DOMINANT™
Opto Technologies
Innovating Illumination

DATA SHEET:

SpiceLED™

InGaN S-Spice : SSx-HLD

SpiceLED™

Like spice, its diminutive size is a stark contrast to its standout performance in terms of brightness, durability and reliability. Despite being the smallest in size yet the SpiceLED™ packs a powerful performance and is a highly reliable design device. Its versality enables its application in automotive applicances, key-pad illumination, hand-held devices such as PDAs, notebooks, compact back-lighting applications, consumer appliances, office equipment, audio and video equipment.



Features:



- > High brightness surface mount LED.
- > Super wide viewing angle of 160°.
- > Equivalent to 0603 package outline. Copper lead-frame construction.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.

Applications:



- > Automotive: interior applications, eg: switches, telematics, climate control system, dashboard, etc.
- > Consumer Appliances: LCD illumination as in PDAs, LCD TV.
- > Communication: indicator and backlight in mobilephone.
- > Display: full color display video notice board.
- > Industrial: white goods (eg: Oven, microwave, etc.).

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Optical Characteristics at Tj=25˚C

Part Ordering Number	Color	Viewing Angle˚	Luminous Intensity @ IF = 20mA IV (mcd) Min.	Typ.	Max.
SSB-HLD-P2R1-1	Blue, 470 nm	160	56.0	100.0	140.0
SSB-HLD-Q2R-1	Blue, 470 nm	160	90.0	140.0	180.0
SST-HLD-TU2-1	True Green, 525nm	160	285.0	450.0	715.0

NOTE
1. All part number above comes in a quantity of 3000 units per reel.
2. Other luminious intensity groups are also available upon request
3. Luminous intensity is measured with an accuracy of ± 11%.
4. 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 = 20mA Min. (V)	Typ. (V)	Max. (V)	Vr @ Ir = 10uA Min. (V)
SSx-HLD	2.8	3.2	3.6	5

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

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	20	mA
Peak pulse current; (tp ≤ 10μs, Duty cycle = 0.1)	100	mA
Reverse voltage; Ir_{max} = 10μA	5	V
ESD threshold (HBM)	2000	V
LED junction temperature	120	˚C
Operating temperature	-40 … +110	˚C
Storage temperature	-40 … +110	˚C
Power dissipation (at room temperature)	75	mW
Thermal resistance		
- Junction / ambient, $R_{th\ JA}$	480	K/W
- Junction / solder point, $R_{th\ JS}$	280	K/W
(Mounting on FR4 PCB, pad size >= 16 mm^2 per pad)		

Wavelength Grouping at Tj=25˚C

Color	Group	Wavelength distribution (nm)
SSB; Blue	Full	464 - 476
	A	464 - 470
	B	470 - 476
SST; True Green	Full	520 - 535
	A	520 - 525
	B	525 - 530
	C	530 - 535

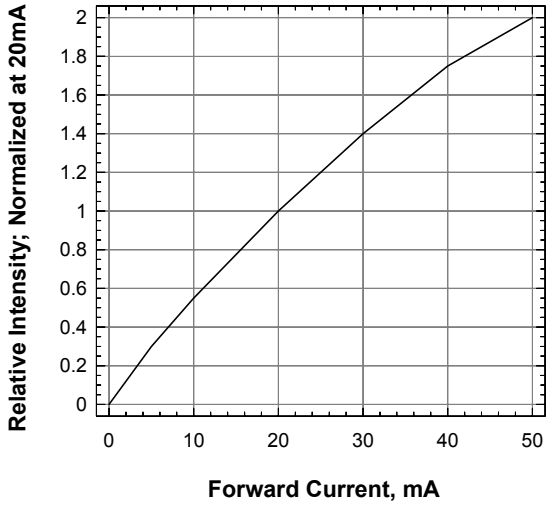
Dominant wavelength is measured with an accuracy of ± 1nm .

