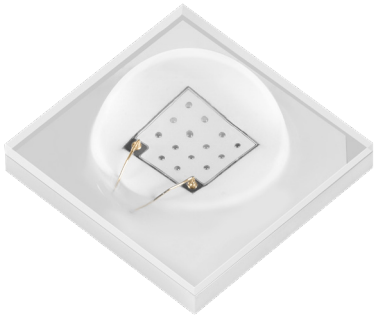
SST-08-UV-H

Surface Mount LED



Features

- High Power UV-A LED series with peak wavelength options of 365 nm, 385 nm, 395 nm and 405 nm
- Sulfur and corrosion resistant package for demanding applications
- Industry standard 3.5 mm x 3.5 mm package
- Drive current up to 1 A
- Available in 40° and 130° viewing angle
- Built-in ESD Protection

Applications

- Horticulture
- Curing inks, Coating and Adhesives
- Photocatalytic air / Water Purification
- Medical and Analytic Instrumentation
- Diagnostic
- Fluorescence Imaging
- Disinfection / Antimicrobial
- Torch / Flashlight
- Odor Removal
- Insect Traps

Table of Contents

Ordering Information

Ordering Part Numbers[1]

Wavelength Range (nm)	Wavelength Bins	Luminous Flux		Solder Pad	Viewing Angle	Ordering Part Number
		Flux Bin	Minimum Flux			
365-375	365, 370	F	810 mW	A	130°	SST-08-UV-A130H-F365-00
		F	810 mW	A	40°	SST-08-UV-A40H-F365-00
380-390	380, 385	G	900 mW	A	130°	SST-08-UV-A130H-G385-00
		F	810 mW	A	40°	SST-08-UV-A40H-F385-00
390-400	390, 395	G	900 mW	A	130°	SST-08-UV-A130H-G395-00
		F	810 mW	A	40°	SST-08-UV-A40H-F395-00
400-410	400, 405	G	900 mW	A	130°	SST-08-UV-A130H-G405-00
		F	810 mW	A	40°	SST-08-UV-A40H-F405-00

Part Number Nomenclature

SST **08** **UV** **<A###H>** **<###>**

Product Family	Chip Area	Color	Package Configuration	Bin Kit
SST: Surface Mount Package	**08**: 0.8 mm^2	UV	**A130**: A Solder pad 130° Viewing Angle **A40**: A Solder pad 40° Viewing Angle **H**: Harsh Environment	Refer to ordering part numbers in this document

Note:

1. Flux Bin listed is minimum bin shipped - higher bins may be included at Luminus' discretion.

Binning Structure

SST-08-UV-H LEDs are specified for flux peak wavelength and voltage at a drive current of 500 mA with a 20 ms pulse at 25°C and placed into one of the following Flux, Peak Wavelength and Forward Voltage Bins.

Radiometric Flux Bins

Flux Bin	Minimum Flux (mW)	Maximum. Flux (mW)	Correlated Min. Flux (mW) at 25°C		
			350 mA	700 mA	1000 mA
E	720	810	520	960	1300
F	810	900	580	1090	1470
G	900	990	650	1210	1630
H	990	1080	710	1330	1790
I	1080	1170	780	1450	1950

Peak Wavelength Bins

Wavelength Bin (WWW)	Minimum Wavelength (nm)	Maximum Wavelength (nm)
365	365	370
370	370	375
380	380	385
385	385	390
390	390	395
395	395	400
400	400	405
405	405	410

Forward Voltage Bins

Voltage Bin	Minimum Voltage (V)	Maximum Voltage (V)
V1	3.0	3.2
V2	3.2	3.4
V3	3.4	3.6
V4	3.6	3.8
V5	3.8	4.0

Note:

1. Luminus maintains a +/- 6% tolerance on flux measurements and +/- 1 nm on wavelength measurements.

Absolute Maximum Ratings

Parameter	Symbol	Values	Unit
Absolute Maximum Forward Current (CW)	$I_{f\,max}$	1.0	A
Storage Temperature	$T_{s\,min}$	-40	°C
	$T_{s\,max}$	100	
Junction Temperature	$T_{j\,max}$	100	°C

Note:

1. SST-08-UV-H LEDs are designed for operation to an absolute maximum current as specified above. Product lifetime data is specified at or below maximum drive current. Sustained operation beyond absolute maximum currents will result in a reduction of device life time . Actual device lifetimes will also depend on junction temperature and operation beyond maximum junction temperature is not recommended. Contact Luminus for lifetime derating curves and for further information. In pulsed operation, rise time from 10-90% of forward current should be longer than 0.5 µseconds.

