

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 50 mA.
- > Low thermal resistance; $R_{th(jc)} = 20 \text{ K/W}$.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to 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

| Part Ordering Number | Chip Technology / Color | Viewing Angle° | Luminous Intensity @ IF = 50mA (mcd) |
|----------------------|-------------------------|----------------|--------------------------------------|
| N2B-CSS-TU1-1 | InGaN | 120 | 285.0 - 560.0 |
| • N2B-CSS-T1 | Blue, 470nm | | 285.0 - 355.0 |
| • N2B-CSS-T2 | | | 355.0 - 450.0 |
| • N2B-CSS-U1 | | | 450.0 - 560.0 |
| N2T-CSS-WX1-1 | InGaN | 120 | 1125.0 - 2240.0 |
| • N2T-CSS-W1 | True Green, 525nm | | 1125.0 - 1400.0 |
| • N2T-CSS-W2 | | | 1400.0 - 1800.0 |
| • N2T-CSS-X1 | | | 1800.0 - 2240.0 |

NOTE

- Luminous intensity is measured with an accuracy of ± 11%.
- Wavelength binning is carried for all units as per the wavelength-binning table. Only one wavelength group is allowed for each reel.

Wavelength Grouping

| Color | Group | Wavelength distribution (nm) |
|-----------------|-------|------------------------------|
| N2B; Blue | Full | 464 - 476 |
| | W | 464 - 468 |
| | X | 468 - 472 |
| | Y | 472 - 476 |
| N2T; True Green | Full | 520 - 536 |
| | W | 520 - 524 |
| | X | 524 - 528 |
| | Y | 528 - 532 |
| | Z | 532 - 536 |

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

Electrical Characteristics at Ta=25°C

| Part Number | Vf @ If = 50 mA | | Vr @ Ir = 10 µA |
|-------------|-----------------|----------|-----------------|
| | Typ. (V) | Max. (V) | Min. (V) |
| N2B-CSS | 3.8 | 4.2 | 5 |
| N2T-CSS | 3.9 | 4.2 | 5 |

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

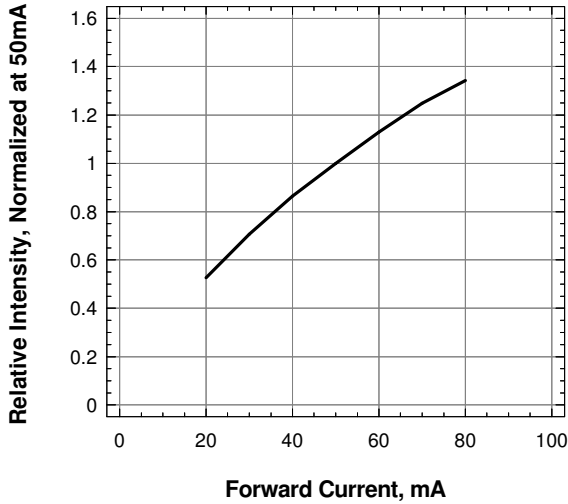
Optical Characteristics at Ta=25°C, if=50mA, Rja=100K/W

| Part Number | Total Flux @ If=50mA | | Intensity @ If=50mA(mcd) | |
|---------------|----------------------|------------|--------------------------|------|
| | Min. (mlm) | Typ. (mlm) | Min. | Typ. |
| N2B-CSS-TU1-1 | 800 | 900 | 285 | 360 |
| N2T-CSS-WX1-1 | 3700 | 4600 | 1125 | 1400 |

