

PrimaxTM

Synonymous with function and performance, enter the Primax, the new era of high intensity illumination in LED. With its high flux output and high luminous intensity, Primax transcends today LED lightings technology and how we perceive it. The small package outline (3.5 x 3.5 x 1.2 mm) and high intensity make it an ideal choice for backlighting, signage, exterior automotive lighting and decorative lighting.



Features:

- > Super high brightness surface mount LED
- > 120° viewing angle.
- > Compact package outline (LxW) of 3.5 x 3.5 mm.
- > Ultra low height profile - 1.2mm.
- > Low thermal resistance.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.



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 Intensity @ 140mA (mcd)			Luminous Flux @ 140mA (lm)
			Min.	Typ.	Max.	Typ.
NAR-SSG-YZ1-1	Red	120	2850	4000	5600	10.6
NAA-SSG-YZ1-1	Amber	120	2850	4500	5600	11.9
NAY-SSG-Y2Z-1	Yellow	120	3550	5000	7150	13.2

NOTE

1. Luminous intensity is measured with an accuracy of ± 11%.
2. 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 = 140 mA			Vr @ Ir = 10 uA
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
NAX-SSG	1.8	2.2	2.9	12

Forward Voltages are tested using a current pulse of 1 ms and has an accuracy of ± 0.1 V.

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	200	mA
Peak pulse current (tp<=10ms, Duty cycle=0.10)	1000	mA
Reverse Voltage	12	V
ESD threshold (HBM)	2000	V
LED junction temperature	125	°C
Operating temperature	-40 ... +110	°C
Storage temperature	-40 ... +110	°C
Thermal resistance		
- Junction / ambient, Rth JA	100	K/W
- Junction / solder point, Rth JS	50	K/W
(Mounted on dual-sided FR4 in-house PCB)		

Characteristics

	Symbol	Part Number	Value	Unit
Temperature coefficient of λ_{dom} (typ) $I_F = 140\text{mA}; 0\text{ }^\circ\text{C} \leq T \leq 100\text{ }^\circ\text{C}$	$TC_{\lambda_{\text{dom}}}$ (typ)	NAR-SSG	0.06	nm / K
		NAA-SSG	0.07	
		NAY-SSG	0.09	
Temperature coefficient of V_F (typ) $I_F = 140\text{mA}; 0\text{ }^\circ\text{C} \leq T \leq 100\text{ }^\circ\text{C}$	TC_V	NAR-SSG	-3.5	mV / K
		NAA-SSG	-2.9	
		NAY-SSG	-2.9	
Temperature coefficient of I_V (typ) $I_F = 140\text{mA}; 0\text{ }^\circ\text{C} \leq T \leq 100\text{ }^\circ\text{C}$	TC_{I_V}	NAR-SSG	-26.8	mcd / K
		NAA-SSG	-35.3	
		NAY-SSG	-55.5	

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

Color	Group	Wavelength distribution (nm)
NAR; Red	Full	620 - 630
NAA; Amber	Full	610 - 621
	W	610 - 615
	X	615 - 621
NAY; Yellow	Full	585 - 594
	X	585 - 588
	Y	588 - 591
	Z	591 - 594

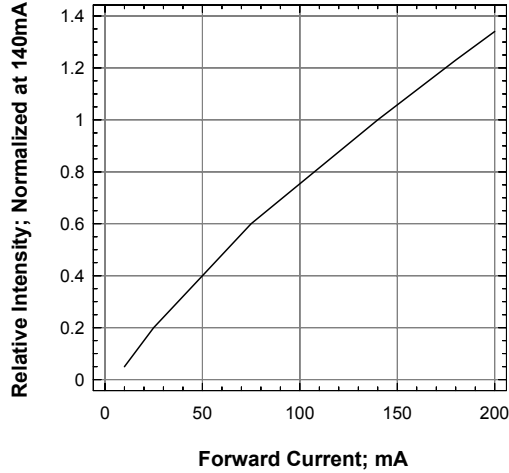
Dominant wavelength is measured with an accuracy of ± 1 nm at a drive current of 140mA

