

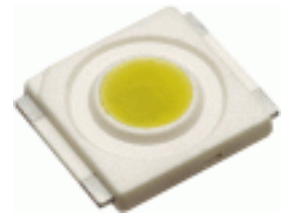
SPNovaTM

Featuring a staggering brilliance and significant flux output, the SPNovaTM 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 90 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; rated at 350 mA.
- > Low thermal resistance; $R_{th(ja)} = 10 \text{ K/W}$.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Superior corrosion resistance.
- > Excellent reliability with new state-of-the-art phosphor system.



Applications:

- > Automotive: Exterior applications.
- > Lighting: garden light, architecture lighting, general lighting. etc
- > Backlighting (TFT LCD display), flash light, architectural lighting.

Optical Characteristics at Tj=25°C

Part Ordering Number	Color	Viewing Angle°	Luminous Flux @ IF = 350mA (lm)		
			Min.	Typ.	Max.
NPW-RHG-T3U-1	White	120	76.5	100.0	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. 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		Max. (V)
		Typ. (V)		
NPW-RHG	3.0	3.5		4.0

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

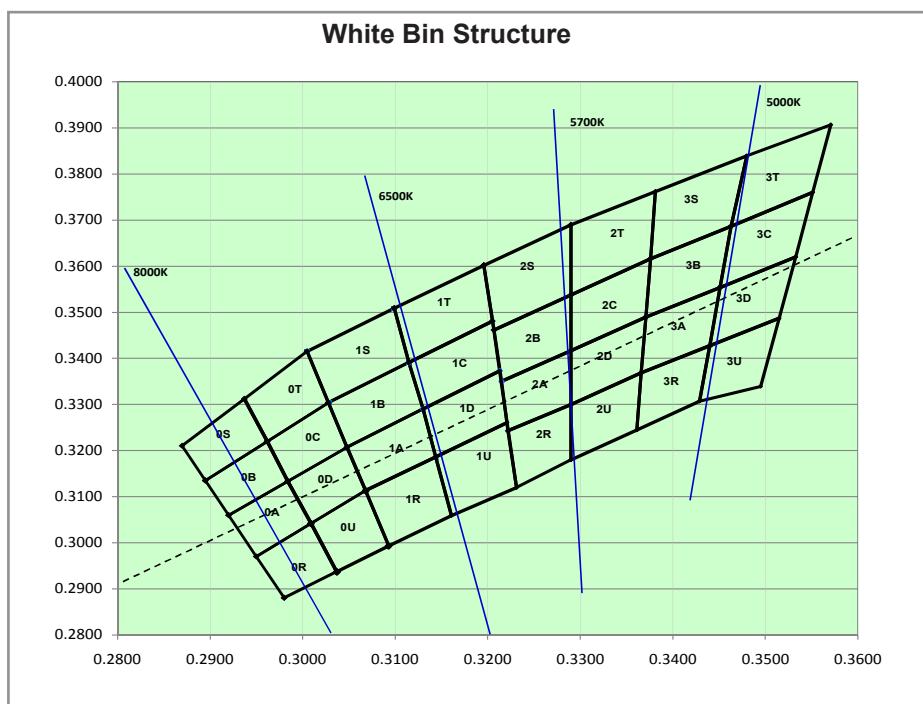
Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	350	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, $R_{th JS}$	10	K/W
(Mounting on Dominant Standard MCPCB)		

Characteristics

	Symbol	Part Number	Value	Unit
Temperature coefficient of V_F (typ) $I_F = 350\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 85\text{ }^{\circ}\text{C}$	TC_V	NPW-RHG	-3.40	mV / K
Temperature coefficient of total flux (typ) $I_F = 350\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 85\text{ }^{\circ}\text{C}$	TC_{IV}	NPW-RHG	-0.19	lm / K
Temperature coefficient of C_x (typ) $I_F = 350\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 85\text{ }^{\circ}\text{C}$	TC_{Cx}	NPW-RHG	-0.0002	
Temperature coefficient of C_y (typ) $I_F = 350\text{mA}$; $0\text{ }^{\circ}\text{C} \leq T \leq 85\text{ }^{\circ}\text{C}$	TC_{Cy}	NPW-RHG	-0.0002	

