

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.
- > 120° viewing angle.
- > Designed for high current drive; max current rated at 1 A.
- > 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 @ 400mA (lm)			Luminous Flux @ 700mA Typ.
			Min.	Typ.	Max.	
NKR-NGG-R3S-1	Red, 625nm	120	45.2	50.0	67.2	85.0
NKA-NGG-R3S-1	Amber, 615nm	120	45.2	55.0	67.2	95.0
NKY-NGG-R3S-1	Yellow, 587nm	120	45.2	48.0	67.2	82.0
NKY-NGG-RS2-1	Yellow, 587nm	120	39.8	45.0	59.0	77.0

NOTE

1. Luminous flux is measured with an accuracy of $\pm 11\%$.
2. Luminous flux is measured with a 25 ms pulse.
3. 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			Vf @ If = 700mA	Vr @ Ir = 10uA
	Min. (V)	Typ. (V)	Max. (V)	Typ. (V)	Min. (V)
NKx-NGG	2.0	2.3	3.0	2.6	12

Forward voltage 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	1000	mA
Peak pulse current	1000	mA
Reverse voltage	12	V
ESD threshold (HBM)	2000	V
LED junction temperature	135	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +115	°C

Characteristics

	Symbol	Part Number	Value	Unit
Temperature coefficient of λ_{dom} (typ) $I_F = 400\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 85\text{ }^{\circ}\text{C}$	$TC_{\lambda_{\text{dom}}} \text{ (typ)}$	NKR-NGG	0.06	nm / K
		NKA-NGG	0.07	
		NKY-NGG	0.09	
Temperature coefficient of V_F (typ) $I_F = 400\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 85\text{ }^{\circ}\text{C}$	TC_V	NKR-NGG	-1.7	mV / K
		NKA-NGG	-1.7	
		NKY-NGG	-1.7	
Temperature coefficient of Total Flux (typ) $I_F = 400\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 100\text{ }^{\circ}\text{C}$	TC_{IV}	NKR-NGG	0.67	% / K
		NKA-NGG	0.79	
		NKY-NGG	1.05	

Wavelength Grouping at $T_j=25^{\circ}\text{C}$

Color	Group	Wavelength distribution (nm)
NKR; Red	Full	619 - 630
NKA; Amber	Full	610 - 620
	A	610 - 615
	B	615 - 620
NKY; Yellow	Full	585 - 597
	A	585 - 588
	B	588 - 591
	C	591 - 594
	D	594 - 597

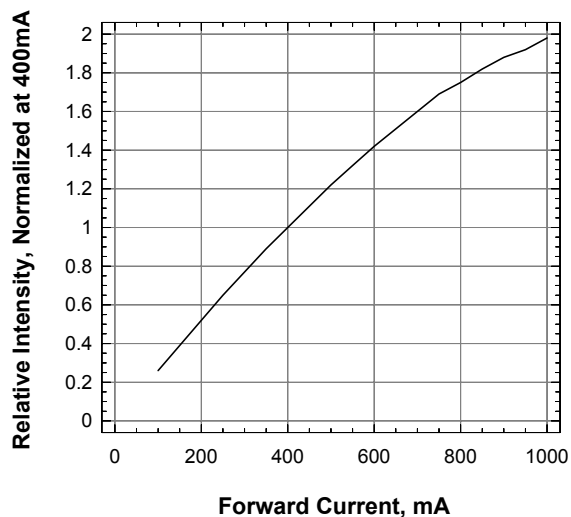
Dominant wavelength is measured with an accuracy of $\pm 1\text{ nm}$.

Luminous Flux Group at $T_j=25^{\circ}\text{C}$

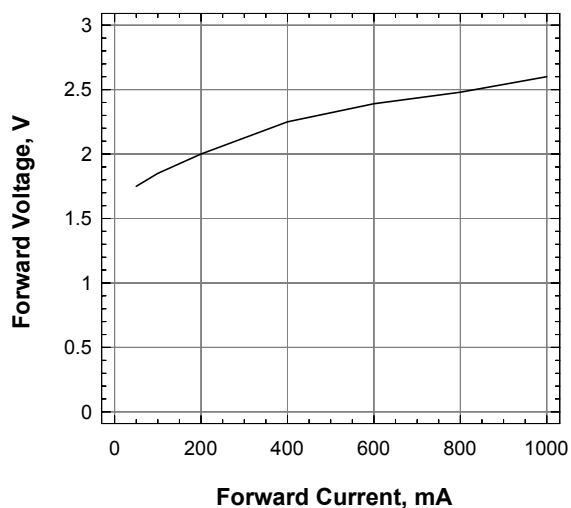
Brightness Group	Luminous Flux (lm)
R2	39.8...45.0
R3	45.2...51.7
S2	51.7...59.0
S3	59.0...67.2