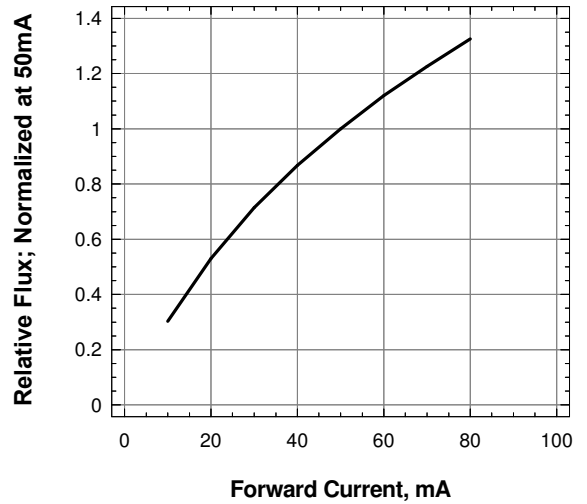
Absolute Maximum Ratings

| | Maximum Value | Unit |
|---|---------------|------|
| DC forward current | 50 | mA |
| Peak pulse current; (tp ≤ 10μs, Duty cycle = 0.005) | 200 | mA |
| Reverse Voltage | 5 | V |
| ESD Threshold (HBM) | 2000 | V |
| LED junction temperature | 125 | °C |
| Operating temperature | -40 ... +100 | °C |
| Storage temperature | -40 ... +100 | °C |
| Power dissipation | 250 | mW |

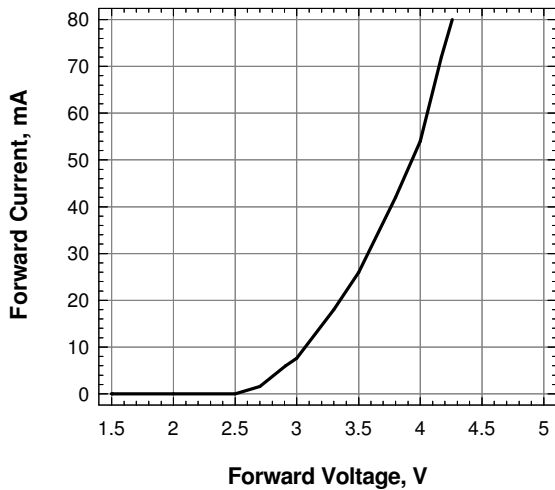
Relative Luminous Intensity Vs Forward Current



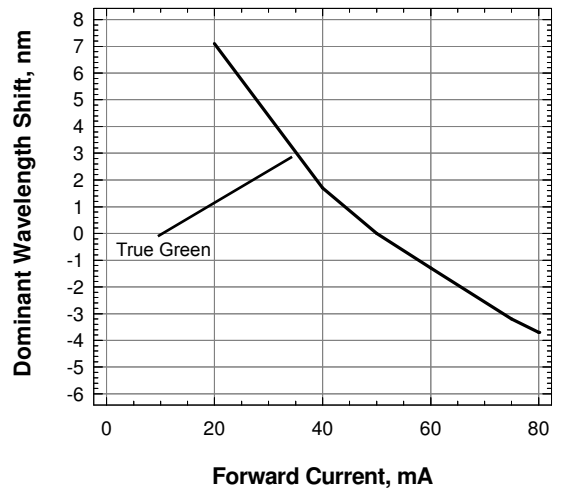
Relative Luminous Flux Vs Forward Current



