DOMINANT™ Semiconductors

Innovating Illumination

DATA SHEET:

SPNovaLED™

NMRTB-USD-AAB+ADE+Y2Z1-1

SPNovaLED™

Featuring a staggering brilliance and significant flux output, the SPNovaLED™ 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.
> 125° 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 250 mA.
> Low junction-to-solder point thermal resistance; $R_{TH\ js}$ = 50 K/W.
> Qualified according to JEDEC moisture sensitivity Level 2.
> Compatible to IR reflow soldering.
> Environmental friendly; RoHS compliance.

Applications:

> Signage: full colour display video notice board, signage, special effect lighting.
> Lighting: architecture lighting, general lighting, garden light, channel light.

Optical Characteristics at Tj=25˚C

Part Number	IV Bin	Intensity @ If=250mA (mcd)			Viewing Angle˚
		Min.	Typ.	Max.	
NMRTB-USD-AAB+ADE+Y2Z1-1					
• Red	AAB	7150.0	9000.0	11250.0	125
• True Green	ADE	14000.0	18000.0	22400.0	
• Blue	Y2Z1	3550.0	4500.0	5600.0	

Radiant intensity is measured with an accuracy of ± 11%.

Electrical Characteristics at Tj=25˚C

Part Number	Vf @ If = 250mA			Vf @ If = 350mA
	Min. (V)	Typ. (V)	Max. (V)	Typ. (V)
NMRTB-USD-AAB+ADE+Y2Z1-1				
• Red	2.0	2.3	2.8	2.3
• True Green	3.0	3.5	3.8	3.6
• Blue	3.0	3.3	3.8	3.4

Forward voltage, Vf is measured with a current pulse of 1 ms and an accuracy of ± 0.1V.

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current (per chip)	250	mA
Peak pulse current (per chip). (D <= 10%; Tp <= 10 msec)	500	mA
Reverse voltage	Not designed for reverse bias drive	V
ESD threshold (HBM)	2000	V
LED junction temperature	125	˚C
Operating temperature	-40 … +100	˚C
Storage temperature	-40 … +100	˚C

Characteristics

	Symbol		Value	Unit
Temperature coefficient of λ_{dom} (typ) I_F = 250mA; 0 ˚C <= T <= 100 ˚C	$TC_{\lambda dom}$ (typ)	Red	0.06	nm / K
		True Green	0.03	nm / K
		Blue	0.03	nm / K
Temperature coefficient of $V_{F\ (typ)}$ I_F = 20mA; 0 ˚C <= T <= 100 ˚C	TC_V	Red	-3.60	mV / K
		True Green	-2.40	mV / K
		Blue	-3.00	mV / K
Temperature coefficient of $I_{V\ (typ)}$ I_F = 20mA; 0 ˚C <= T <= 100 ˚C	TC_{IV}	Red	-38.2	mcd / K
		True Green	-15.6	mcd / K
		Blue	1.6	mcd / K

Wavelength Grouping at Tj=25˚C

Color	Group	Wavelength distribution (nm)
Red	Full	620 - 630
True Green	A	521 - 526
	B	526 - 531
	C	531 - 536
Blue	A	460 - 465
	B	465 - 470

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

Luminous Intensity Group at Tj=25˚C

Brightness Group	Luminous Intensity @ IV (mcd)
Y2	3550.0...4500.0
Z1	4500.0...5600.0
AA	7150.0...9000.0
AB	9000.0...11250.0
AD	14000.0...18000.0
AE	18000.0...22400.0

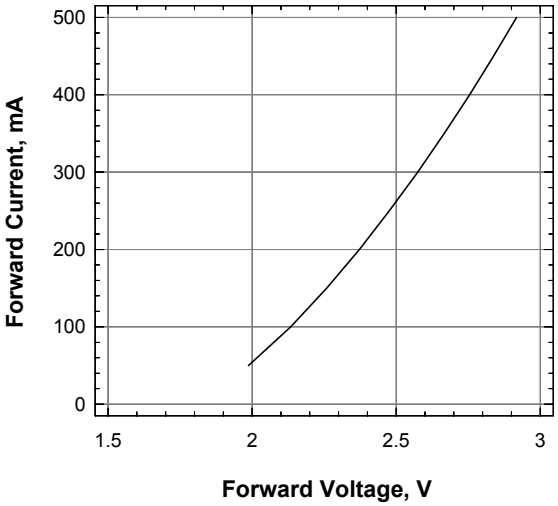
Luminous intensity is measured with an accuracy of ± 11%.

Correlation Between Luminous Intensity And Luminous Flux

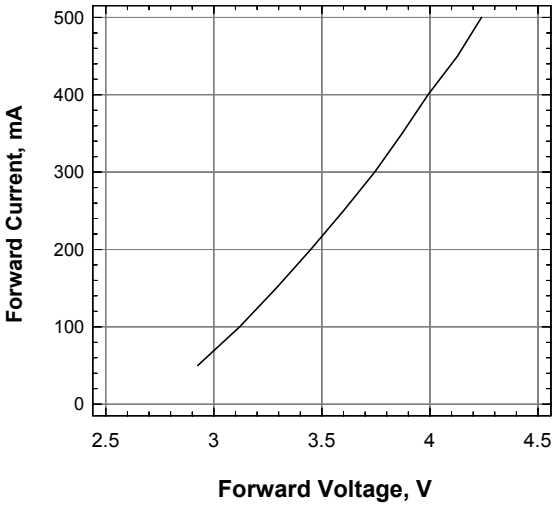
Color	IV Bins	Luminous Intensity (mcd)		Luminous Flux (lm)	
		Min.	Max.	Min.	Max.
Red	AA	7150	9000	21.1	26.6
	AB	9000	11250	26.6	33.2
True Green	AD	14000	18000	44.1	56.7
	AE	18000	22400	56.7	70.6
Blue	Y2	3550	4500	10.8	13.7
	Z1	4500	5600	13.7	17.1

