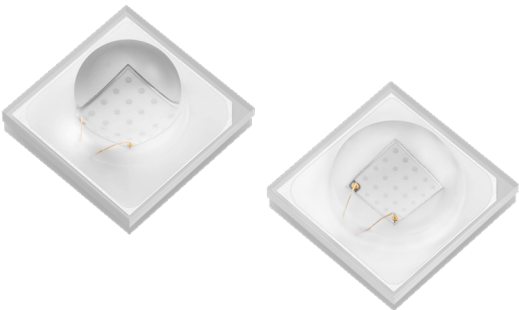


SST-10-B

Blue LED



Features

- High Power Blue LED with Peak Wavelength of 452.5 nm
- Wall-Plug Efficiency: typ. 69% @350 mA
- 90 or 130° viewing angle at 50% Iv
- Low Thermal Resistance
- 8 kV HBM ESD rating per ANSI/ESDA/JEDEC JS-001



Applications

- Industrial & machine vision
- Life sciences
- Accent and effect lighting
- Architectural lighting
- Remote-phosphor fixtures
- Stage lighting

Table of Contents

Ordering Information.	2
Binning Structure.	3
Characteristics	4
Angular Distribution and Typical Spectrum.	6
Absolute Maximum Ratings	8
Mechanical Dimensions.	9
Mechanical Characteristics.	11
Soldering Profile.	12
Tape and Reel	13
Shipping Label	15
Packaging	16
Notes	17
Revision History	18



Ordering Information

Ordering Part Numbers¹

Color	Radiometric Flux		Wavelength Bin	Viewing Angle	Ordering Part Number
	Minimum Flux Bin ¹	Minimum Flux ²			
Blue	Q	590 mW	B3, B4, B5	130°	SST-10-B-B130-Q450
				90°	SST-10-B-B90-Q450

Part Number Nomenclature

SST

10

B

<B###>

<ffwww>

Product Family	Chip Area	Color	Package Configuration	Bin Kit
S: Surface Mount S: Dome Lensed T: Single Emitter	10: 1.0 mm ²	B: Blue	 Solder Pad Configuration B: type B - see page 13 & 14 <###> Viewing Angle 130: 130° 90: 90°	<ff> Minimum Flux Bin <www> Wavelength BinKit See 'Binning Structure' on page 3 for details

Notes:

1. The Ordering Part Number specifies the Minimum Flux Bin in shipment; higher flux bins may be shipped without advance notice. Please refer to 'Binning Structure' on page 3 for details of all flux bins.
2. Product test condition: $I_f = 350 \text{ mA}$, $T_j = 25^\circ\text{C}$.



Binning Structure

Radiometric Flux Bins¹

Flux Bin	Binning @ 350 mA, T _j = 25°C	
	Minimum Flux (mW)	Maximum Flux (mW)
Q	590	630
R	630	670
S	670	710
T	710	750

Forward Voltage Bins²

Voltage Bin	Binning @ 350 mA, T _j = 25°C	
	Minimum Voltage (V)	Maximum Voltage (V)
V1	2.7	3.2

Peak Wavelength Bins

Wavelength Bin	Binning @ 350 mA, T _j = 25°C	
	Minimum Wavelength (nm)	Maximum Wavelength (nm)
B3	445	450
B4	450	455
B5	455	460

Radiometric Power to Lumens Conversion³

Radiometric Power to Lumens			Peak Wavelength (nm)		
			> 445 nm	> 450 nm	> 455 nm
Flux Bin	Q	> 590 mW	16 - 21 lm	20 - 27 lm	25 - 33 lm
	R	> 630 mW	17 - 23 lm	21 - 28 lm	27 - 35 lm
	S	> 670 mW	18 - 24 lm	23 - 30 lm	28 - 37 lm
	T	> 710 mW	19 - 25 lm	24 - 32 lm	30 - 39 lm

Notes:

- LEDs are measured at 25°C junction temperature with 350 mA 20 ms single pulse. Luminus maintains a ±6% tolerance on flux measurement.
- Individual bins are not orderable.
- For reference only.



Characteristics

Parameter ($I_f = 350 \text{ mA}$, $T_j = 25^\circ\text{C}$)		Symbol	Value	Unit
Forward Voltage	Minimum	$V_{f \min}$	2.7	V
	Typical	$V_{f \text{ typ}}$	2.85	
	Maximum	$V_{f \max}$	3.2	
Forward Current		I_f	350	mA
Typical Radiometric Flux		Φ_r	690	mW
Wall Plug Efficiency		WPE	69	%
Typical FWHM		$\Delta\lambda_{1/2}$	22	nm
Viewing Angle		$2\theta_{1/2}$	90 or 130	°
Peak Wavelength	Minimum	$\lambda_{p \min}$	445	nm
	Typical	$\lambda_{p \text{ typ}}$	452.5	
	Maximum	$\lambda_{p \max}$	460	
Real Thermal Resistance (Junction to Case) ¹		$R_{\text{th JS real}}$	5.9	°C/W
Electrical Thermal Resistance (Junction to Case) ¹		$R_{\text{th JS elec}}$	3.4	

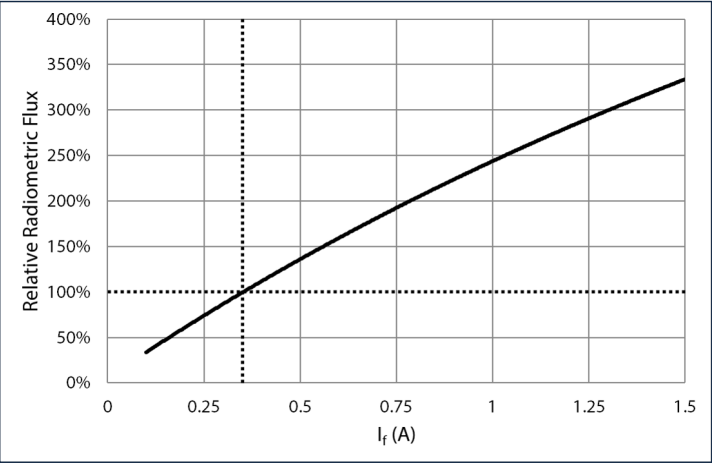
Note:

