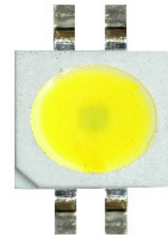


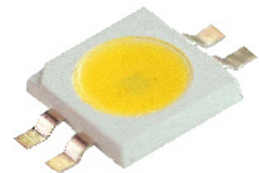
KNova™

Featuring a staggering brilliance and significant flux output, the KNova™ showcases the latest technological advent in this range. With its extremely high level of brightness it is 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 90 lumens at 350mA
- > 120° viewing angle.
- > Long life-time up to 50,000hours.
- > Designed for high current drive; max current rated at 500mA.
- > Low thermal resistance; $R_{th(j-s)} = 8 \text{ K/W}$.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to industrial standard IR reflow soldering process.
- > Environmental friendly; RoHS compliance.



Applications:

- > Automotive: exterior applications
- > Lighting: architecture lighting, general lighting, garden light, channel light.

Optical Characteristics at Tj=25°C

Part Ordering Number	Color	Viewing Angle°	Luminous Flux @ 350mA (lm)		
			Min.	Typ.	Max.
NKW-RGG-TU-1	White	120	67.2	90.0	113.6

NOTE

1. Luminous flux is measured with an accuracy of $\pm 11\%$.
2. Luminous flux is measured with a 25 ms pulse.
3. Typical CRI of 70.
4. 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 = 350mA		
	Min. (V)	Typ. (V)	Max. (V)
NKW-RGG	3.0	3.5	4.0

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

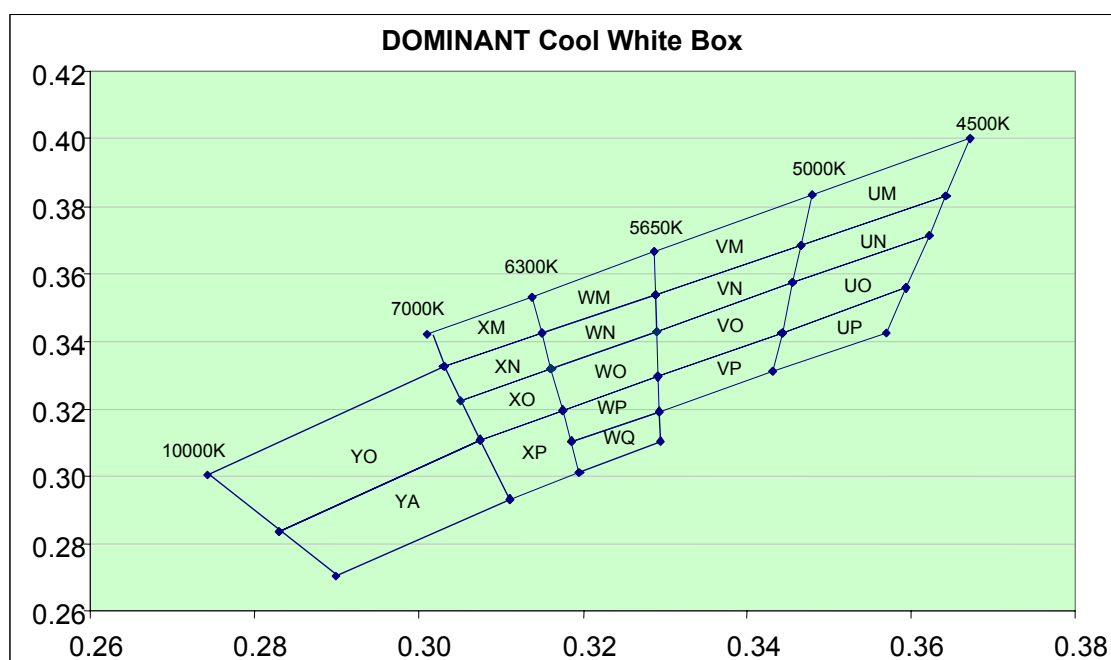
Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	500	mA
Peak pulse current	1000	mA
Reverse voltage	Not designed for reverse bias	V
ESD threshold (HBM)	2000	V
LED junction temperature	150	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C
Thermal resistance		
- Junction / ambient, $R_{th JA}$	40	K/W
- Junction / solder point, $R_{th JS}$	8	K/W
(Attached to Standard DOMINANT KNova Star MCPCB with 21mm diameter.)		

