DOMINANT™
Opto Technologies
Innovating Illumination

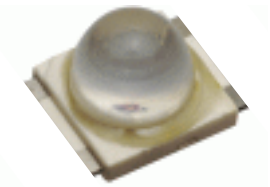
DATA SHEET:

SPNova™

1-Watt AlInGaP With Lens

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.
> 40° 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 400 mA.
> Low thermal resistance; Rth $_{(js)}$ = 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: signal lighting, Center High Mounted Stop Light (CHMSL)
> Communication: indicator and backlight in mobilephone.
> Industry: illuminated advertising.
> Lighting: architecture lighting, general lighting, garden light, channel light.

© 2005 SPNova is a trademark of DOMINANT Opto Technologies.
All rights reserved. Product specifications are subject to change without notice.

Optical Characteristics at Tj=25˚C

Part Ordering Number	Color	Viewing Angle˚	Luminous Intensity @ 400mA (mcd) Min.	Typ.	Max.	Luminous Flux @ 400mA (lm) Typ.
NPR-MS4-AHK-1	Red, 625	40	35500.0	56000.0	71500.0	30.0
NPY-MS4-AHJ-1	Yellow, 587	40	35500.0	45000.0	56000.0	35.0

NOTE
1. Luminous intensity is measured with an accuracy of ± 11%.
2. All optical and electrical data are measured at 25˚C. Adequate cooling is important to ensure accurate measurement.
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 Tj=25˚C

Part Number	Vf @ If = 400mA Min. (V)	Typ. (V)	Max. (V)	Vr @ Ir = 100uA Min. (V)
NPR	2.2	2.5	2.8	12
NPY	2.2	2.5	2.8	12

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.	400	mA
Peak pulse current	500	mA
Reverse voltage	12	V
ESD threshold (HBM)	2	kV
LED junction temperature	125	˚C
Operating temperature	-40 … +100	˚C
Storage temperature	-40 … +100	˚C
Power dissipation.	1200	mW

Wavelength Grouping at Tj=25˚C

Color	Group	Wavelength distribution (nm)
NPR; Red	Full	620 - 630
NPY; Yellow	Full	585 - 597
	A	585 - 588
	B	588 - 591
	C	591 - 594
	D	594 - 597

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

Luminous Intensity Group at Tj=25˚C

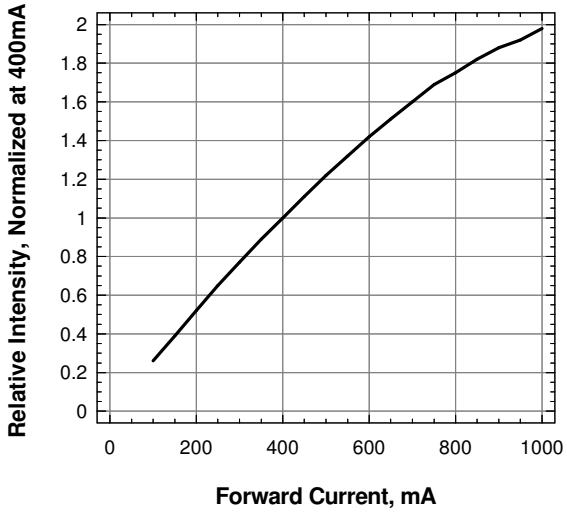
Brightness Group	Luminous Intensity @ IF = 400mA (mcd)
AH	35500.0...45000.0
AJ	45000.0...56000.0
AK	56000.0...71500.0

Vf Binning (Optional)

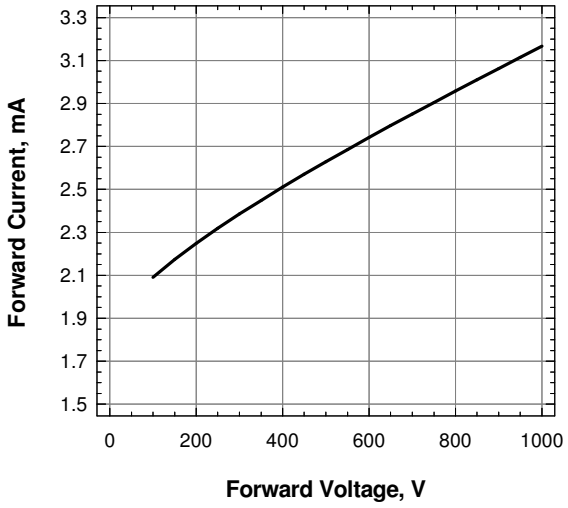
Vf Bin @ 400 mA	Forward Voltage (V)
02	2.2 ... 2.5
03	2.5 ... 2.8

Forward voltage, Vf is measured with an accuracy of ±0.1 V.
Please consult sales and marketing for special part number to incorporate Vf binning.