Note: Data provided above is based on approximation

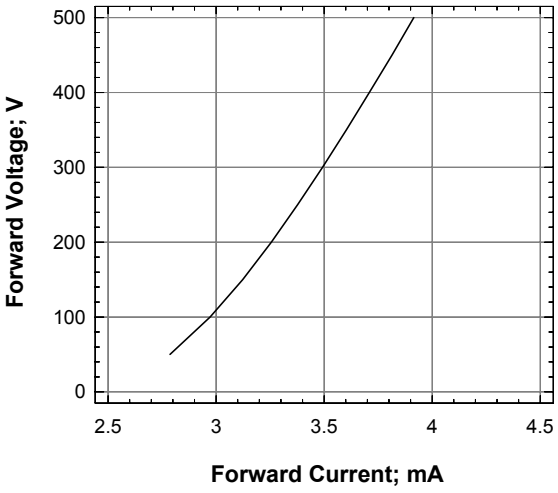
Forward Current Vs Forward Voltage (Red)



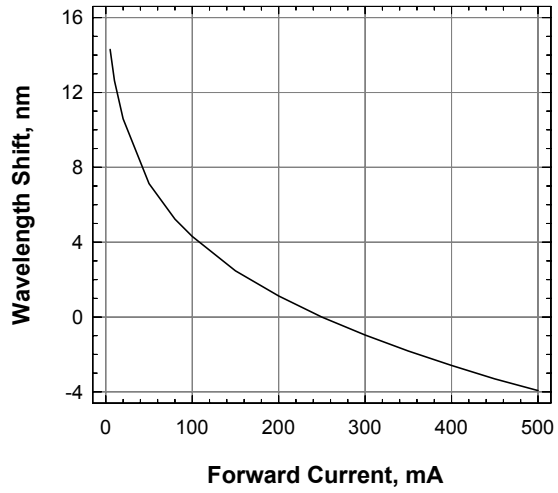
Forward Current Vs Forward Voltage (True Green)



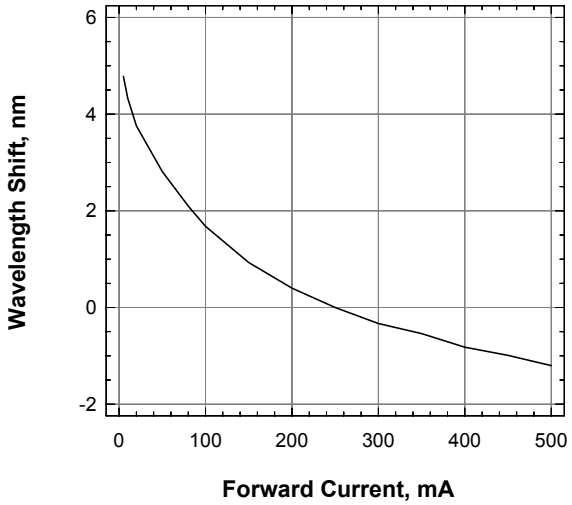
Forward Voltage Vs Forward Current (Blue)



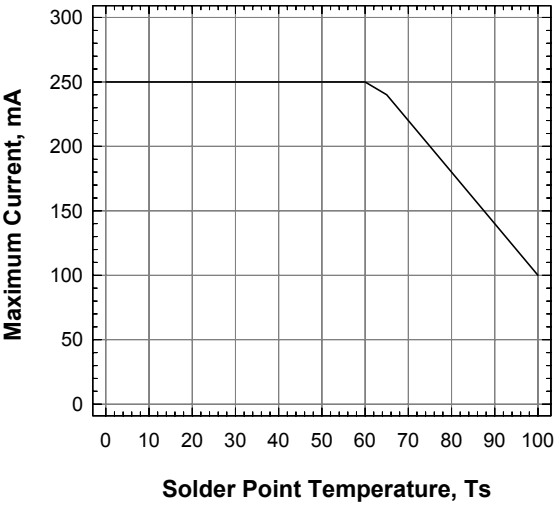
Wavelength Shift Vs Forward Current (True Green)



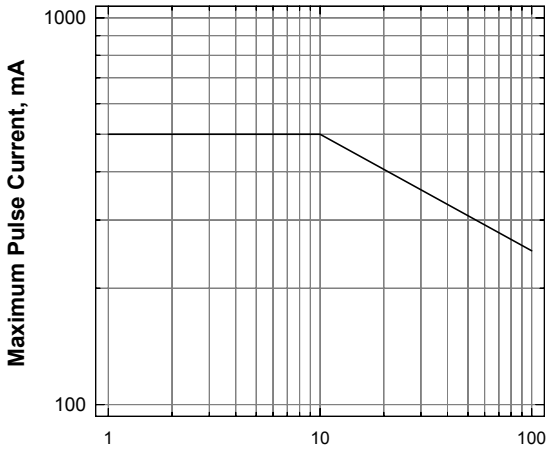
Wavelength Shift Vs Forward Current (Blue)



