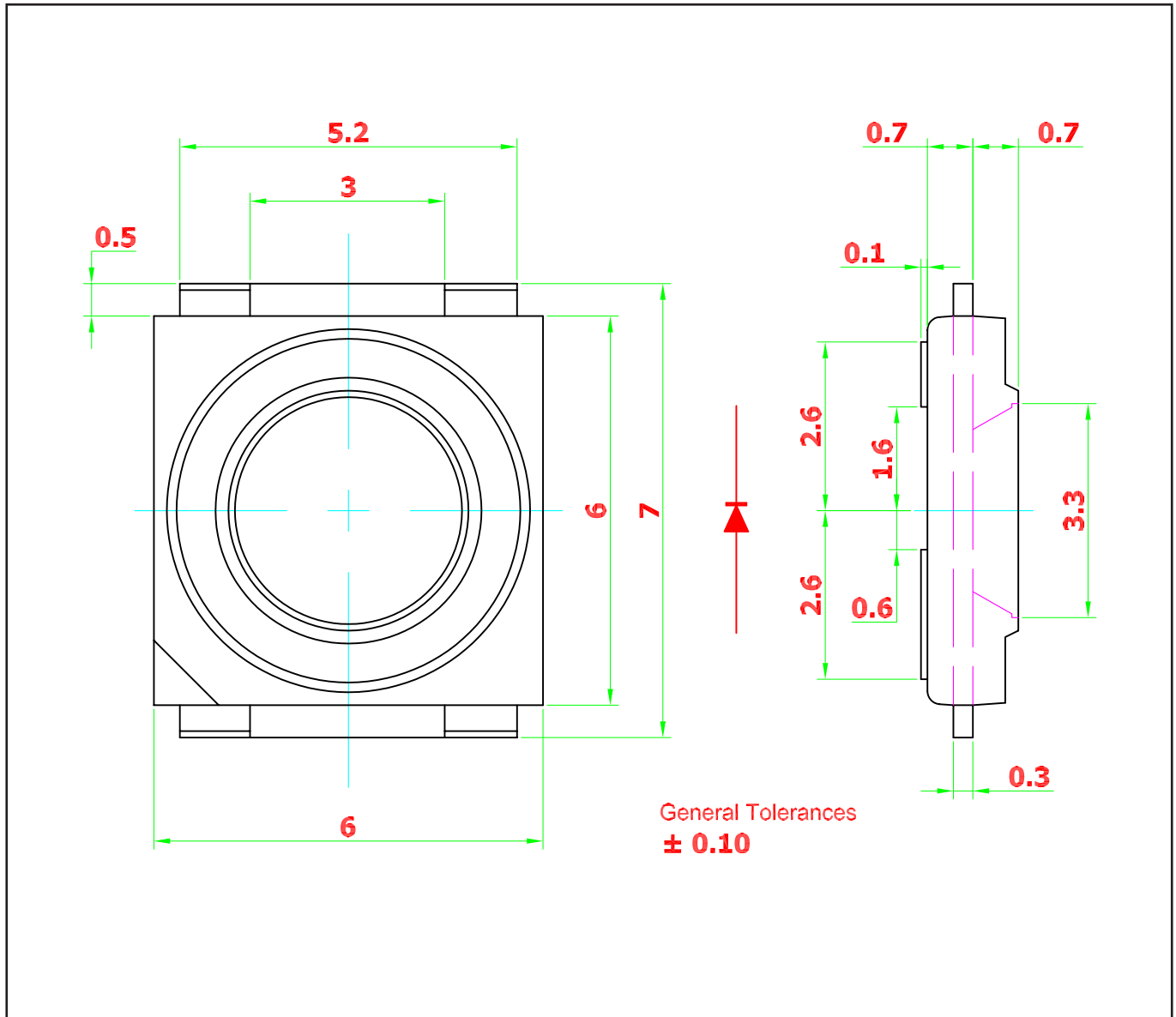
**Forward Current Vs Ambient Temperature**