1. Thermal measurements are in accordance with JEDEC 51-14.



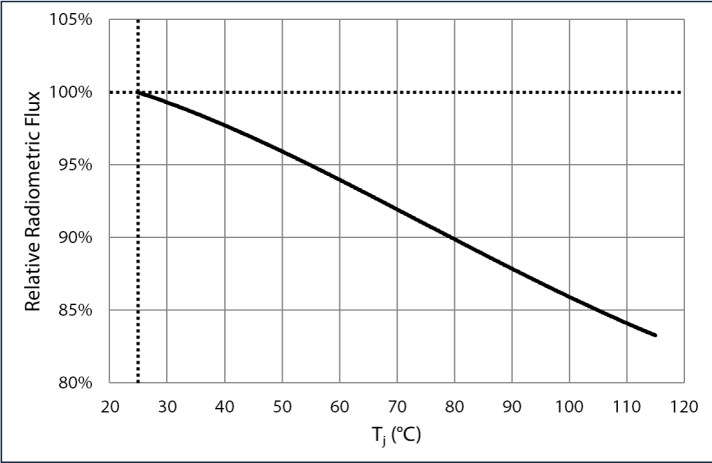
Relative Radiometric Flux vs Forward Current

$T_j = 25^{\circ}\text{C}$



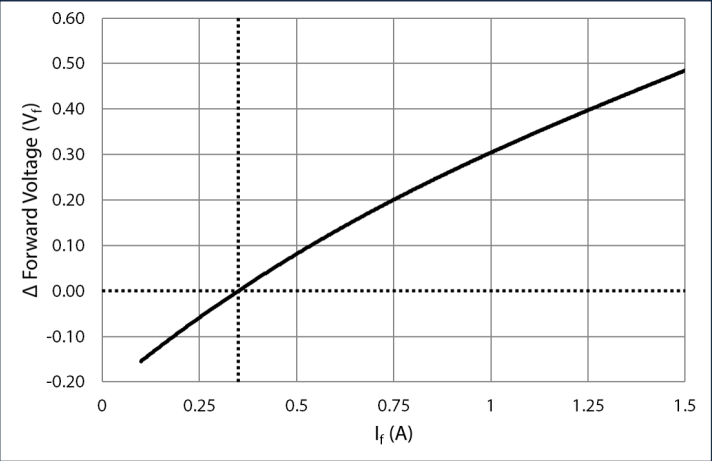
Relative Radiometric Flux vs Temperature