Maximum Current Vs Solder Point Temperature

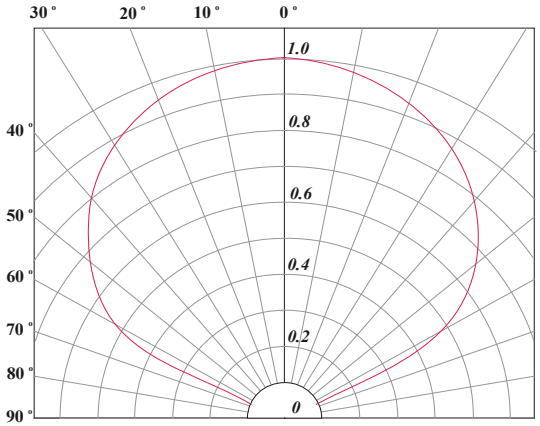


Maximum Pulse Current Vs Duty Cycle

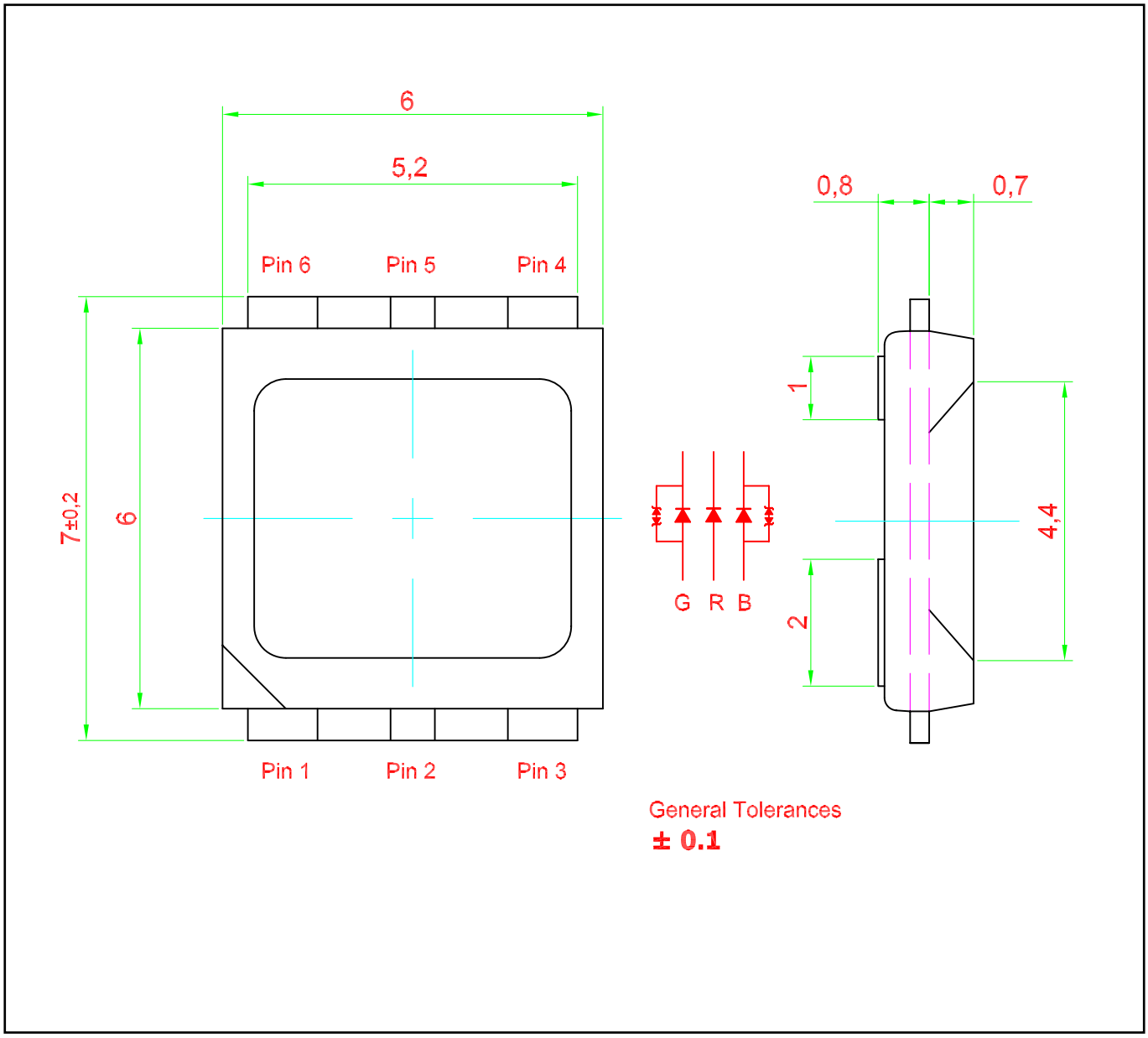


Duty (%); Tp <= 10 msec

Radiation Pattern



SPNovaLED™ • RGB : NMRTB-USD-AAB+ADE+Y2Z1-1 Package Outlines



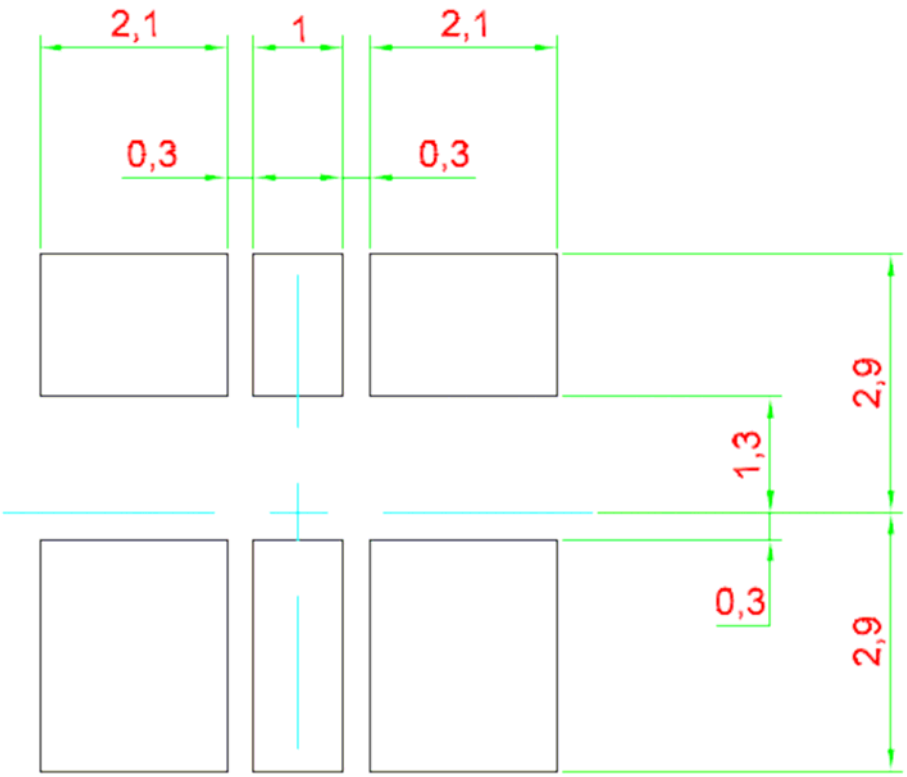
Material

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

Note: Product has no lead (Pb) content.