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

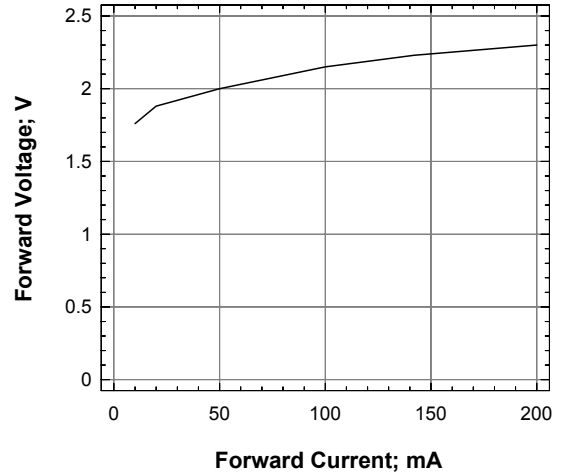
Brightness Group	Luminous Intensity @ $I_f=140\text{mA}$ (mcd)
Y1	2850...3550
Y2	3550...4500
Z1	4500...5600
Z2	5600...7150

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

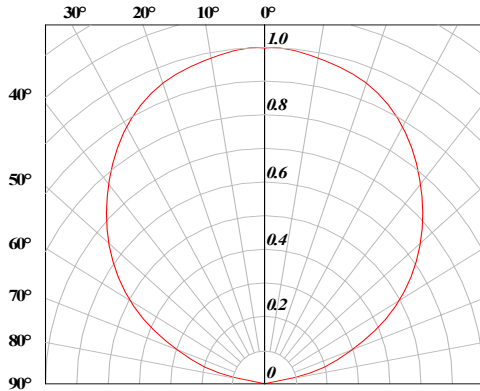
Relative Intensity Vs Forward Current