$I_f = 350\text{ mA}$



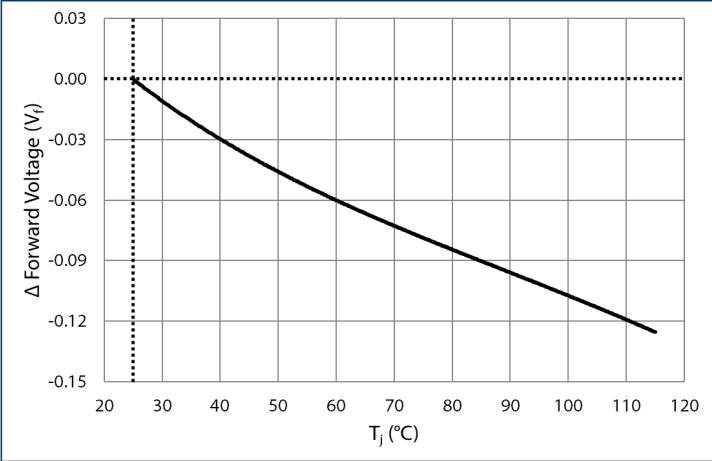
Forward Voltage vs Forward Current

$T_j = 25^{\circ}\text{C}$



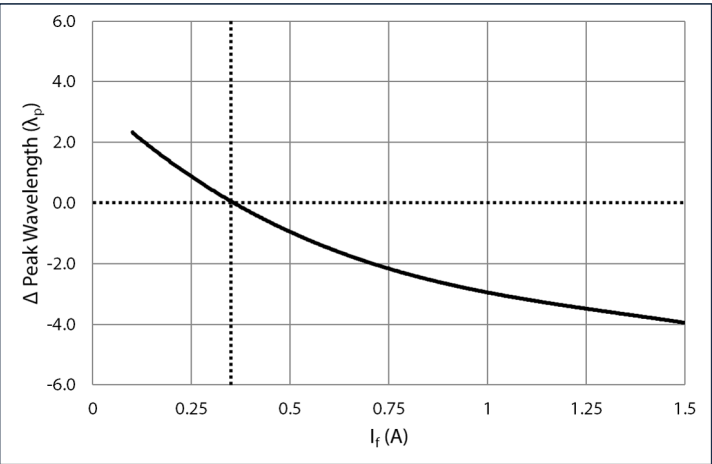
Forward Voltage vs Temperature

$I_f = 350\text{ mA}$



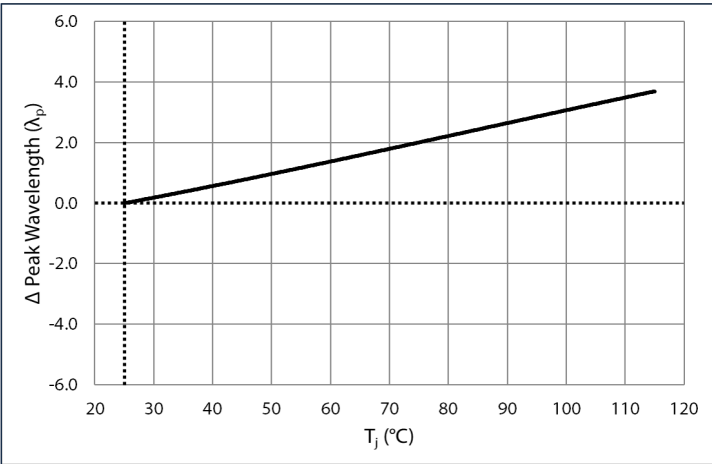
Peak Wavelength vs Forward Current

$T_j = 25^{\circ}\text{C}$



Peak Wavelength vs Temperature

$I_f = 350\text{ mA}$

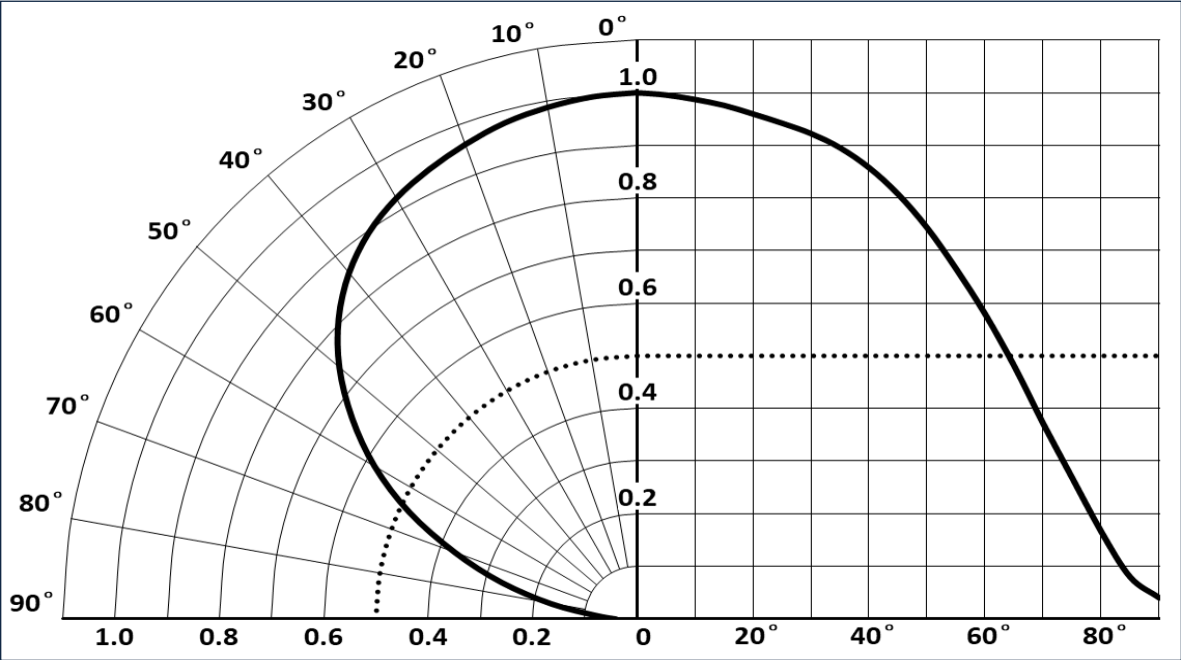




Angular Distribution and Typical Spectrum

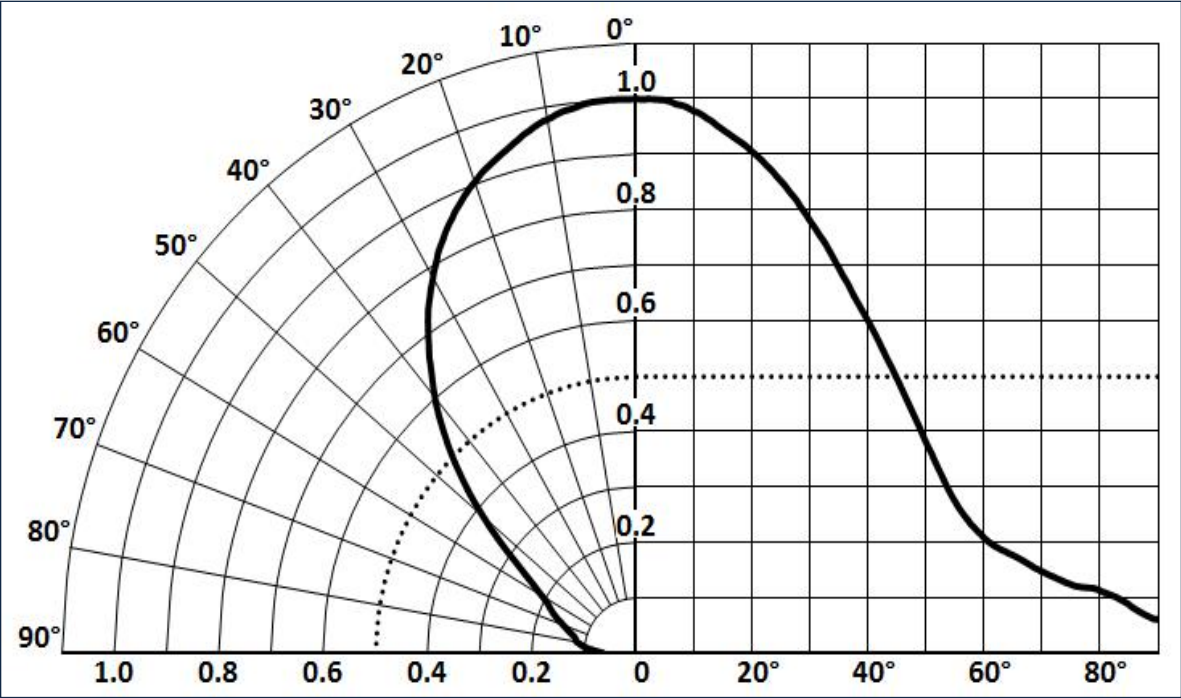
Angular Distribution - B130

$I_f = 1.5 \text{ A}$; $T_j = 25^\circ\text{C}$



Angular Distribution - B90

$I_f = 1.5 \text{ A}$; $T_j = 25^\circ\text{C}$

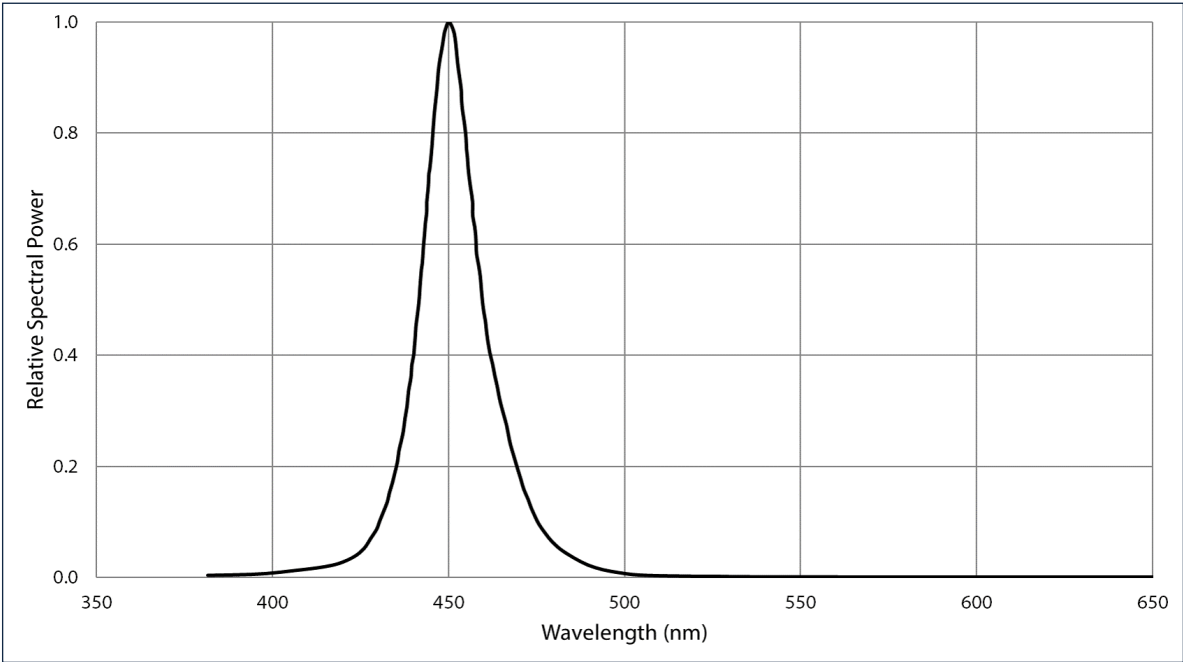




Angular Distribution and Typical Spectrum

Relative Spectral Power Distribution

$I_f = 1.5\text{ A}$; $T_j = 25^\circ\text{C}$