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

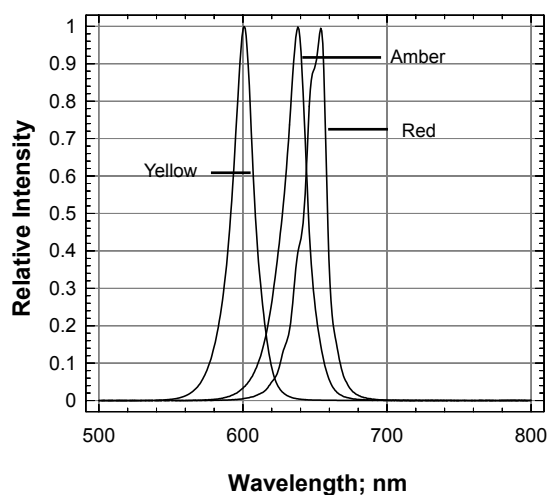
Relative Intensity Vs Forward Current



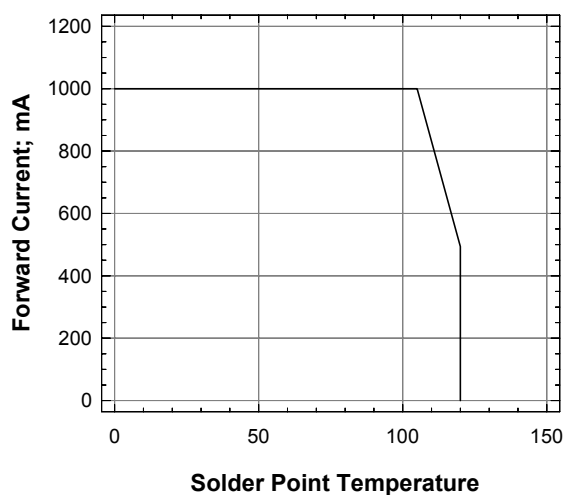
Forward Voltage Vs Forward Current



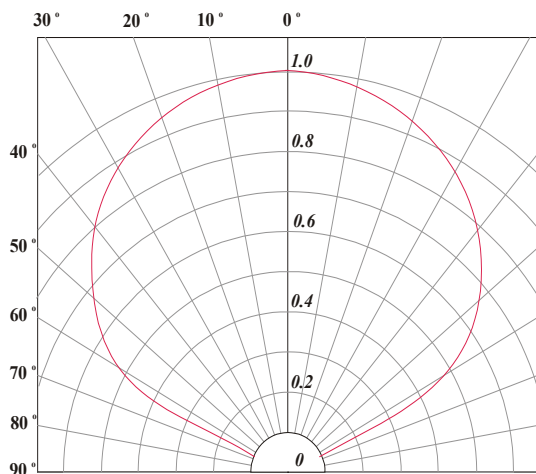
Relative Intensity Vs Wavelength



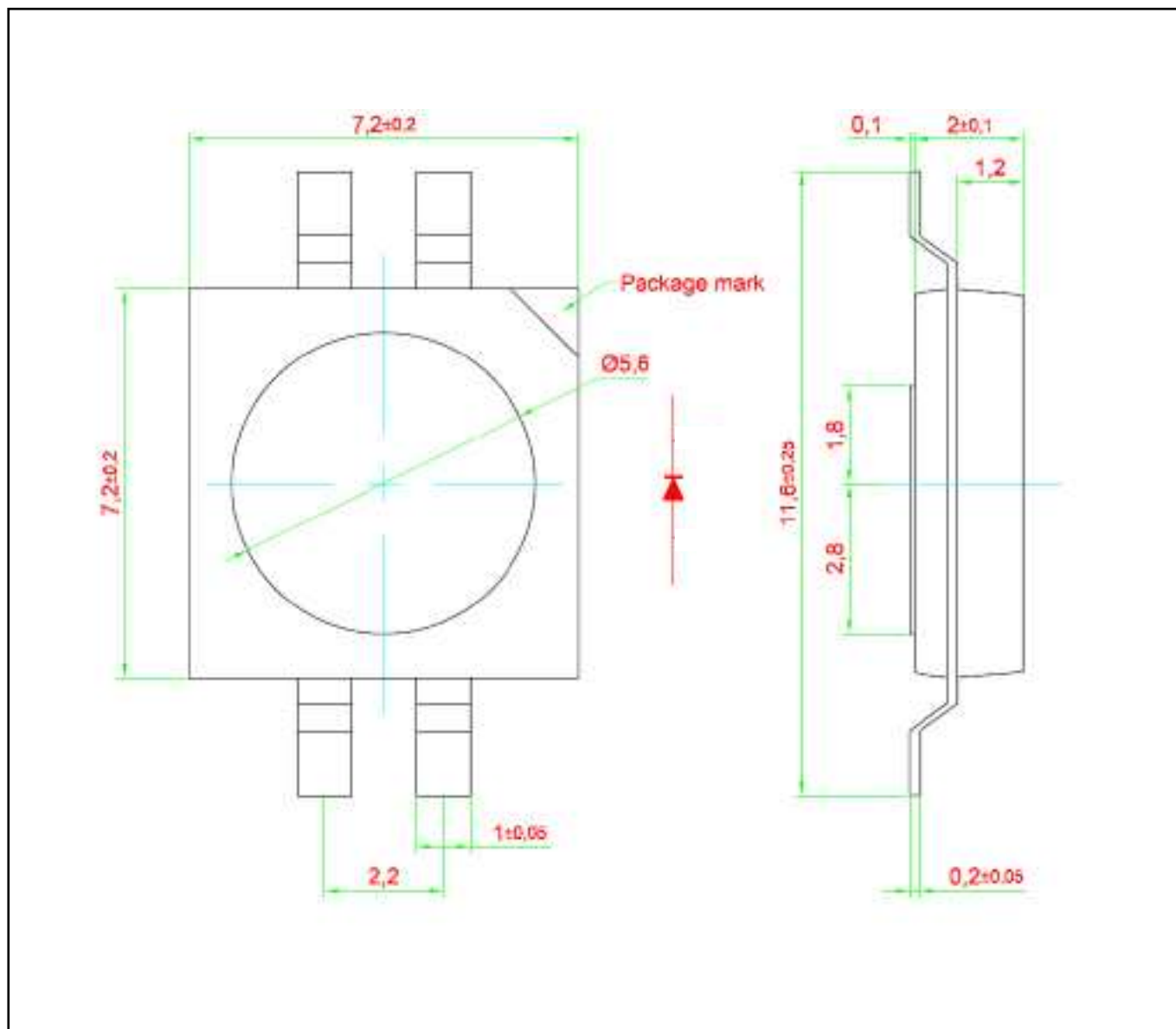
Maximum Current Vs Solder Point Temperature