Characteristics

	Symbol	Part Number	Value	Unit
Temperature coefficient of V_F (typ) $I_F = 350\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$	TC_V	NKW-RGG	-1.50	mV / K
Temperature coefficient of I_V (typ) $I_F = 350\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$	TC_{IV}	NKW-RGG	0.27	% / K
Temperature coefficient of C_x (typ) $I_F = 350\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$	TC_{Cx}	NKW-RGG	-0.0002	
Temperature coefficient of C_y (typ) $I_F = 350\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$	TC_{Cy}	NKW-RGG	-0.0002	

Color Bin



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

Bin		1	2	3	4
YO	Cx	0.274	0.303	0.308	0.283
	Cy	0.301	0.333	0.311	0.284
YA	Cx	0.283	0.308	0.311	0.290
	Cy	0.284	0.311	0.293	0.270
XM	Cx	0.301	0.314	0.315	0.303
	Cy	0.342	0.353	0.343	0.333
XN	Cx	0.303	0.315	0.316	0.305
	Cy	0.333	0.343	0.332	0.322
XO	Cx	0.305	0.316	0.318	0.308
	Cy	0.322	0.332	0.319	0.311
XP	Cx	0.308	0.318	0.320	0.311
	Cy	0.311	0.319	0.301	0.293
WM	Cx	0.314	0.329	0.329	0.315
	Cy	0.353	0.366	0.354	0.343
WN	Cx	0.315	0.329	0.329	0.316
	Cy	0.343	0.354	0.343	0.332
WO	Cx	0.316	0.329	0.329	0.318
	Cy	0.332	0.343	0.330	0.319
WP	Cx	0.318	0.329	0.329	0.319
	Cy	0.319	0.330	0.319	0.310
WQ	Cx	0.319	0.329	0.330	0.320
	Cy	0.310	0.319	0.311	0.301
VM	Cx	0.329	0.348	0.347	0.329
	Cy	0.366	0.383	0.368	0.354

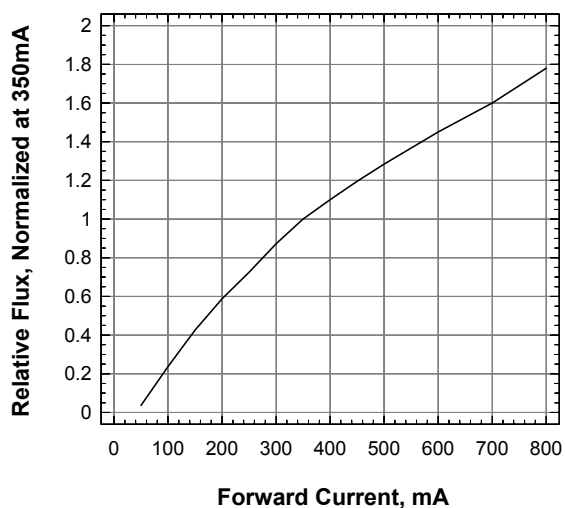
Bin		1	2	3	4
VN	Cx	0.329	0.347	0.346	0.329
	Cy	0.354	0.368	0.357	0.343
VO	Cx	0.329	0.346	0.344	0.329
	Cy	0.343	0.357	0.343	0.330
VP	Cx	0.329	0.344	0.343	0.329
	Cy	0.330	0.343	0.331	0.319
UM	Cx	0.348	0.367	0.364	0.347
	Cy	0.383	0.400	0.383	0.368
UN	Cx	0.347	0.364	0.362	0.346
	Cy	0.368	0.383	0.372	0.357
UO	Cx	0.346	0.362	0.359	0.344
	Cy	0.357	0.372	0.356	0.343
UP	Cx	0.344	0.359	0.357	0.343
	Cy	0.343	0.356	0.343	0.331

Luminous Flux Group at Tj=25°C

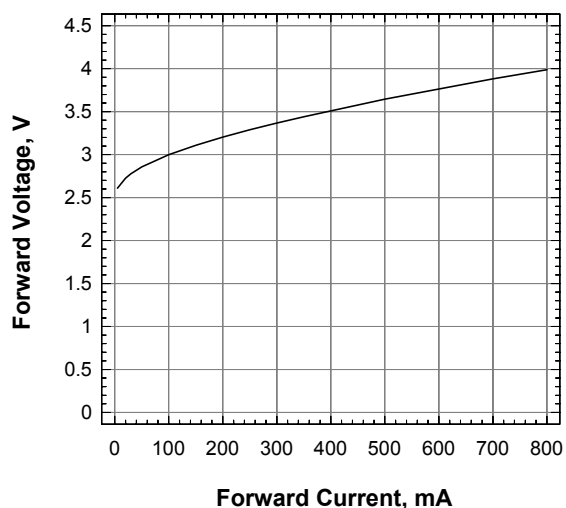
Brightness Group	Luminous Flux (lm)
T2	67.2...76.5
T3	76.5...87.4
U2	87.4...99.4
U3	99.4...113.6

Luminous flux is measured with an accuracy of $\pm 11\%$.