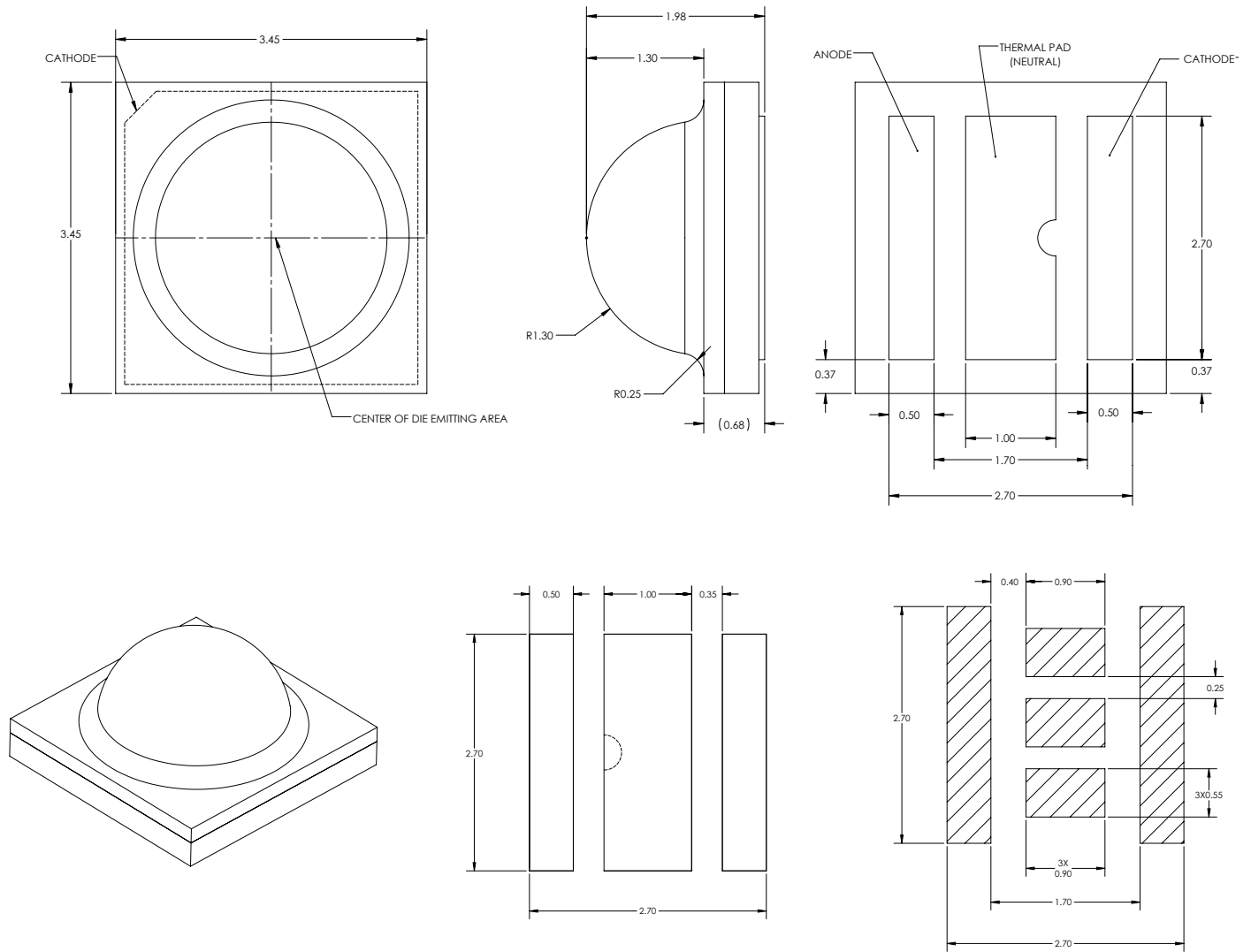
Absolute Maximum Ratings^{1,2}

Parameter		Symbol	Values	Unit
Forward Current (CW)	Minimum	$I_{f\ CW\ min}$	0.1	A
	Maximum	$I_{f\ CW\ max}$	1.5	
Reverse Voltage		V_r	5	V
Power Dissipation		P_D	5	W
Junction Temperature		T_j	115	°C
Storage Temperature Range		T_{stg}	-40 to 100	°C
ESD withstand Voltage ANSI/ESDA/JEDEC JS-001 (HBM)		V_{ESD}	8	kV

Notes:

1. The LED is safe for operation at the absolute maximum ratings as specified above. However, note that product lifetime data is provided based on nominal drive conditions. If sustained operation occurs at the absolute maximum ratings, it may lead to a reduction in device lifetime. In pulsed operation, rise time from 10-90% of forward current should be larger than 0.5 microseconds.
2. Avoid operating the LED beyond the maximum ratings.