Radiation Pattern



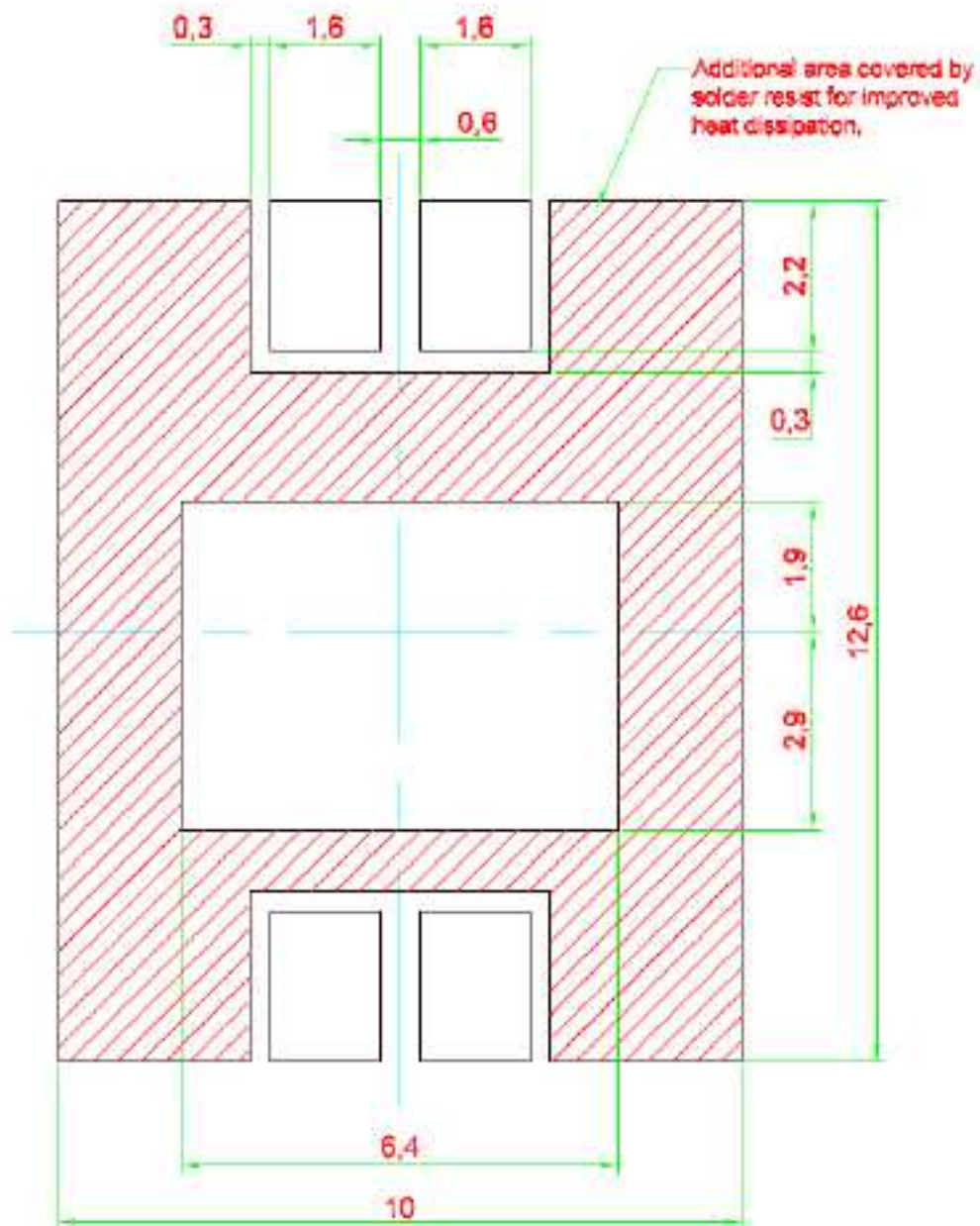
KNova™ • AlInGaP : NKx-NGG Package Outlines