NPW-RHG, White Color Grouping



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

Bin		1	2	3	4
0A	Cx	0.2950	0.2920	0.2984	0.3009
	Cy	0.2970	0.3060	0.3133	0.3042
0R	Cx	0.2980	0.2950	0.3009	0.3037
	Cy	0.2880	0.2970	0.3042	0.2937
1A	Cx	0.3048	0.3130	0.3144	0.3068
	Cy	0.3207	0.3290	0.3186	0.3113
1R	Cx	0.3068	0.3144	0.3161	0.3093
	Cy	0.3113	0.3186	0.3059	0.2993
2A	Cx	0.3215	0.3290	0.3290	0.3222
	Cy	0.3350	0.3417	0.3300	0.3243
2R	Cx	0.3222	0.3290	0.3290	0.3231
	Cy	0.3243	0.3300	0.3180	0.3120
3A	Cx	0.3371	0.3451	0.3440	0.3366
	Cy	0.3490	0.3554	0.3427	0.3369
3R	Cx	0.3366	0.3440	0.3429	0.3361
	Cy	0.3369	0.3428	0.3307	0.3245
0B	Cx	0.2920	0.2895	0.2962	0.2984
	Cy	0.3060	0.3135	0.3220	0.3133
0S	Cx	0.2895	0.2870	0.2937	0.2962
	Cy	0.3135	0.3210	0.3312	0.3220
1B	Cx	0.3028	0.3115	0.3130	0.3048
	Cy	0.3304	0.3391	0.3290	0.3207
1S	Cx	0.3005	0.3099	0.3115	0.3028
	Cy	0.3415	0.3509	0.3391	0.3304

Bin		1	2	3	4
2B	Cx	0.3207	0.3290	0.3290	0.3215
	Cy	0.3462	0.3538	0.3417	0.3350
2S	Cx	0.3196	0.3290	0.3290	0.3207
	Cy	0.3602	0.3690	0.3538	0.3462
3B	Cx	0.3376	0.3463	0.3451	0.3371
	Cy	0.3616	0.3687	0.3554	0.3490
3S	Cx	0.3381	0.3480	0.3463	0.3376
	Cy	0.3762	0.3840	0.3687	0.3616
0C	Cx	0.2984	0.2962	0.3028	0.3048
	Cy	0.3133	0.3220	0.3304	0.3207
0T	Cx	0.2962	0.2937	0.3005	0.3028
	Cy	0.3220	0.3312	0.3415	0.3304
1C	Cx	0.3115	0.3205	0.3213	0.3130
	Cy	0.3391	0.3481	0.3373	0.3290
1T	Cx	0.3099	0.3196	0.3205	0.3115
	Cy	0.3509	0.3602	0.3481	0.3391
2C	Cx	0.3290	0.3376	0.3371	0.3290
	Cy	0.3538	0.3616	0.3490	0.3417
2T	Cx	0.3290	0.3381	0.3376	0.3290
	Cy	0.3690	0.3762	0.3616	0.3538
3C	Cx	0.3463	0.3551	0.3533	0.3451
	Cy	0.3687	0.3760	0.3620	0.3554
3T	Cx	0.3480	0.3571	0.3551	0.3463
	Cy	0.3840	0.3907	0.3760	0.3687
0D	Cx	0.2984	0.3048	0.3068	0.3009
	Cy	0.3133	0.3207	0.3113	0.3042
0U	Cx	0.3037	0.3009	0.3068	0.3093
	Cy	0.2937	0.3042	0.3113	0.2993
1D	Cx	0.3130	0.3213	0.3221	0.3144
	Cy	0.3290	0.3373	0.3261	0.3186
1U	Cx	0.3144	0.3221	0.3231	0.3161
	Cy	0.3186	0.3261	0.3120	0.3059
2D	Cx	0.3290	0.3371	0.3366	0.3290
	Cy	0.3417	0.3490	0.3369	0.3300
2U	Cx	0.3290	0.3366	0.3361	0.3290
	Cy	0.3300	0.3369	0.3245	0.3180
3D	Cx	0.3451	0.3533	0.3515	0.3440
	Cy	0.3554	0.3620	0.3487	0.3427
3U	Cx	0.3440	0.3515	0.3495	0.3429
	Cy	0.3428	0.3487	0.3339	0.3307

Dominant color coordinate is measured with an accuracy of ± 0.01 .

Luminous Flux Group at Tj=25°C

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

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

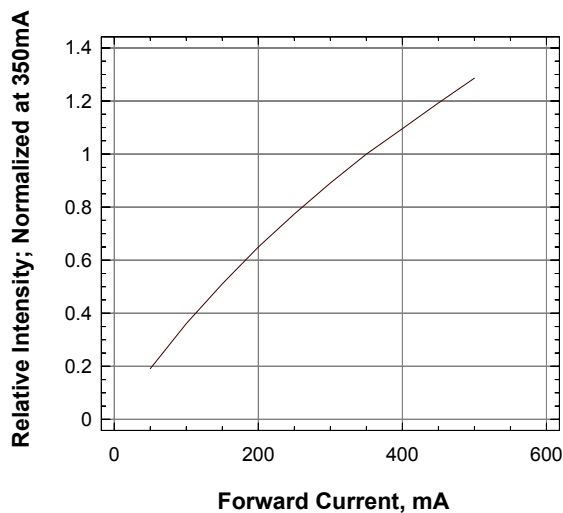
Vf Binning (Optional)