Mechanical Dimensions - B130¹



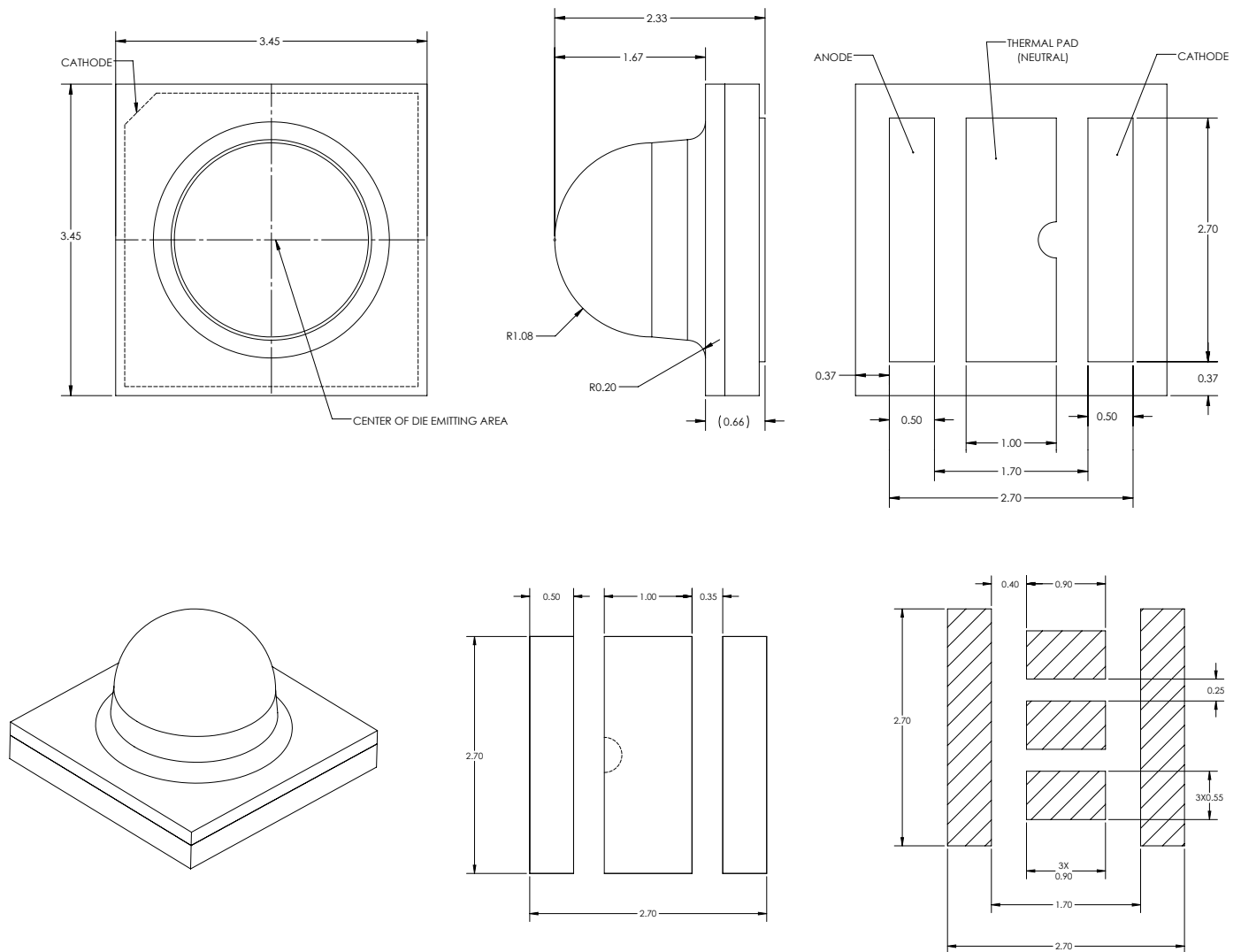
RECOMMENDED PCB SOLDER PAD DESIGN

RECOMMENDED STENCIL PATTERN DESIGN

Note:

1. All dimensions are in millimeter ± 0.13 mm.
2. Legacy versions of this product may not include the white compound surrounding the die. This variation is purely cosmetic and does not affect performance.

Mechanical Dimensions - B90¹



RECOMMENDED PCB SOLDER PAD DESIGN

RECOMMENDED STENCIL PATTERN DESIGN

Note:

1. All dimensions are in millimeter ± 0.13 mm.
2. Legacy versions of this product may not include the white compound surrounding the die. This variation is purely cosmetic and does not affect performance.



Mechanical Characteristics

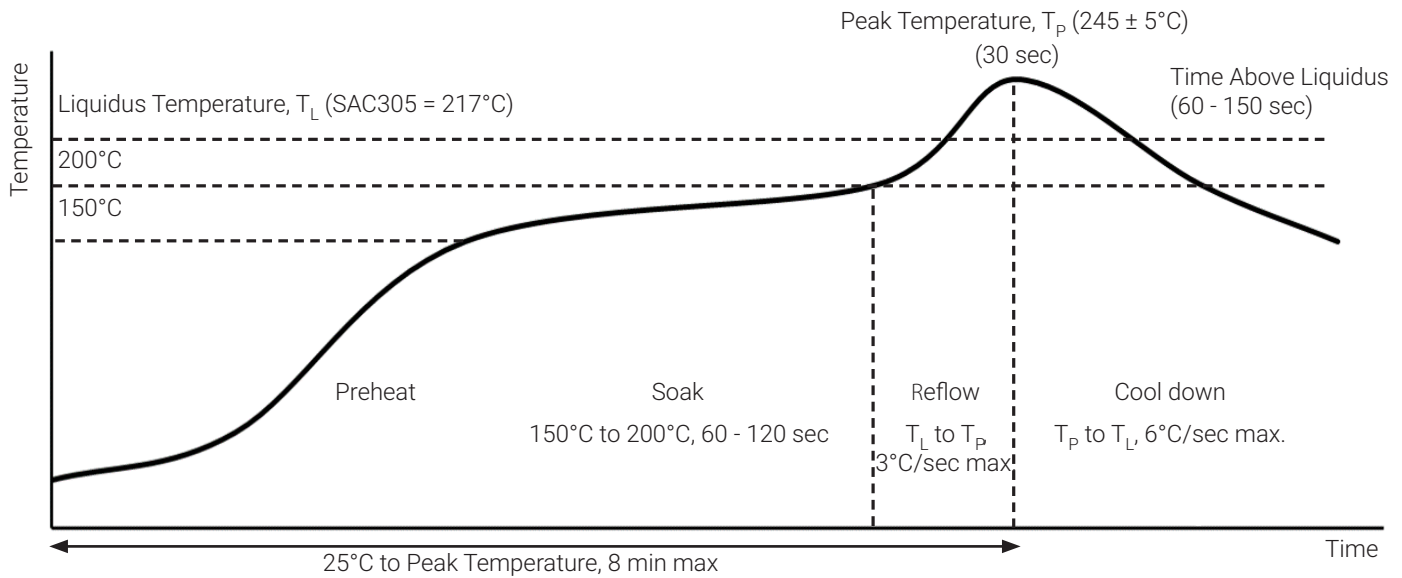
JEDEC Moisture Sensitivity^{1, 2}

Level	Floor Life	
	Time	Conditions
1	Unlimited	≤30°C / 85% RH

Notes:

- 1. Please note that the above MSL level based on the MSL qualification rating.
- 2. This LED has silver-plated pads, and for LEDs with silver plating, MSL3 environment control is required to protect silver-plated surface from oxidation, even though the products may be qualified as MSL1 or 2.

Soldering Profile



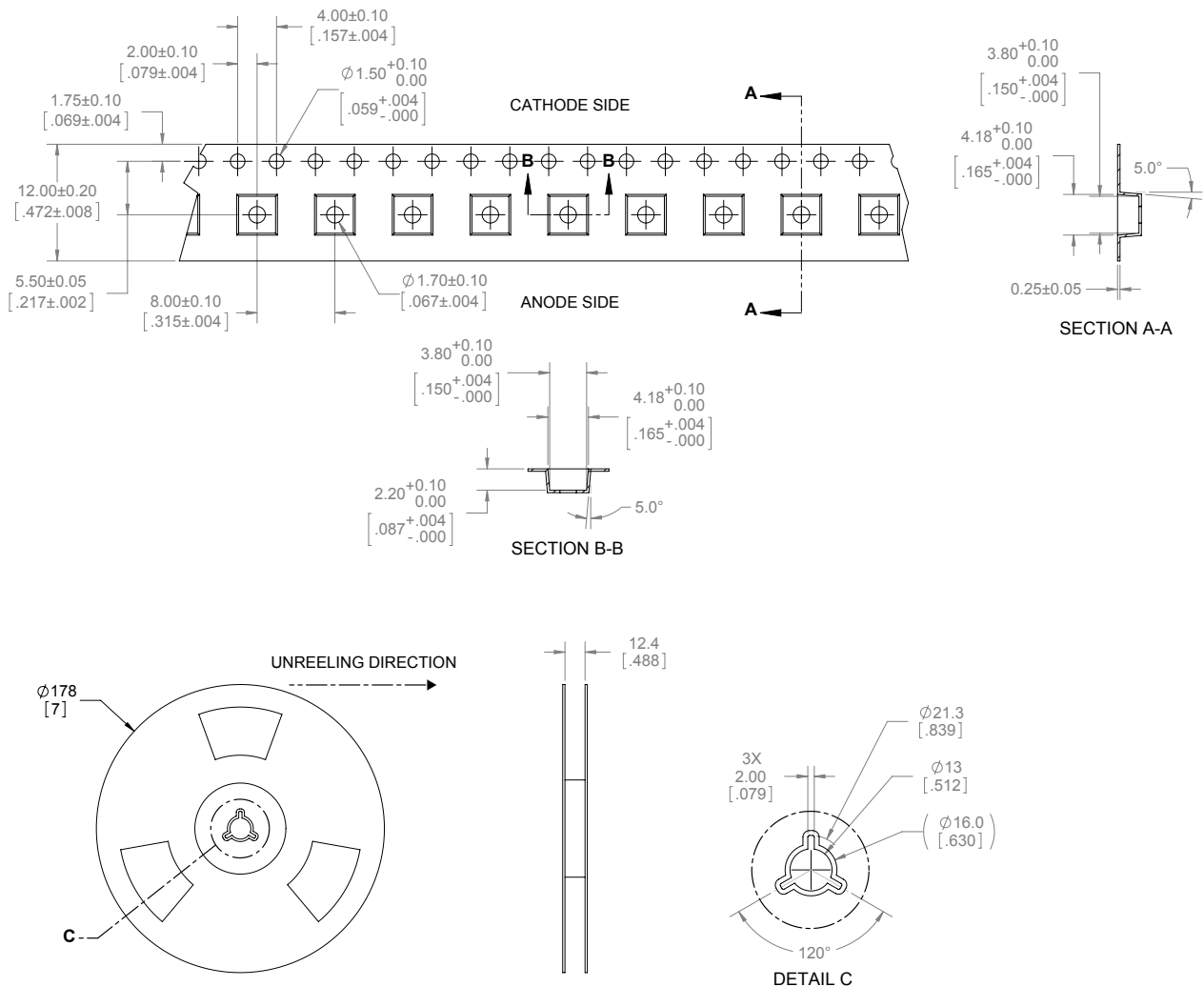
SMT Solder Rework Temperature Guidelines

Parameter	Manual Hotplate Reflow	Hot Air Gun Reflow
Heating Time	< 60 sec	
Hotplate Temperature	< 245°C	< 150°C

Notes:

- The numbers in the table are specific to SAC305. Luminus recommends using an SAC305 solder paste with a no-clean flux for RoHS compliant products.
- Use of a multi-zone IR reflow oven with a nitrogen blanket is recommended.
- Time-temperature profile of the reflow process showing the four functional profile zones are defined in IPC-7801. All the temperatures refer to the application PCB measured adjacent to the package body.
- The actual profile shall be optimized per the PCB design and configuration.
- Key visual and LED performance characteristics to consider include solder bridging, solder voiding, solder balling, LED component placement or shifting, potential contamination that may impact light emissions, and the functional performance of the LED.
- Luminus recommends to use the solder paste data sheet information as a starting point in time-temperature process development.
- These are general guidelines. Consult the solder paste manufacturer's datasheet for guidelines specific to the alloy and flux combination used in your application. For more information, please refer to:
<https://luminusdevices.zendesk.com/hc/en-us/articles/360060306692-How-do-I-Reflow-Solder-Luminus-SMD-Components->
- For any technical questions about soldering process, please contact Luminus at techsupport@luminus.com.