Material

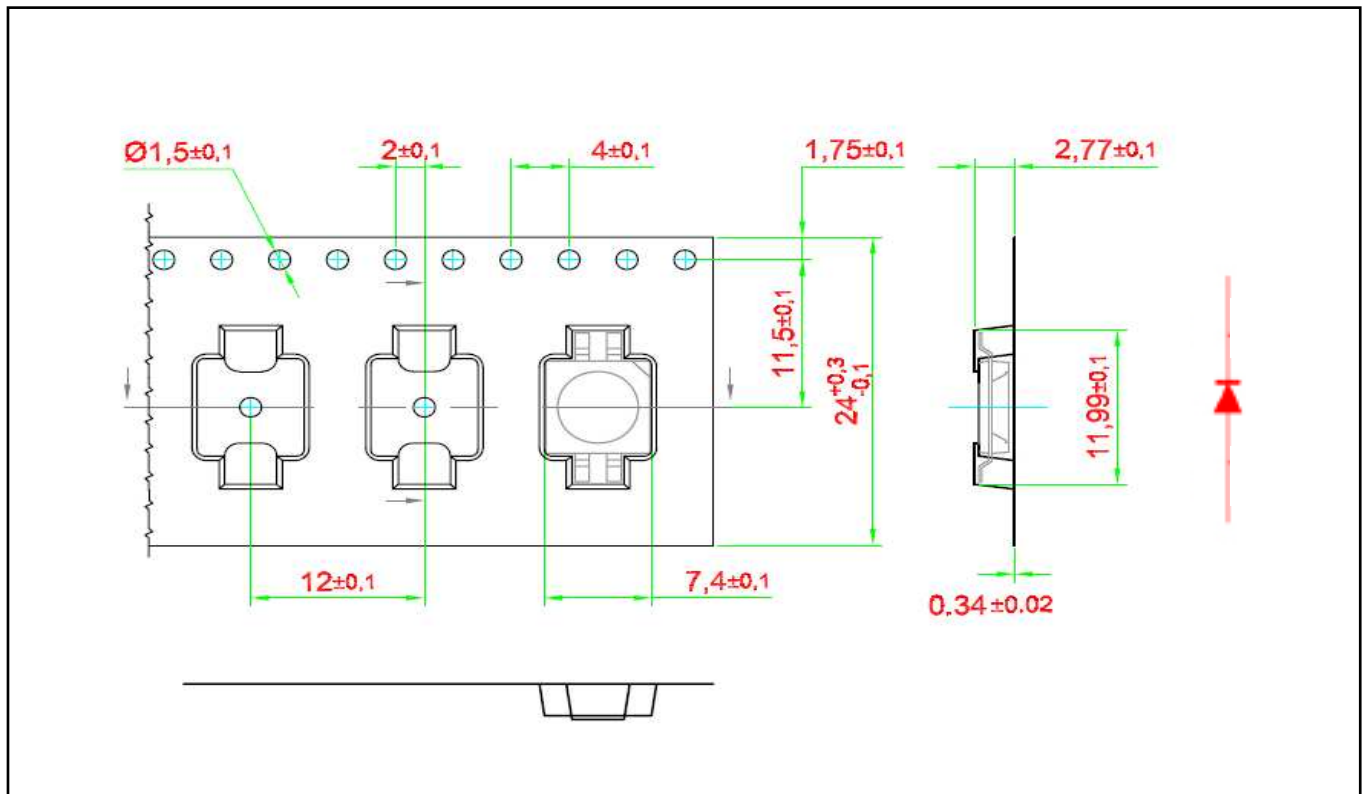
Material	
Lead-frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulant	Silicone Resin
Soldering Leads	Sn Plating