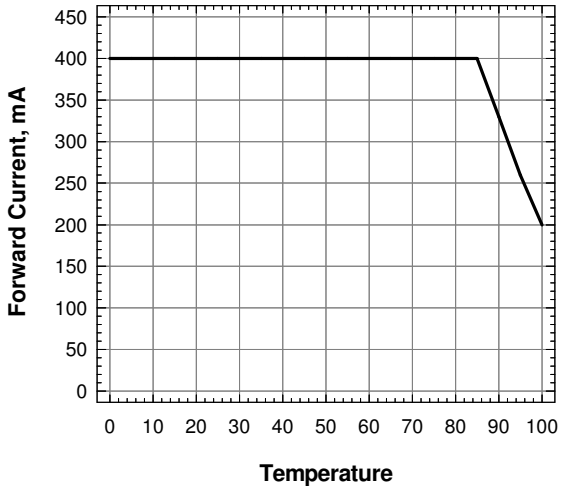
Relative Intensity Vs Forward Current



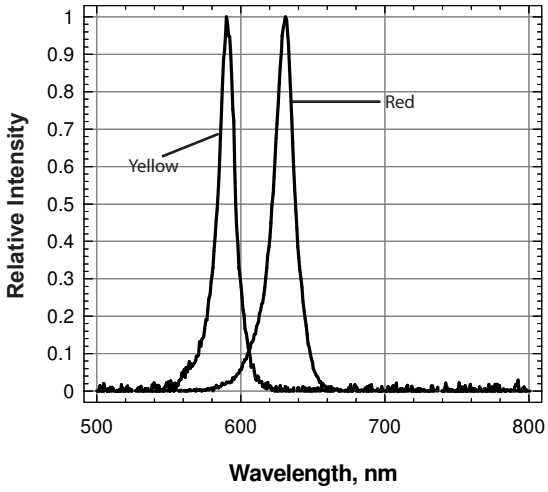
Forward Current Vs Forward Voltage



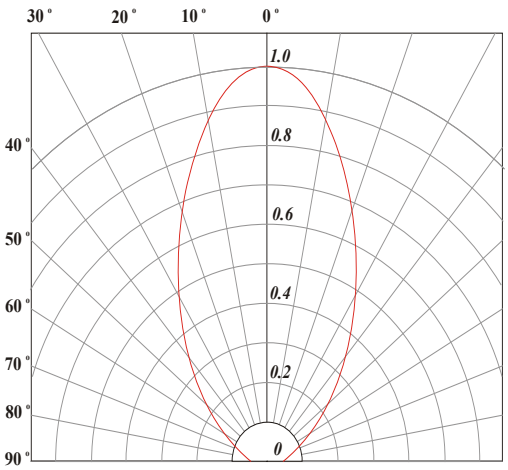