Vf Bin @ 350mA	Forward Voltage (V)
VA	3.0 ... 3.3
VB	3.3 ... 3.6
VC	3.6 ... 3.9

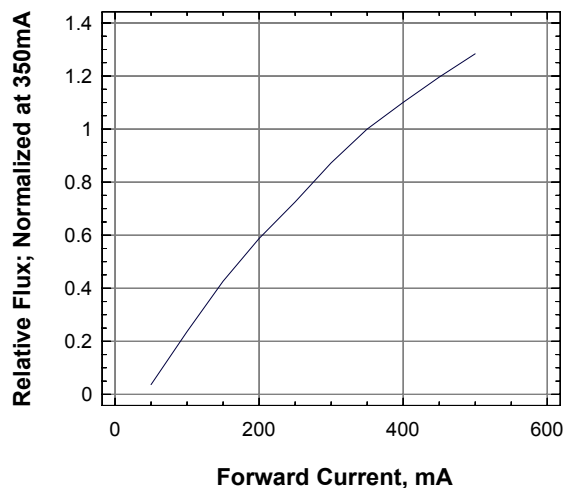
Forward voltage, Vf is measured with an accuracy of ± 0.1 V.

Please consult sales and marketing for special part number to incorporate Vf binning.

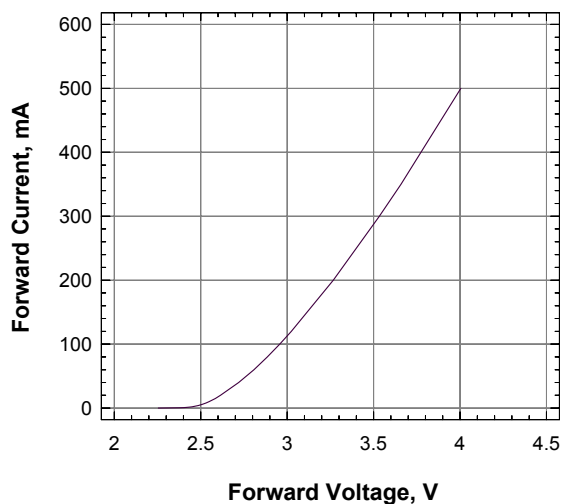
Relative Intensity Vs Forward Current



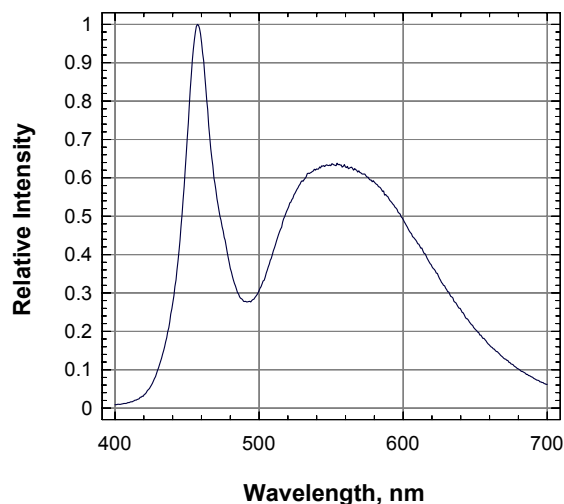
Relative Flux Vs Forward Current