Device Characteristics

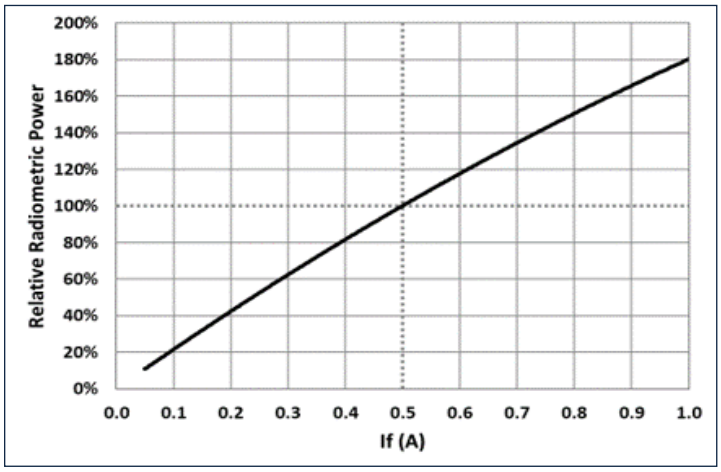
Optical and Electrical Characteristics	Symbol	Value				Unit
Test Drive Current	I_f	0.5				A
Viewing Angle	$2\Phi_{1/2}$	40 / 130				degree
Peak Wavelength Range	λ	365-375	380-390	390-400	400-410	nm
Forward Voltage	$V_{f\ min}$	3.0	3.0	3.0	3.0	V
	V_f	3.8	3.6	3.6	3.7	
	$V_{f\ max}$	4.1	4.0	4.0	4.0	
FWHM- Spectral bandwidth at 50% of Φ_V	$\Delta\lambda_{1/2}$	10				nm
Thermal Resistance (junction-solder point)	$R_{th\ elec.}$	5.0				°C/W

Note:

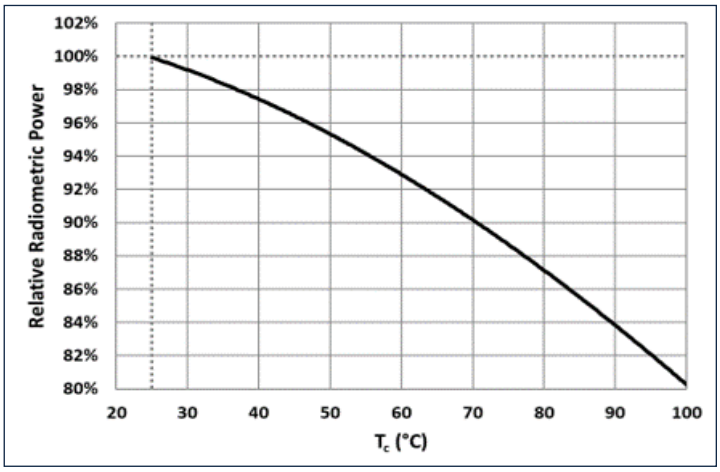
1. While SST-08-UV-H devices are tested at 0.5 A, they can be driven at CW currents ranging from 100 mA to 1 A and at duty cycles ranging from 1% to 100%. Drive current and duty cycle should be adjusted as necessary to maintain the junction temperature desired to meet application lifetime requirements..
2. Typical radiometric flux is for reference only. Minimum flux values are guaranteed based on the bin kit ordered. For product roadmap and future performance of devices, please contact Luminus.