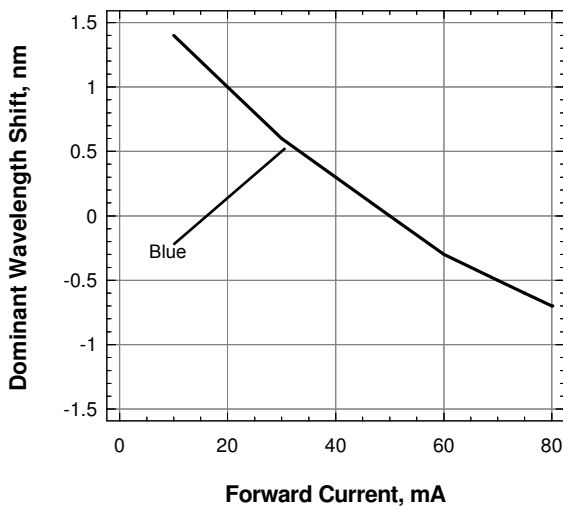
Forward Current Vs Forward Voltage



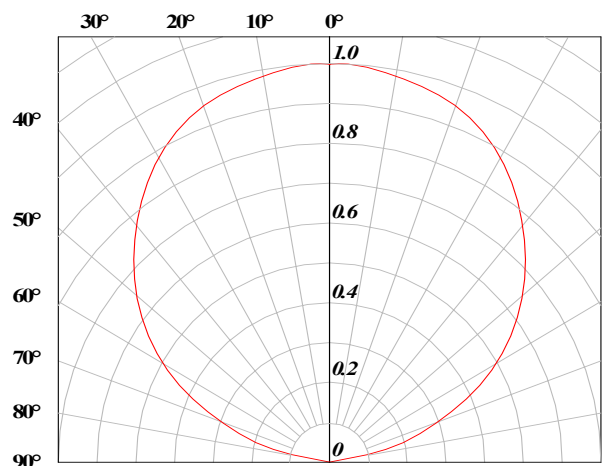
Dominant Wavelength Shift Vs Forward Current



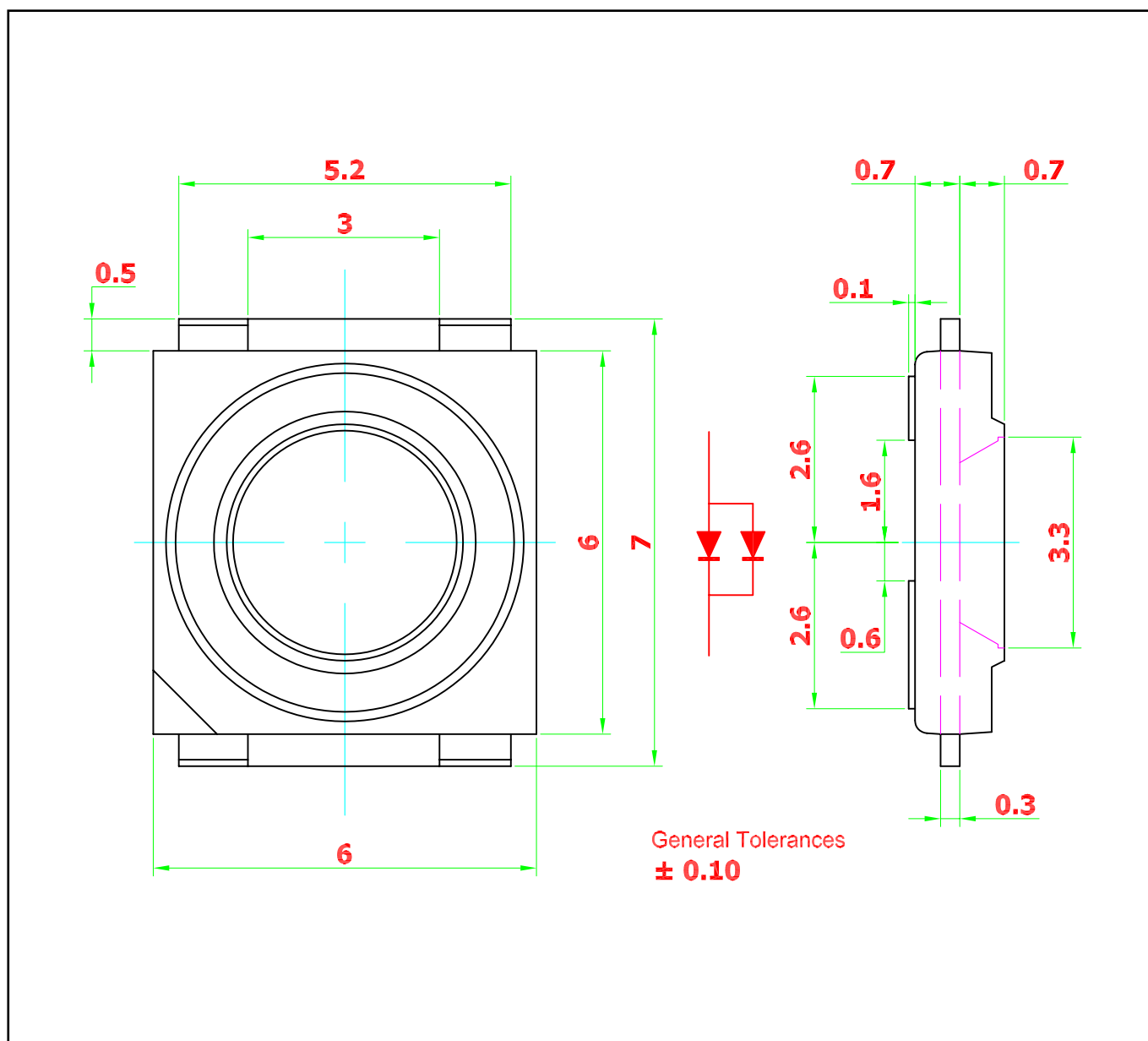
Dominant Wavelength Shift Vs Forward Current