Forward Current Vs Temperature



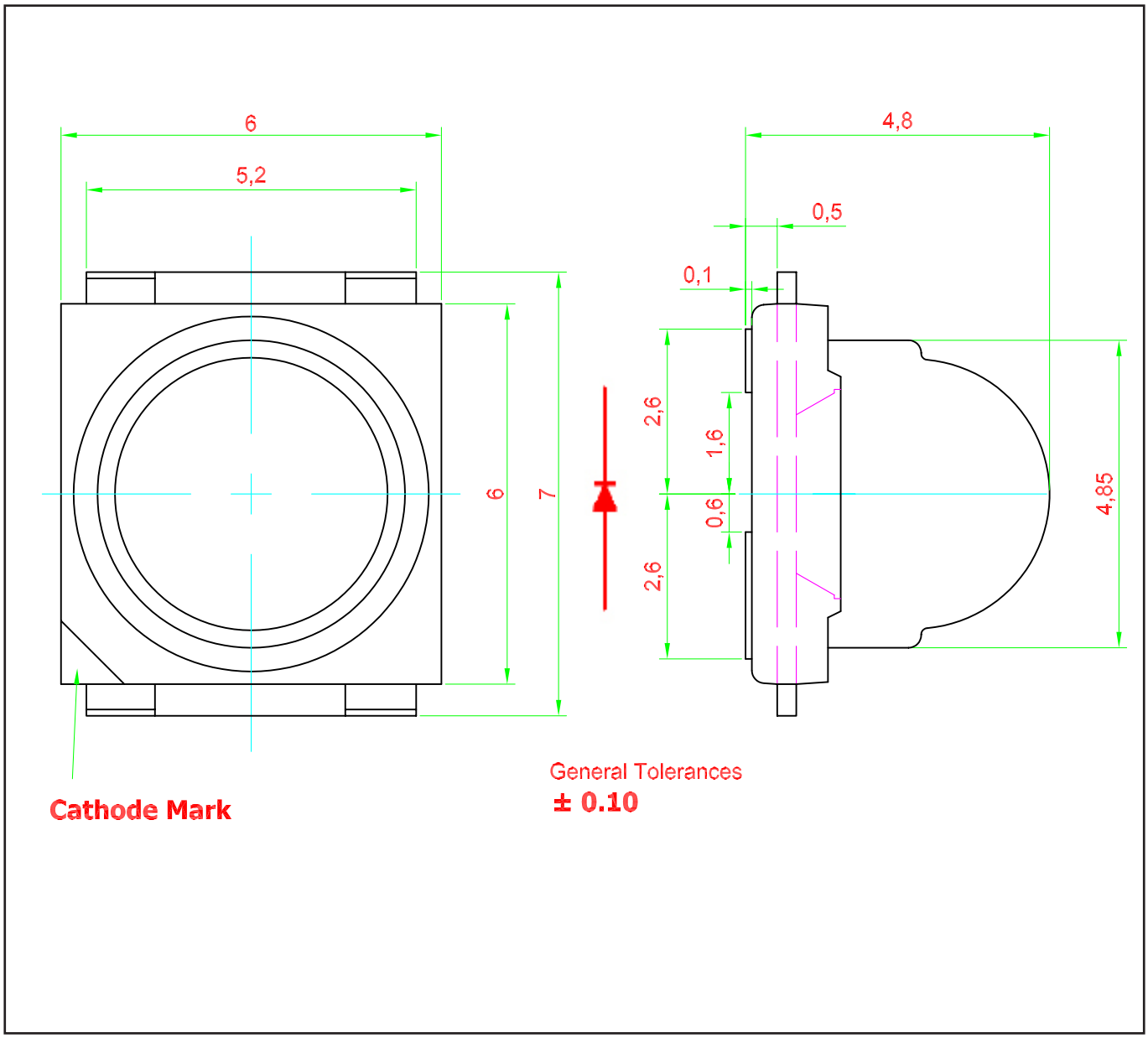
Relative Intensity Vs Wavelength



Radiation Pattern



SPNova™ • AlInGaP with Lens : 1-Watt Package Outlines

