SST-10-G

Green LED

Features

- High Power Green LED with typical Peak Wavelength of 527 nm
- Wall-Plug Efficiency: typ. 34% @350 mA
- 90 or 130° viewing angle at 50% Iv
- Low Thermal Resistance
- 6 kV HBM ESD rating per ANSI/ESDA/JEDEC JS-001

Applications

- Industrial / Machine Vision
- Life sciences / Medical
- Accent and effect lighting
- Architectural lighting
- Stage lighting

Table of Contents

Ordering Information

Ordering Part Numbers[1]

Color	Radiometric Flux		Wavelength Bin	Viewing Angle	Ordering Part Number
	Minimum Flux Bin[1]	Minimum Flux[2]			
Green	F	230 mW	G3, G4, G5, G6, G7	130°	SST-10-G-B130-F530
				90°	SST-10-G-B90-F530

Part Number Nomenclature

SST **10** **G** **<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	**G**: Green	<**B**> 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 mA, T_j=25°C.

Binning Structure

Radiometric Flux Bins[1]

Flux Bin	Binning @ 350 mA, T_j= 25°C	
	Minimum Flux (mW)	Maximum Flux (mW)
F	230	270
G	270	310
H	310	350
J	350	390

Forward Voltage Bins[2]

Voltage Bin	Binning @ 350 mA, T_j= 25°C	
	Minimum Voltage (V)	Maximum Voltage (V)
V1	2.4	2.9

Peak Wavelength Bins

Wavelength Bin	Binning @ 350 mA, T_j= 25°C	
	Minimum Wavelength (nm)	Maximum Wavelength (nm)
G3	515	520
G4	520	525
G5	525	530
G6	530	535
G7	535	540

Notes:

1. LEDs are measured at 25°C junction temperature with 350 mA 20 ms single pulse. Luminus maintains a ±6% tolerance on flux measurement.

2. Individual bins are not orderable.

Binning Structure

Radiometric Power to Lumens Conversion[1]

Radiometric Power to Lumens			Peak Wavelength (nm)				
			> 515 nm	> 520 nm	> 525 nm	> 530 nm	> 535 nm
Flux Bin	F	> 230 mW	98 - 126 lm	108 - 137 lm	117 - 146 lm	124 - 154 lm	131 - 160 lm
	G	> 270 mW	115 - 145 lm	126 -157 lm	137 -168 lm	146 - 177 lm	154 -183 lm
	H	> 310 mW	132 - 164 lm	145 - 177 lm	157 - 189 lm	168 - 199 lm	177 - 207 lm
	J	> 350 mW	149 - 182 lm	164 - 198 lm	177 - 211 lm	189 - 222 lm	199 - 231 lm

Notes:

1. For reference only.

Characteristics

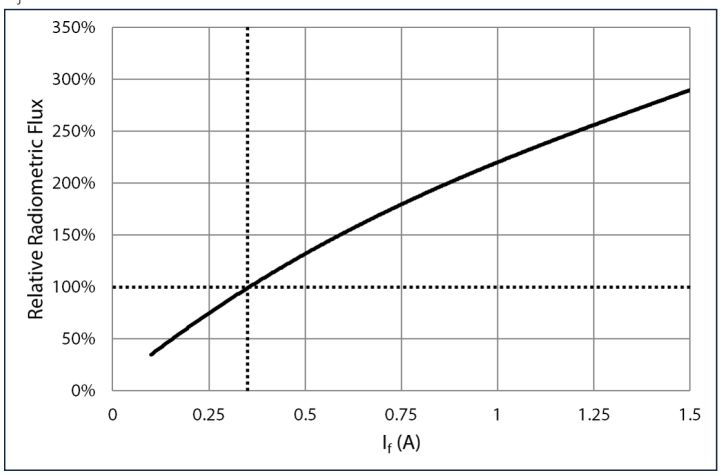
Parameter (I_f= 350 mA, T_j= 25°C)		Symbol	Value	Unit
Forward Voltage	Minimum	$V_{f\ min}$	2.4	V
	Typical	$V_{f\ typ}$	2.6	
	Maximum	$V_{f\ max}$	2.9	
Forward Current		I_f	350	mA
Typical Radiometric Flux		Φ_r	310	mW
Wall Plug Efficiency		WPE	34	%
FWHM	Minimum	$\Delta\lambda_{1/2\ min}$	30	nm
	Typical	$\Delta\lambda_{1/2\ typ}$	33	
	Maximum	$\Delta\lambda_{1/2\ max}$	36	
Viewing Angle		$2\theta_{1/2}$	90 or 130	°
Peak Wavelength	Minimum	$\lambda_{p\ min}$	515	nm
	Typical	$\lambda_{p\ typ}$	527	
	Maximum	$\lambda_{p\ max}$	540	
Electrical Thermal Resistance (Junction to Solder Point)[1]		$R_{th\ JS\ elec}$	5.3	°C/W

Note:

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

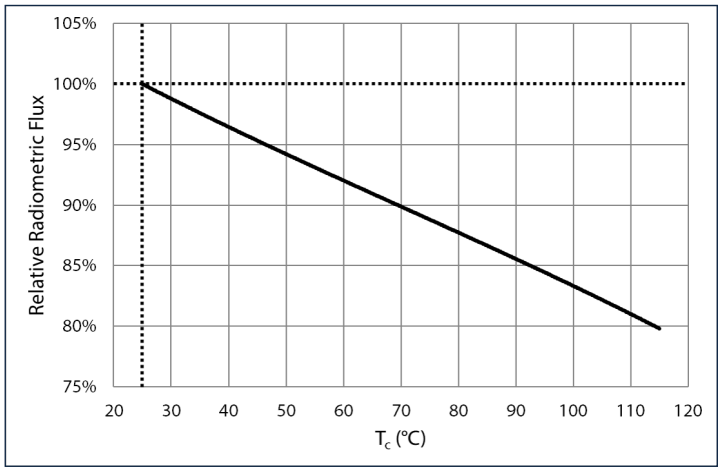
Relative Radiometric Flux vs Forward Current