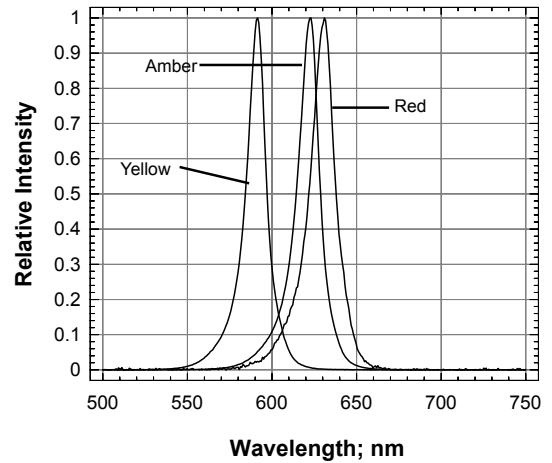
Forward Voltage Vs Forward Current



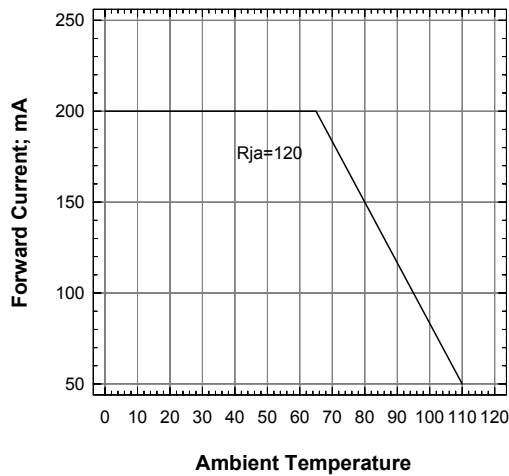
Radiation Pattern



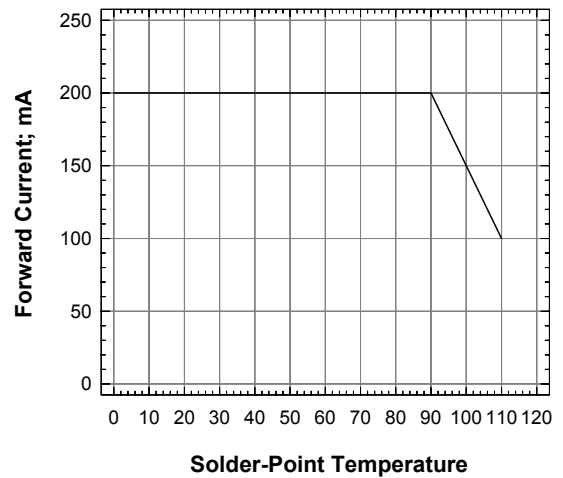
Relative Intensity Vs Wavelength



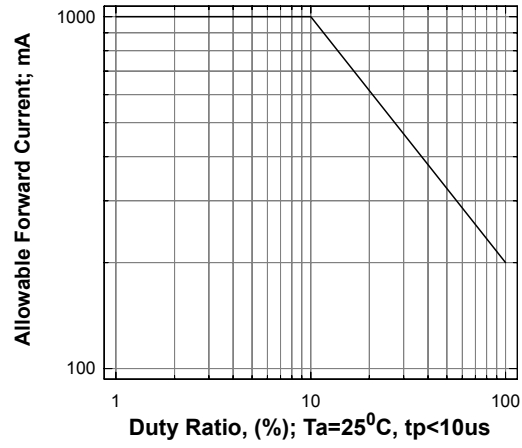
Maximum Current Vs Ambient Temperature



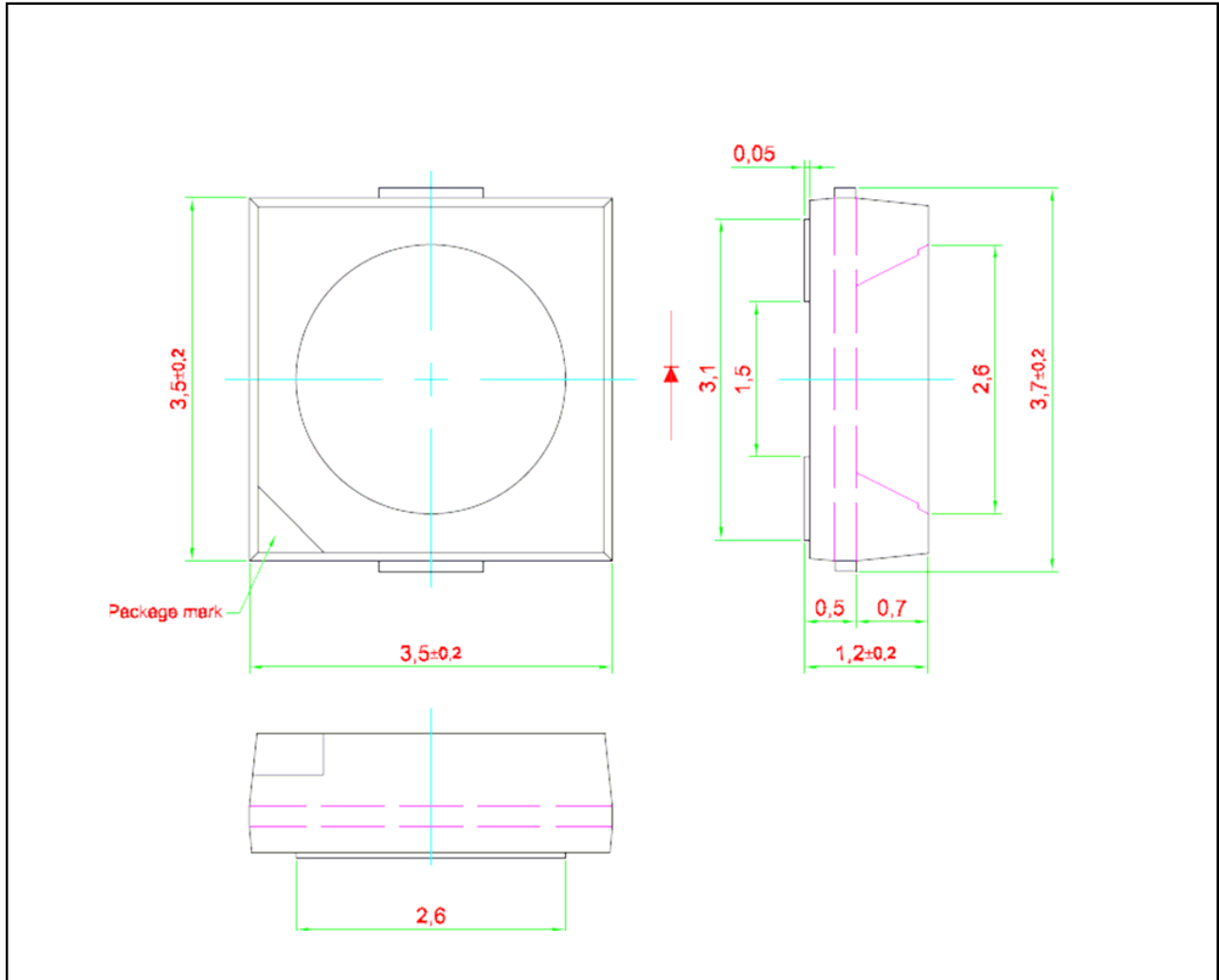
Maximum Current vs Solder-Point Temperature