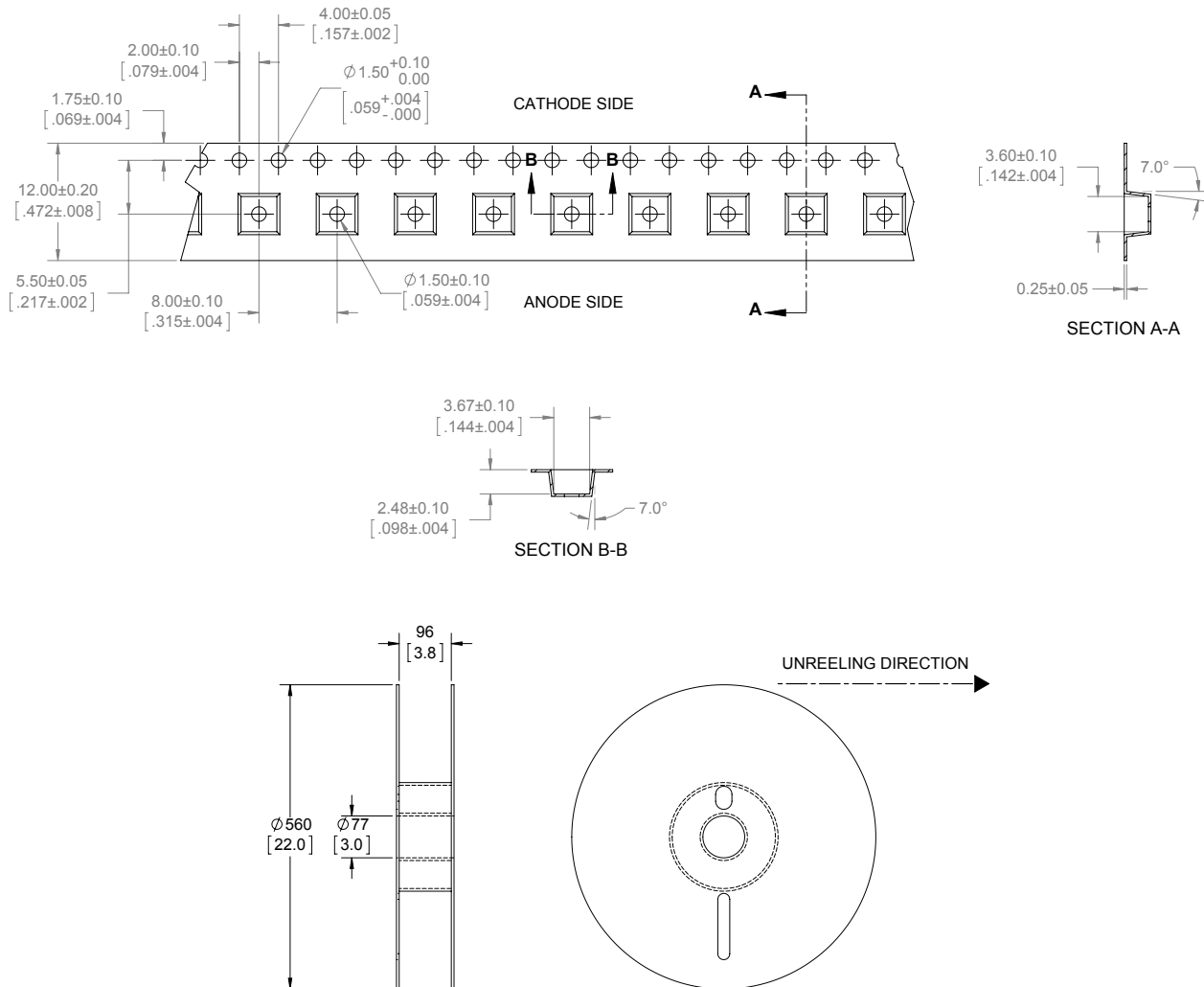
Tape and Reel Outline - B130 Package



Notes:

1. Each reel contains 1,000 units of LEDs.
2. Leave minimum 304.8 mm with empty compartments sealed by cover tape for lead in.
3. Leave minimum 457.2 mm with empty compartments sealed by cover tape for trailer.
4. All dimensions must comply to EIA-481-C.
5. Final tape and reel packaging must meet the requirements of JEDEC -STD-033, LEVEL 2A.

Tape and Reel Outline - B90 Package

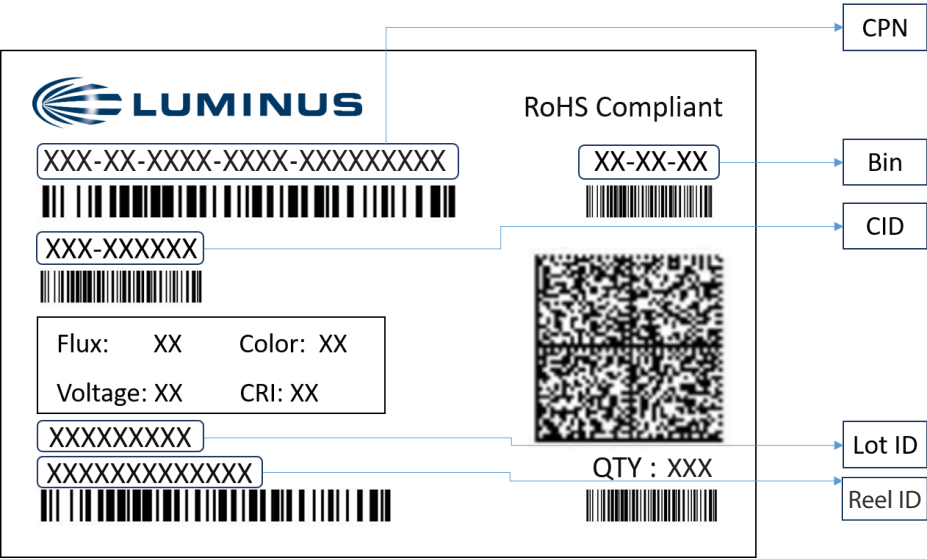


Notes:

1. Each reel contains 1,000 units of LEDs.
2. Leave minimum 304.8 mm with empty compartments sealed by cover tape for lead in.
3. Leave minimum 457.2 mm with empty compartments sealed by cover tape for trailer.
4. All dimensions must comply to EIA-481-C.
5. Final tape and reel packaging must meet the requirements of JEDEC -STD-033, LEVEL 2A.