Relative Radiometric Flux - 365 nm

Forward current: $\varphi_v/\varphi_v(0.5\ A)$, $T_c = 25°C$

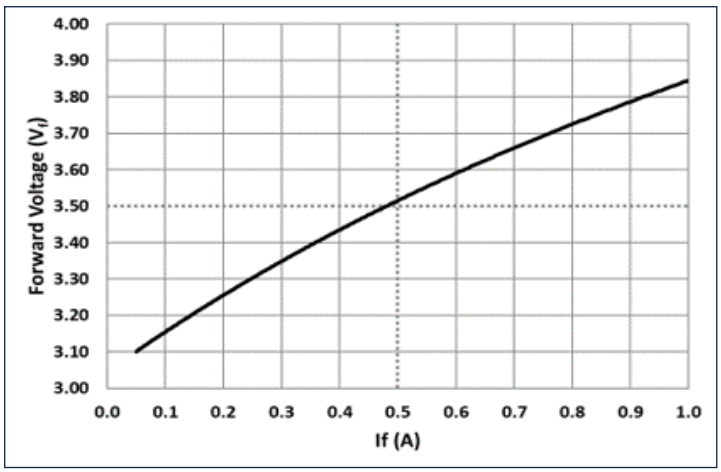


Temperature: $\varphi_v/\varphi_v(25°C)$, $I_f = 0.5\ A$

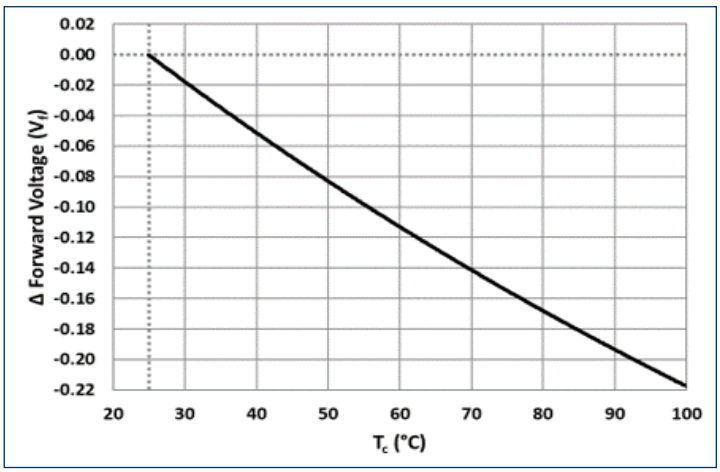


Forward Voltage - 365 nm

Forward current: $V_f = V(I_f)$, $T_c = 25°C$

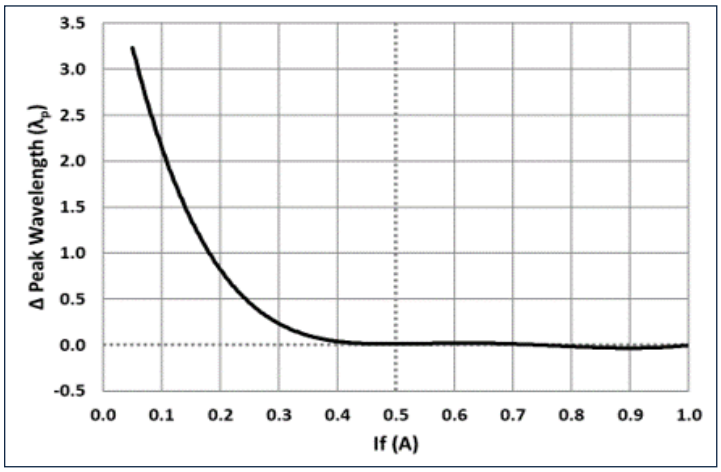