Luminous Intensity Group at Tj=25˚C

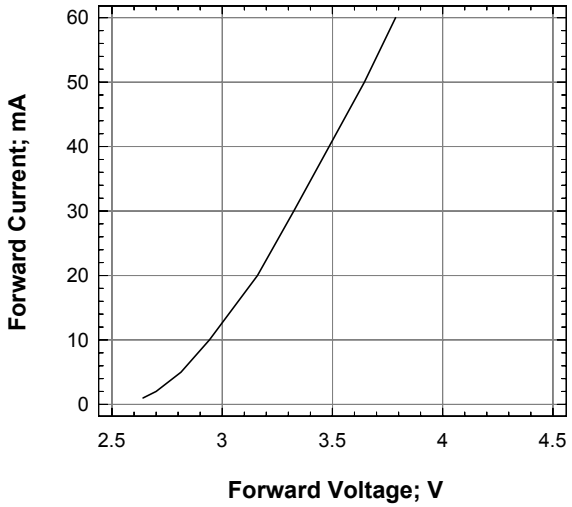
Brightness Group	Luminous Intensity IV (mcd)
P2	56.0 ... 71.5
Q1	71.5 ... 90.0
Q2	90.0 ... 112.5
R1	112.5 ... 140.0
R2	140.0 ... 180.0
T1	285.0 ... 355.0
T2	355.0 ... 450.0
U1	450.0 ... 560.0
U2	560.0 ... 715.0