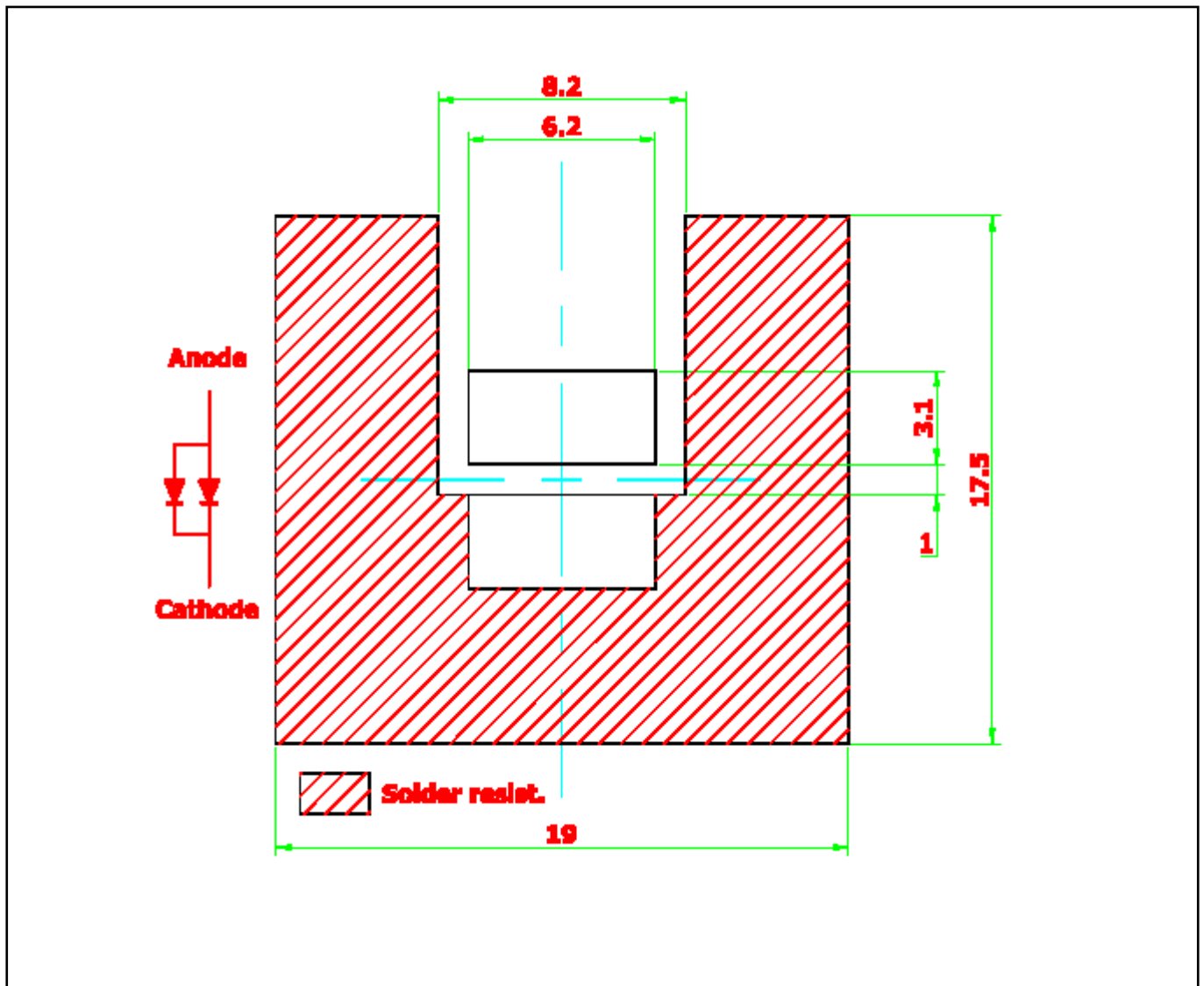
Radiation Pattern



