

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.
- > 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; typically 400 mA.
- > Low thermal resistance; $R_{th(jc)} = 20 \text{ K/W}$.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to both IR reflow soldering.
- > Environmental friendly; RoHS compliance.

Applications:

- > Automotive: exterior applications, eg: Center High Mounted Stop Light (CHMSL), Rear Combination Lights (RCLs), Signal lighting, Fog-lamp, etc.
- > Communication: indicator and backlight in mobilephone.
- > Industry: white goods (eg: Oven, microwave, etc.).
- > Lighting: garden light, architecture lighting, general lighting. etc



Optical Characteristics at Tj=25°C

Part Ordering Number	Chip Technology / Color	Viewing Angle°	Luminous Intensity @ IF = 400mA (mcd)
NPR-MSS-AAB-1	AllnGaP	120	7150.0 - 11250.0
• NPR-MSS-AA	Red, 625		7150.0 - 9000.0
• NPR-MSS-AB			9000.0 - 11250.0
NPY-MSS-ABC-1	AllnGaP	120	9000.0 - 14000.0
• NPY-MSS-AB	Yellow, 587		9000.0 - 11250.0
• NPY-MSS-AC			11250.0 - 14000.0
NPA-MSS-ABC-1	AllnGaP	120	9000.0 - 14000.0
• NPA-MSS-AB	Amber, 615		9000.0 - 11250.0
• NPA-MSS-AC			11250.0 - 14000.0

NOTE

- Luminous intensity is measured with an accuracy of ± 11%.
- All optical and electrical data are measured at 25°C. Adequate cooling is important to ensure accurate measurement.
- Wavelength binning is carried for all units as per the wavelength-binning table. Only one wavelength group is allowed for each reel.

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
NPA; Amber	A	612 - 616
	B	616 - 620

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

Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 400mA			Vr @ Ir = 100uA
	Typ. (V)	Typ. (V)	Max. (V)	Min. (V)
NPR; NPY; NPA	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.

Correlation Between Luminous Intensity And Luminous Flux at Tj=25°C

Part Number	Luminous Intensity (mcd)		Total Flux (lm)	
	Min	Max	Min	Max
NPR-MSS				
AA	7150	9000	20.7	26.1
AB	9,000	11,250	26.1	32.6
NPY-MSS				
AB	9,000	11,250	27.0	33.8
AC	11,250	14,000	33.8	42.0
NPA-MSS				
AB	9,000	11,250	27.0	33.8
AC	11,250	14,000	33.8	42.0

Vf Binning (Optional) at Tj=25°C

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.

Material

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

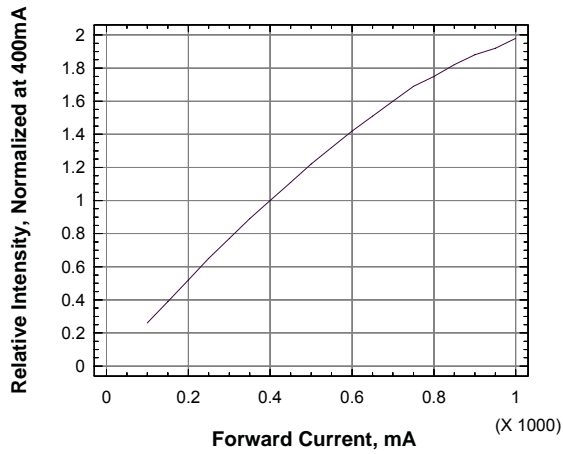
Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	400	mA
Peak pulse current (tp ≤ 10µs, Duty cycle = 0.1)	500	mA
Reverse Voltage	12	V
ESD Threshold (HBM)	2000	V
LED junction temperature	125	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C
Power dissipation	1200	mW