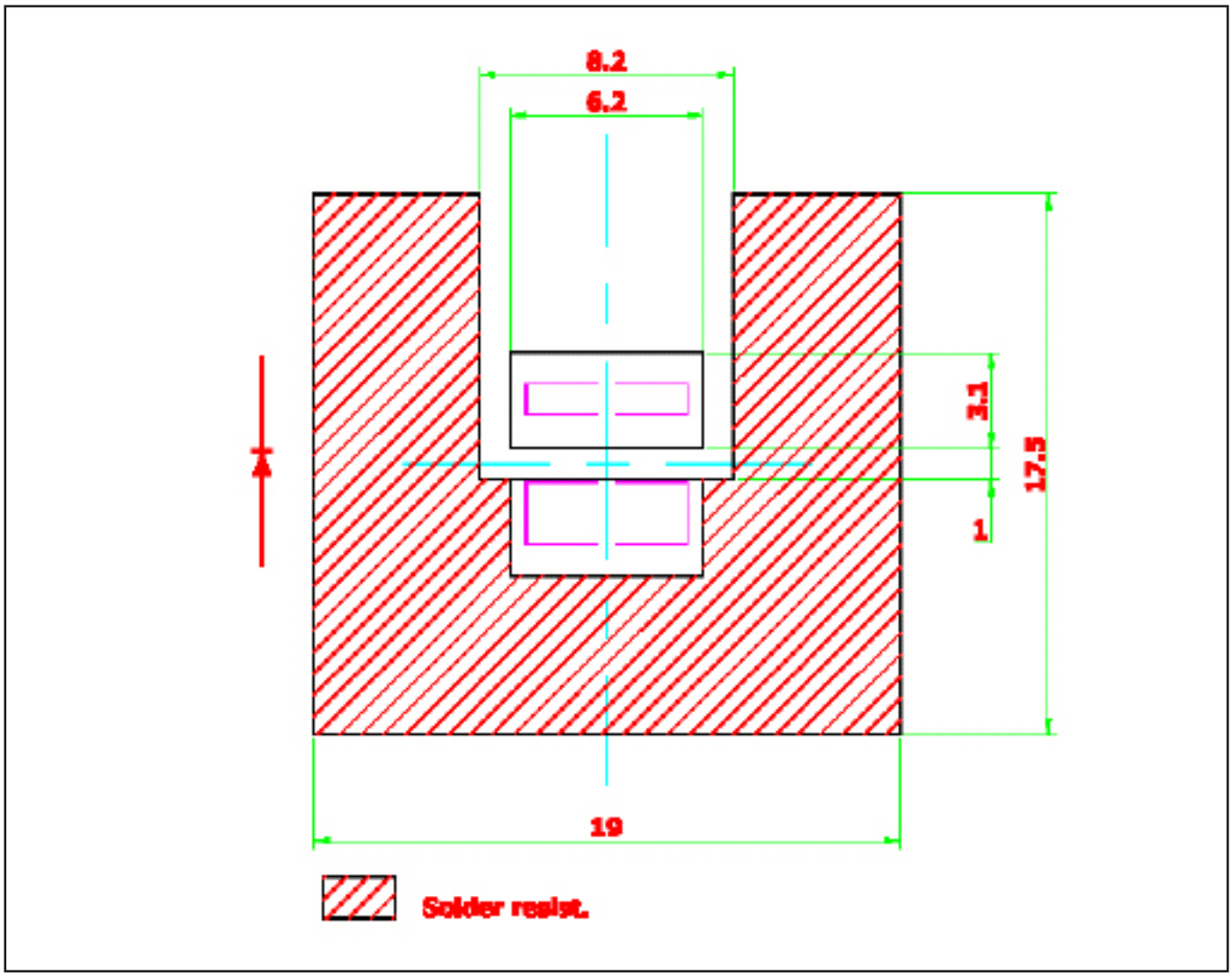


Material

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

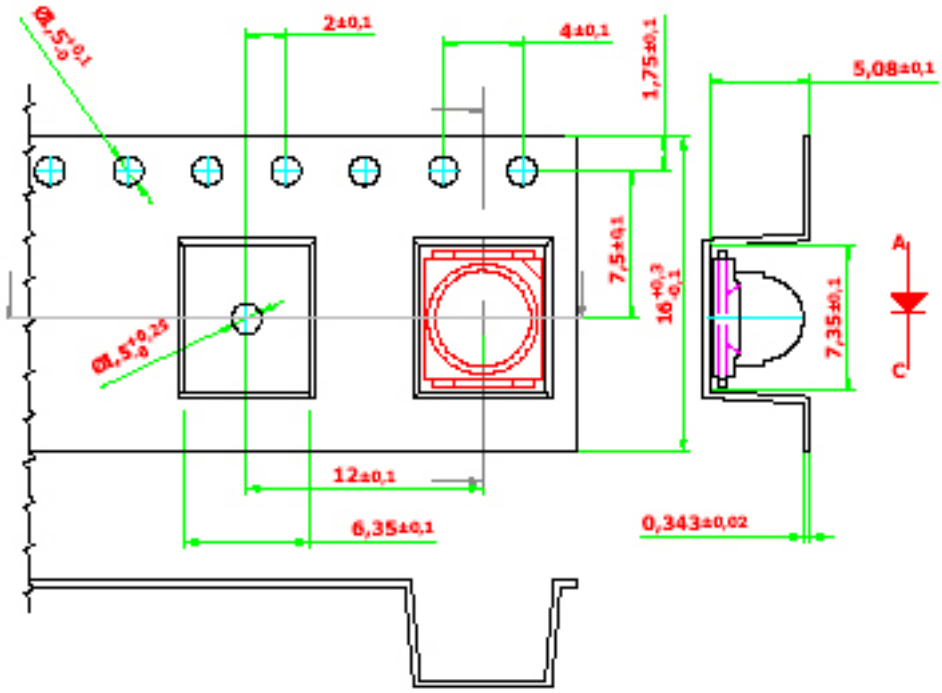
Solder Pad Design

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.