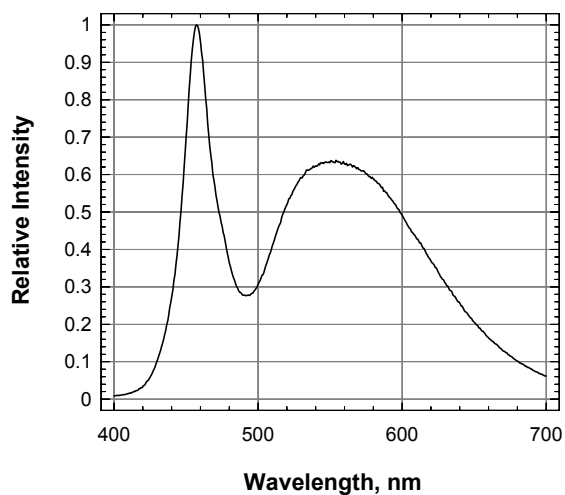
Relative Flux Vs Forward Current



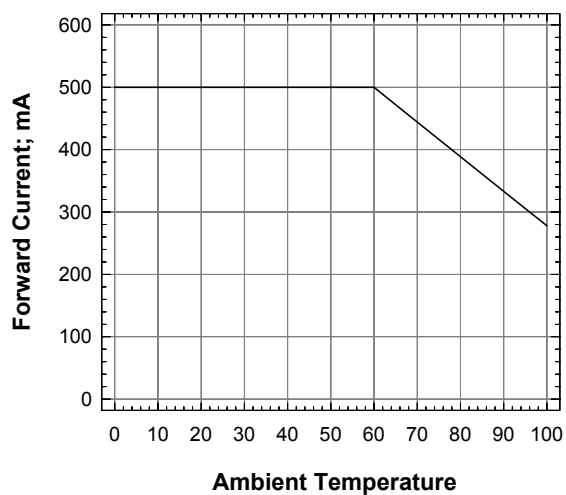
Forward Voltage Vs Forward Current



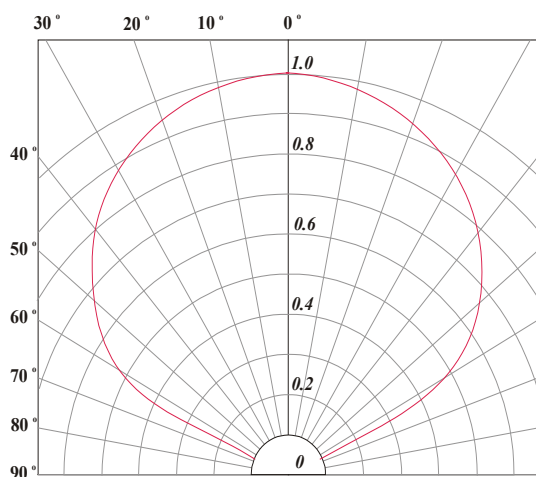
Relative Intensity Vs Wavelength



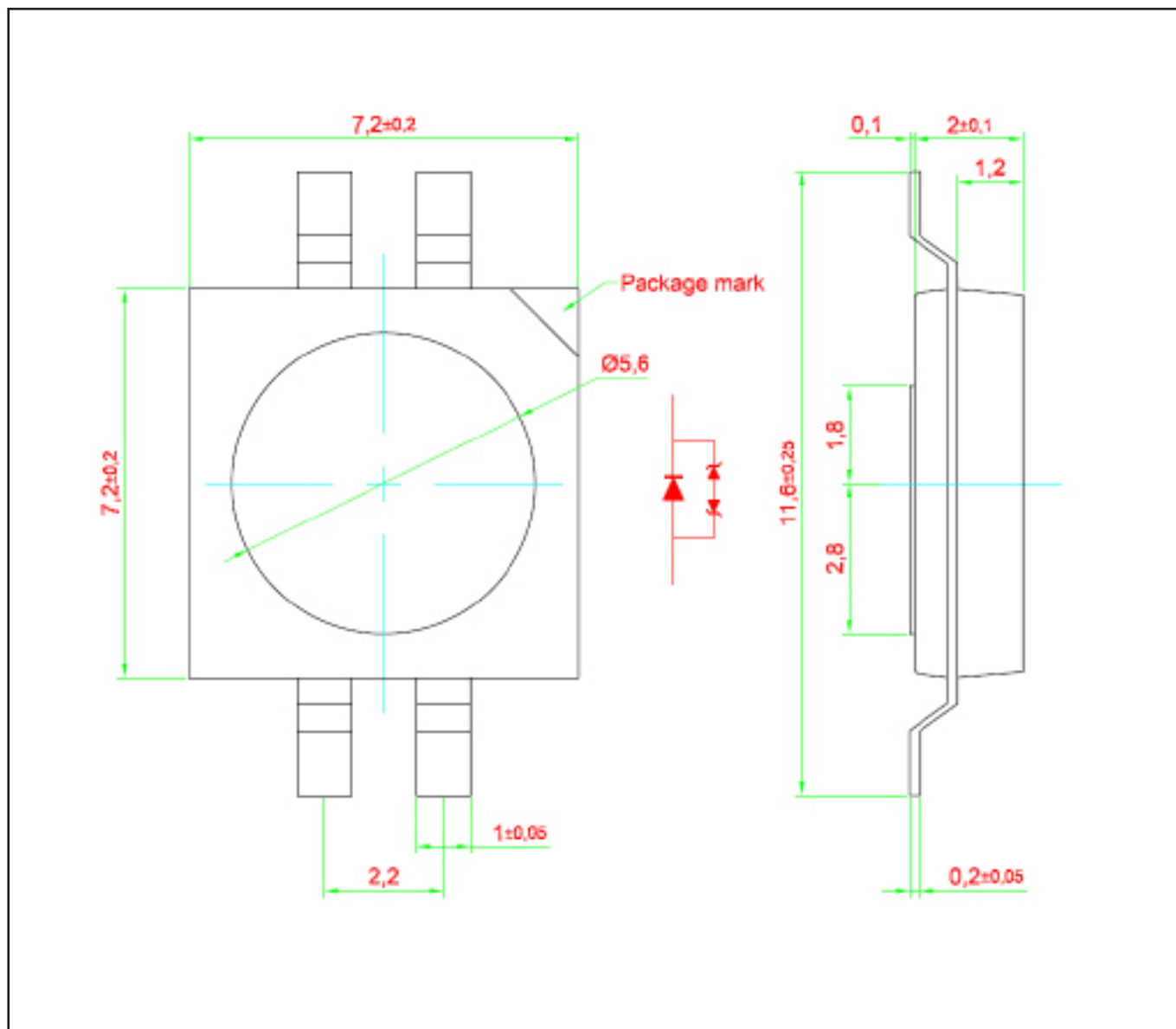