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

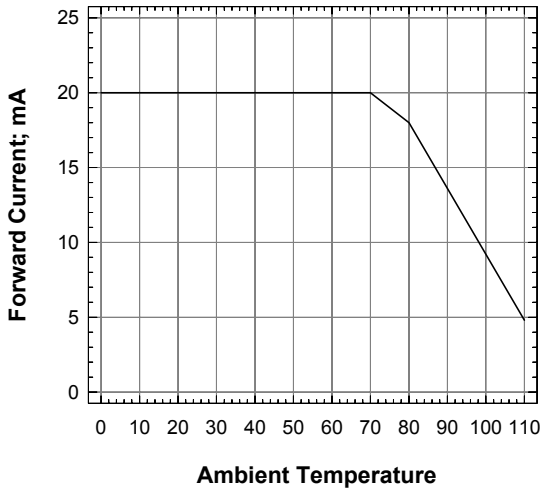
Relative Intensity Vs Forward Current



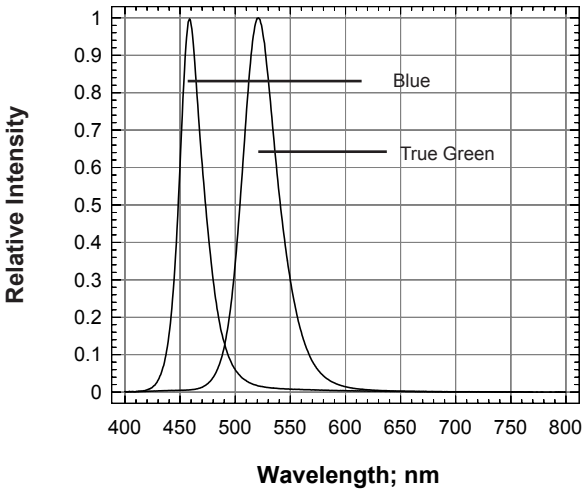
Forward Current Vs Forward Voltage



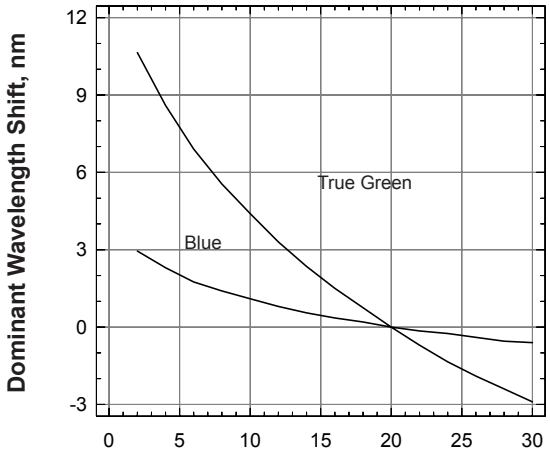
Maximum Current vs Ambient Temperature



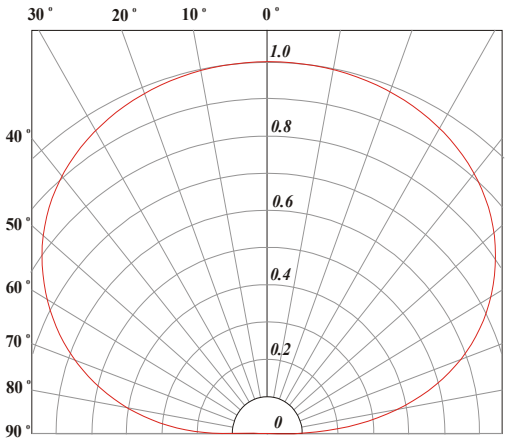
Relative Intensity Vs Wavelength



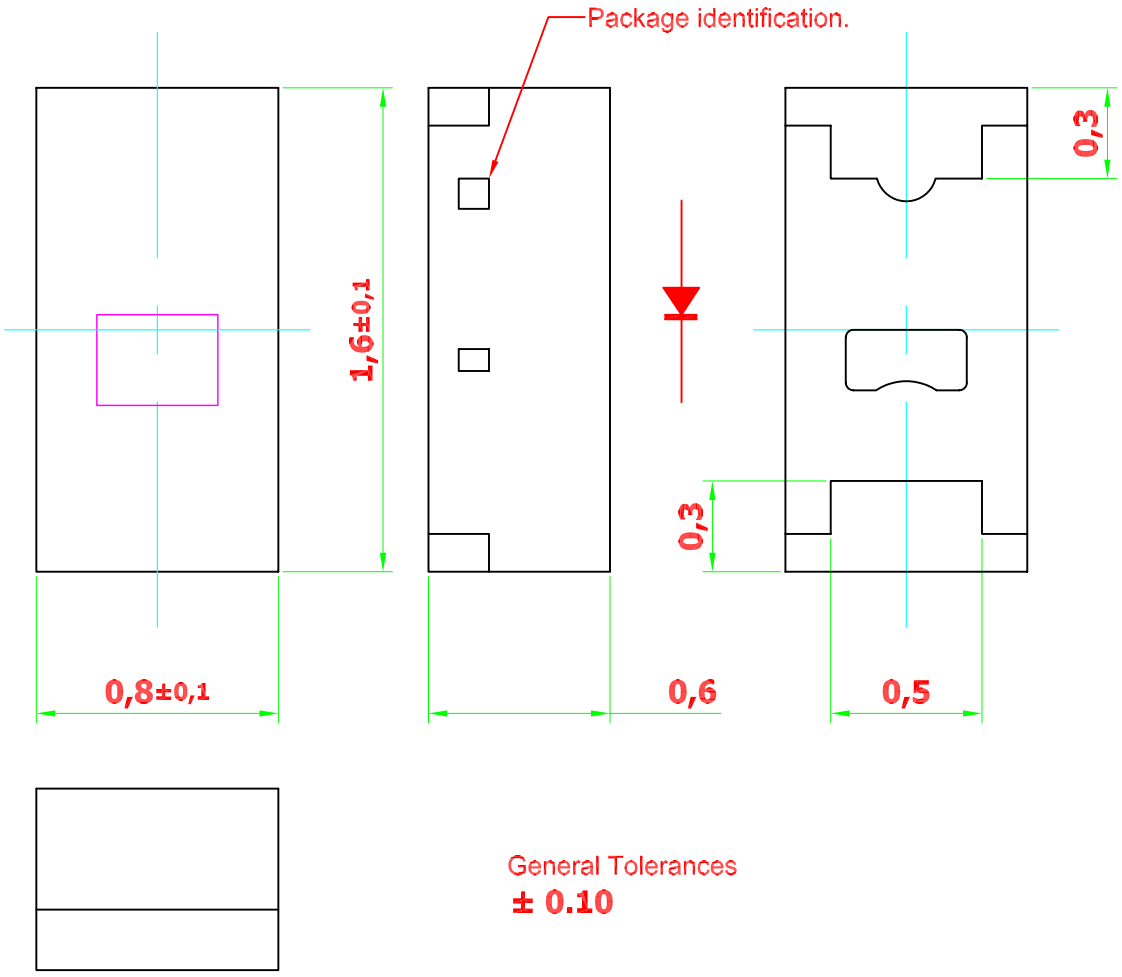
Dominant Wavelength Shift Vs Forward Current