**Radiation Pattern**



**SPNova™ • InGaN Warm White : 150 mA Package Outlines**

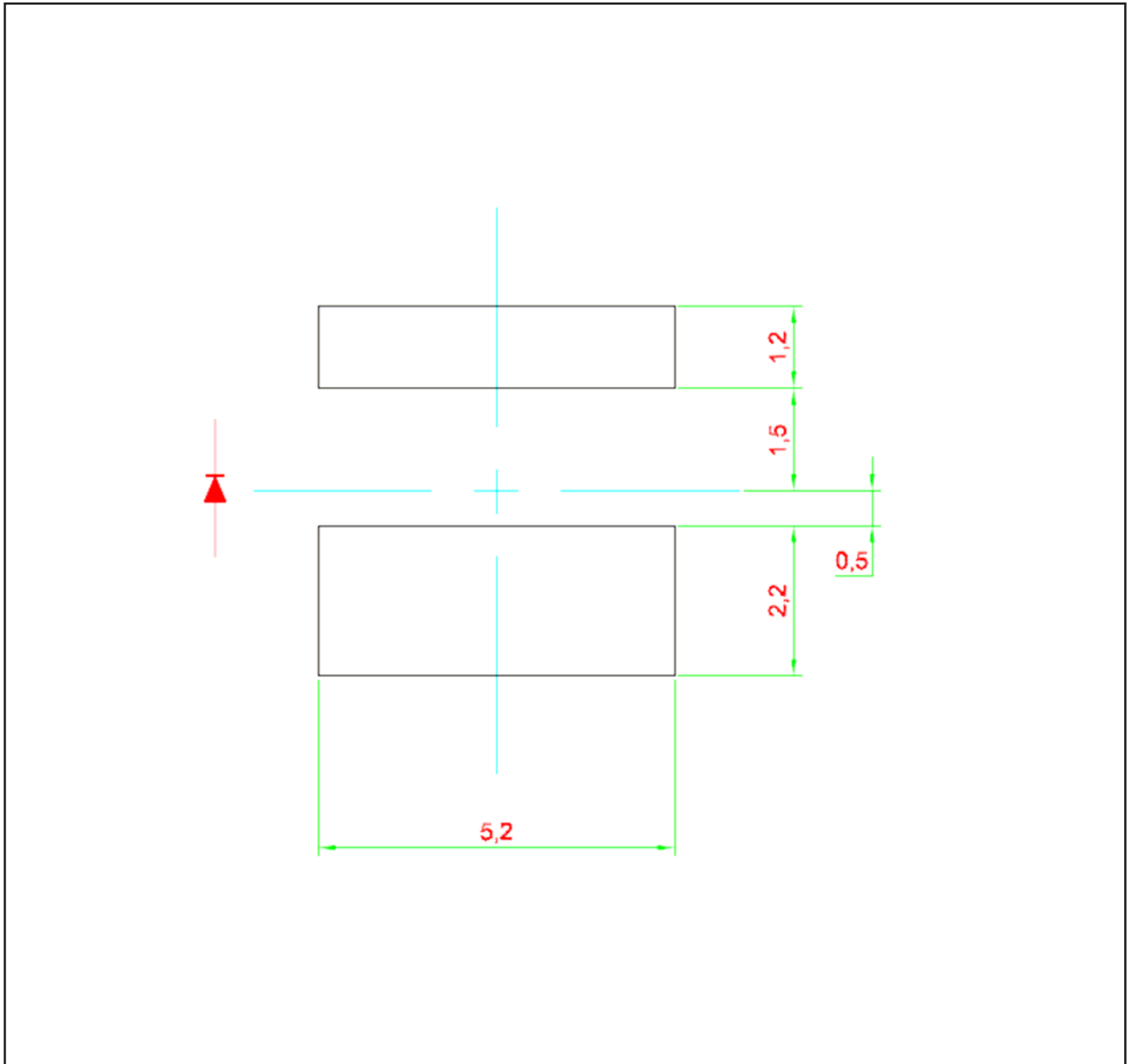


**Material**

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