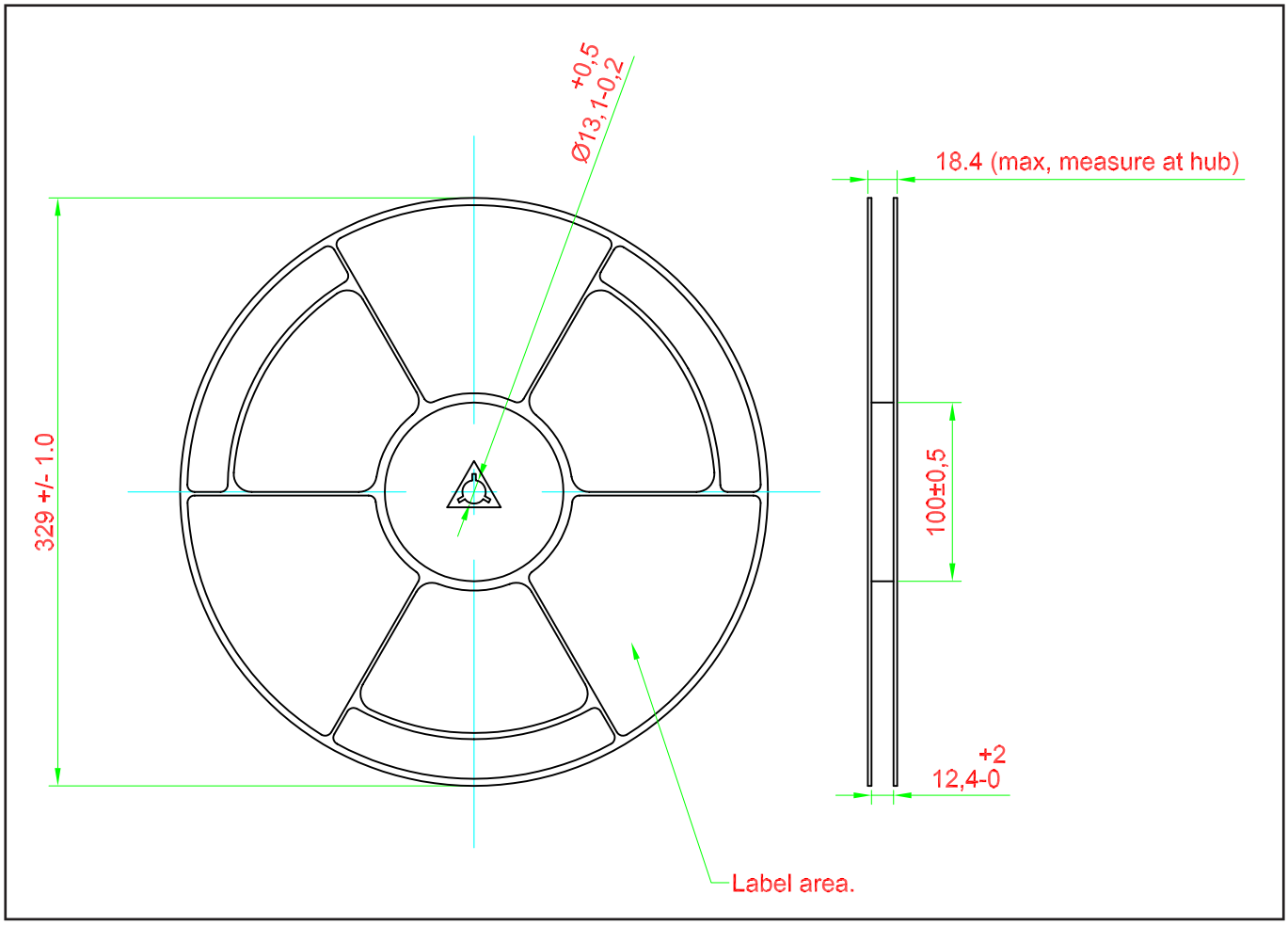


Taping and orientation

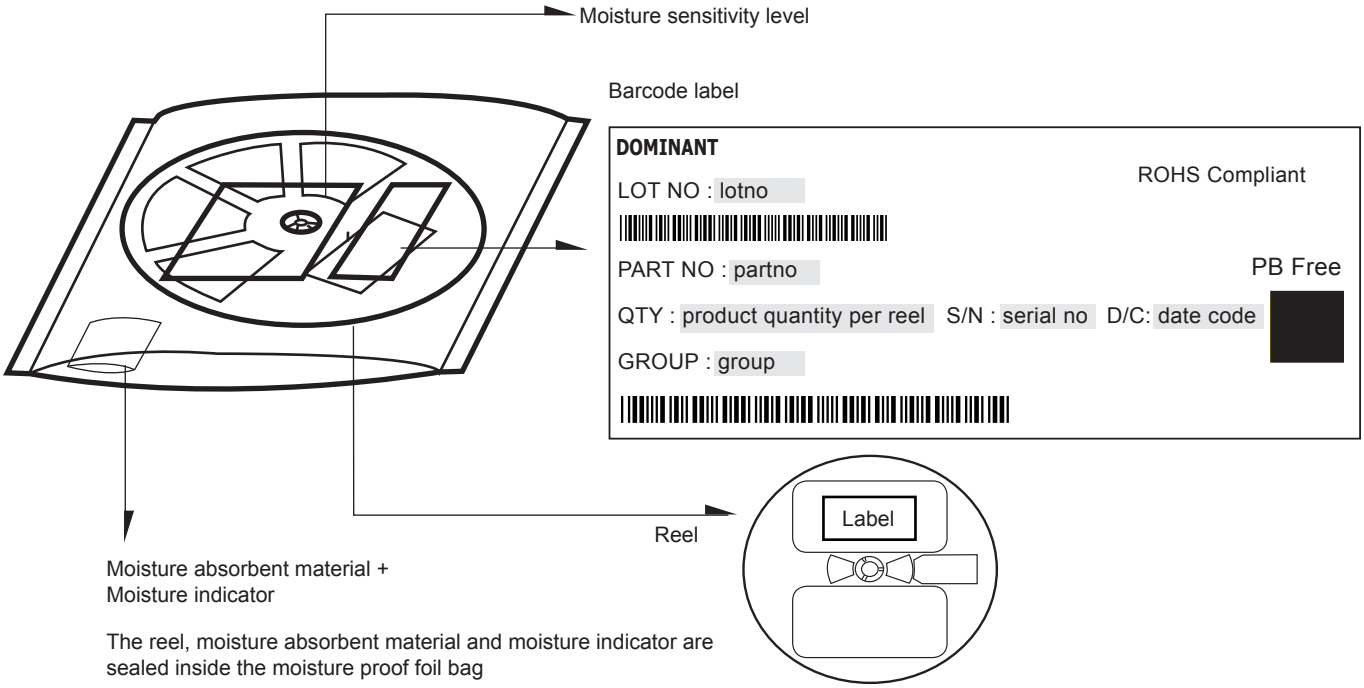
- Reels come in quantity of 1000 units.
- Reel diameter is 330 mm.