Radiation Pattern



SpiceLED™ • InGaN S-Spice : SSx-HLD Package Outlines



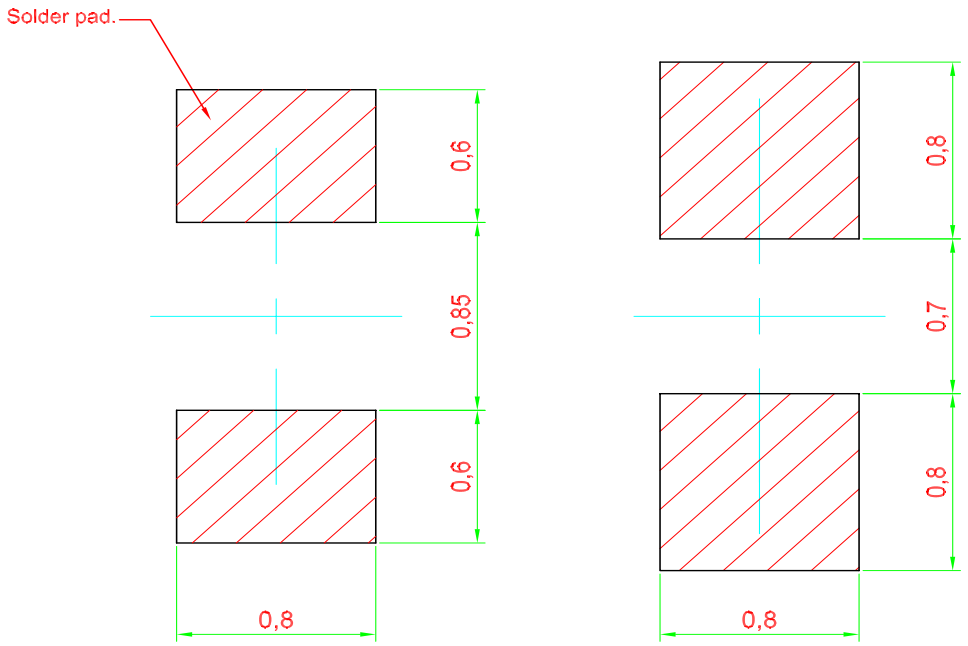
Note: The center pad is a common cathode. Please take care during soldering to avoid shorting.

Material

	Material
Lead-frame	Cu Alloy With NiPdAu Plating
Package	High Temperature Resistant Epoxy Resin