Shipping Label



Label Fields:

- CPN: Luminus ordering part number
- CID: Customer's part number
- QTY: Quantity of parts per reel
- Flux: Bin as defined on page 3
- Voltage: Bin as defined on page 3
- Color: Bin as defined on page 3
- CRI: NA
- Lot ID & Reel ID: For Luminus internal use

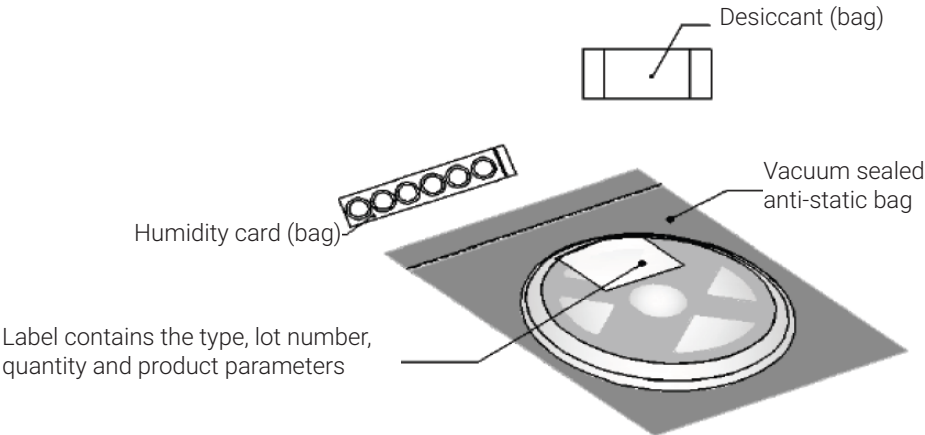
Packing Configuration:

- 1,000 units per reel
- Each reel is placed in an anti-static moisture barrier bag
- Partial reel may be shipped
- Shipping label is placed on top of each packaging box



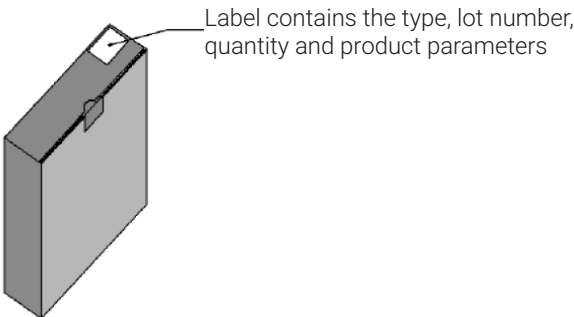
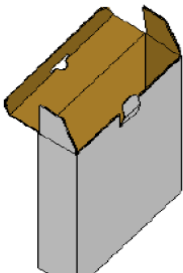
Packaging

Packaged Reel

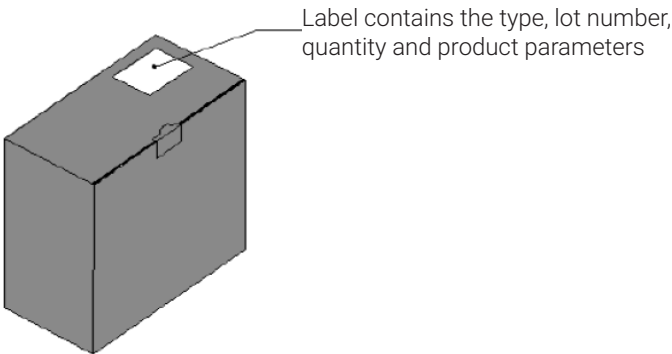
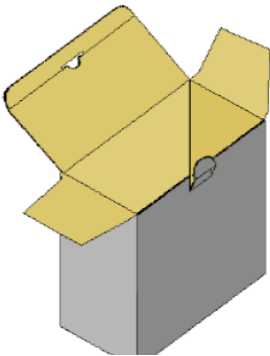


Packaging boxes

Box Size 1 - 5 reels per box
Size: 22.5 x 24.5 x 6.5 cm



Box Size 2 - 10 reels per box
Size: 22.5 x 24.5 x 13 cm





Notes

Environmental Compliance

Luminus complies with RoHS and REACH. Luminus is committed to selling environmentally friendly and sustainable products. We do not use harmful or hazardous substances in our composites and products. Luminus will not intentionally add the following restricted materials to our products: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), or polybrominated diphenyl ethers (PBDE).

Static Electricity

1. The products are sensitive to static electricity, and care should be taken when handling them.
2. Static electricity or surge voltage will damage the LEDs. It is recommended to wear anti-electrostatic gloves or wristband when handling the LEDs.
3. All devices, equipment and machinery must be properly grounded. It is recommended that measures be taken against surge voltage to the equipment that mounts the LEDs.

Reference: [APN-002815](#) Electrical Stress Damage to LEDs and How to Prevent It

Storage

Please follow J-STD-033D guidance on safe storage and bake treatment.

Mechanical Handling

1. xFx series: During the pick and place process, ensure the pick-up tool does not touch any die components.
2. xBx and xSx series: During the pick and place process, axial forces on the dome (or window) should not exceed 0.5 Newtons (N).
3. PT series: During the pick and place process, ensure the pick-up tool does not touch any die components. This profile applies when attaching surface mount components.
4. SBT series: During the pick and place process, axial forces on the dome (or window) should not exceed 0.5 Newtons (N). Vapor phase soldering is not recommended as the package is not hermetic.

Eye Safety

According to the test specification risk group IEC 62471: 2006-Non-GLS under 1.5 A, this product complies to Risk group 0 (RG0) Exempt.

No photo biological hazard under foreseeable conditions.

For more information, please refer to: <https://luminusdevices.zendesk.com/hc/en-us/articles/10532958752397>



Revision History

Rev	Date	Description of Change
01	09/14/2015	Initial release - Preliminary Specifications.
02	10/13/2015	Updated solder pad layout and added 80-degree lens option.
03	04/15/2016	Updated binning and angular distribution data. Added 90-degree tape & reel.
04	06/24/2016	Updated pictures on front page.
05	04/03/2017	Updated title in "Relative Output Flux vs. Junction Temperature" graph and address.
06	05/28/2025	Updated the template. Updated product photos, mechanical dimensions and graphs. Updated part numbers and binning structure. Remove Wavelength bin B2 bin. Updated flux bin, removed N and P bin, added S and T bin. Added Power to Lumens conversion table.