T_j = 25°C



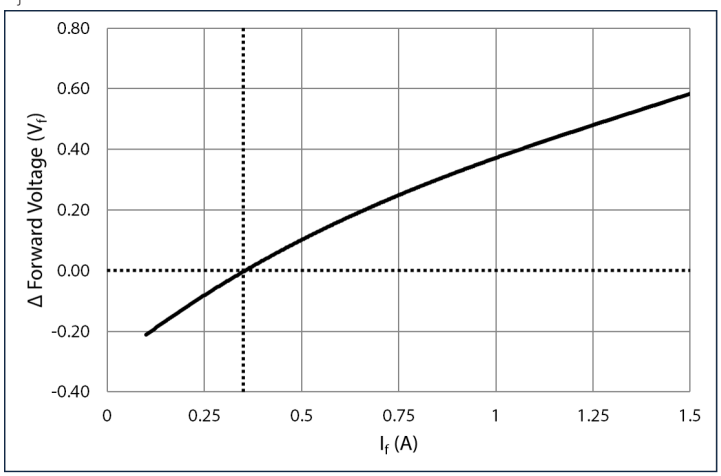
Relative Radiometric Flux vs Temperature

I_f = 350 mA



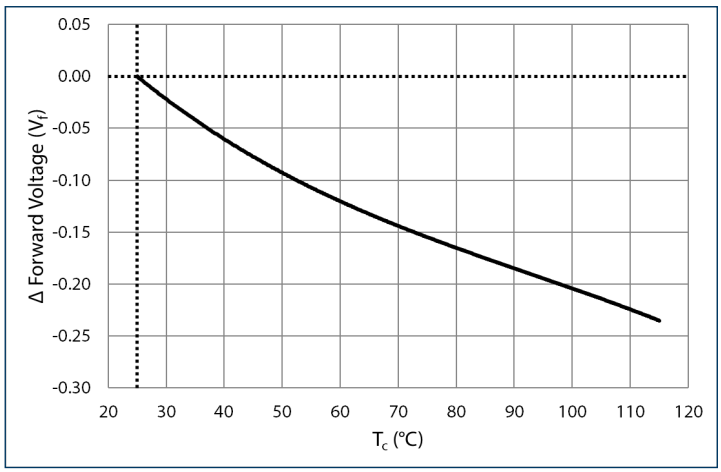
Forward Voltage vs Forward Current

T_j = 25°C



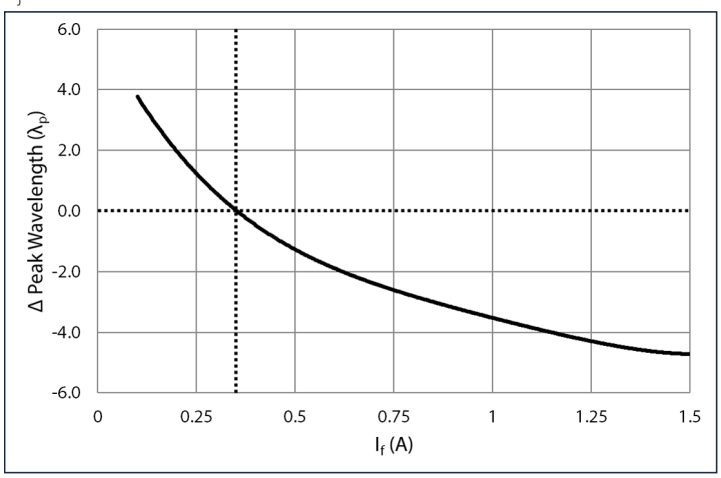
Forward Voltage vs Temperature

I_f = 350 mA