Note: product is Pb free

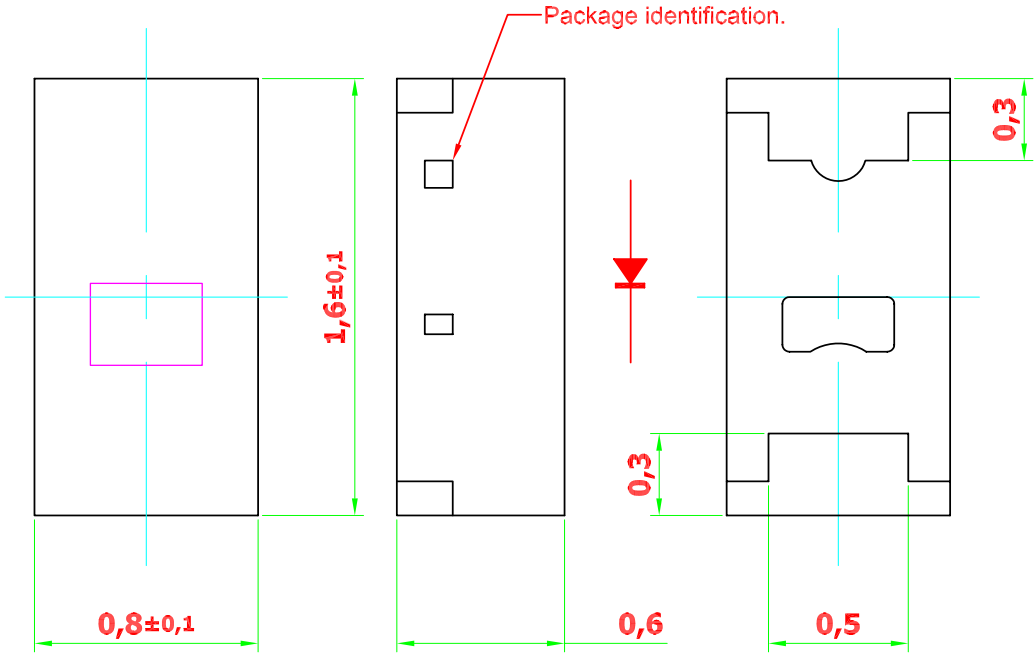
Recommended Solder Pad



Recommended Solder-pad

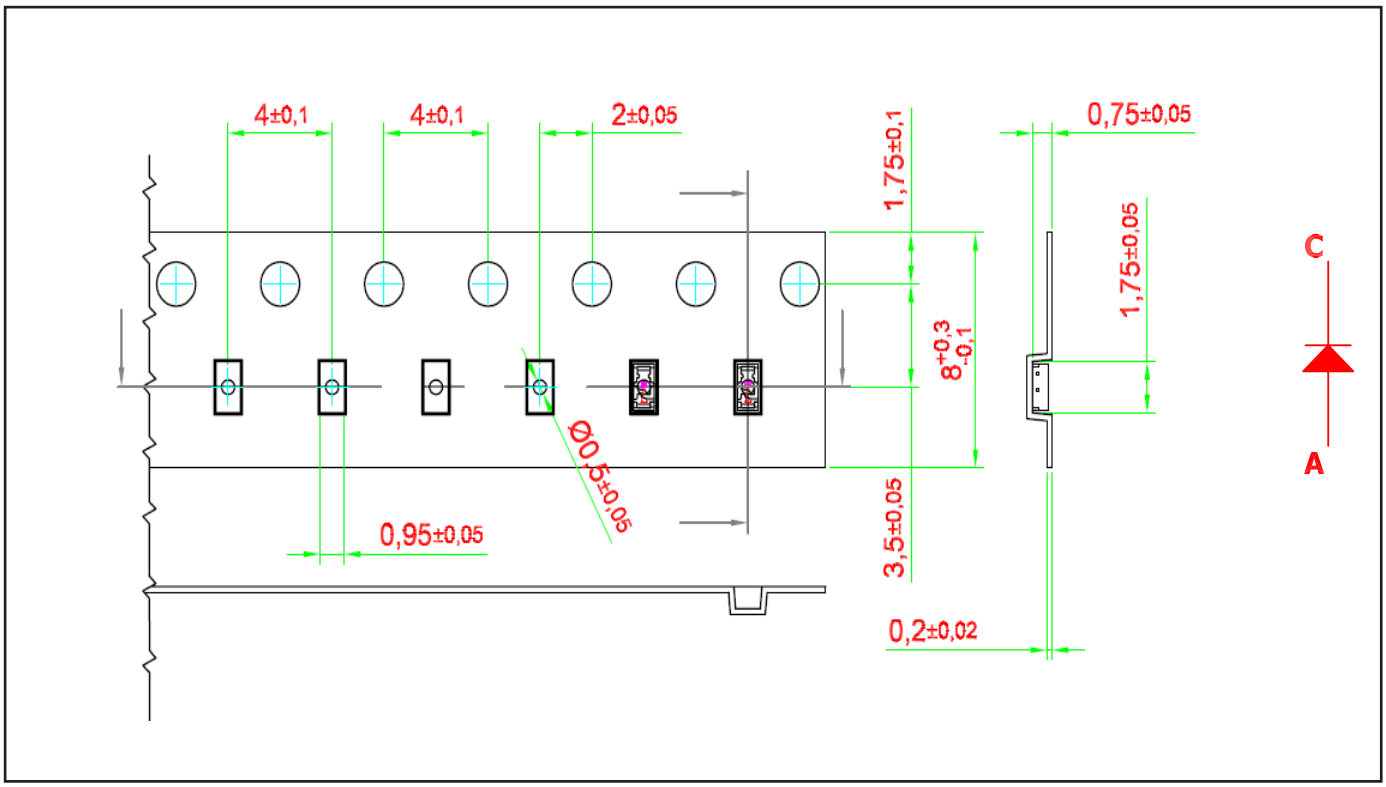
Alternative Solder-pad
Compatible to ChipLED 0603