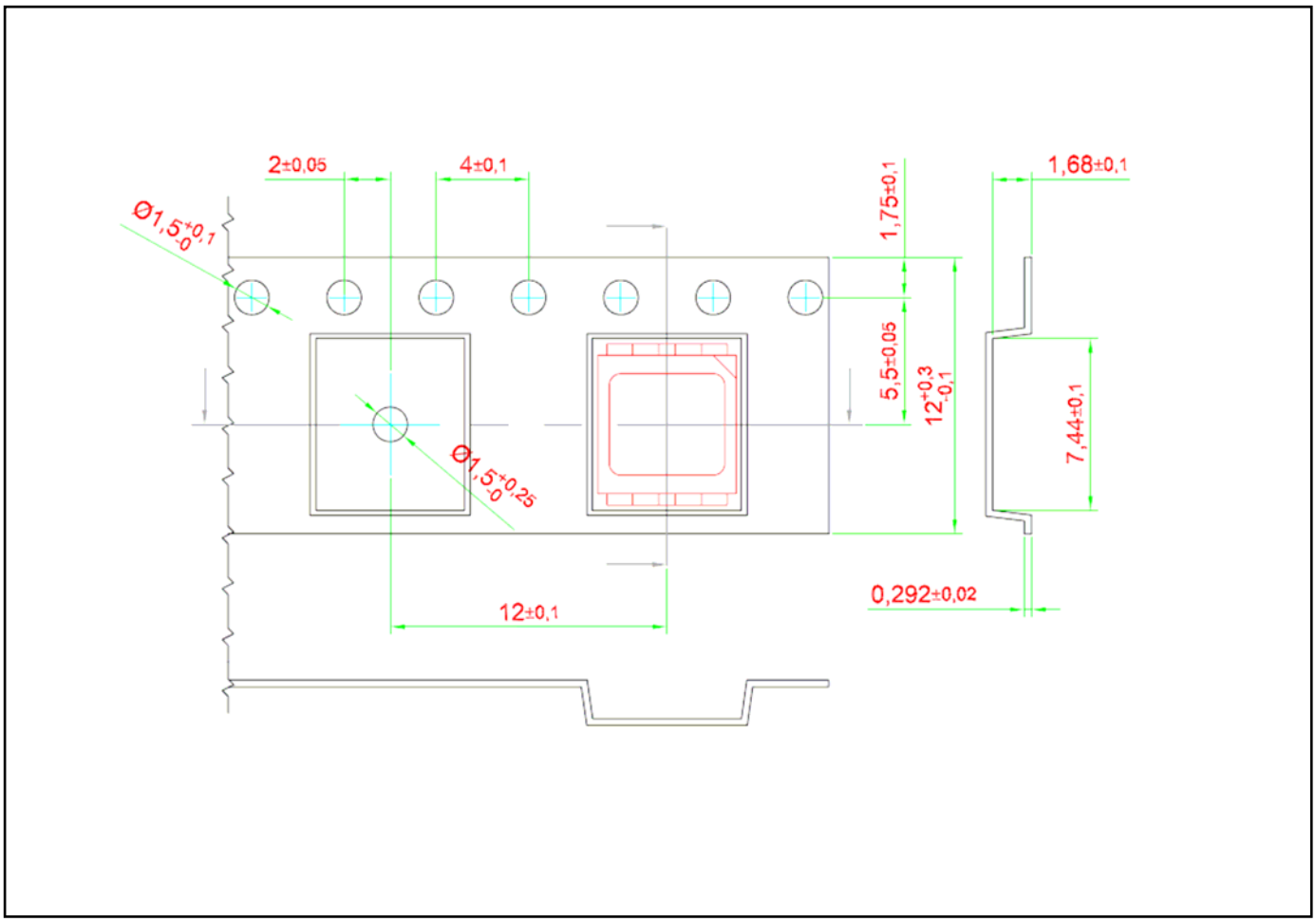
Solder Pad Design

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

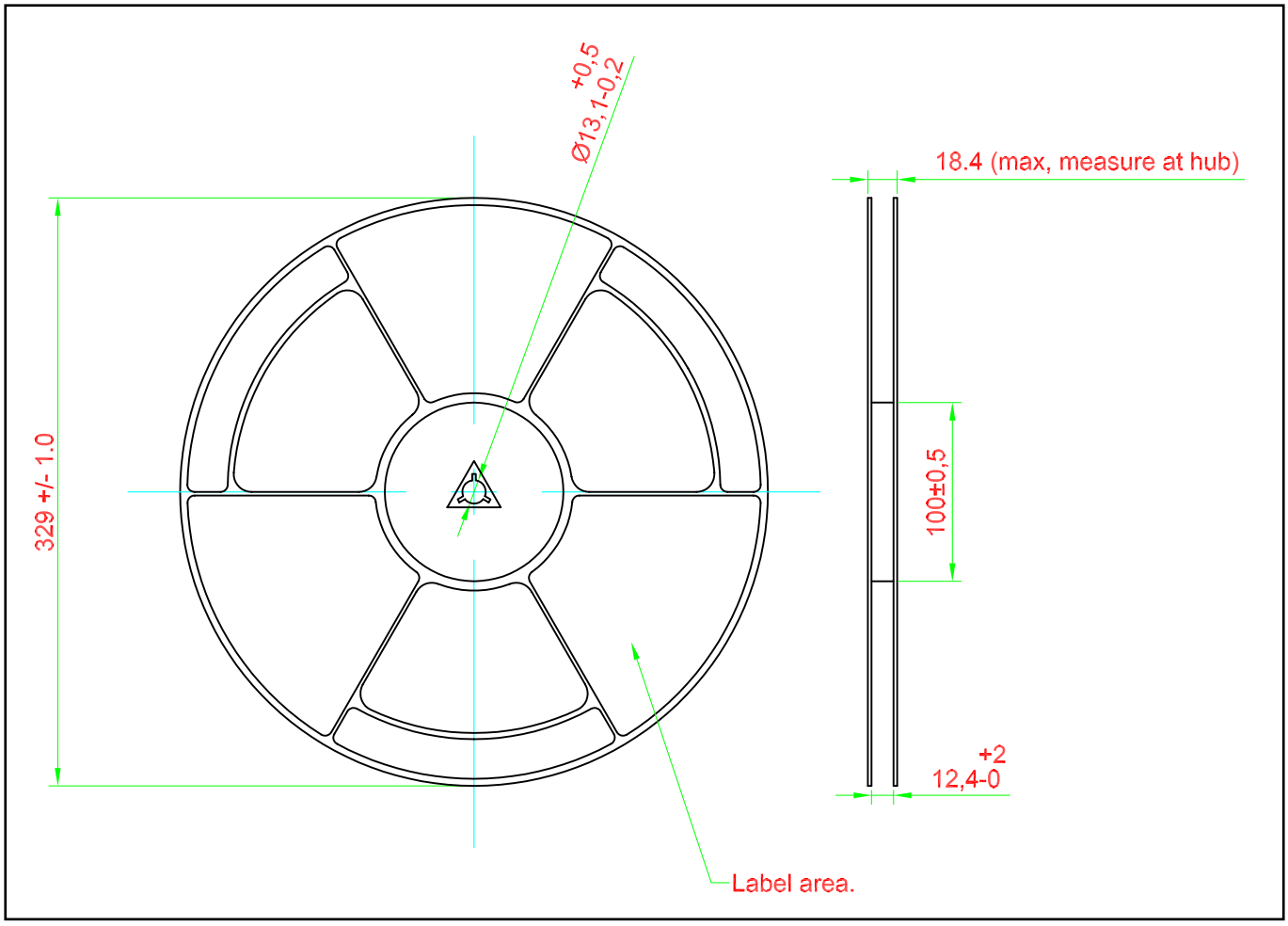