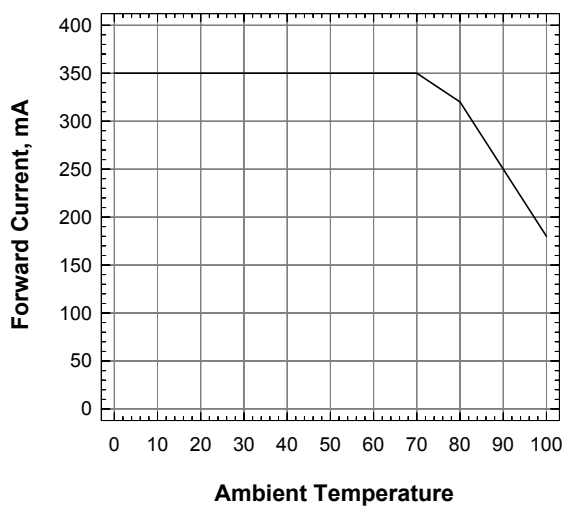
Forward Current Vs Forward Voltage



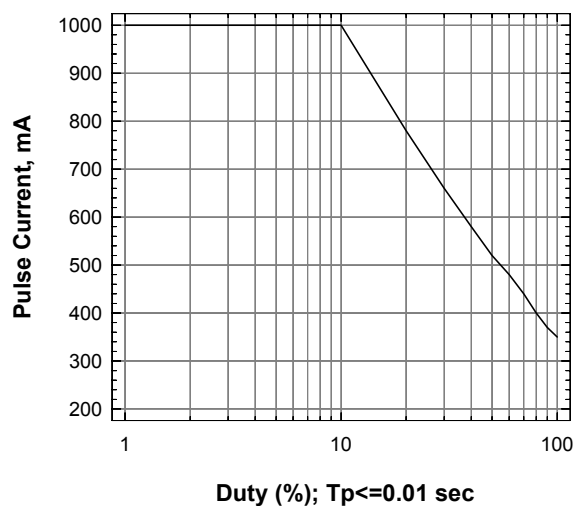
Relative Spectral Emission



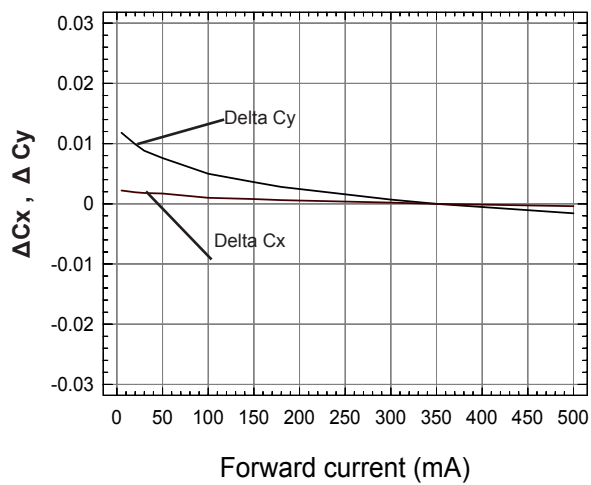
Forward Current Vs Ambient Temperature (Rja=40K/W)



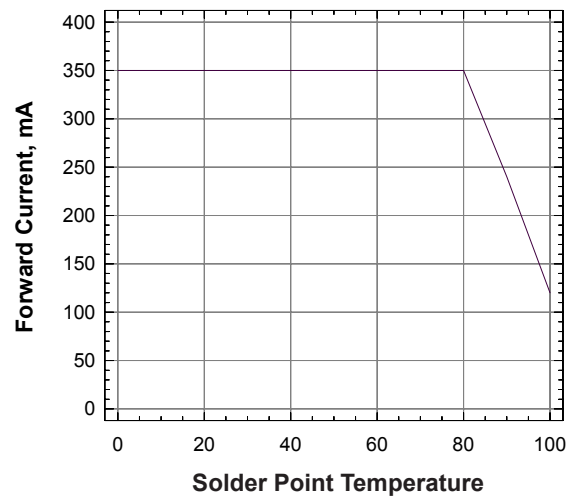
Maximum Permissible Pulse Current



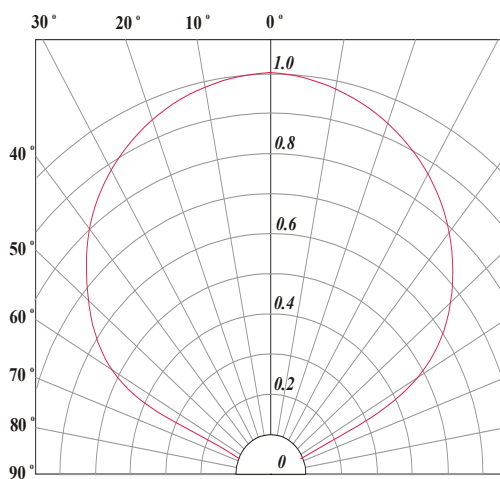
Chromaticity Vs Forward Current Test Result