Allowable Forward Current Vs Duty Ratio



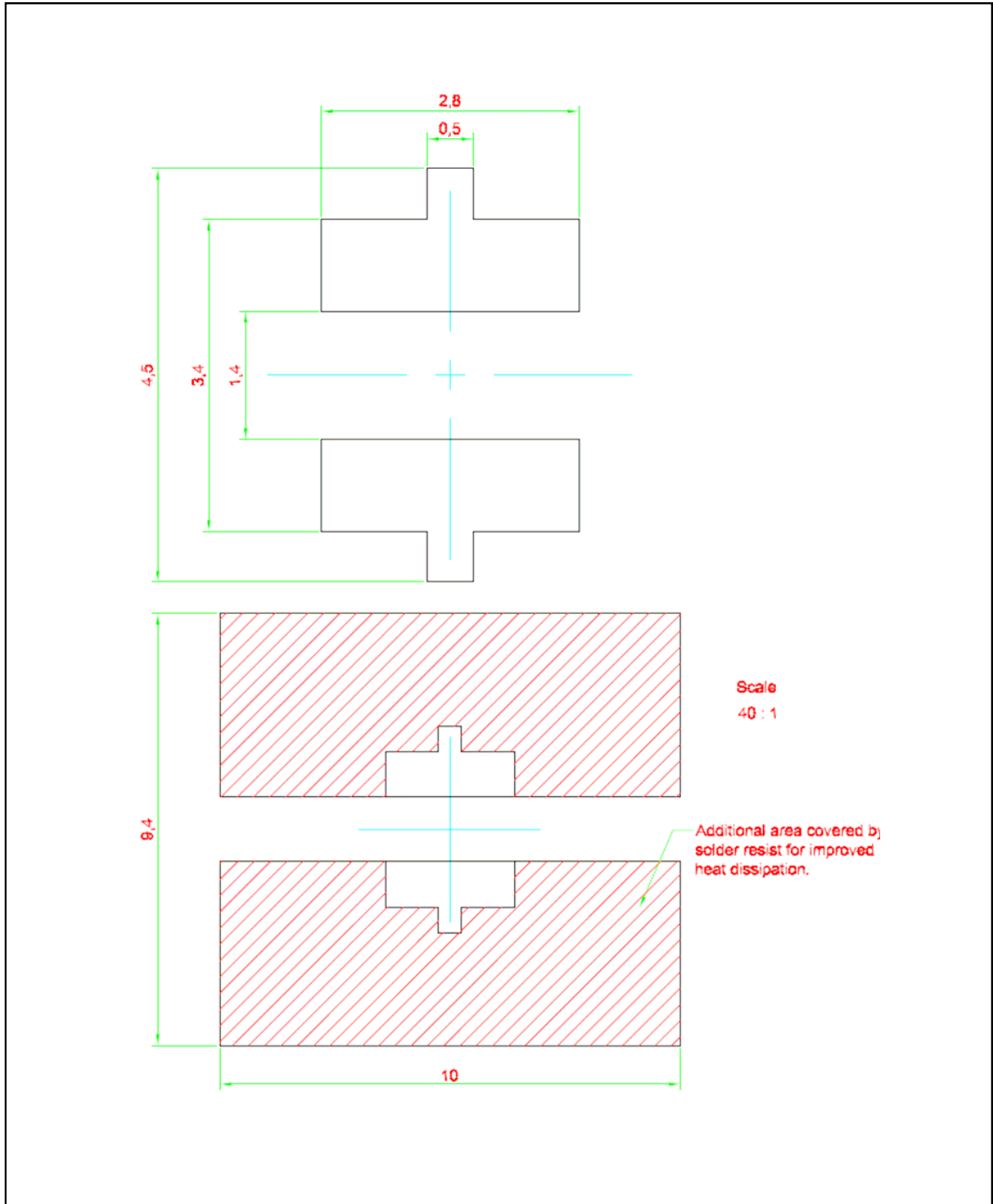
Primax™ • AllnGaP : NAX-SSG Package Outlines