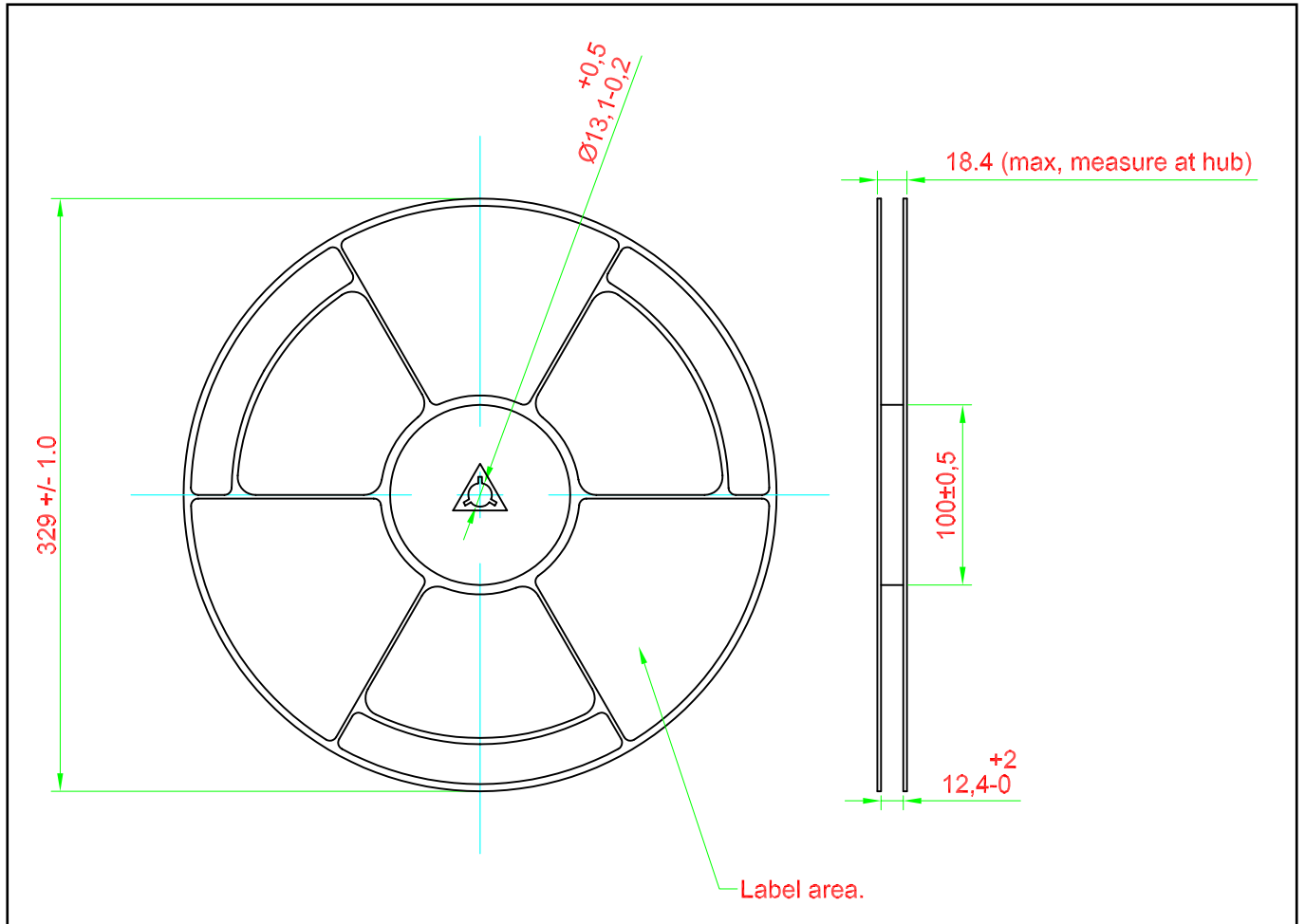
SPNovaLED™ • InGaN : 50mA Package Outlines