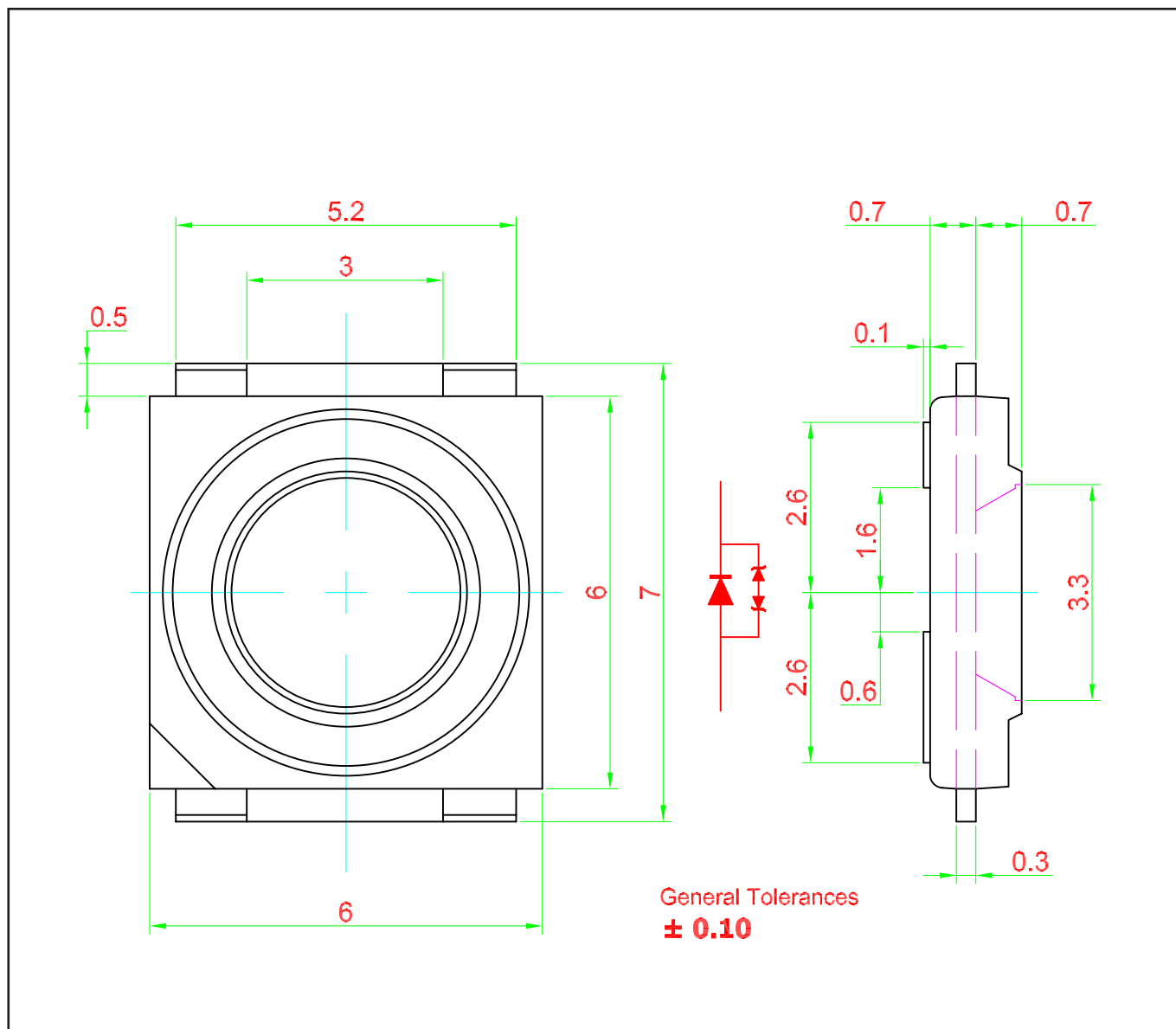
Forward Current Vs Solder Point Temperature