Temperature: $\Delta V_f = V(T_c) - V(25°C)$, $I_f = 0.5\ A$

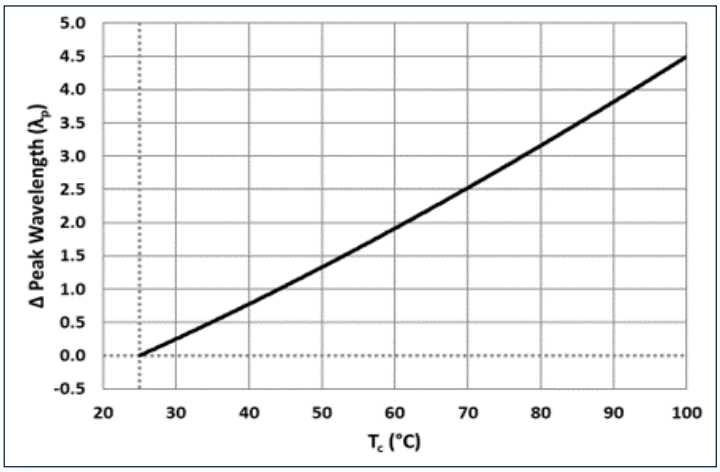


Peak Wavelength Shift - 365 nm

Forward current: $\Delta\lambda_p = \lambda_p(I_f) - \lambda_p(0.5\ A)$, $T_c = 25°C$

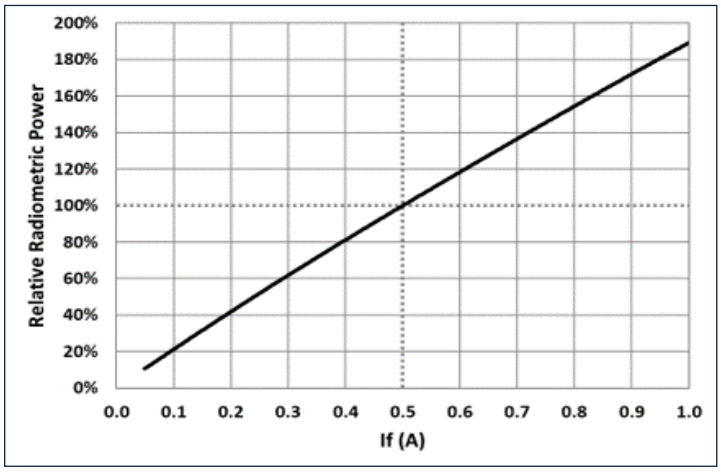


Temperature: $\Delta\lambda_p = \lambda_p(T_c) - \lambda_p(25°C)$, $I_f = 0.5\ A$