Solder Pad Design

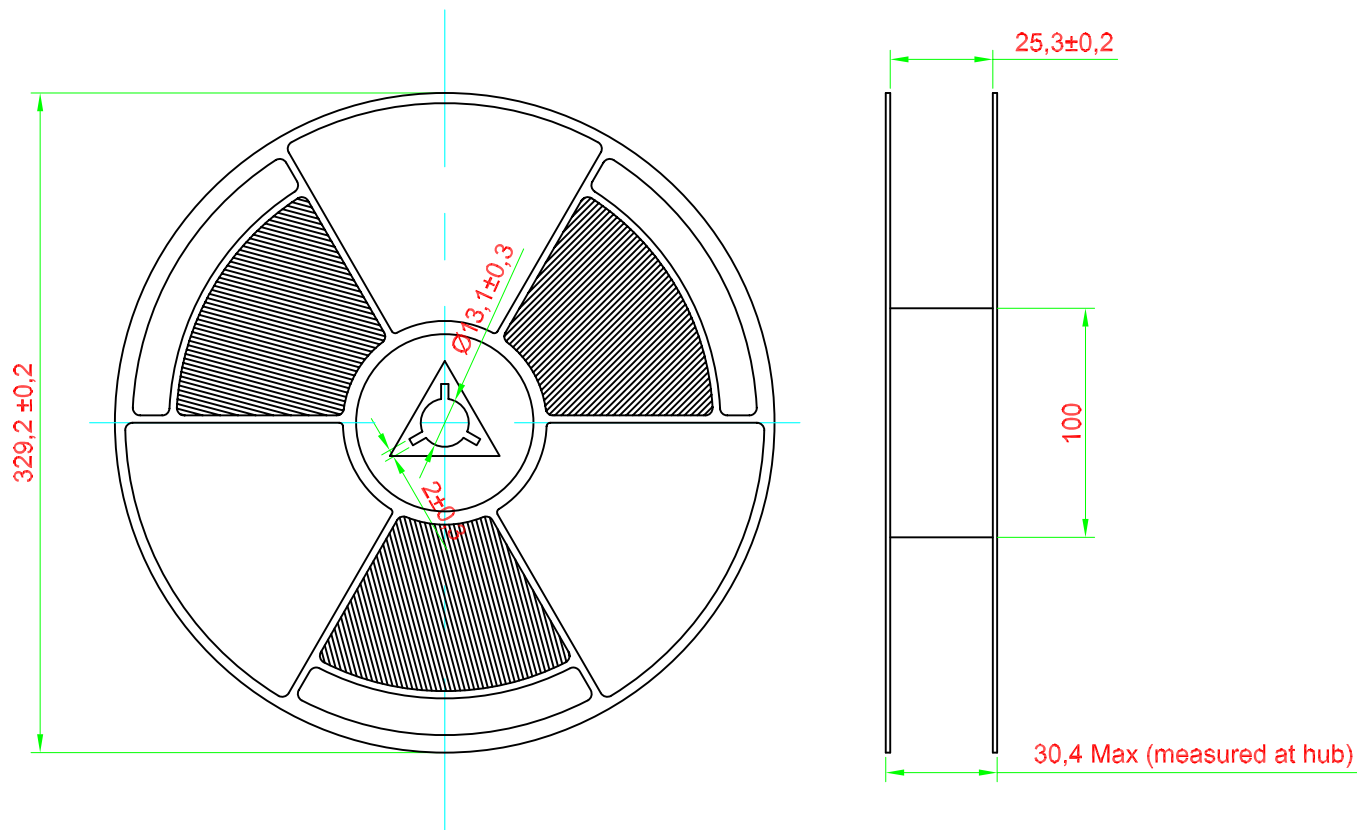


Taping and orientation