Radiation Pattern



SPNova™ • InGaN White : NPW-RHG Package Outlines

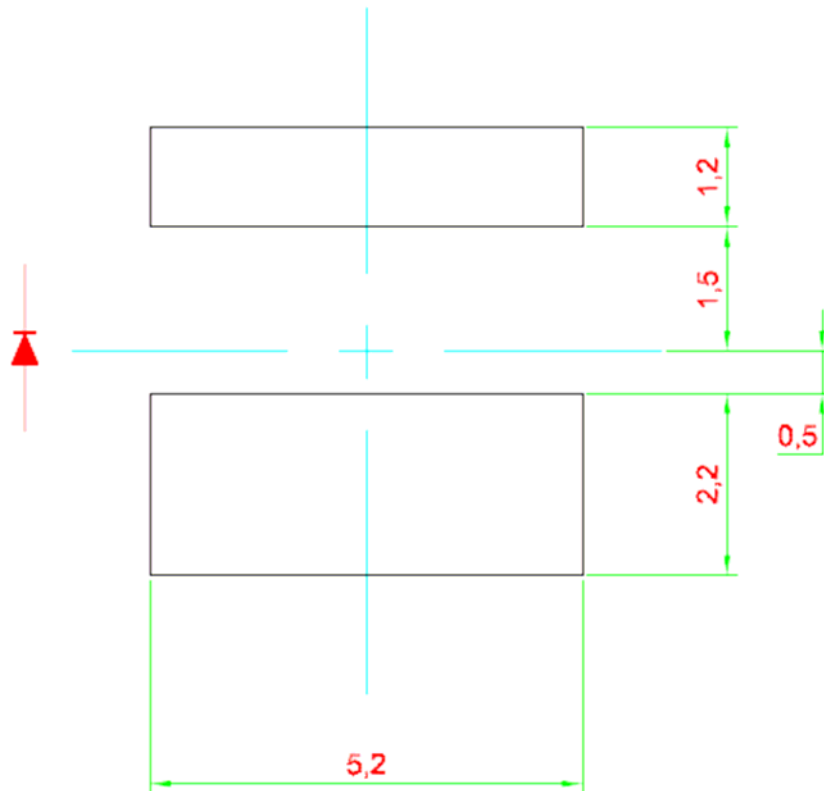


Material

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

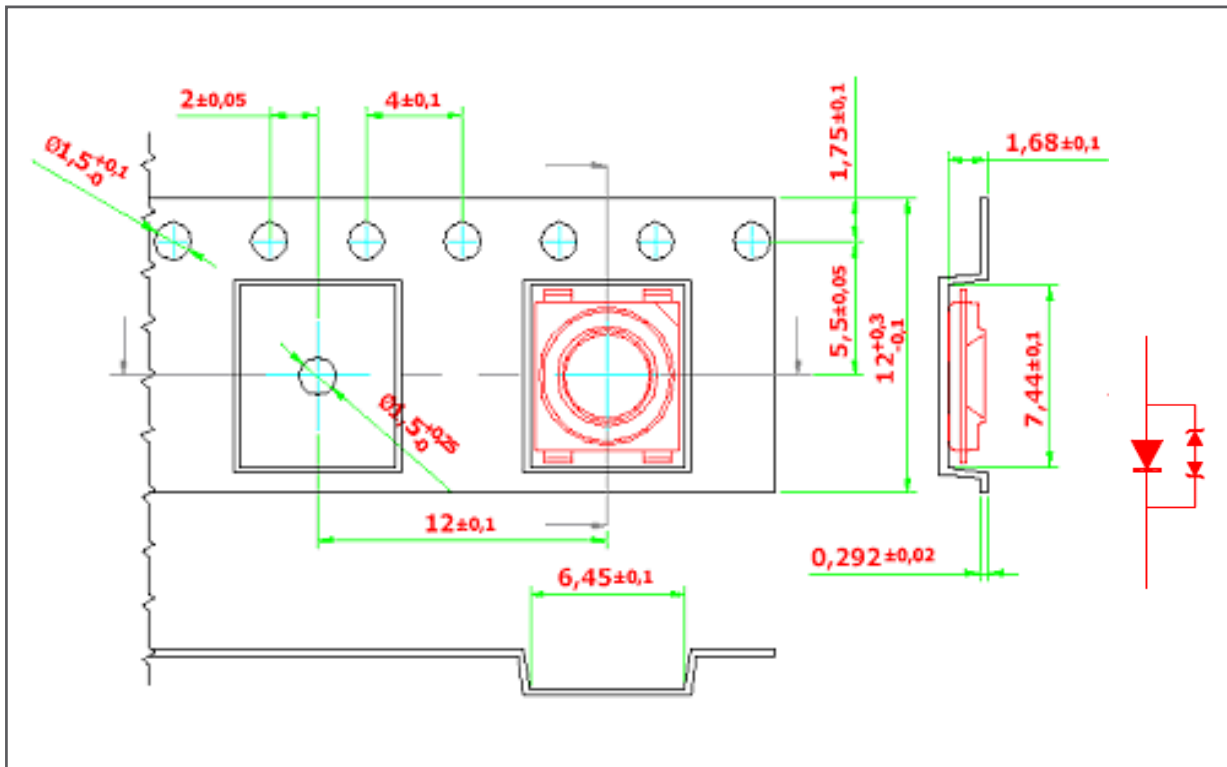
Solder Pad Design