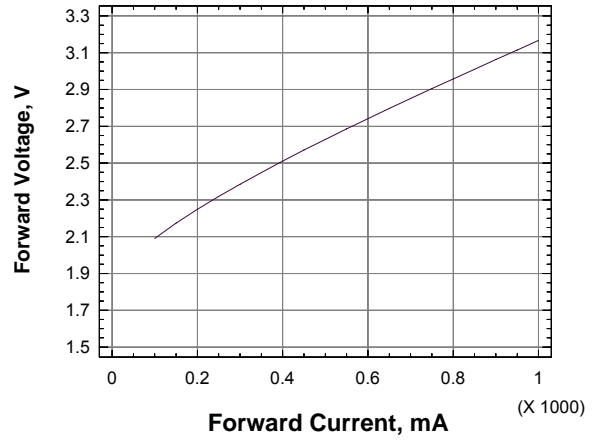
Characteristics

	Symbol	Part Number	Value	Unit
Temperature coefficient of λ_{dom} (typ) $I_F = 400\text{mA}; 0\text{ }^\circ\text{C} \leq T \leq 100\text{ }^\circ\text{C}$	$TC_{\lambda_{\text{dom}}}$ (typ)	NPR-MSS	0.06	nm / K
		NPY-MSS	0.09	
		NPA-MSS	0.07	
Temperature coefficient of V_F (typ) $I_F = 400\text{mA}; 0\text{ }^\circ\text{C} \leq T \leq 100\text{ }^\circ\text{C}$	TC_V	NPR-MSS	-5.6	mV / K
		NPY-MSS	-2.7	
		NPA-MSS	-5.0	
Temperature coefficient of I_V (typ) $I_F = 400\text{mA}; 0\text{ }^\circ\text{C} \leq T \leq 100\text{ }^\circ\text{C}$	TC_{I_V}	NPR-MSS	-90	mcd / K
		NPY-MSS	-130	
		NPA-MSS	-100	

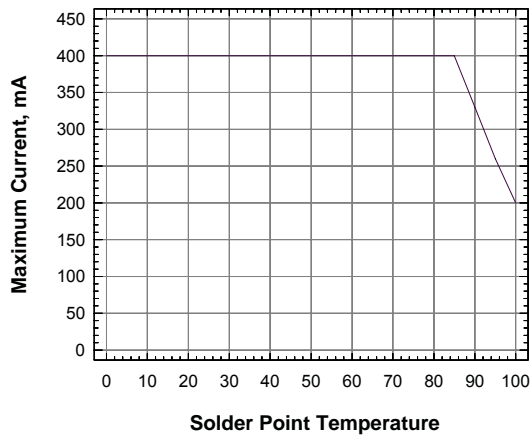
Relative Intensity Vs Forward Current



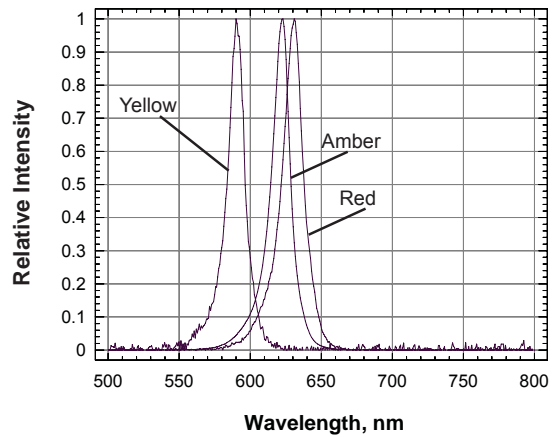
Forward Current Vs Forward Voltage



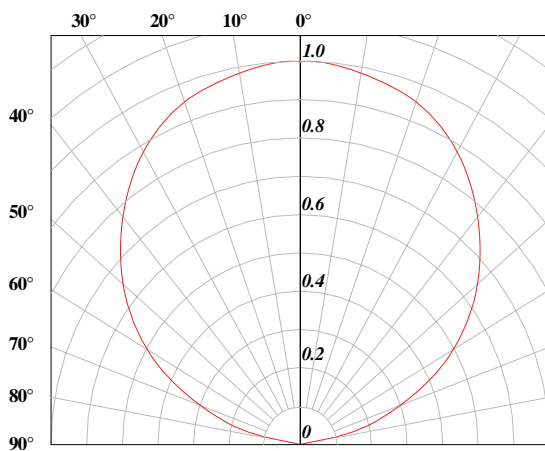
Maximum Current Vs Solder Point Temperature