Forward Current Vs Ambient Temperature



Radiation Pattern



K SPNova™ • InGaN White : NKW-RGG Package Outlines

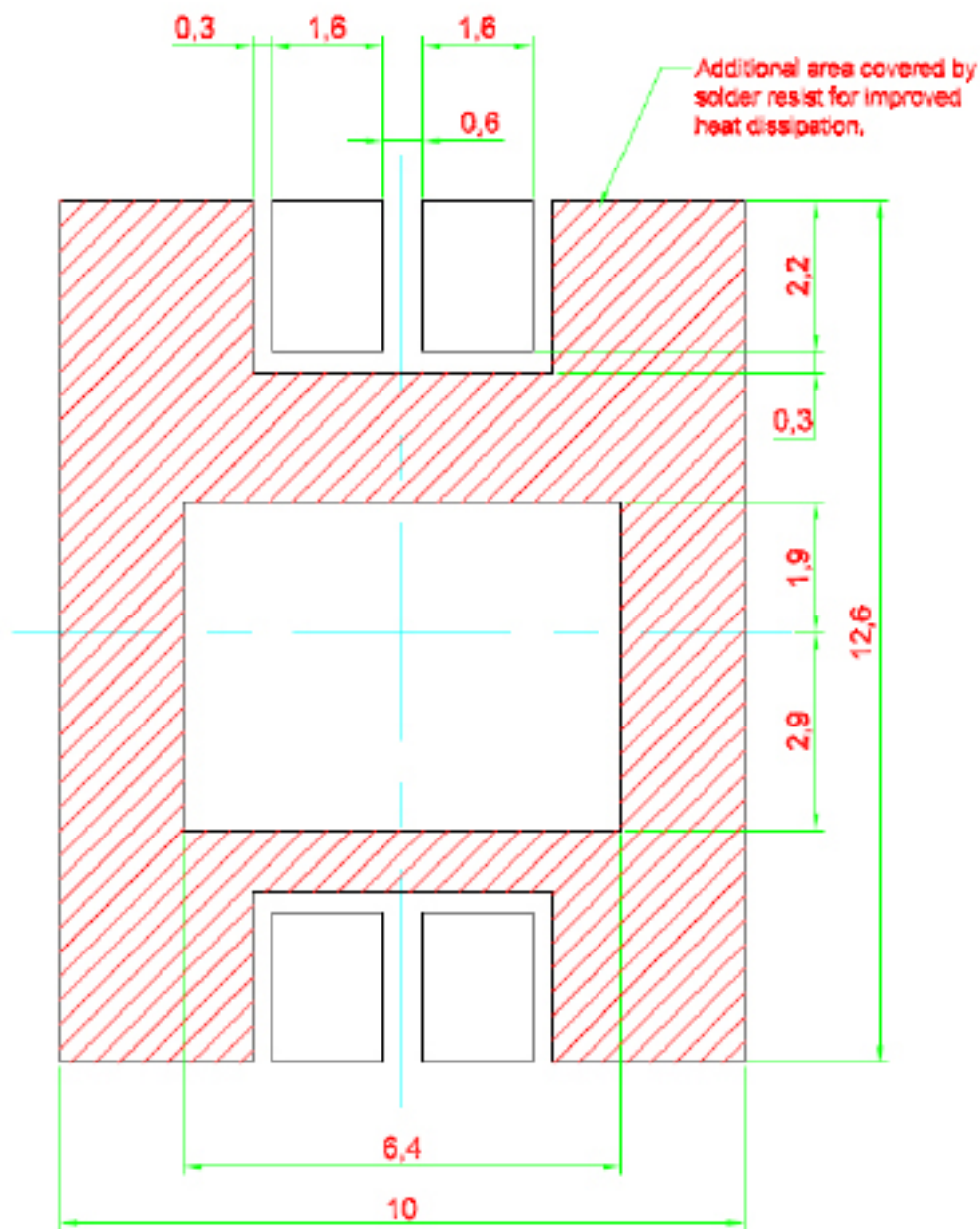


Material

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

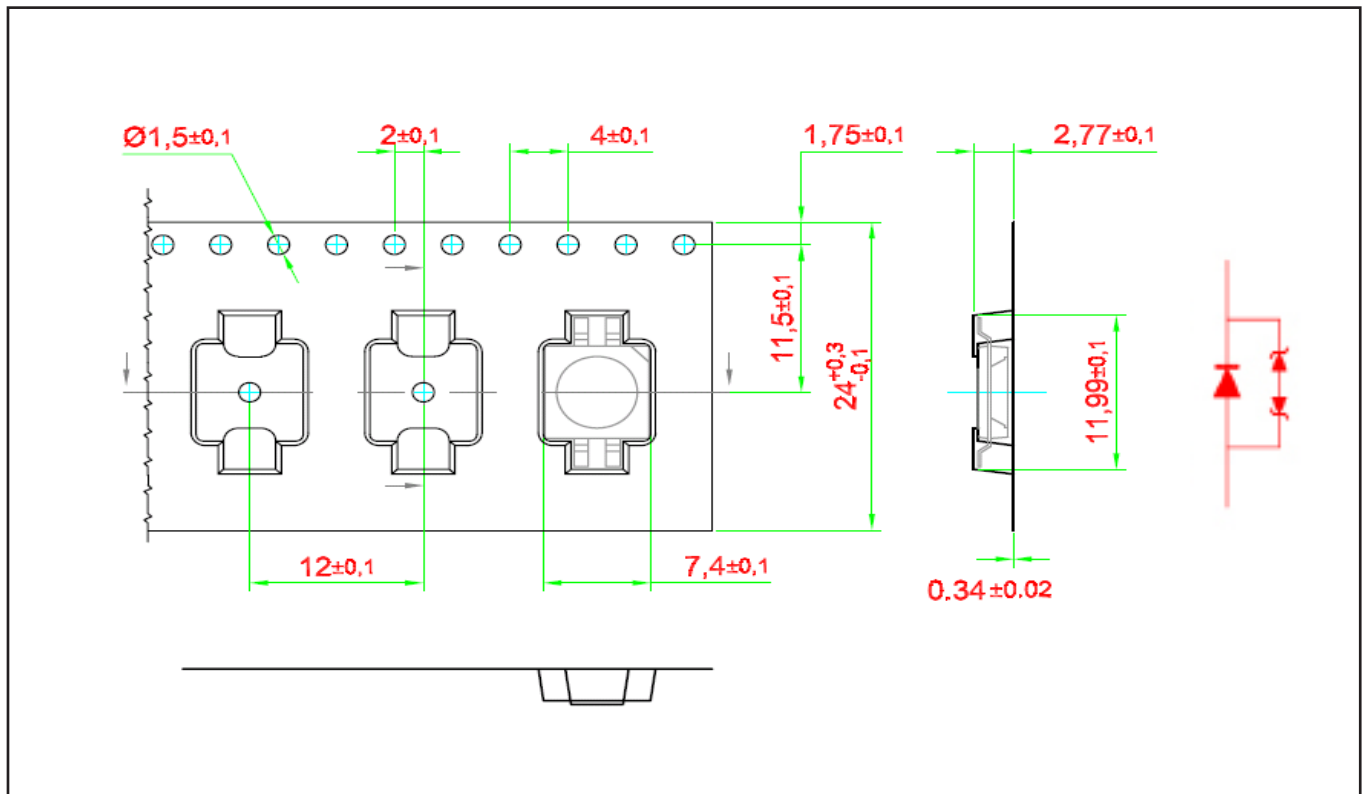
Solder Pad Design

Please note that center haet-sink area should be soldered to provide thermal connection. Heat-sink is not electrically isolated. Do not electrically connect to the heat-sink. Recommended solder paste thickness of 0.15mm.