Taping and orientation

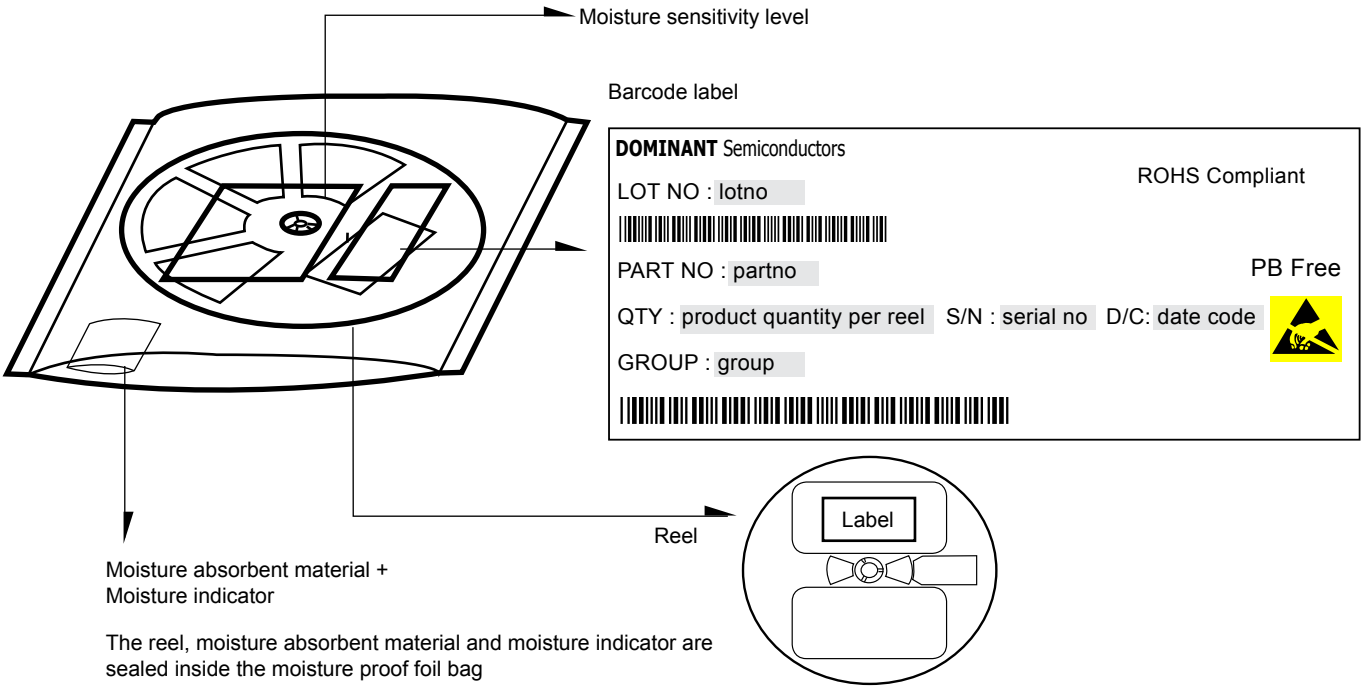
- Reels come in quantity of 1000 units.
- Reel diameter is 330 mm.