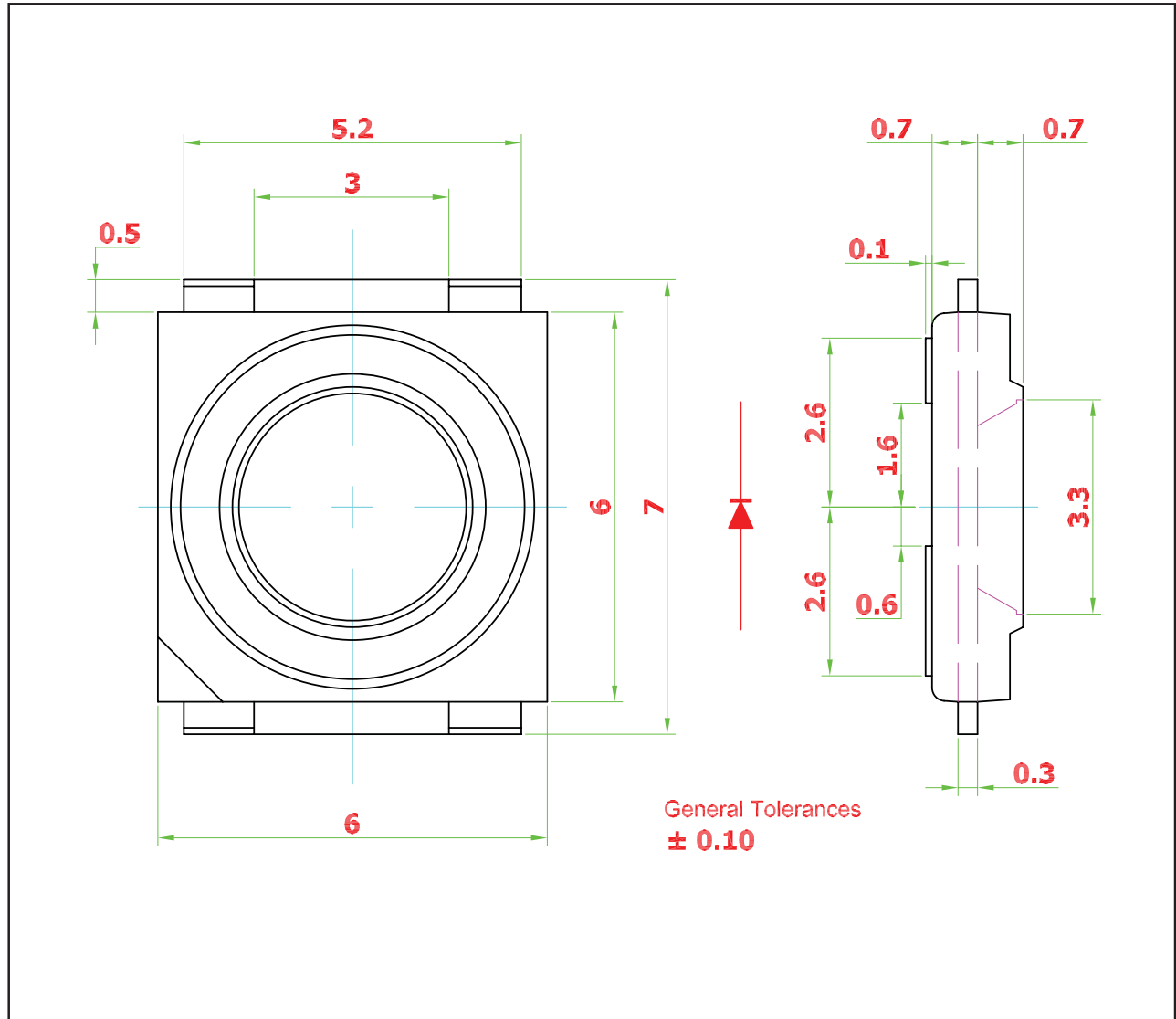
Relative Intensity Vs Wavelength



Radiation Pattern

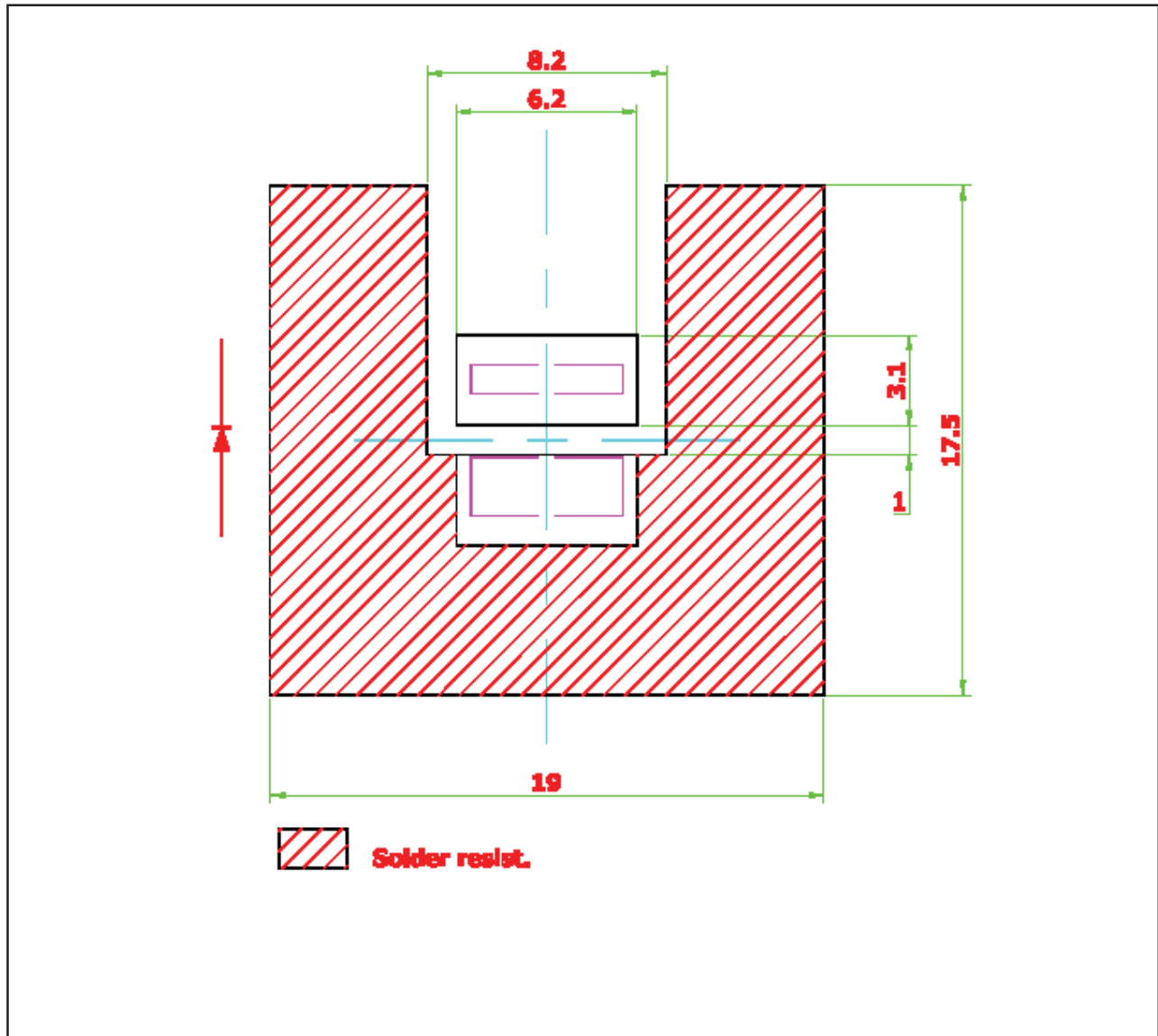


SPNovaLED™ • AllnGaP : SPNovaLED-1 