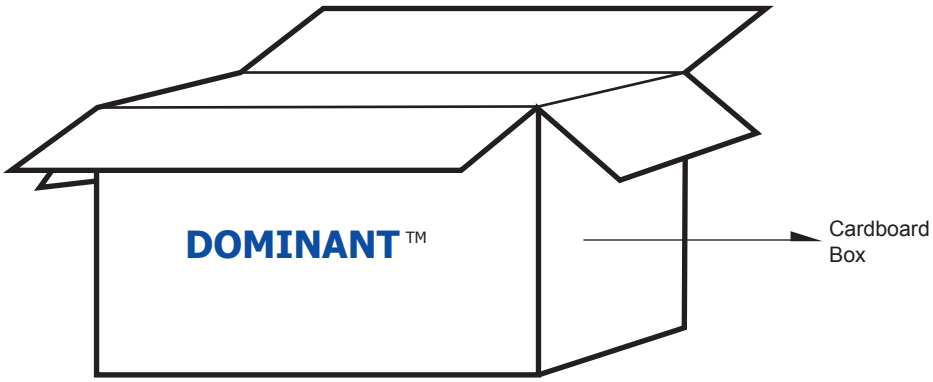
Packaging Specification



Packaging Specification



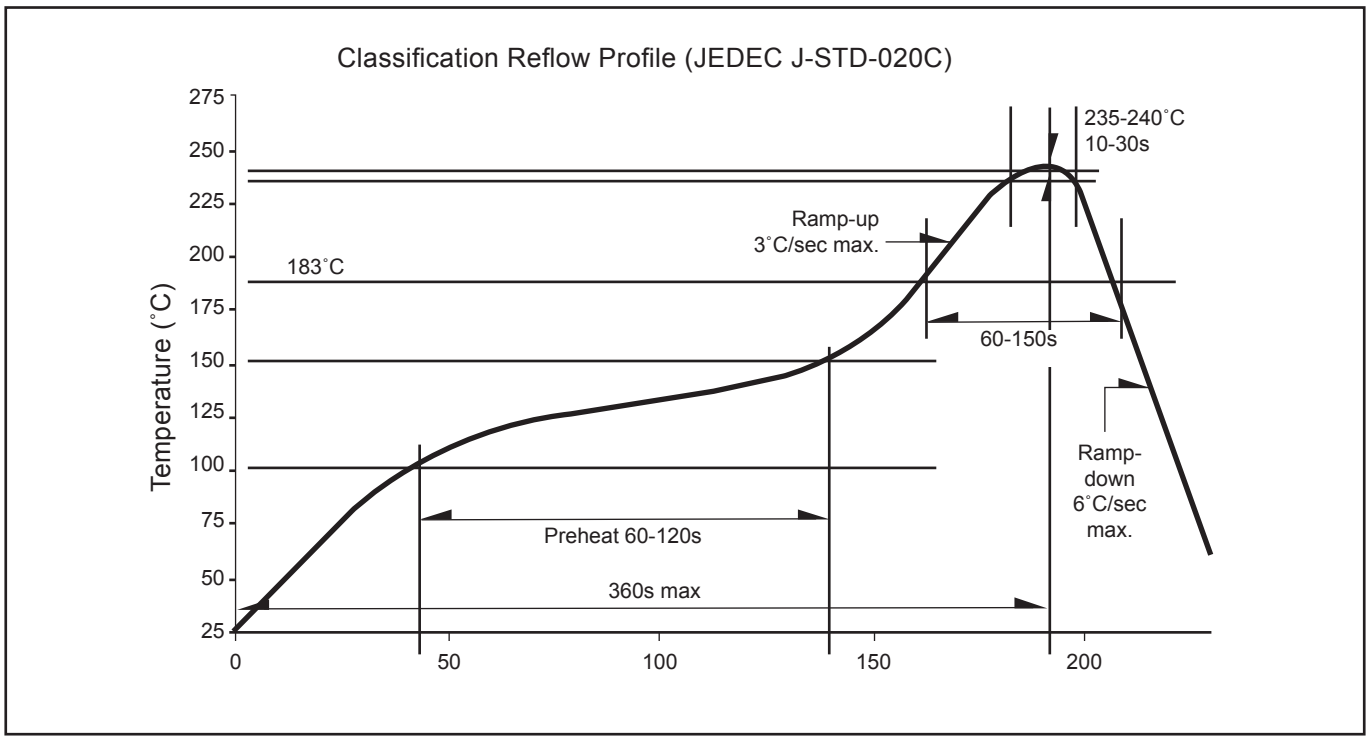
	Average 1pc SPNova	1 completed bag (1000pcs)
Weight (gram)	**0.248**	**600 ± 10**