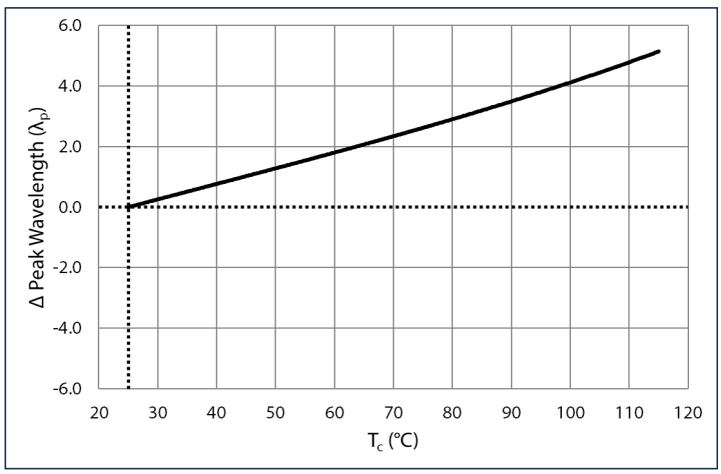
Peak Wavelength vs Forward Current

T_j = 25°C



Peak Wavelength vs Temperature

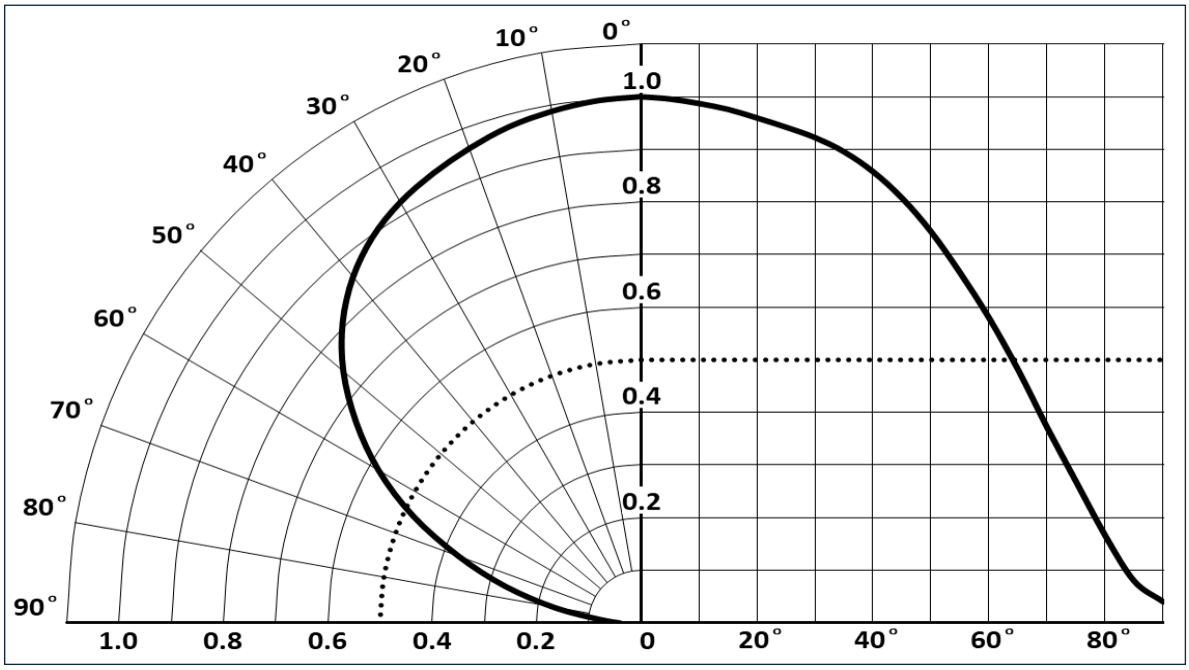
I_f = 350 mA



Angular Distribution and Typical Spectrum

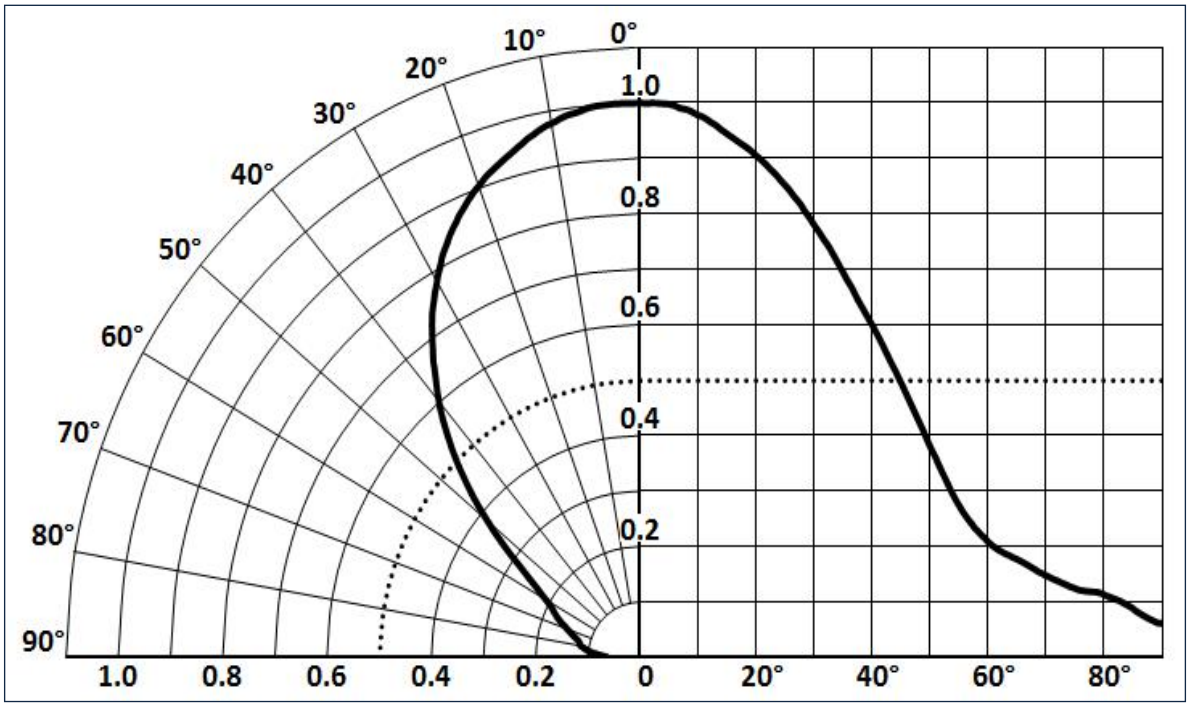
Angular Distribution - B130