Watt (400mA) Package Outlines

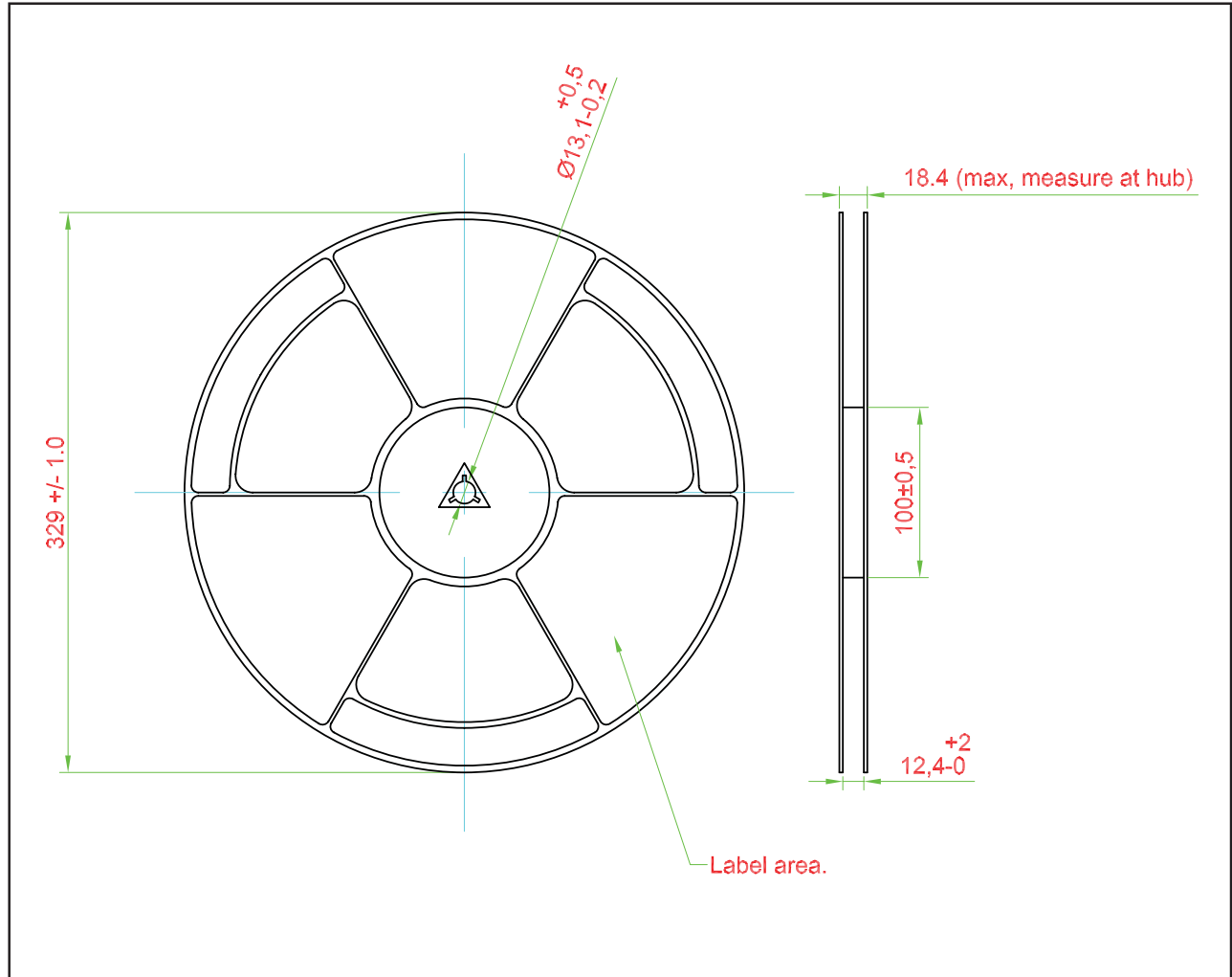


Solder Pad Design

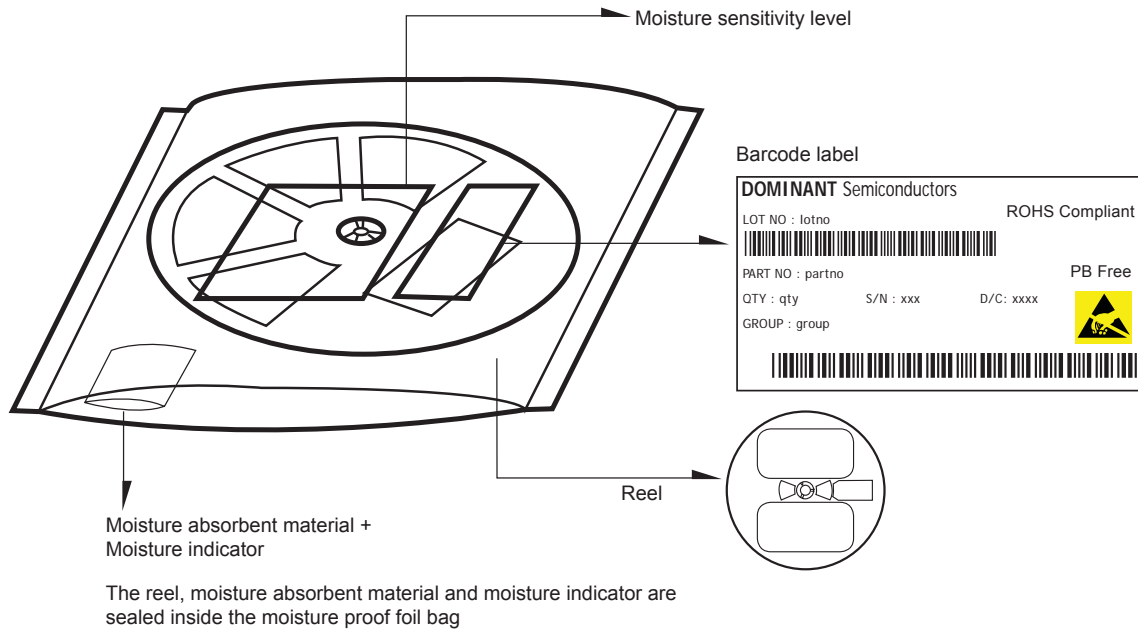
Note: Unit to unit pitching must not be less than 25 mm. Metal core circuit board (MCPCB) is highly recommended for high density applications. Please consult sales and marketing for additional information.