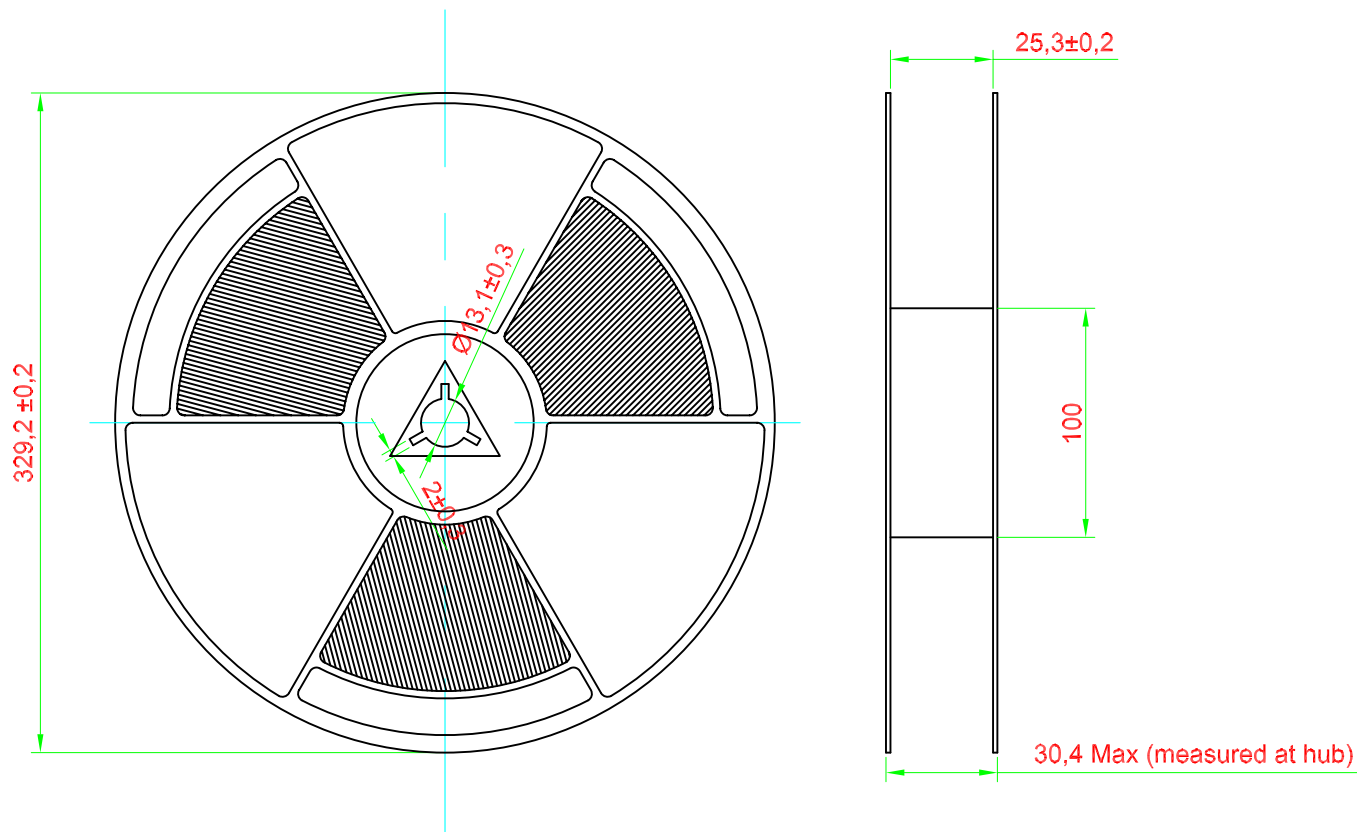


Taping and orientation

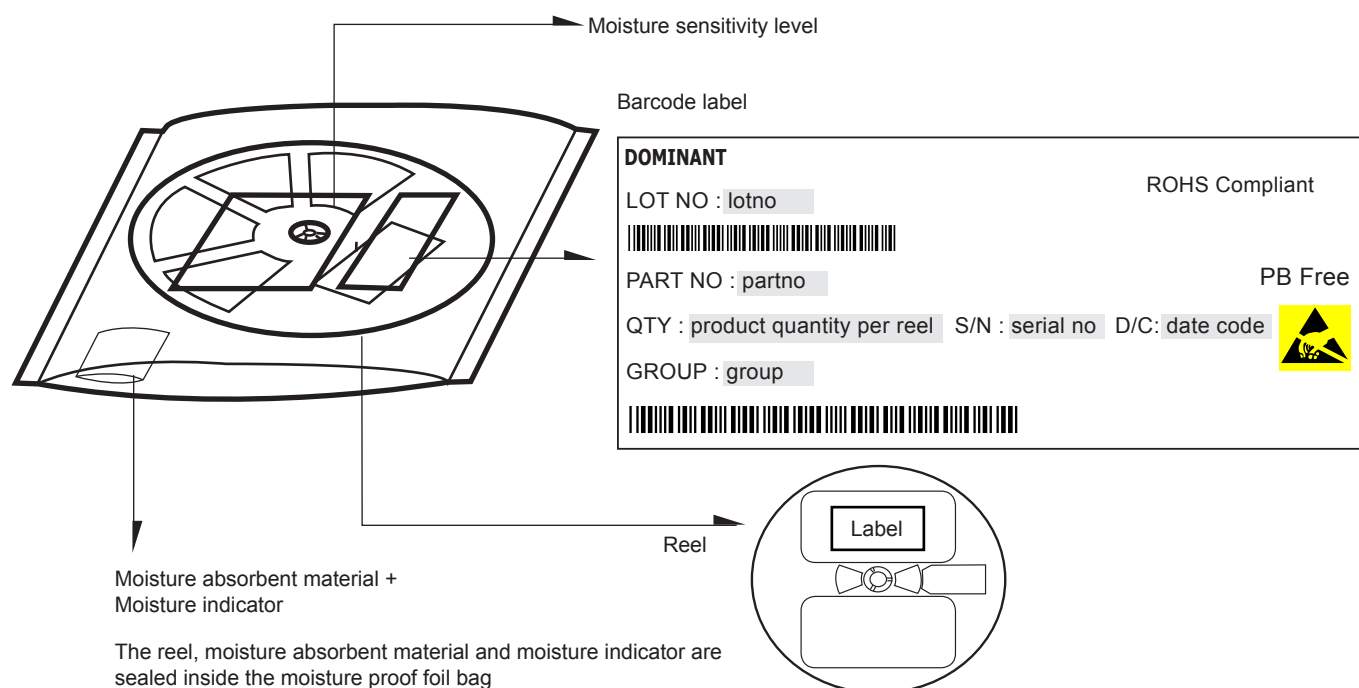
- Reels come in quantity of 1000 units.
- Reel diameter is 330 mm.