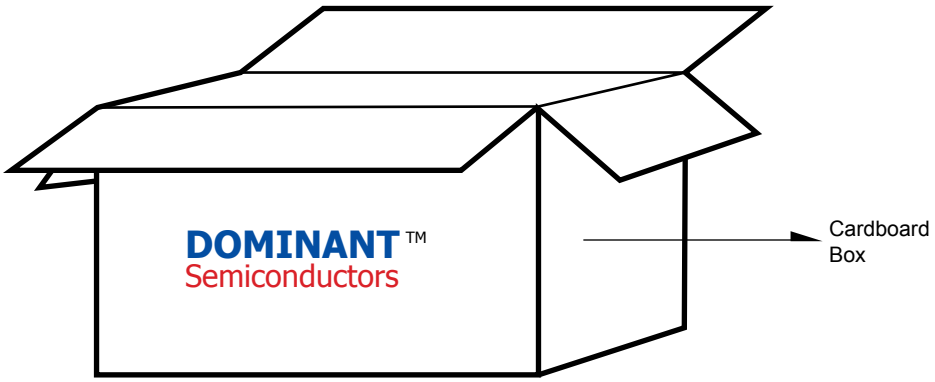
Packaging Specification



Packaging Specification



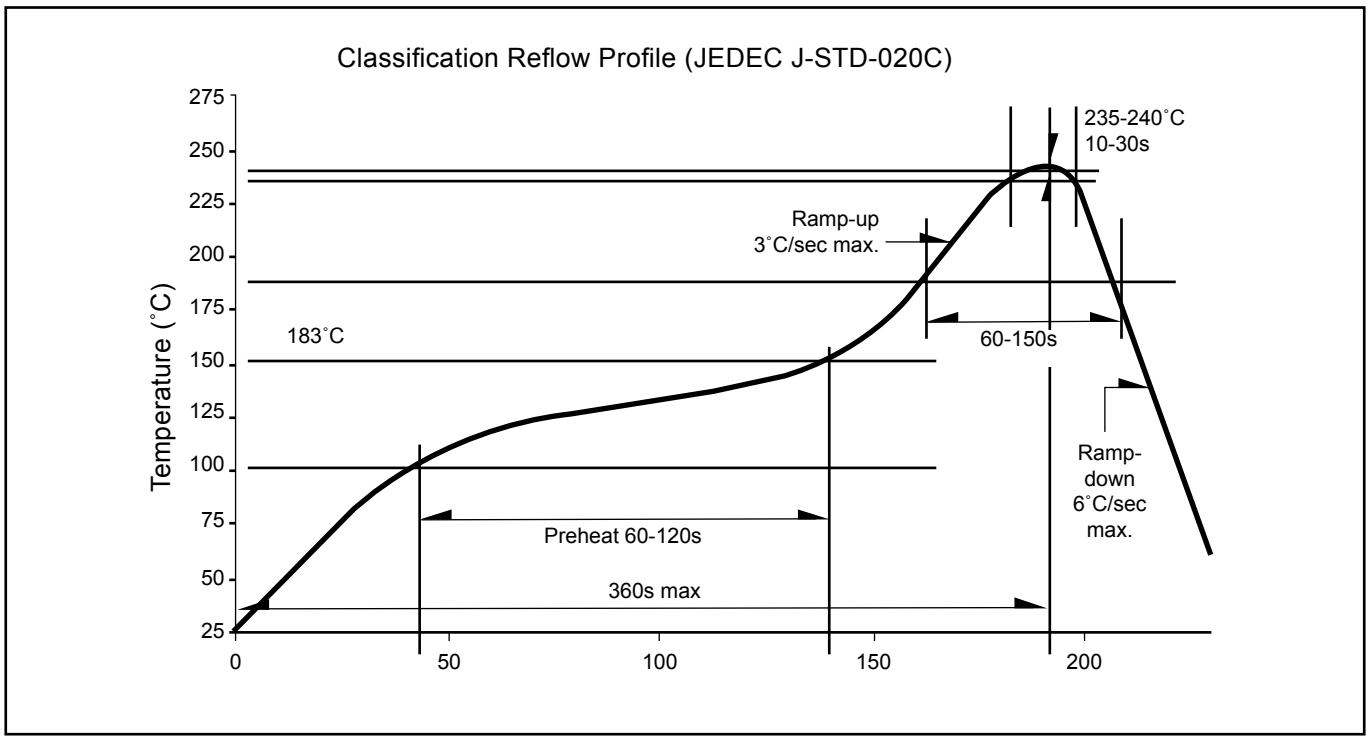
	Average 1pc SPNovaLED	1 completed bag (1000pcs)
Weight (gram)	**0.188**	**600 ± 10**



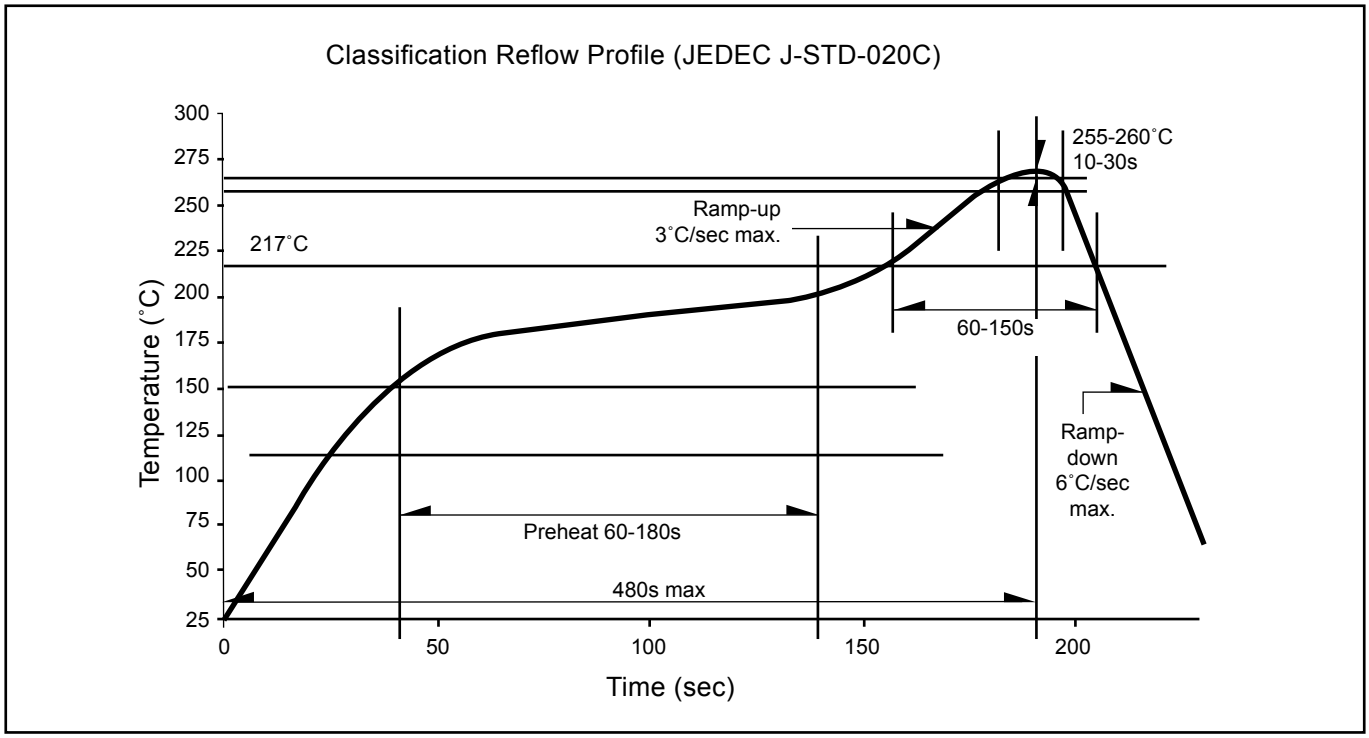
For SPNovaLED™

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	06 Jul 2009

NOTE

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

DOMINANT Semiconductors reserves the right to make changes at any time without prior notice to any products in order to improve reliability, function or design.