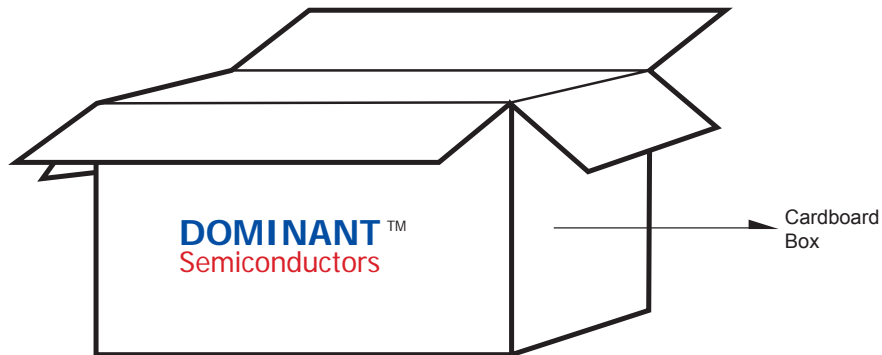
Packaging Specification



Packaging Specification



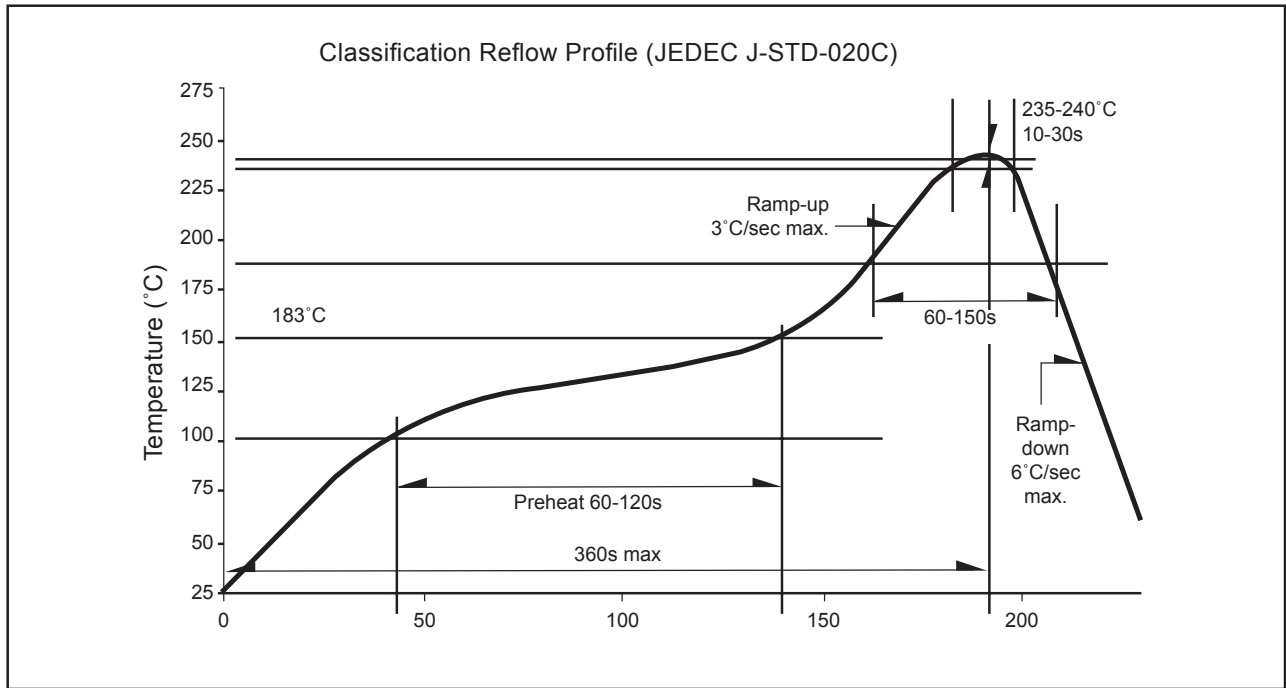
	Average 1pc SPNovaLED	1 completed bag (2000pcs)
Weight (gram)	0.188	800 ± 10