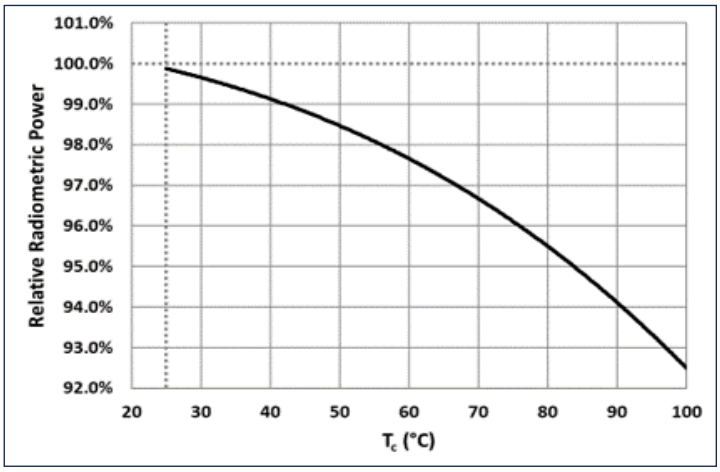


Relative Radiometric Flux - 385 nm

Forward current: $\varphi_v/\varphi_v(0.5\ A)$, $T_c = 25°C$

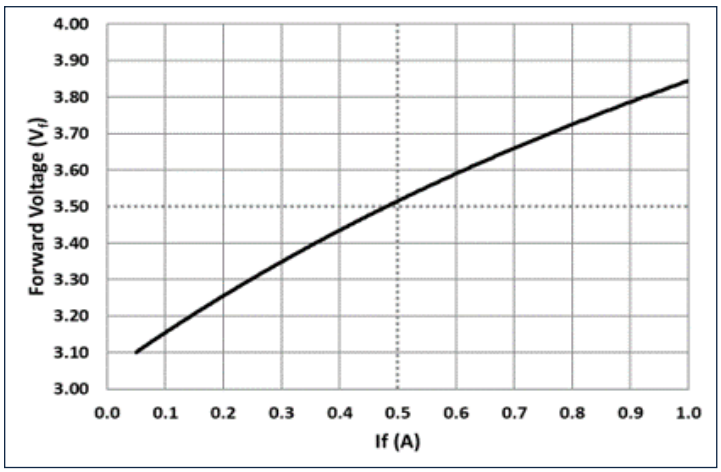


Temperature: $\varphi_v/\varphi_v(25°C)$, $I_f = 0.5\ A$

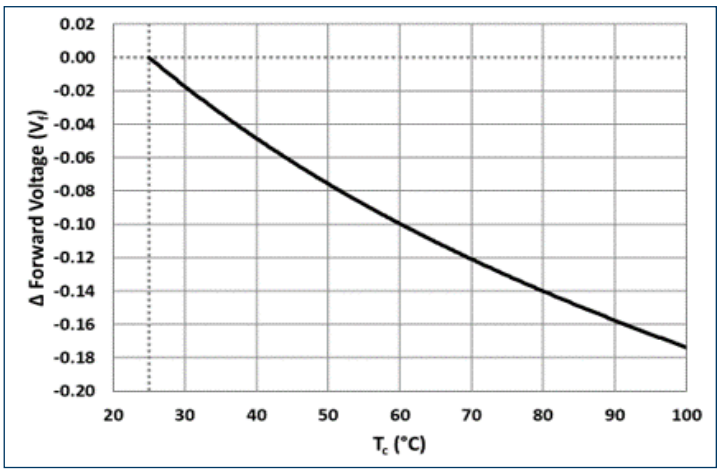


Forward Voltage - 385 nm

Forward current: $V_f = V(I_f)$, $T_c = 25°C$

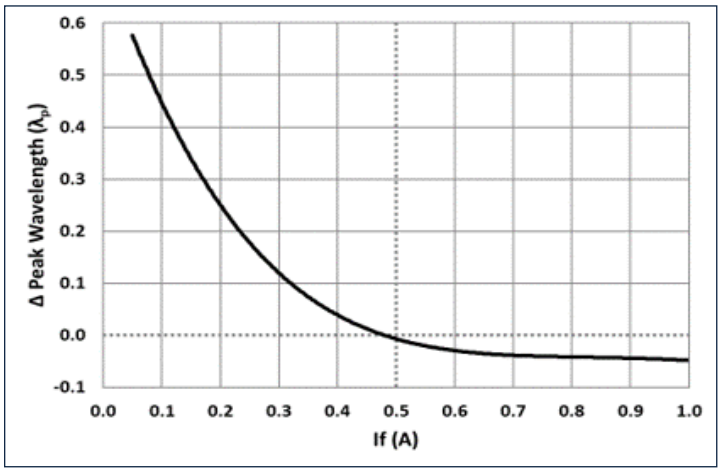


Temperature: $\Delta V_f = V(T_c) - V(25°C)$, $I_f = 0.5\ A$

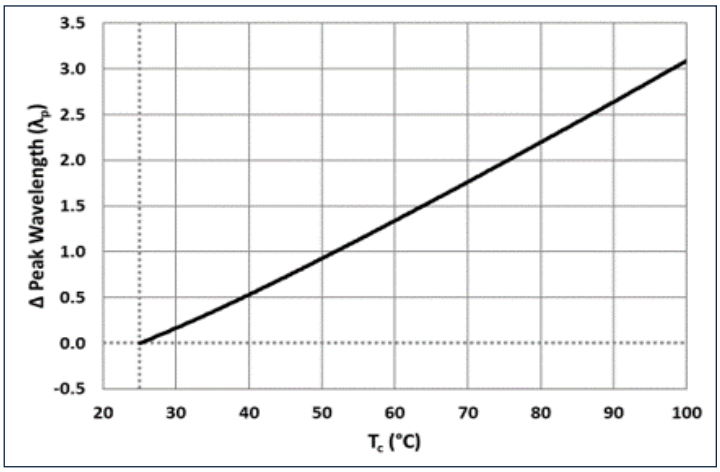


Peak Wavelength Shift - 385 nm

Forward current: $\Delta\lambda_p = \lambda_p(I_f) - \lambda_p(0.5\ A)$, $T_c = 25°C$