## Solder Pad Design

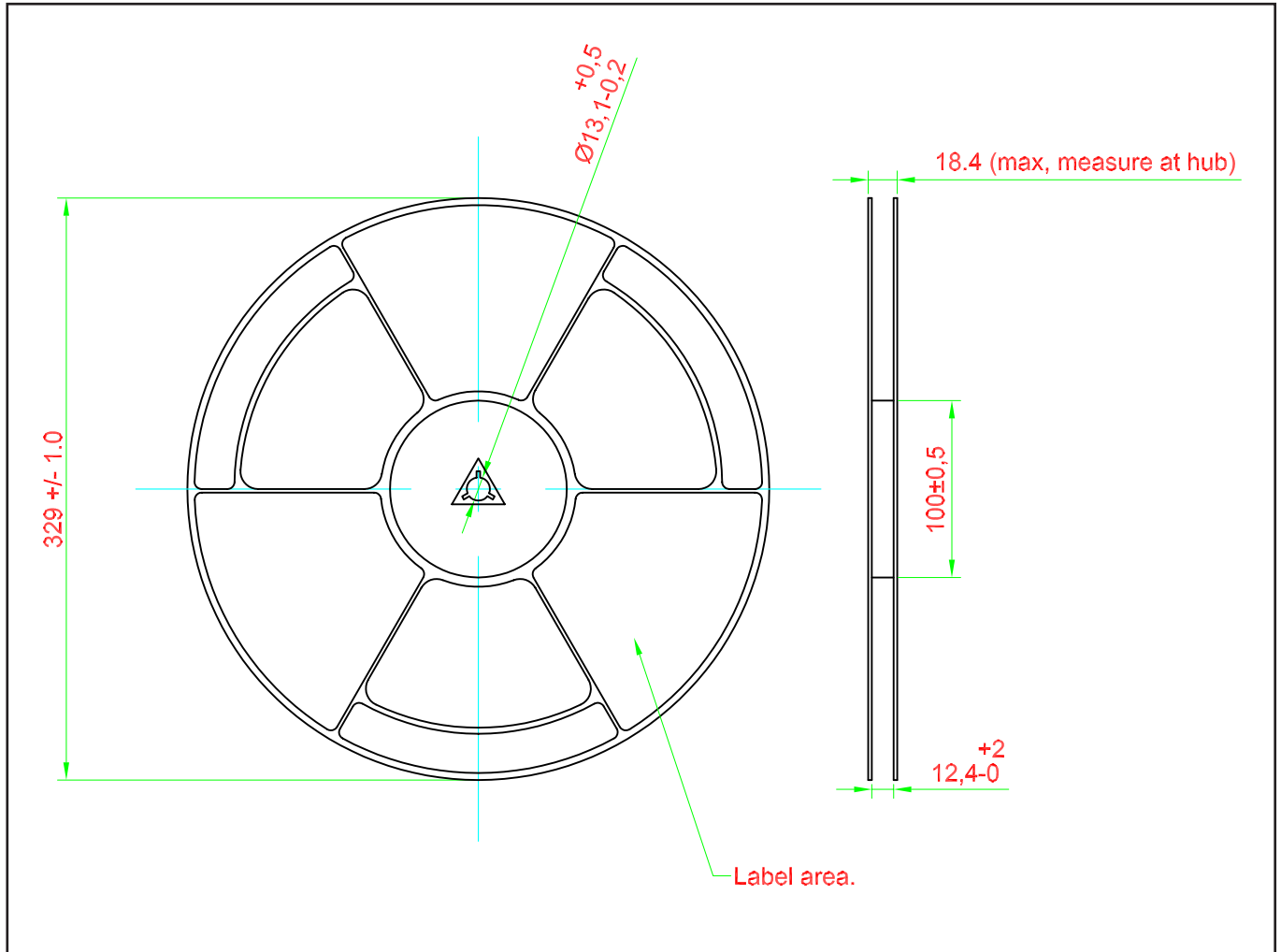
Note: Metal core circuit board (MCPCB) is highly recommended for applications.  
Please consult sales and marketing for additional information.