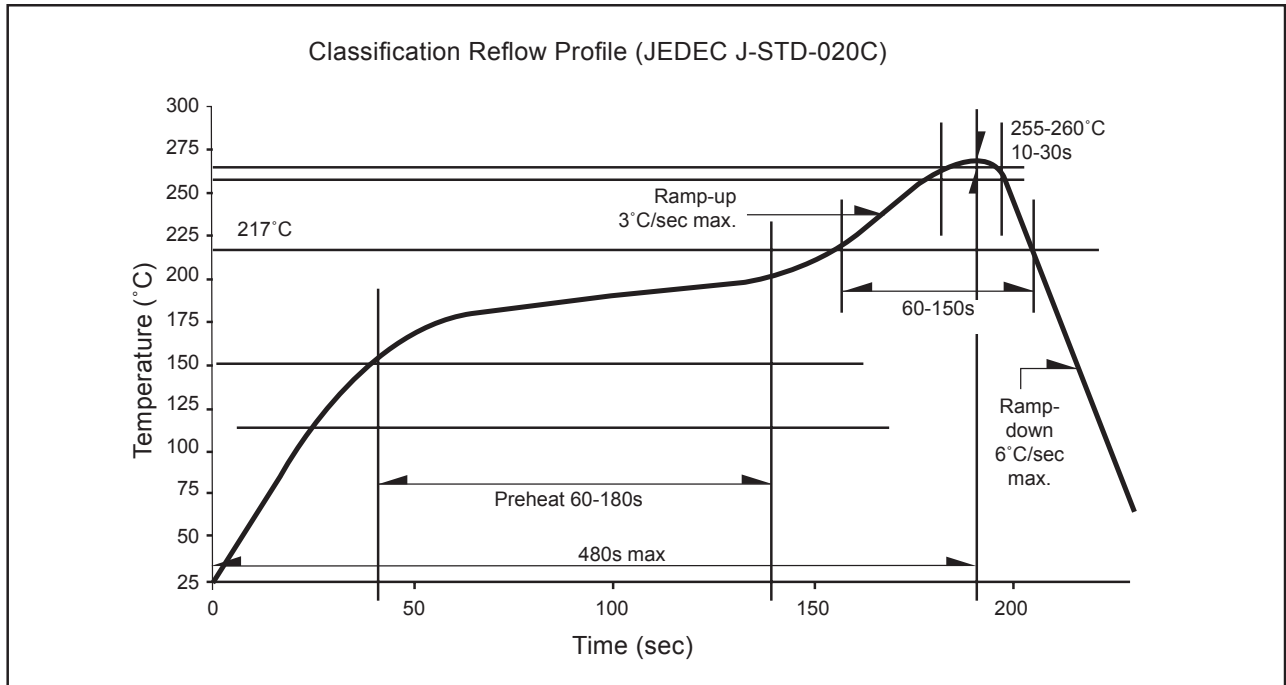
For SPNovaLED™

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	40,000 MAX

Recommended Sn-Pb IR-Reflow Soldering Profile



Recommended Pb-free Soldering Profile



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

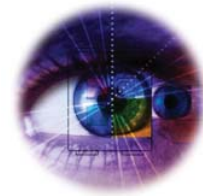
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