Note: Component is based on a new package platform, which features “Bottom Only Terminations“. Solder joints are only formed at the bottom of the component and solder fillet will not be observable as the sides of the component.

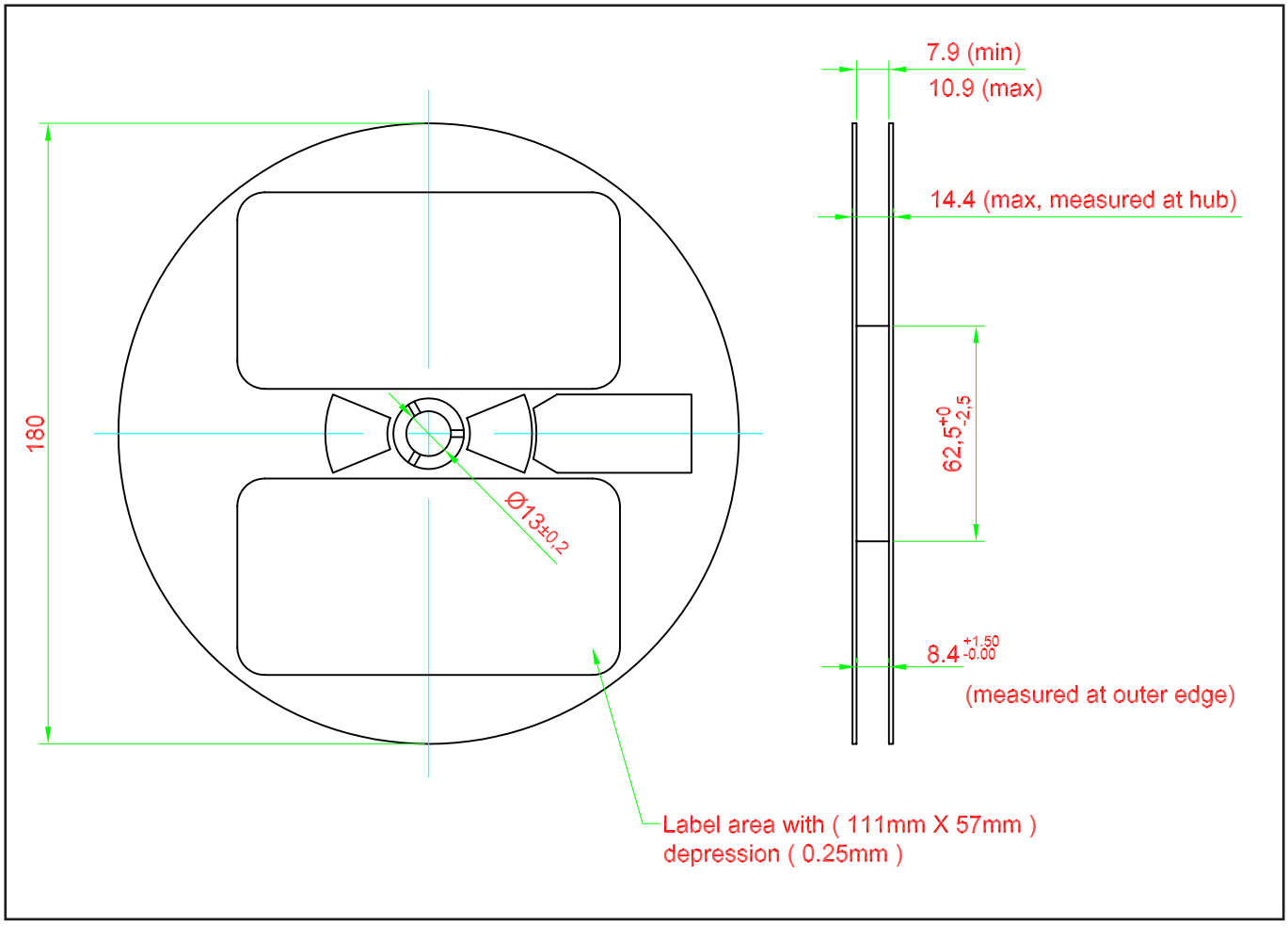