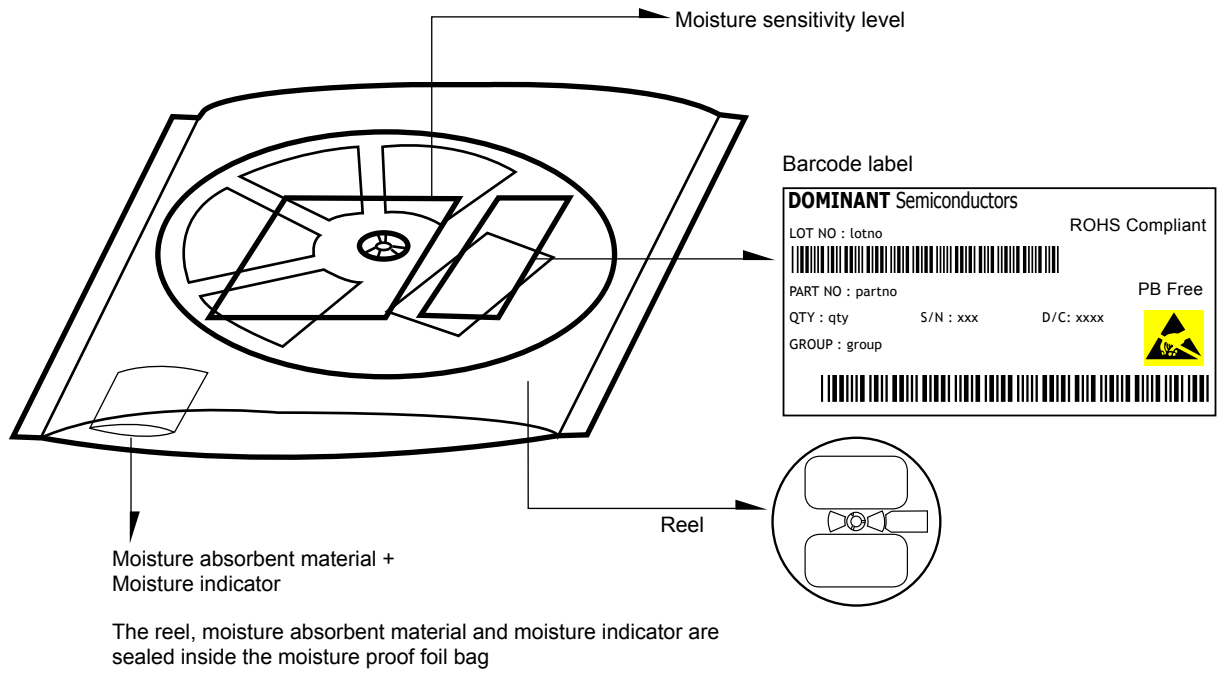
Recommended Solder Pad



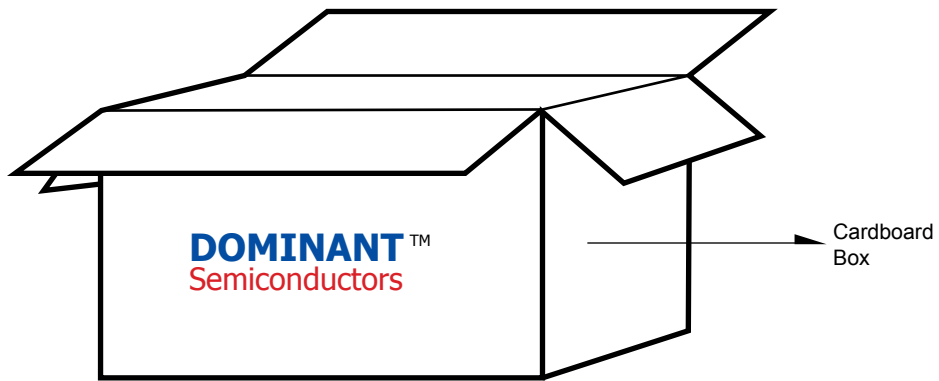
Packaging Specification



Packaging Specification



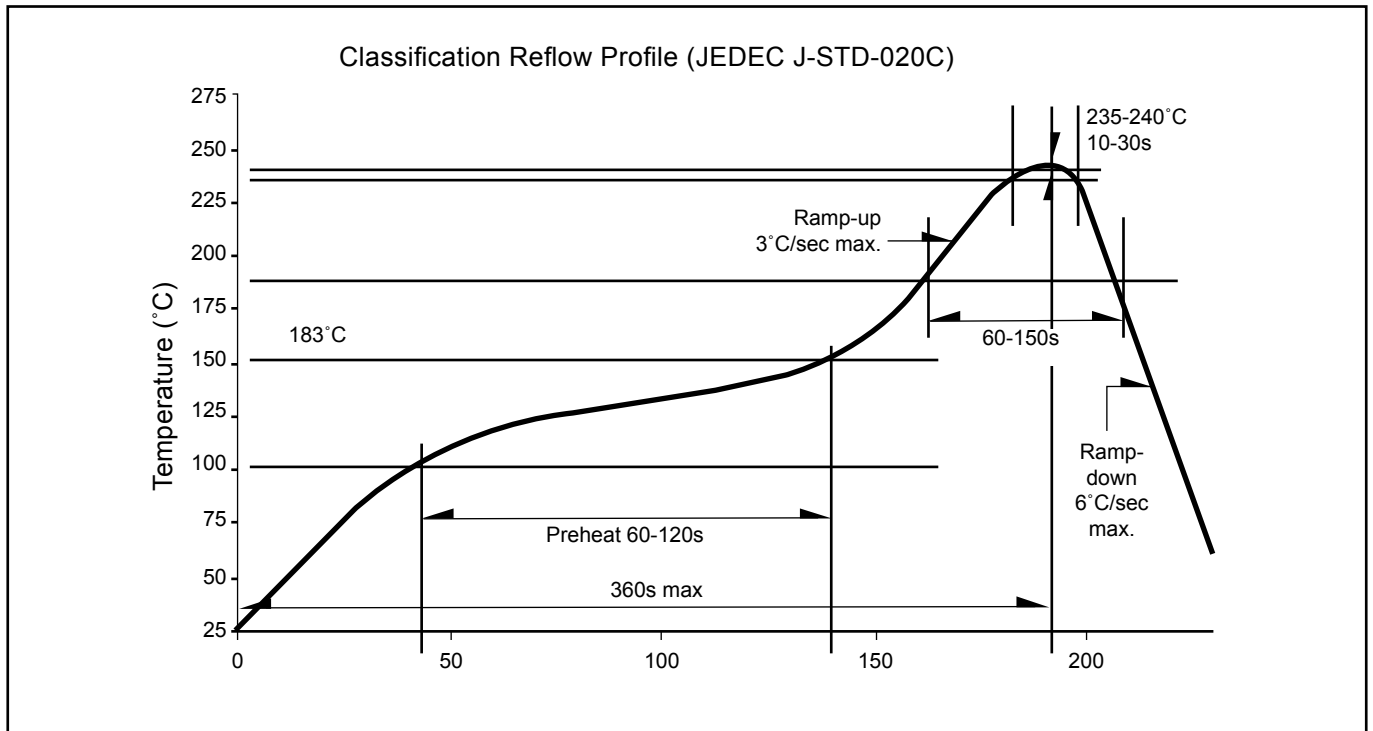
| | Average 1pc SPNovaLED | 1 completed bag (2000pcs) |
|---------------|-----------------------|---------------------------|
| Weight (gram) | 0.188 | 800 ± 10 |