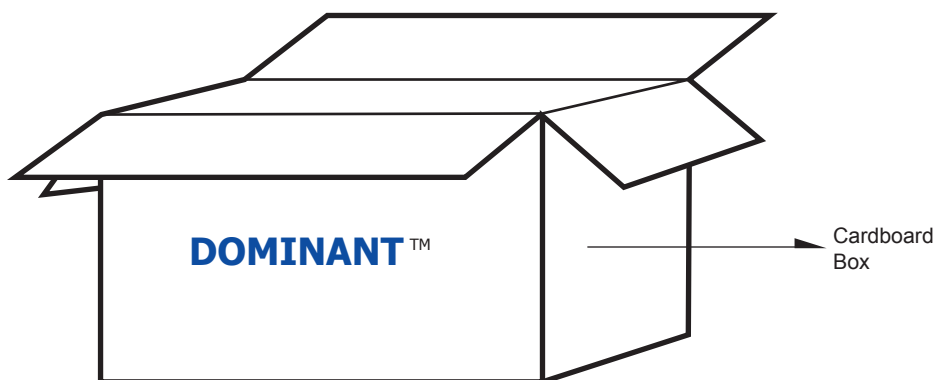
Packaging Specification



Packaging Specification



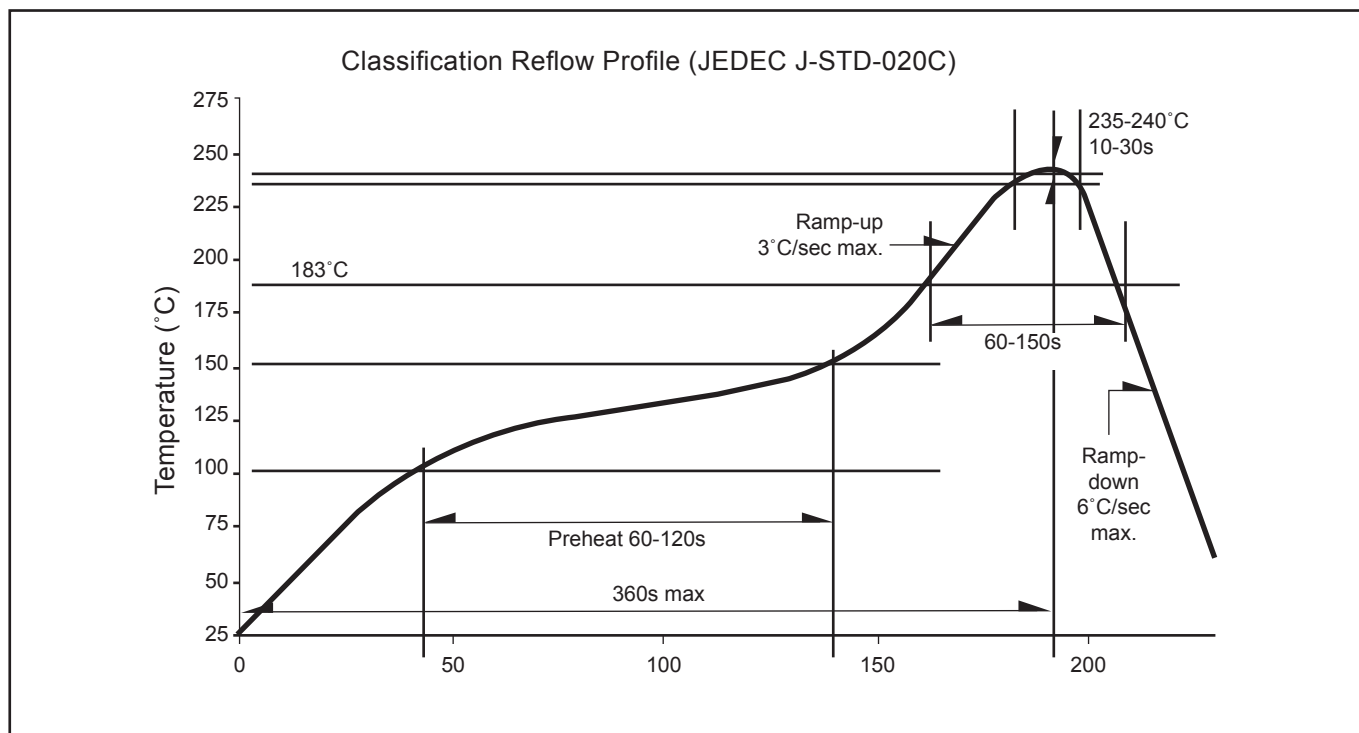
	Average 1pc K SPNova	1 completed bag (1000pcs)
Weight (gram)	0.301	725 ± 10