Taping and orientation

- Reels come in quantity of 3000 units.
- Reel diameter is 180 mm.



Packaging Specification



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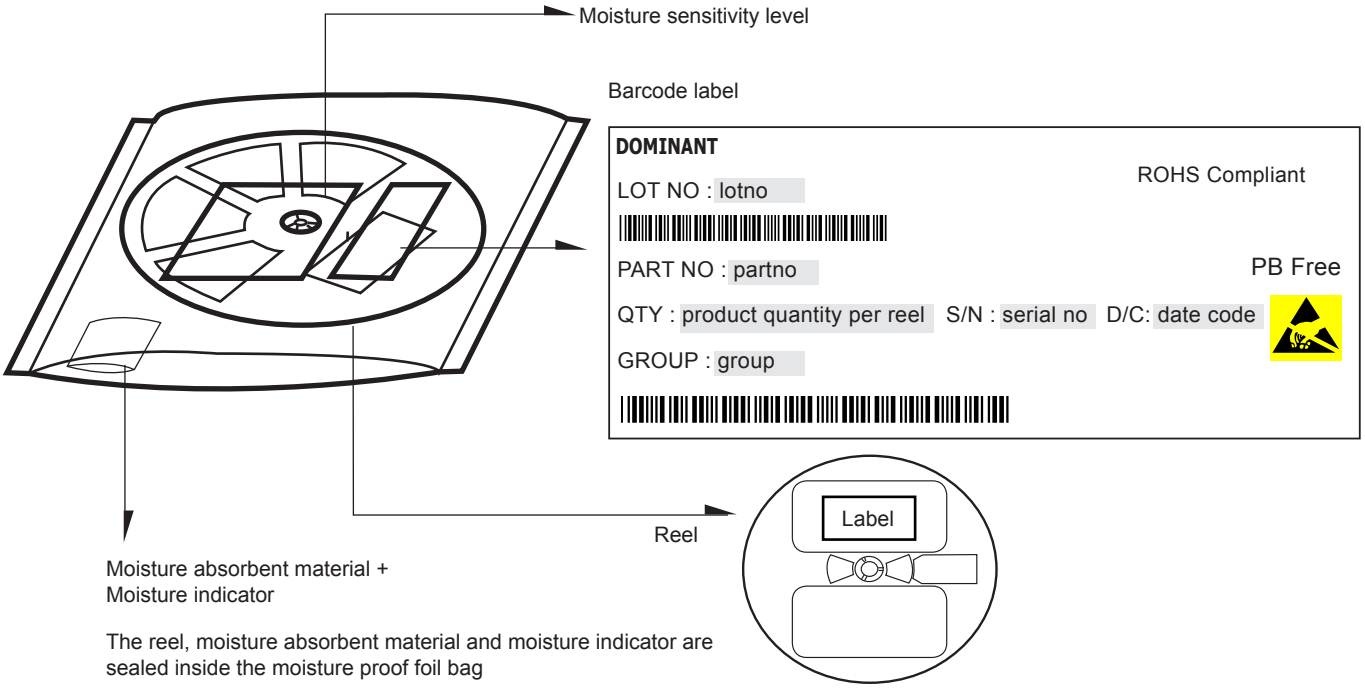
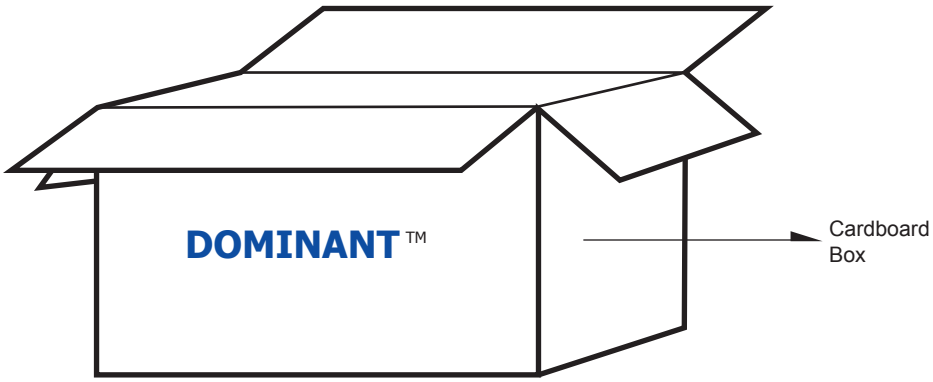