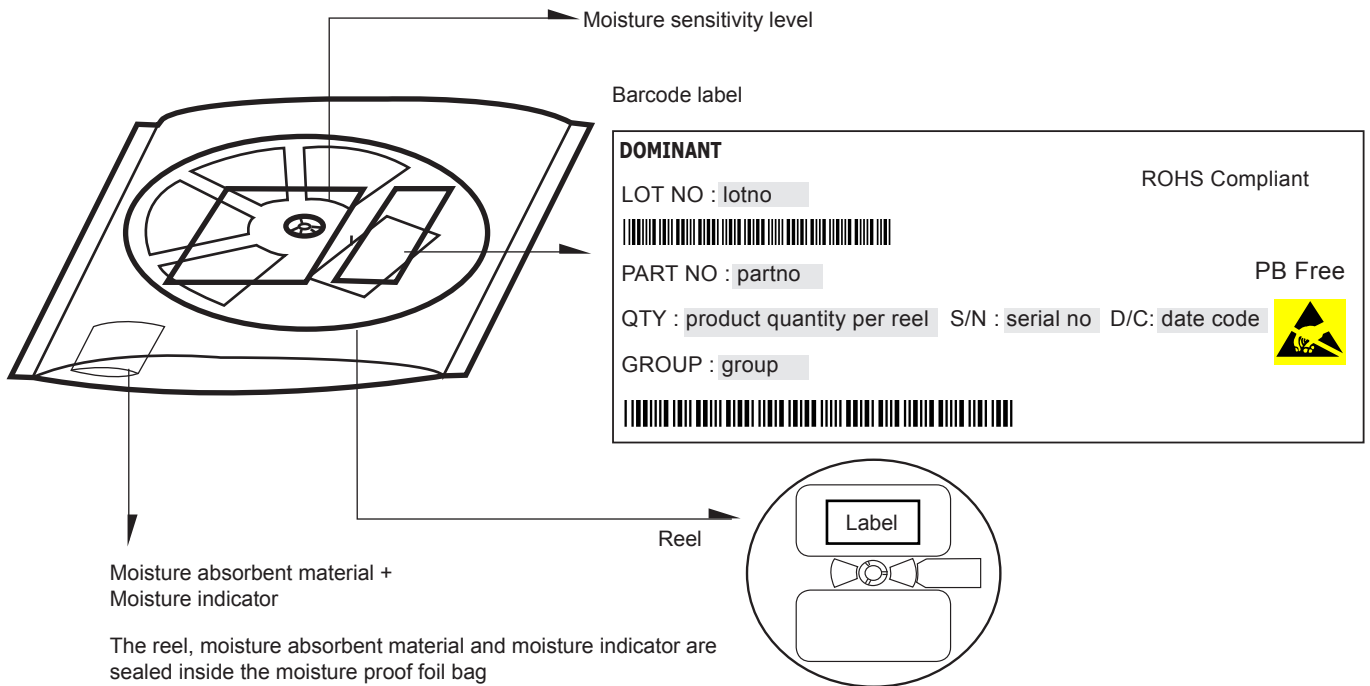




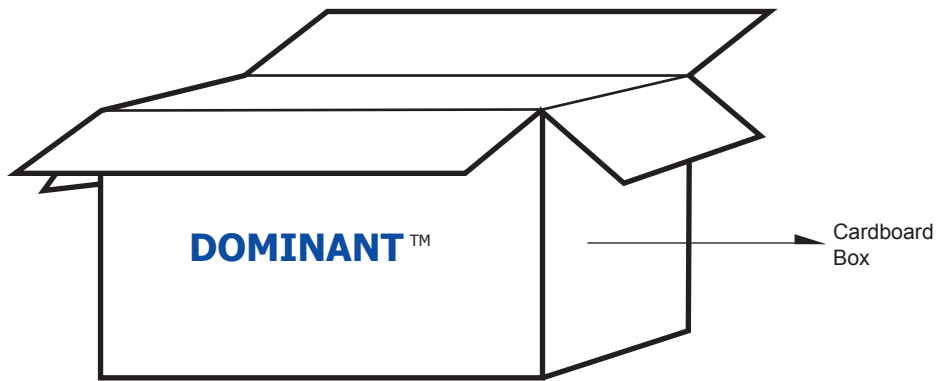
### Packaging Specification



**Packaging