Material

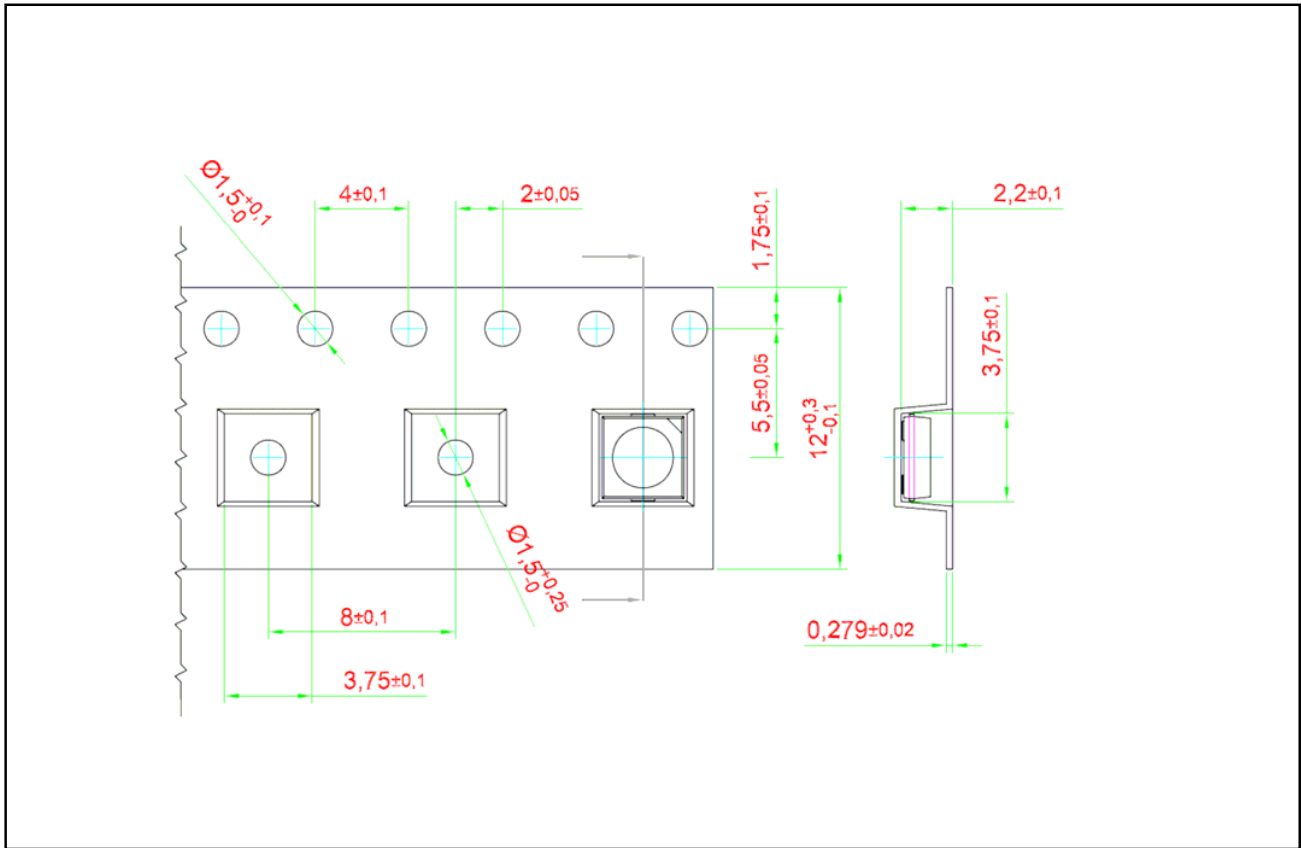
Material	
Lead-frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulant	Silicone Resin
Soldering Leads	Sn-Sn Plating