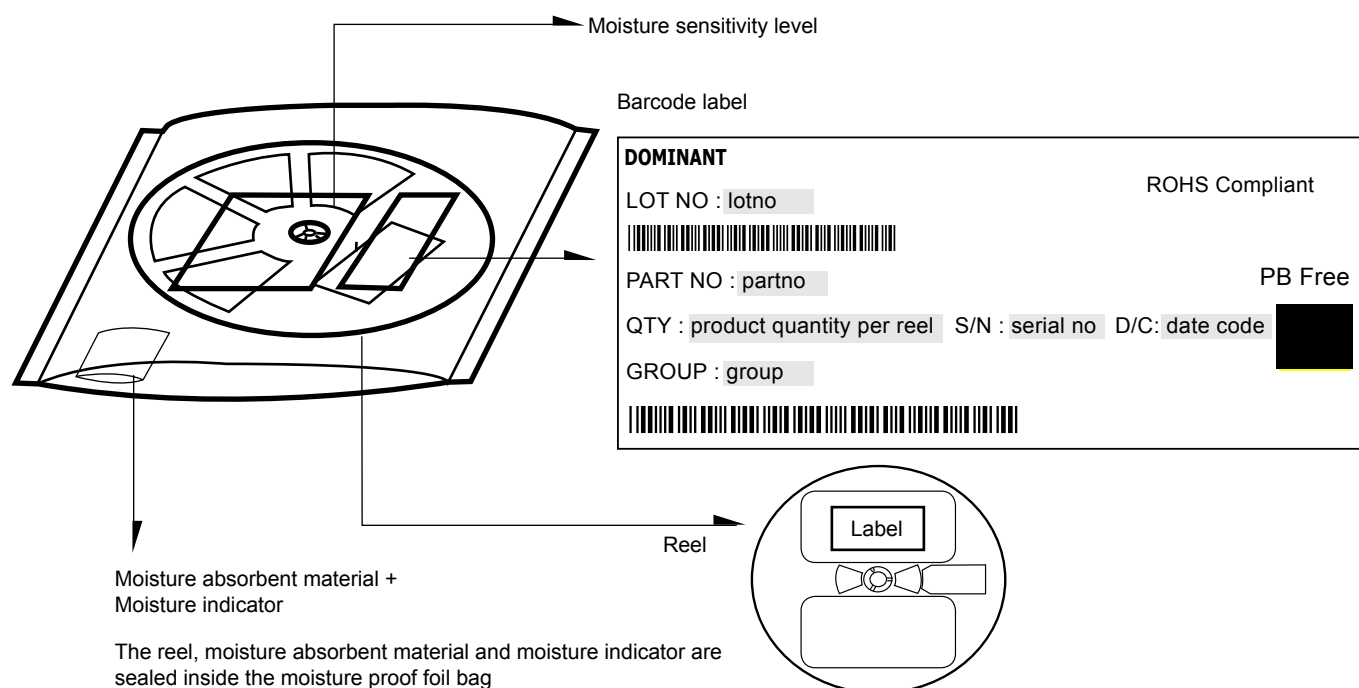
- Reels come in quantity of 1000 units.
- Reel diameter is 330 mm.