I_f = 1.5 A; T_j= 25°C



Angular Distribution - B90

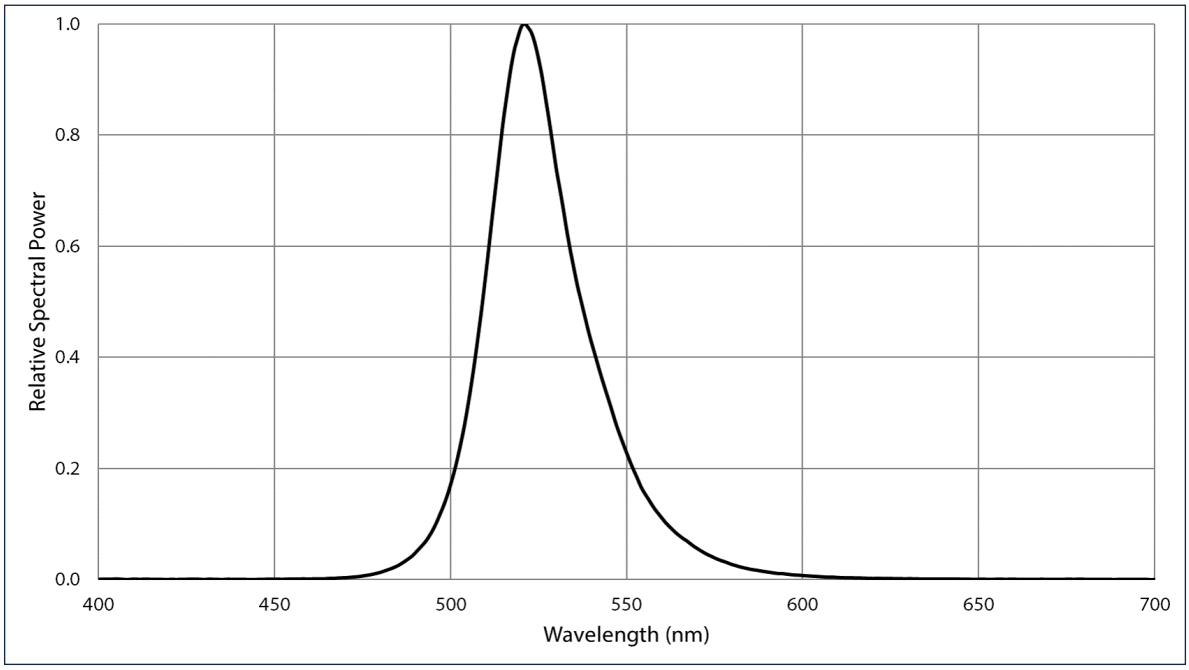
I_f = 1.5 A; T_j= 25°C



Angular Distribution and Typical Spectrum

Relative Spectral Power Distribution

I_f = 1.5 A; T_j = 25°C



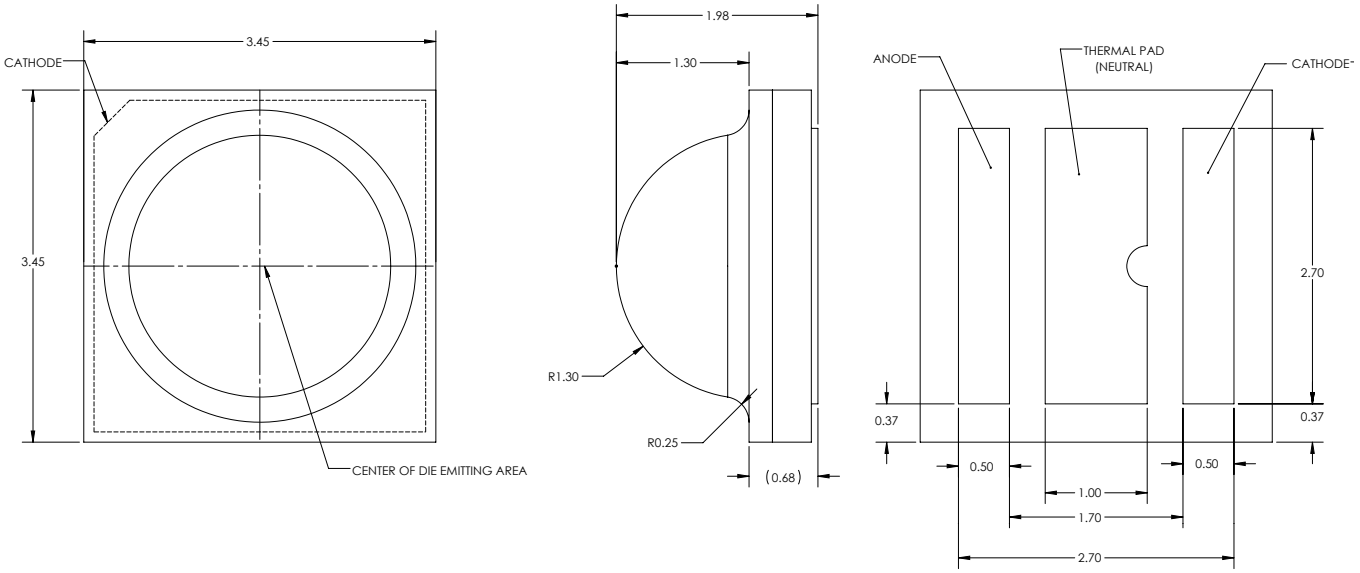
Absolute Maximum Ratings[1, 2]