Specification**



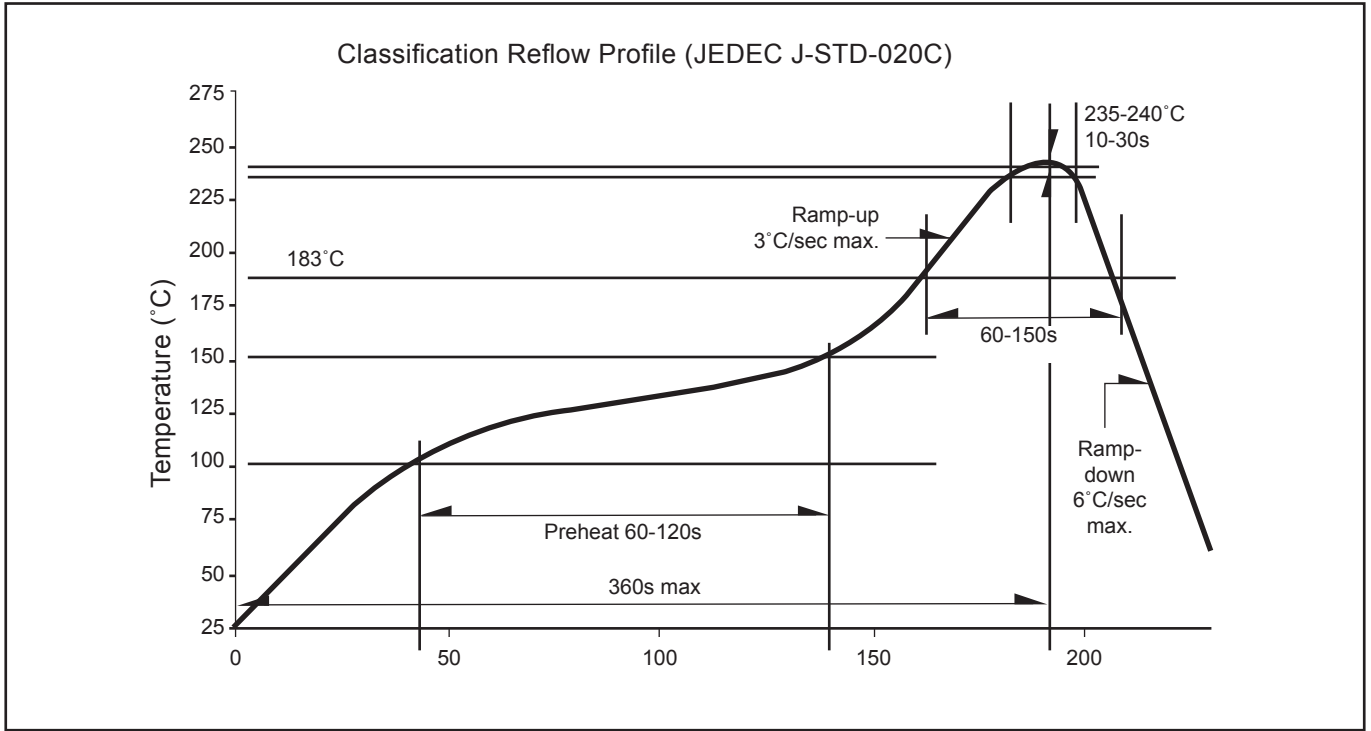
	Average 1pc SPNova	1 completed bag (2000pcs)
<b>Weight (gram)</b>	0.188	800 ± 10