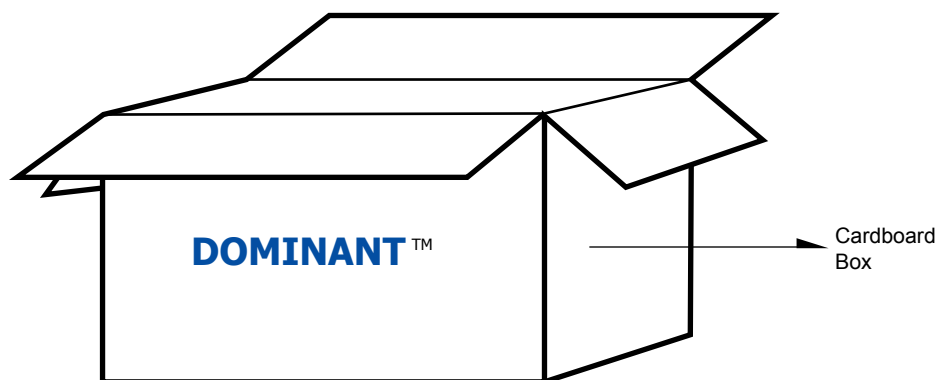
Packaging Specification



Packaging Specification



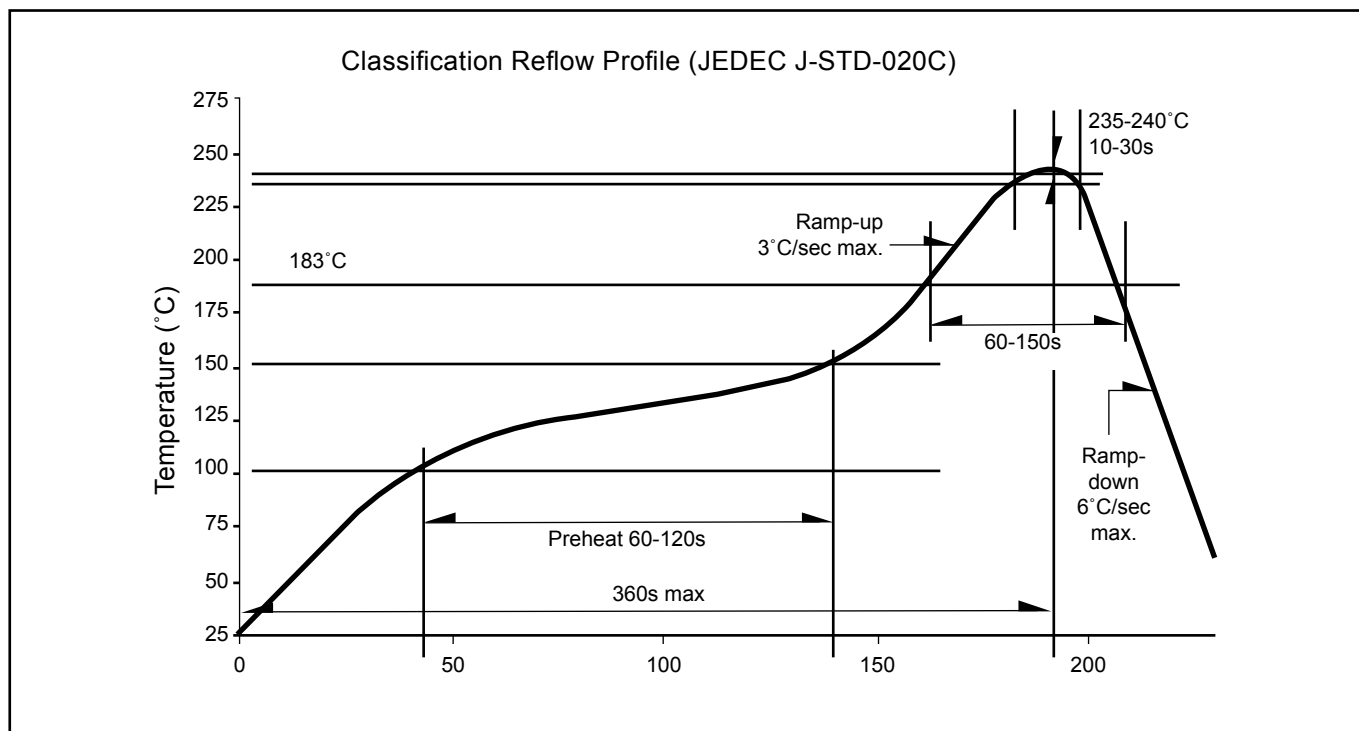
	Average 1pc KNova	1 completed bag (1000pcs)
Weight (gram)	0.301	725 ± 10