DOMINANT Semiconductors 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 Semiconductors.

About Us

DOMINANT Semiconductors 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 Semiconductors can be found on the Internet at http://www.dominant-semi.com.

Please contact us for more information:

Head Quarter

DOMINANT Semiconductors 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 Semiconductors Malaysia Sdn. Bhd. Shanghai Representative Office

DOMINANT Semiconductors (Shenzhen) Co. Ltd.
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.
#709, Yatap Leaders Bldg., 342-1 Yatap-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, 463-828 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

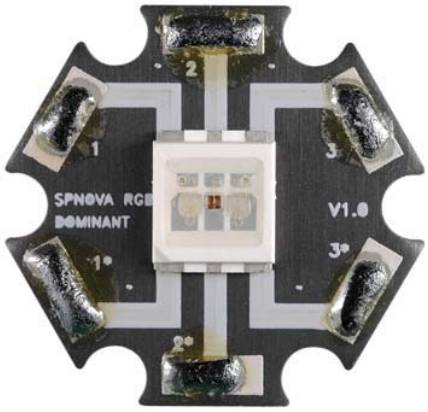
DOMINANT Semiconductors Europe GmbH
Raiffeisenstr. 38, 74906 Bad Rappenau Germany
Tel: +49 (0) 7264-89010-10 / +49 (0) 7264-89010-11 Cell: +49 173-6907370 / +49 173-6907751
Fax: +49 (0) 7264-89010-29
E-mail: gerd.wachno@dominant-semi.eu; hartmut.wettengl@dominant-semi.eu

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™ Semiconductors
Innovating Illumination

Super NovaLED RGB MC PCB Module



- Customized for Dominant's SP Nova RGB.
- Good light thermal conductivity with aluminum substrate.
- Soldering points are provided for electrical connections.
- Easily mounted with the locating slots.

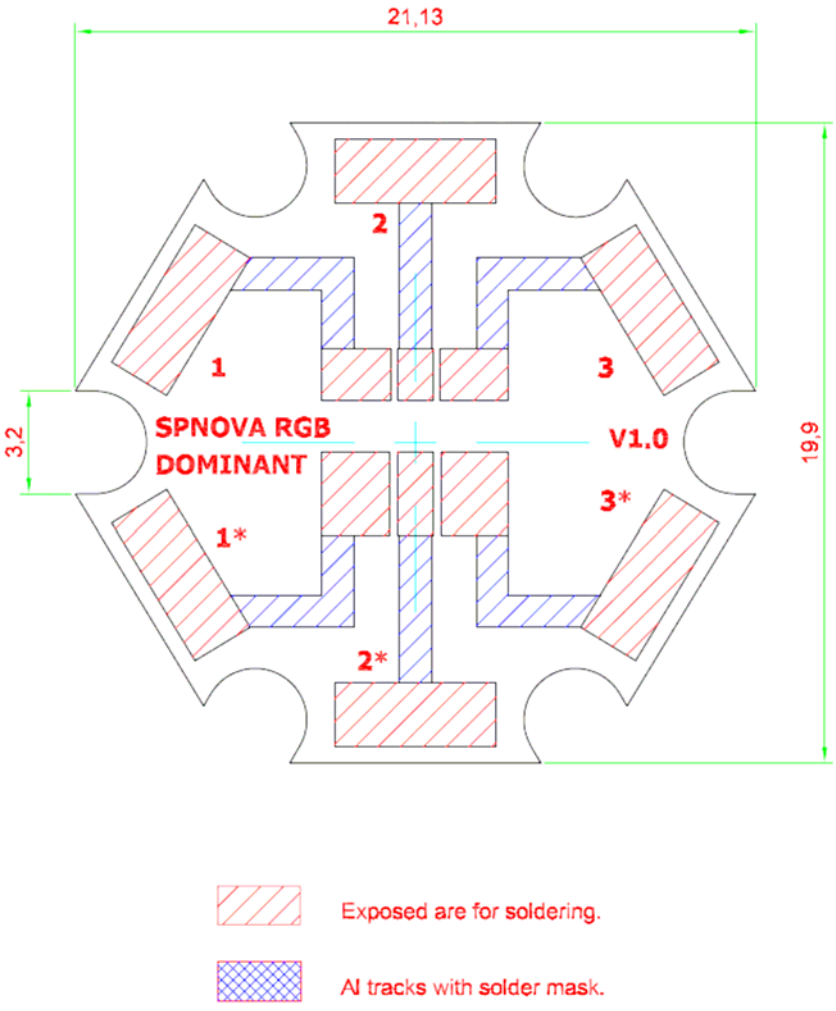
Material

	Material
Substrate	Al substrate
Solder Paste	SnCuAg (Pb free)

Note: Module is Pb-free and is RoHs compliant.

Please avoid prolong exposure of the soldering pads to high temperature. Temperature must be less than 300°C and soldering time less than 5 seconds.

Dimension



Substrate thickness = 1.60 ± 0.10 mm. Slots on MC PCB for location with Nylon countersunk M3 screws (insulated screw).

Electrical connection pads are labeled. Two pads are available for each chip.

NOTE: All electrical and optical characteristics of the LED are maintained the same as per committed by the corresponding datasheets.

NOTE.