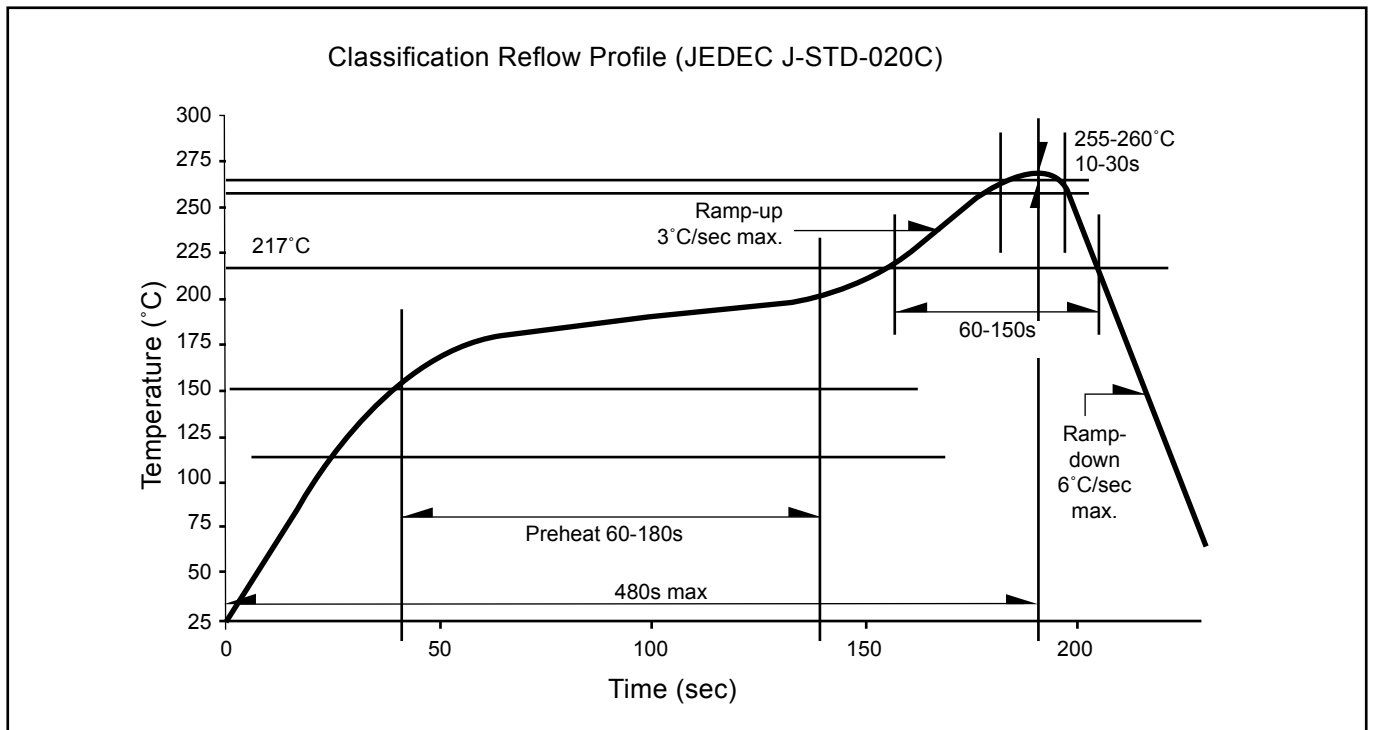
For SPNovaLED™

| 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

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 China Sales Office

DOMINANT Semiconductors (Shenzhen) Co. Ltd.
24B.C Newbaohui Building, No. 1007 West Nanhai Blvd., Nanshan, Shenzhen, China P.C. 518054
Tel: +86 (755) 86031785 / +86 (755) 86031786 Fax: +86 (755) 86031789
E-mail: sales_china@dominant-semi.com

DOMINANT Korea Sales Office

DOMINANT Semiconductors Korea Inc.
902 Sunil Technopia, 440 Sangdaewon-dong, Jungwon-gu, Sungnam-si, Kyunggi-do, Korea 462726
Tel: 82-31-777-3978 Fax: 82-31-777-3976
E-mail: sales_korea@dominant-semi.com