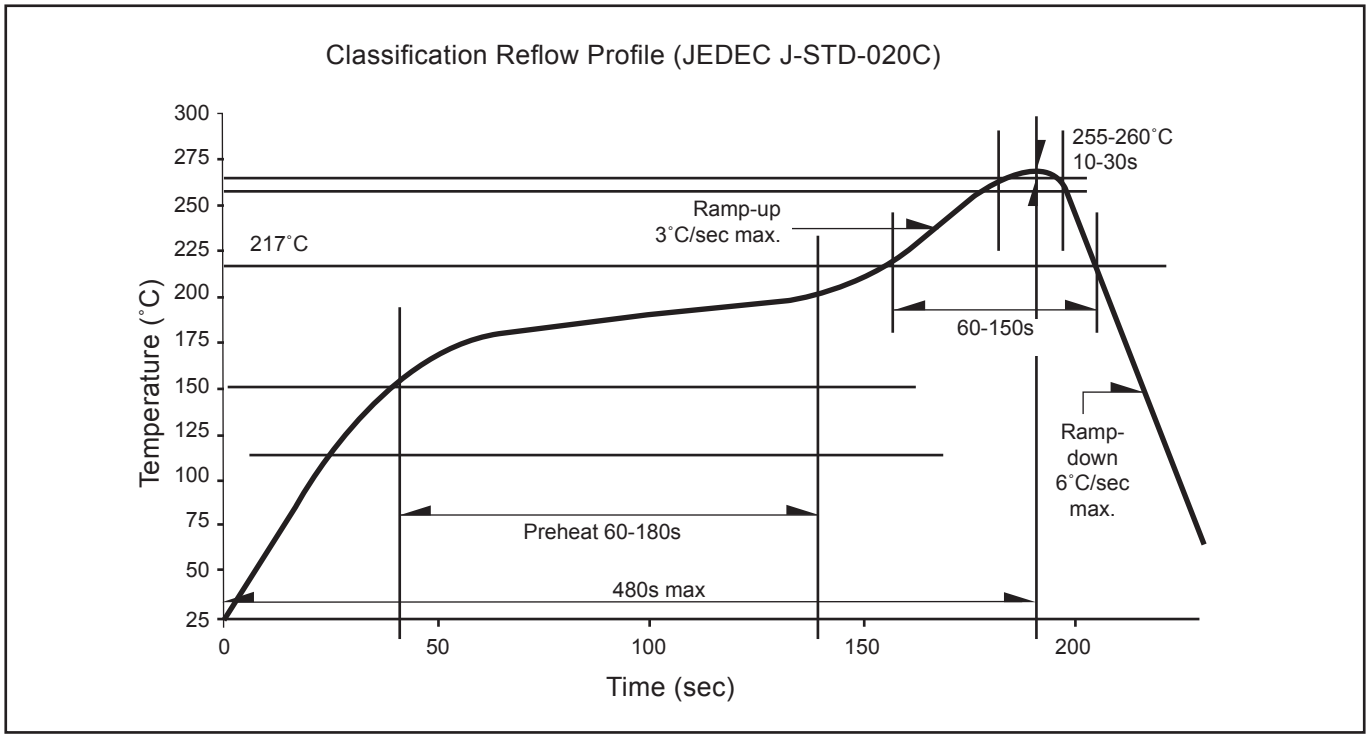
For SPNova™

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	20,000 MAX

Recommended Sn-Pb IR-Reflow Soldering Profile



Recommended Pb-free Soldering Profile



Revision History

Page	Subjects	Date of Modification
-	Initial Release	16 Jan 2009
-	Update company name	05 Apr 2010
-	Correction on SPNova	07 Jul 2011

NOTE

All the information contained in this document is considered to be reliable at the time of publishing. However, DOMINANT Opto Technologies does not assume any liability arising out of the application or use of any product described herein.

DOMINANT Opto Technologies reserves the right to make changes to any products in order to improve reliability, function or design.

DOMINANT Opto Technologies products are not authorized for use as critical components in life support devices or systems without the express written approval from the Managing Director of DOMINANT Opto Technologies.

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.

Please contact us for more information:

Head Quarter

DOMINANT Opto Technologies 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 Opto Technologies Sdn. Bhd. Shanghai Representative Office

Room 305, No 1600 Zhong Shan Road (W), Shanghai, 200235 P. R. China
Tel: +86 21 6428 6428 Fax: +86 21 6428 6880
E-mail: sales_china@dominant-semi.com

DOMINANT Korea Sales Office

DOMINANT Semiconductors Korea Inc.
RM 211 SUNTEAK CITY APT. 513-15 Sangdaewon-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do, 462-725, Korea
Tel: +82-31-701-5203 Fax: +82-31-701-5204
E-mail: 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

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; 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

DOMINANT™
Opto Technologies
Innovating Illumination