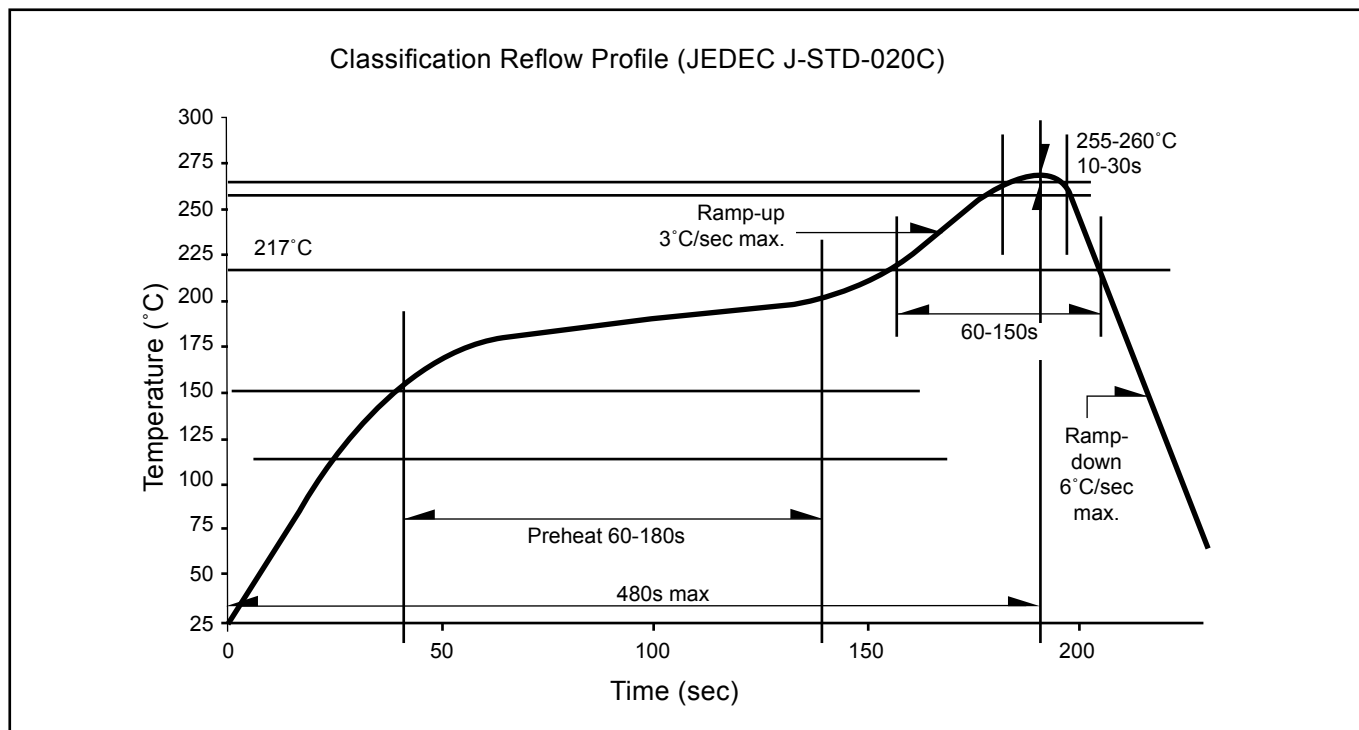
For KNova™

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	29 Jan 2010
2, 3	- Add new partno: NKY-NGG-RS2-1 - Add Characteristics	08 Feb 2010
-	Update company name	05 Apr 2010
7	Update Taping and Orientation	24 May 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

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

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