Recommended Solder Pad

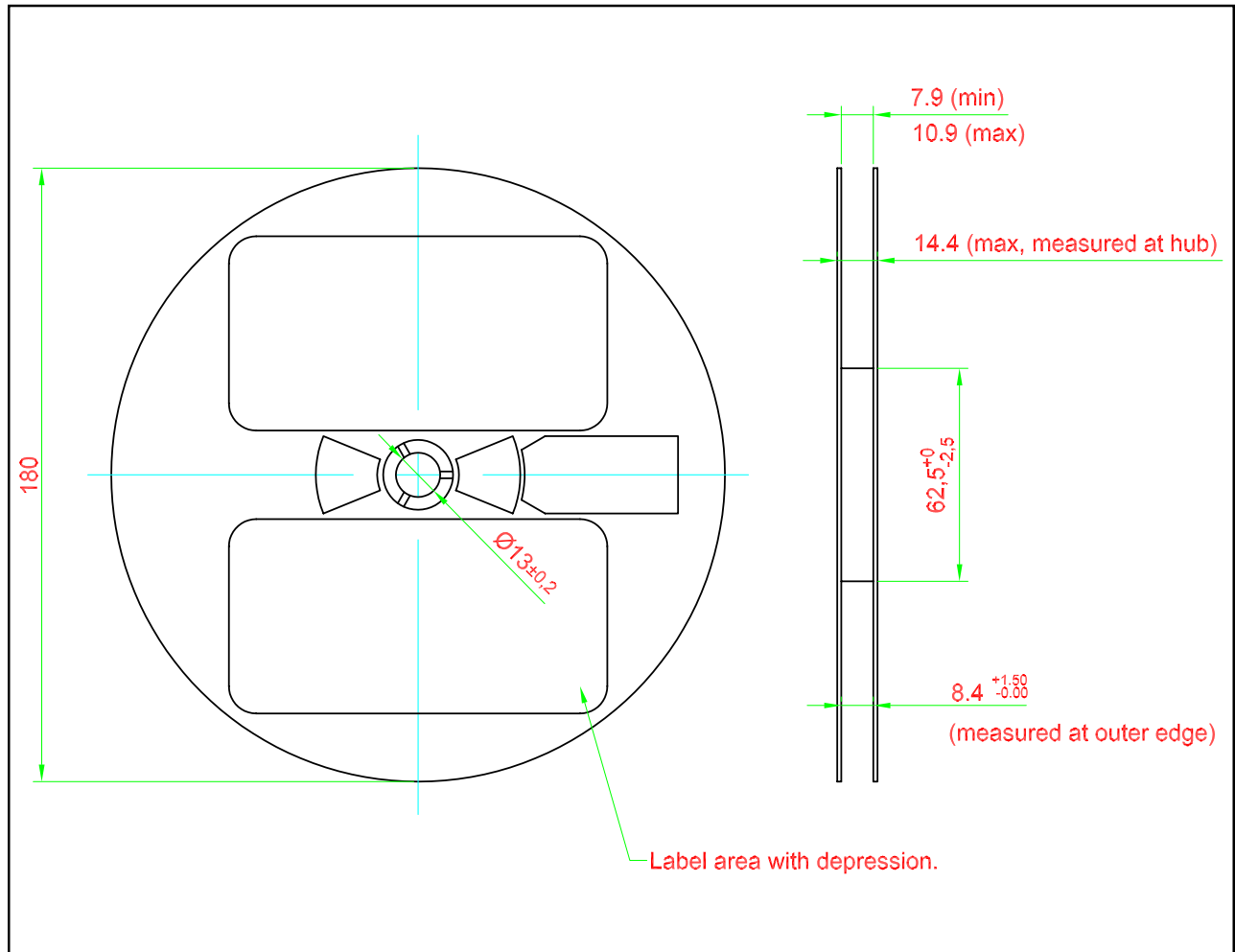


Taping and orientation

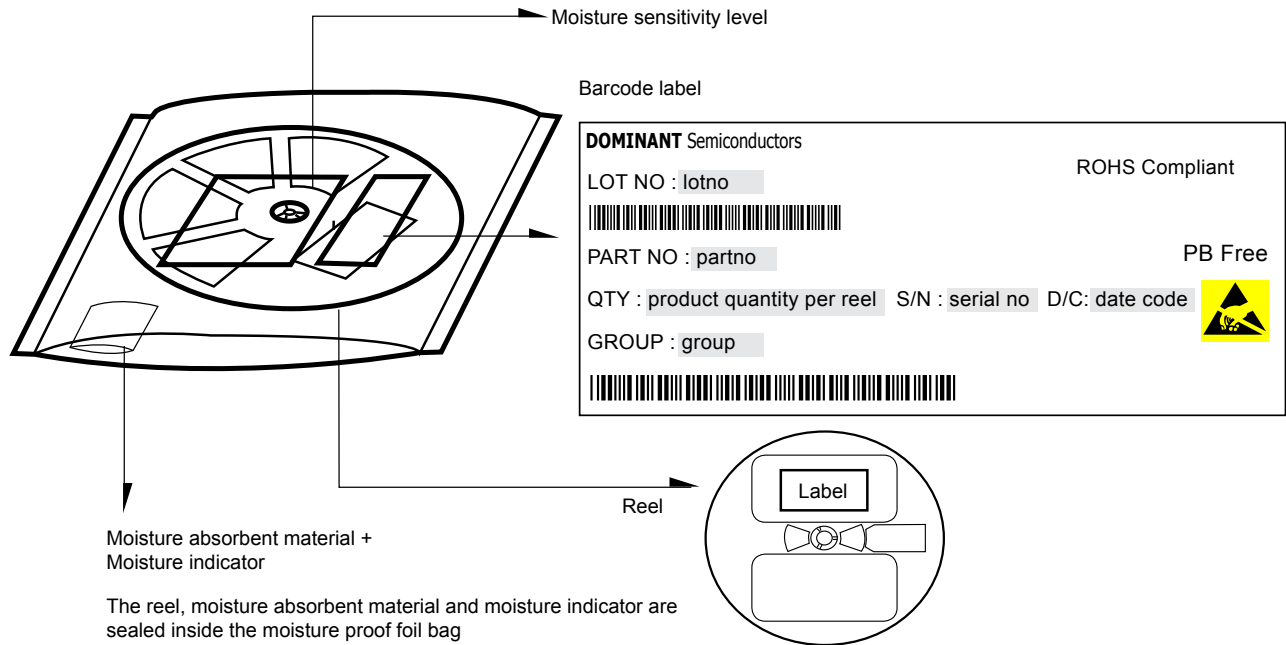
- Reels come in quantity of 1000 units.
- Reel diameter is 180 mm.