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

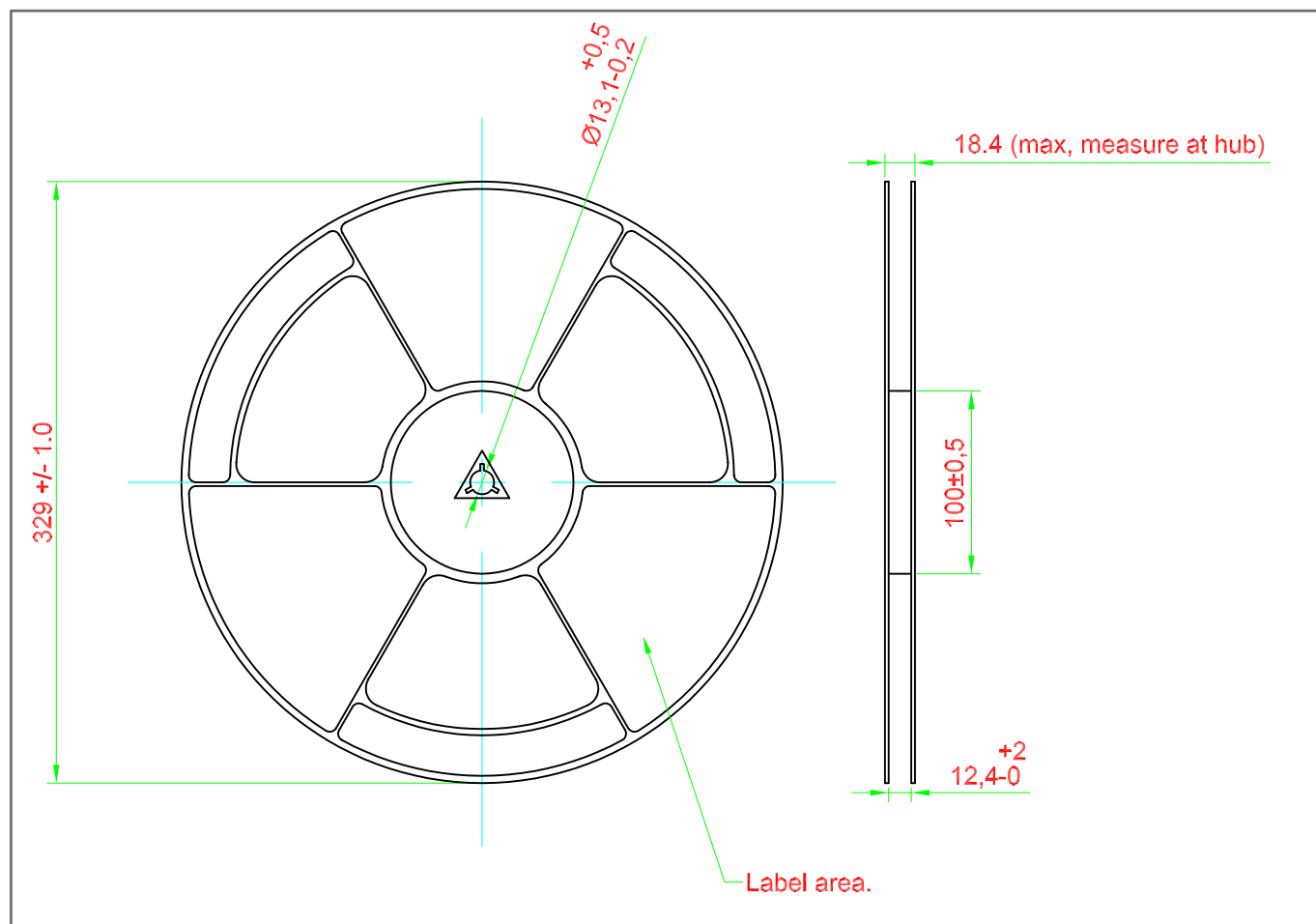


Taping and orientation

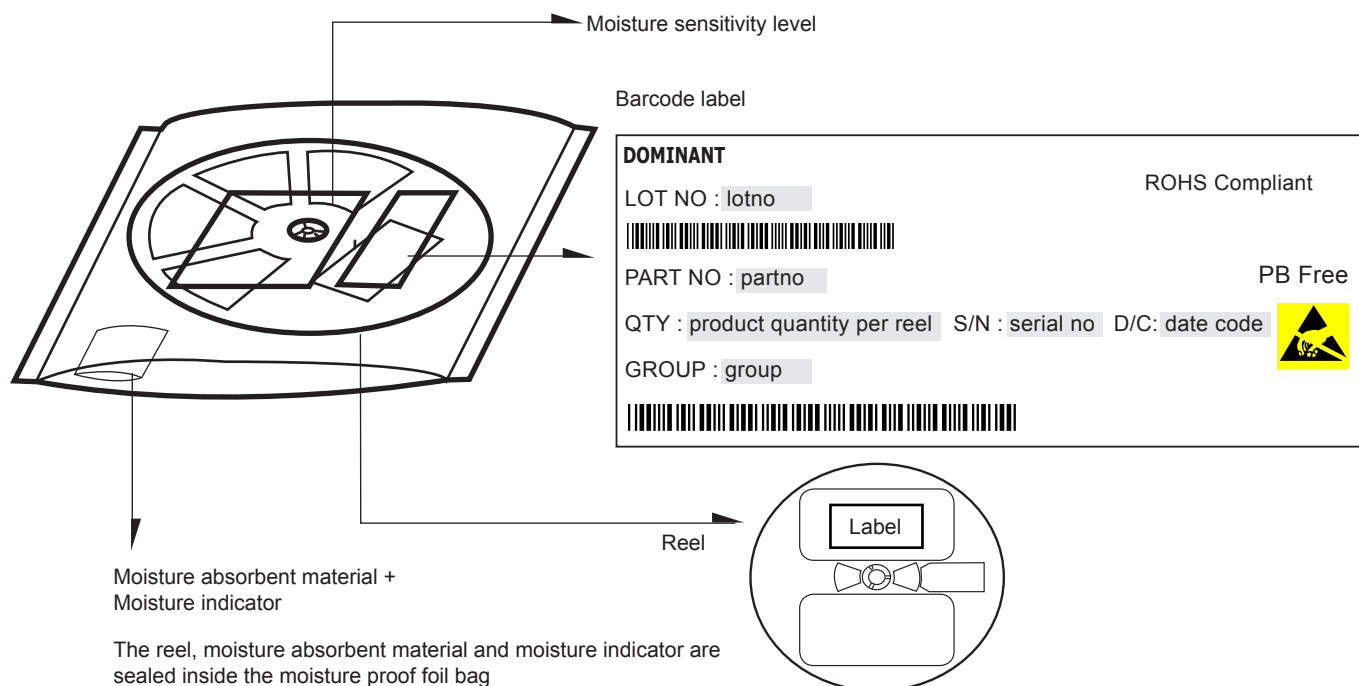
- Reels come in quantity of 2000 units.
- Reel diameter is 330 mm.