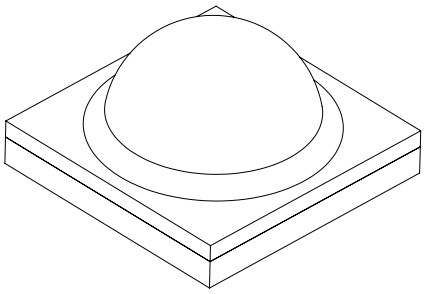
Parameter		Symbol	Values	Unit
Forward Current (CW)	Minimum	$I_{f\ CW\ min}$	0.1	A
	Maximum	$I_{f\ CW\ max}$	1.5	
Reverse Voltage		V_r	5	V
Power Dissipation		P_D	5	W
Junction Temperature		T_j	115	°C
Storage Temperature Range		T_{stg}	-40 to 100	°C
ESD withstand Voltage ANSI/ESDA/JEDEC JS-001 (HBM, Class)		V_{ESD}	6	kV

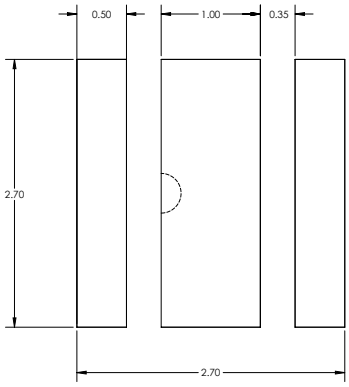
Notes:

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.

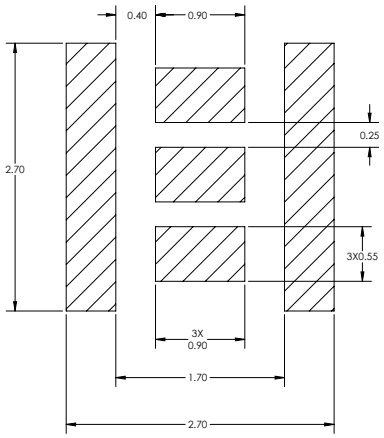
Mechanical Dimensions - B130[1]







RECOMMENDED PCB SOLDER PAD DESIGN

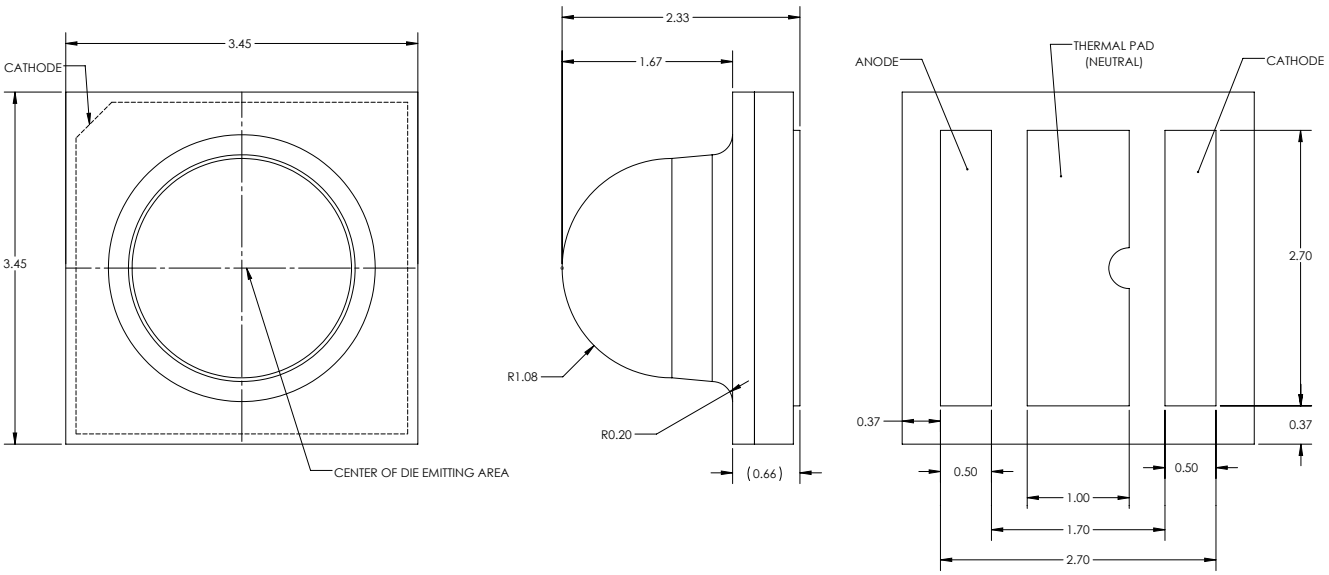


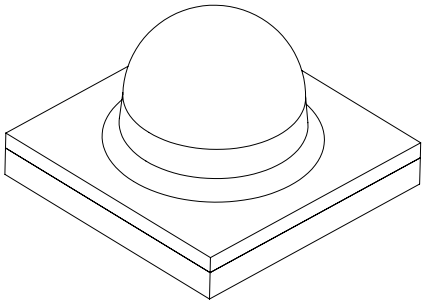
RECOMMENDED STENCIL PATTERN DESIGN

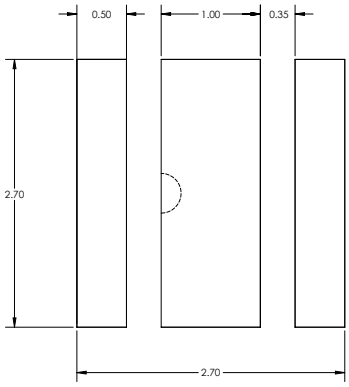
Note:

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.