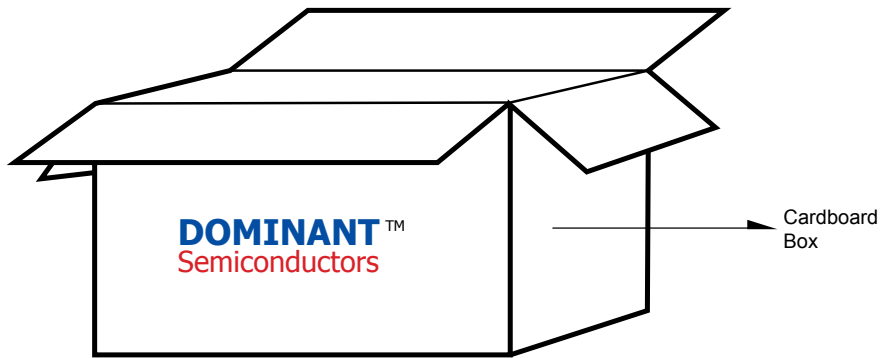
Packaging Specification



Packaging Specification



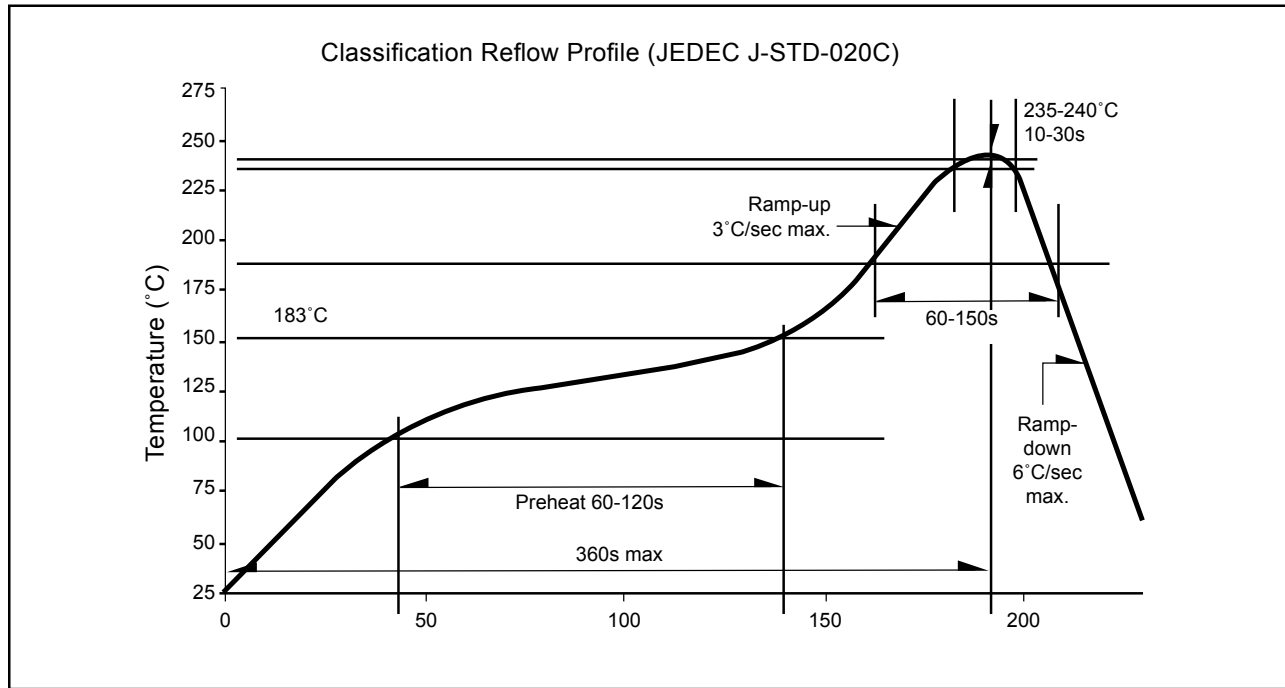
	Average 1pc Primax	1 completed bag (1000pcs)
Weight (gram)	0.041	160 ± 10