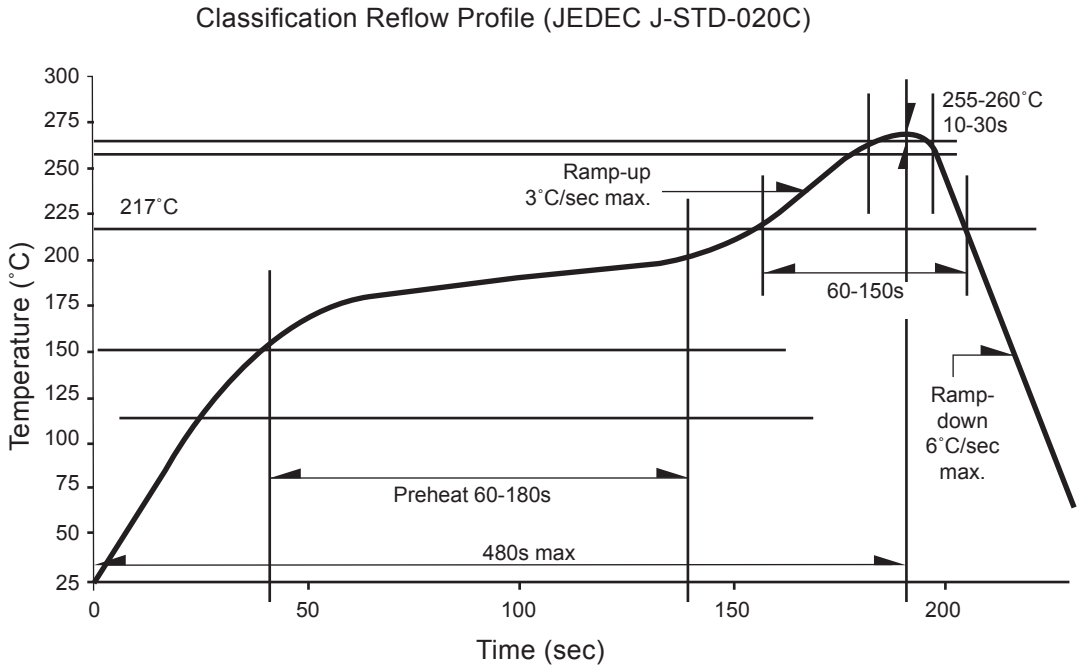
	Average 1pc SpiceLED	1 completed bag (3000pcs)
Weight (gram)	**0.001**	**140 ± 10**



For SpiceLED™

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	45,000 MAX
Large	416 x 516 x 476	1.74	96 reels MAX	288,000 MAX

Recommended Pb-free Soldering Profile



Revision History

Page	Subjects	Date of Modification
-	Initial release	26 May 2010
2	Add new partno: SSB-HLD-Q2R-1	07 May 2013
2	Add Thermal Resistance	07 Nov 2013
7	Update Carrier Tape	13 Feb 2014

NOTE

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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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