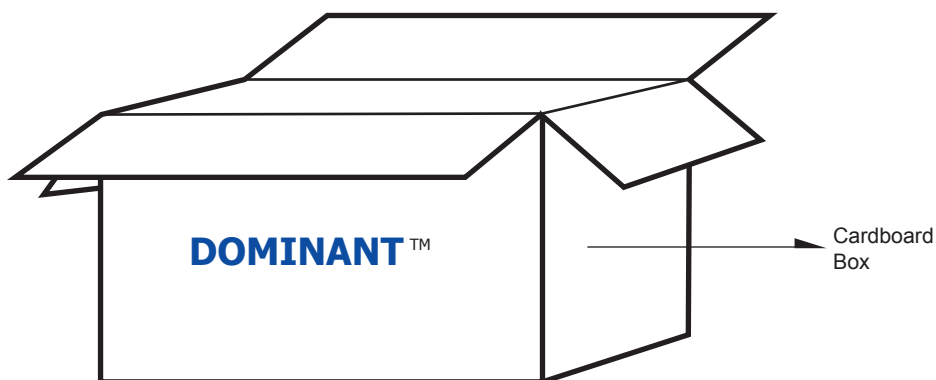
Packaging Specification



Packaging Specification



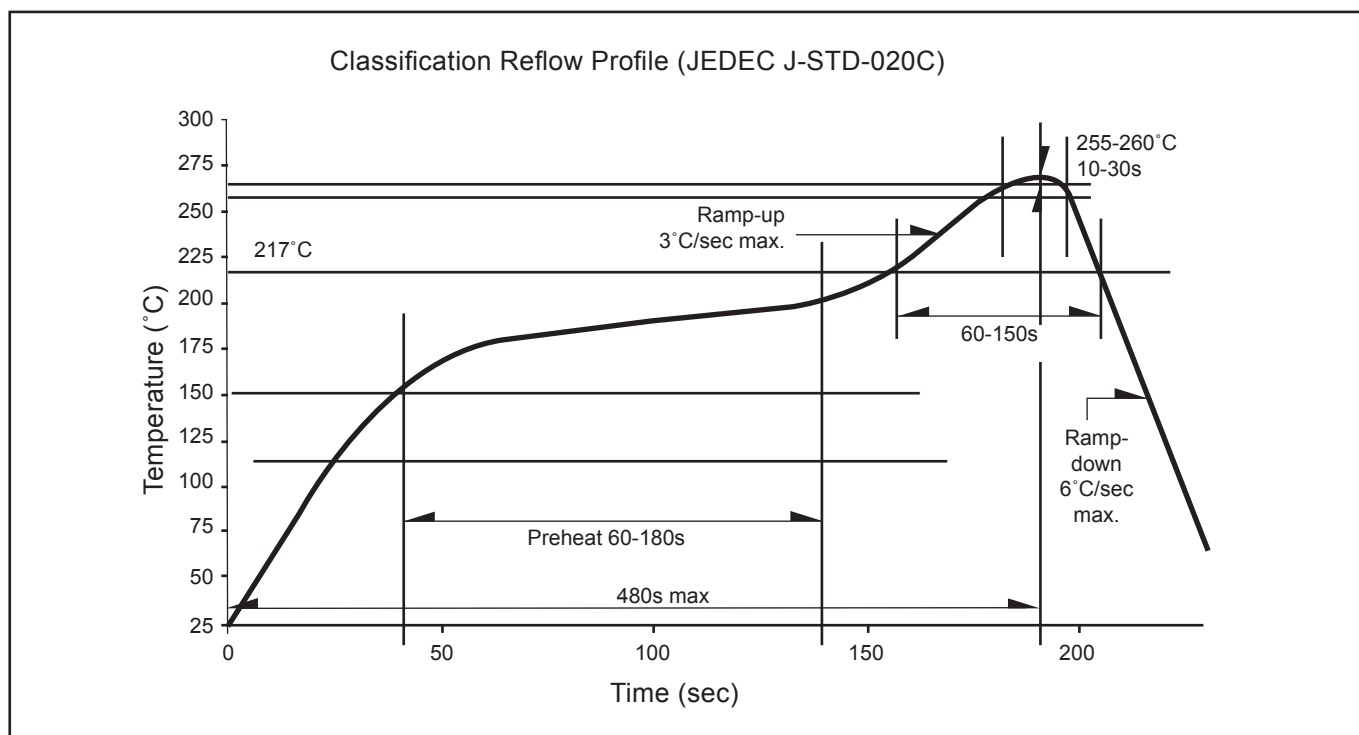
	Average 1pc SPNova	1 completed bag (2000pcs)
Weight (gram)	0.188	800 ± 10



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 Pb-free Soldering Profile



Revision History

Page	Subjects	Date of Modification
-	Initial Release	07 Feb 2012

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.

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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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