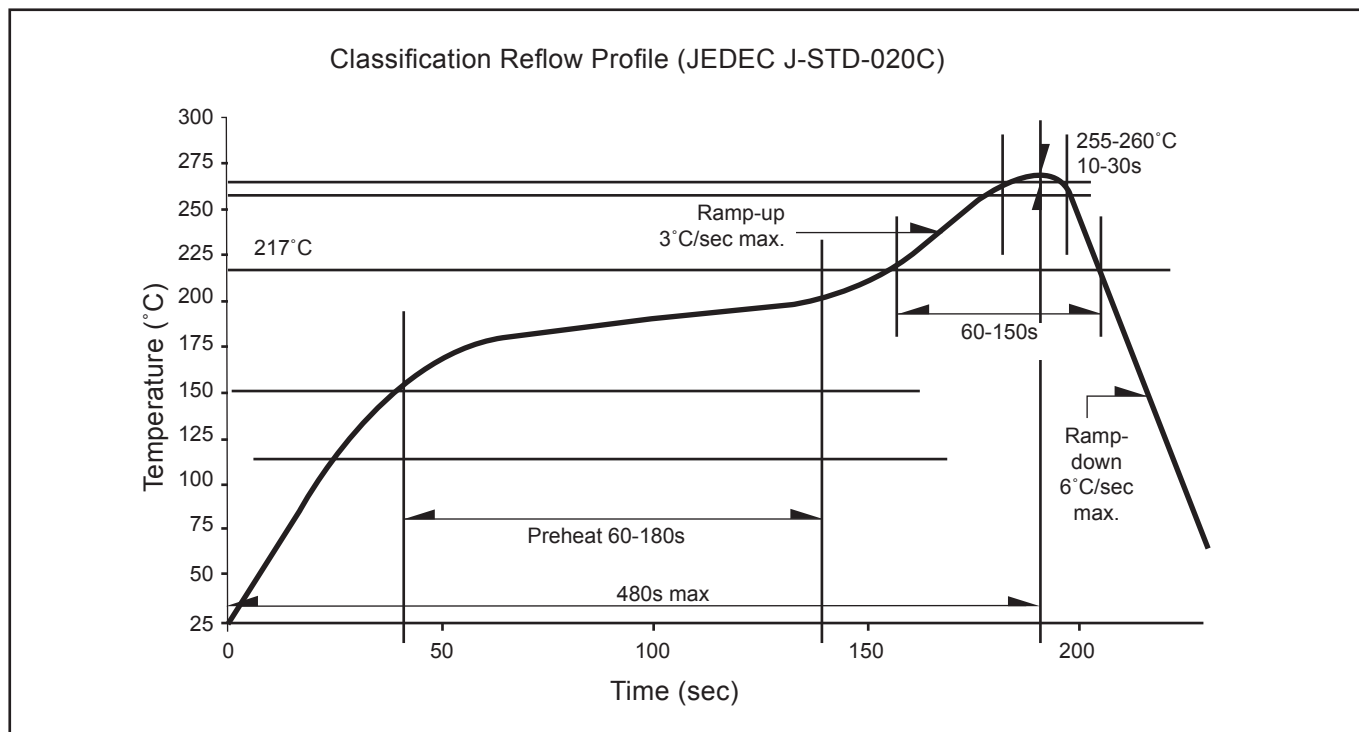
For SPNova™

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	14 Jul 2009
3	- Add Thermal Characteristics - Add Forward Current Vs Ambient Temperature graph	13 Aug 2009
-	Update company name	05 Apr 2010
10	Update packaging specification	17 Feb 2011
9	Update Taping and Orientation	23 May 2011
7,11	Correction on SPNova	22 Aug 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>.

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

Rm 305, Hongwell International Plaza No. 1600 Zhong Shan (W) Rd, Xuhui District, Shanghai, China 200235
Tel: +86 21 5403 5655, +86 21 5403 5818 Fax: +86 21 5403 6055
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