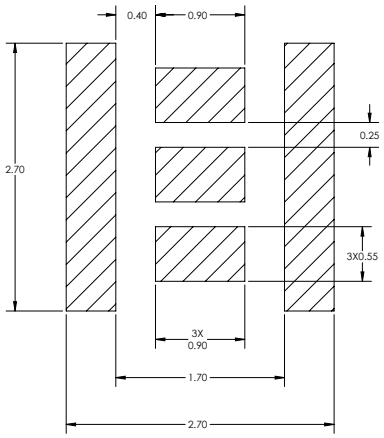
Mechanical Dimensions - B90[1]







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

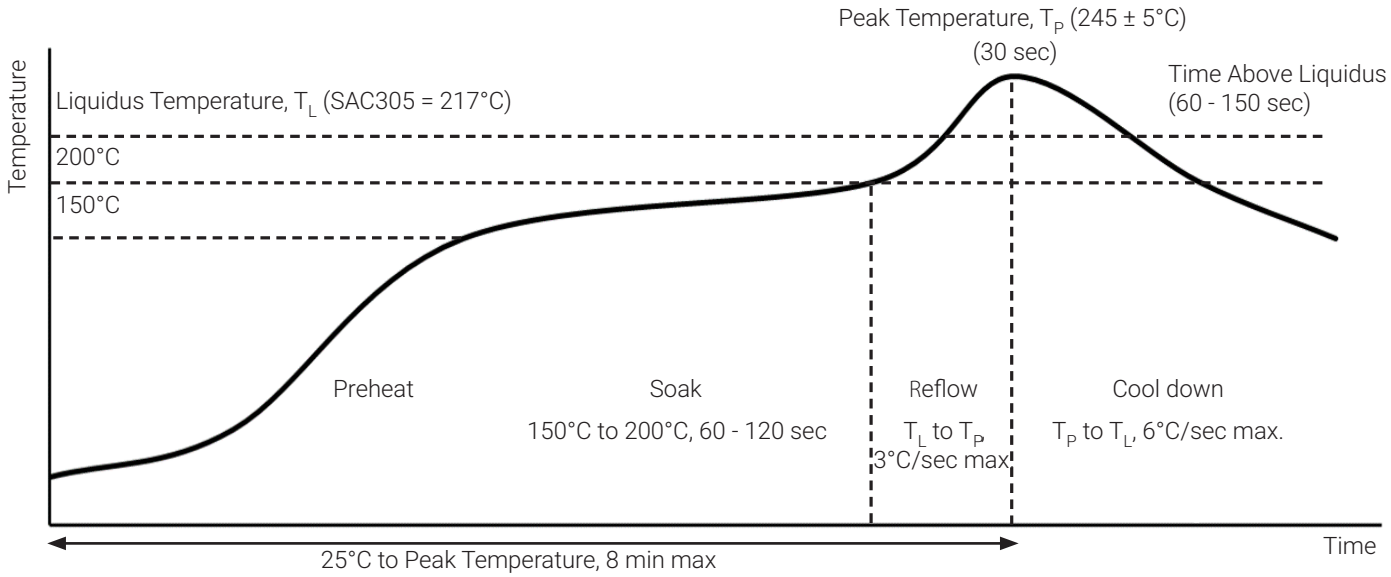
JEDEC Moisture Sensitivity[1, 2]

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

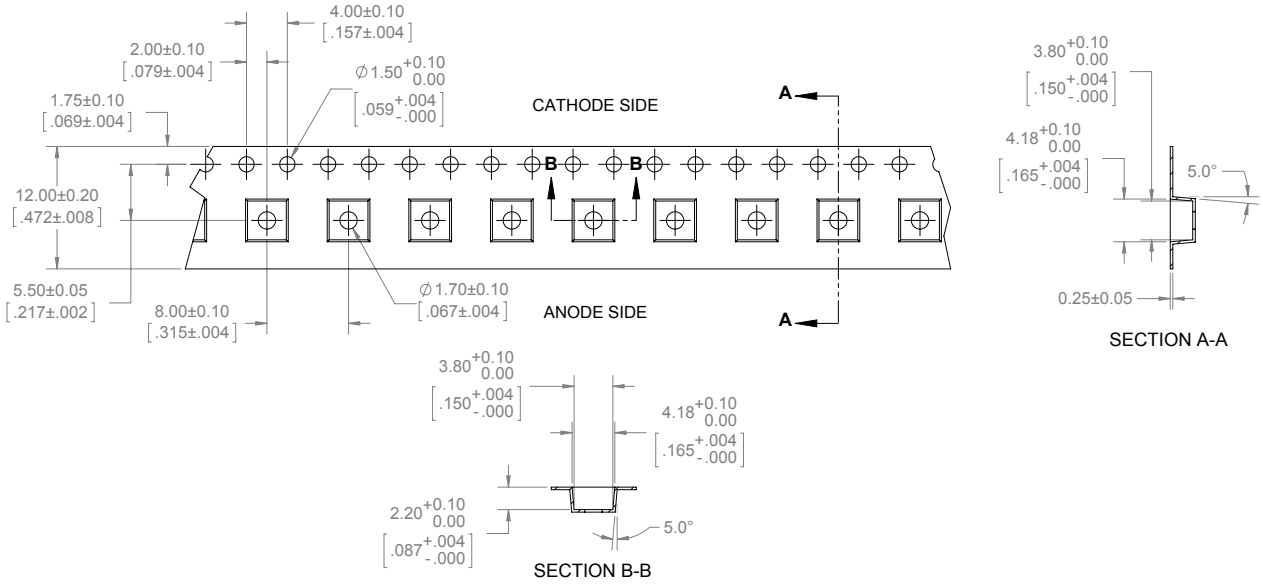
Parameter	Manual Hotplate Reflow	Hot Air Gun Reflow
Heating Time	< 60 sec	
Hotplate Temperature	< 245°C	< 150°C