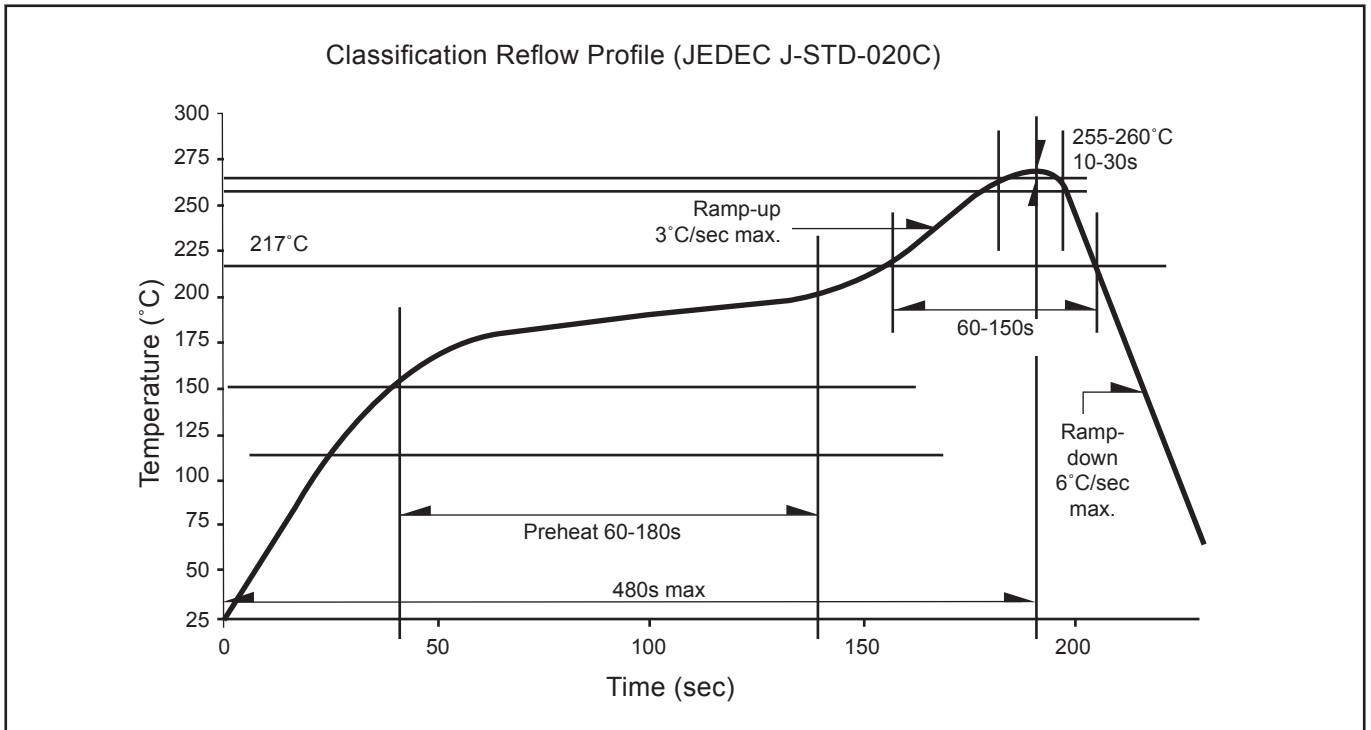
**For SPNova™**

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 Sn-Pb IR-Reflow Soldering Profile**



**Recommended Pb-free Soldering Profile**



**Revision History**

Page	Subjects	Date of Modification
-	Initial Release	03 Jun 2008
-	Update company name	05 Apr 2010
2	Add partno: NPF-MSD-NP-1 Not for new design: NPF-MSD-MN-1	23 Dec 2010
-	Correction on SPNova	07 Jul 2011

**NOTE**

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## 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>.

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