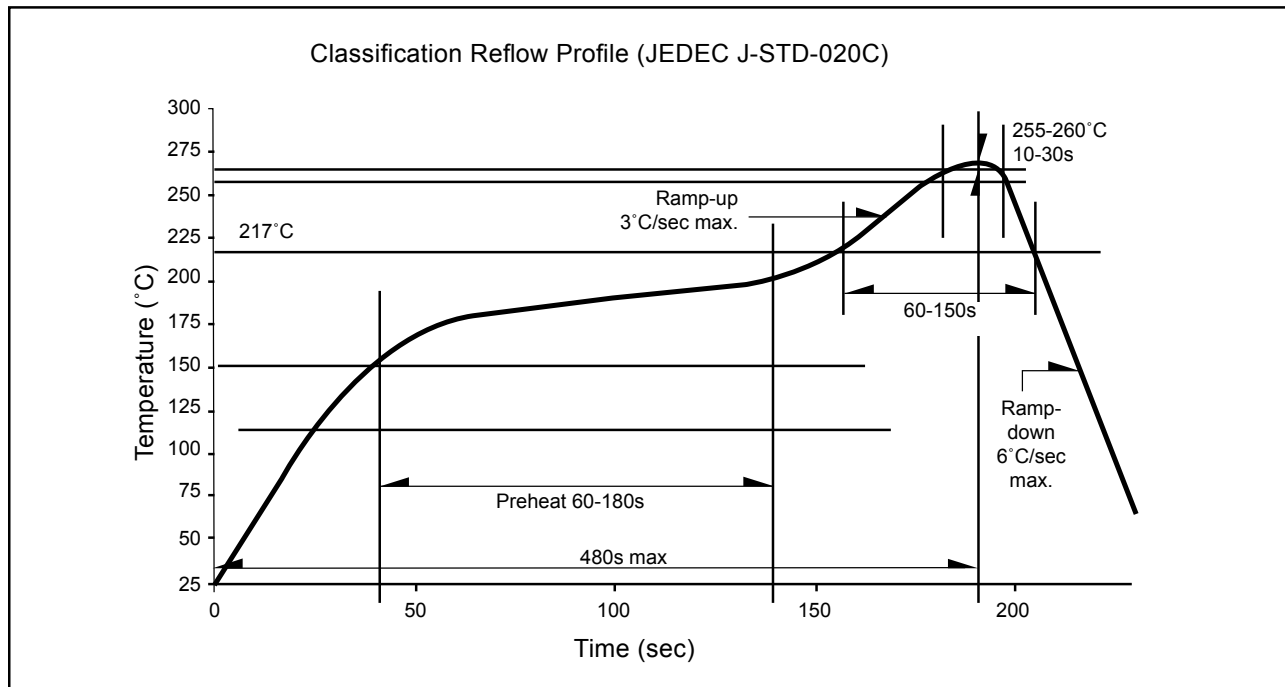
For Primax™

Cardboard Box Size	Dimensions (mm)	Empty Box Weight (kg)	Reel / Box	Quantity / Box (pcs)
Small	300 x 250 x 250	0.58	15 reels MAX	30,000 MAX
Large	416 x 516 x 476	1.74	96 reels MAX	96,000 MAX

Recommended Sn-Pb IR-Reflow Soldering Profile



Recommended Pb-free Soldering Profile



Revision History

Page	Subjects	Date of Modification
-	Initial Release	19 Jan 2009
9	Update Packaging Specification	27 Feb 2009
2	Update Typical Luminous Flux	13 Mar 2009
3,5	- Add Characteristic Table - Add Allowable Forward Current Vs Duty Ratio Graph	27 Apr 2009

NOTE

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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>.

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