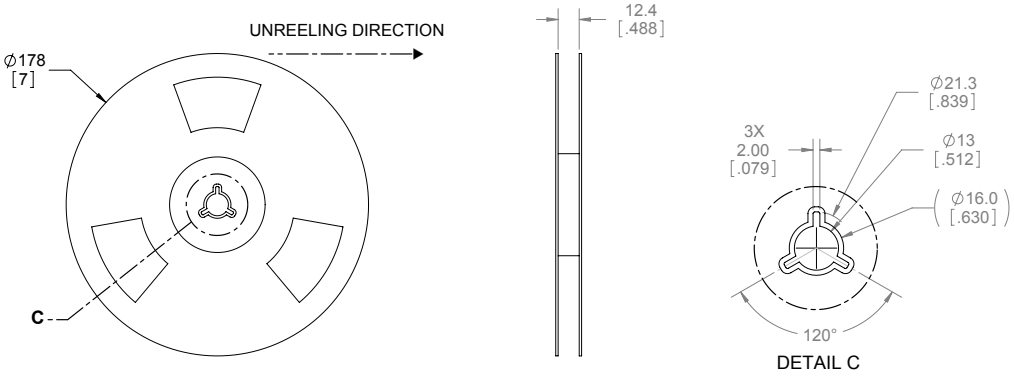
Notes:

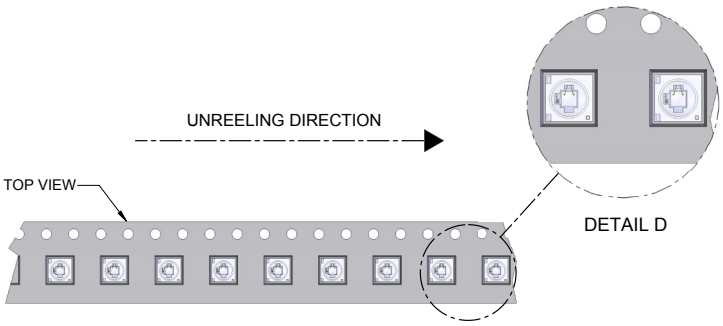
1. The numbers in the table are specific to SAC305. Luminus recommends using an SAC305 solder paste with a no-clean flux for RoHS compliant products.
2. Use of a multi-zone IR reflow oven with a nitrogen blanket is recommended.
3. Time-temperature profile of the reflow process showing the four functional profile zones are defined in IPC-7801. All the temperatures refer to the application PCB measured adjacent to the package body.
4. The actual profile shall be optimized per the PCB design and configuration.
5. 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.
6. Luminus recommends to use the solder paste data sheet information as a starting point in time-temperature process development.
7. 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-
8. For any technical questions about soldering process, please contact Luminus at techsupport@luminus.com.

Tape and Reel Outline - B130 Package



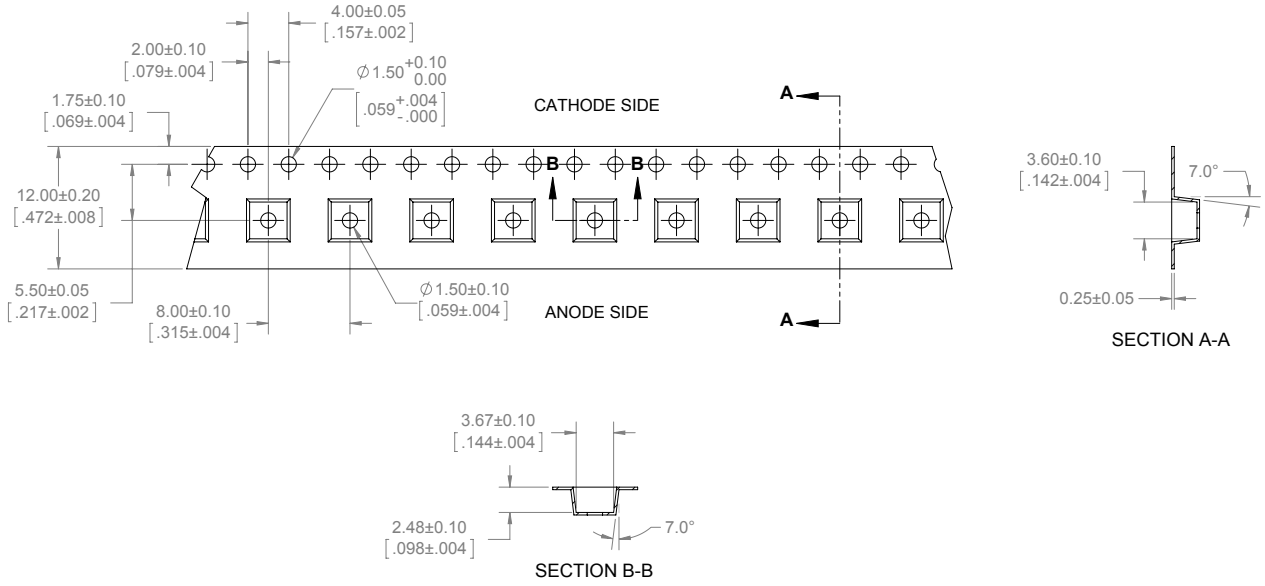




Notes:

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.

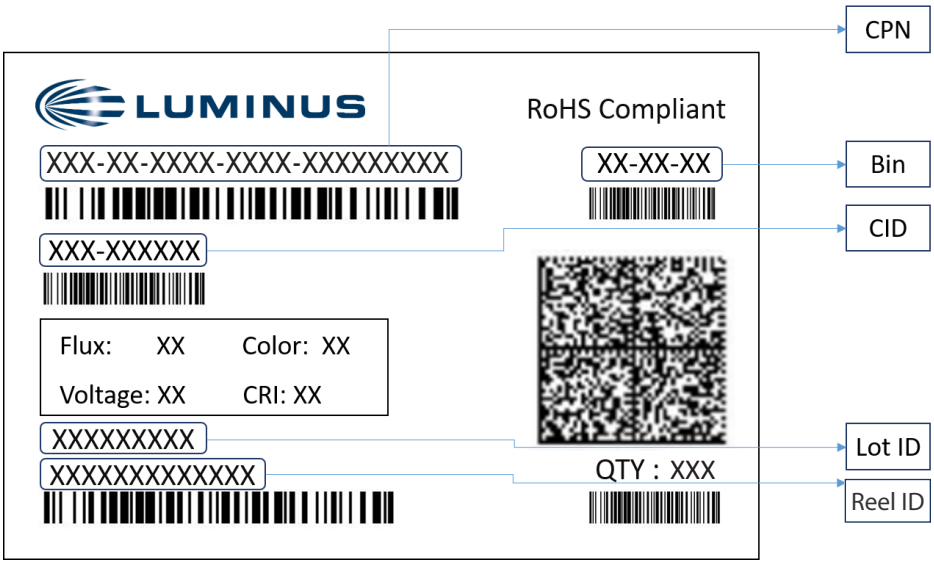
Tape and Reel Outline - B90 Package



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:

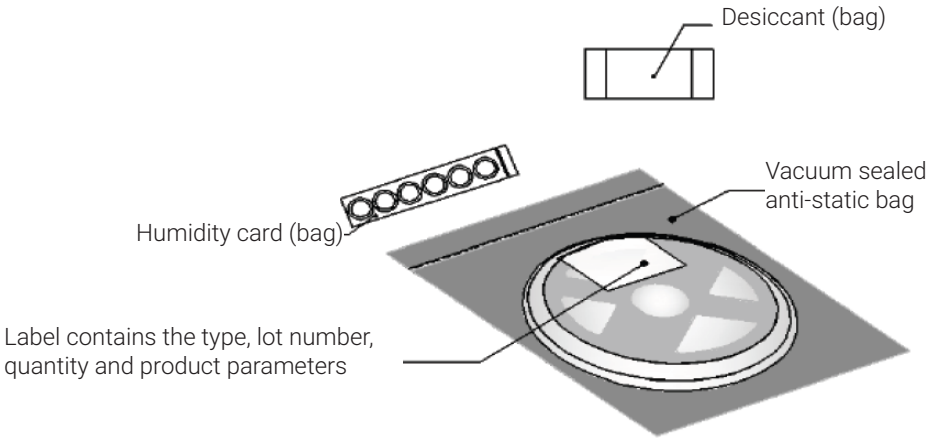
- CPN: Luminus ordering part number
- CID: Customer's part number
- QTY: Quantity of parts per reel
- Flux: Bin as defined on page 3
- Voltage: Bin as defined on page 3
- Color: Bin as defined on page 3
- CRI: NA
- Lot ID & Reel ID: For Luminus internal use

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

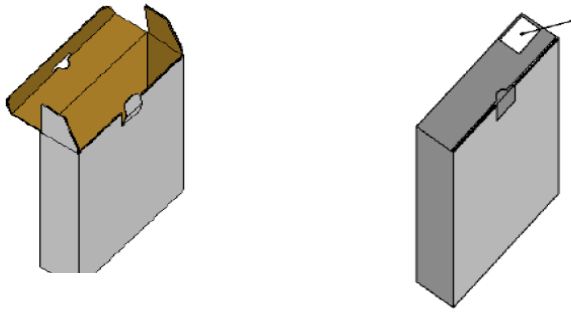
Packaging

Packaged Reel

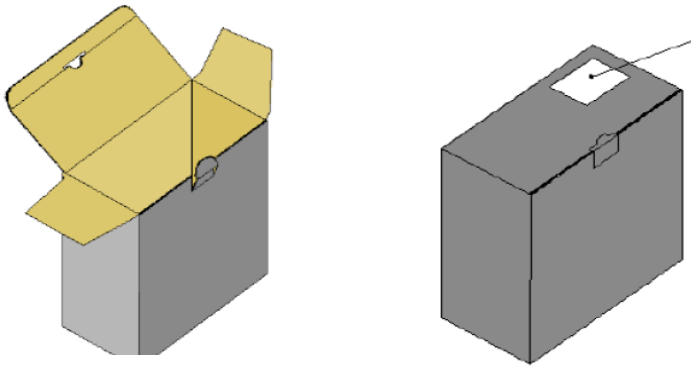


Packaging boxes

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	06/10/2016	Initial release - Preliminary Specifications.
02	04/03/2017	Updated title in “Relative Output Flux vs. Junction Temperature” graph and address.
03	03/23/2019	Updated and added graphs on pages 5 and 6. Added conversion table on page 6
04	04/24/2025	Updated the template. Updated product photos, mechanical dimensions and graphs. Added Power to Lumens conversion table.