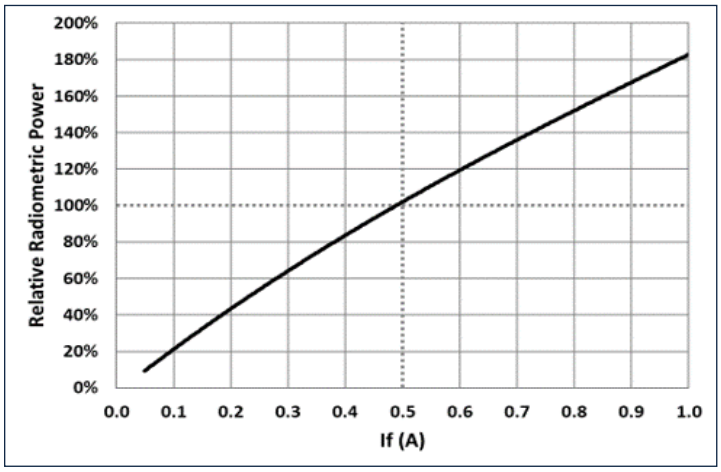


Temperature: $\Delta\lambda_p = \lambda_p(T_c) - \lambda_p(25°C)$, $I_f = 0.5\ A$

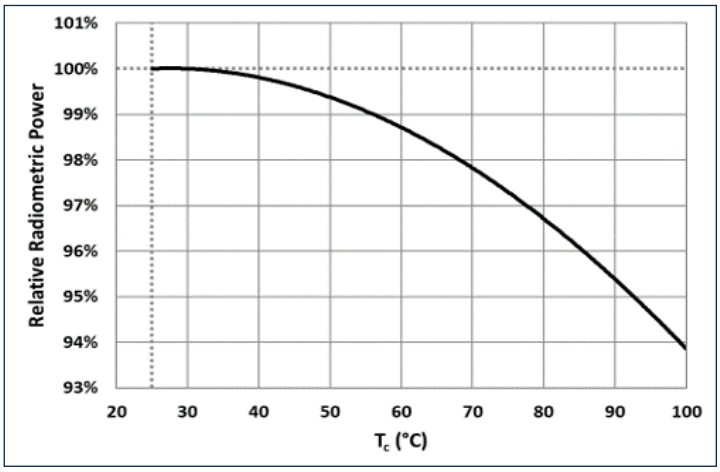


Relative Radiometric Flux - 395 nm

Forward current: $\varphi_v/\varphi_v(0.5\ A)$, $T_c = 25°C$

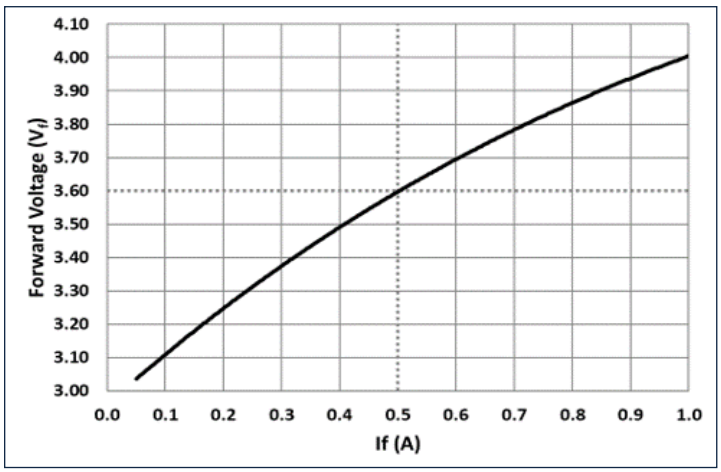


Temperature: $\varphi_v/\varphi_v(25°C)$, $I_f = 0.5\ A$

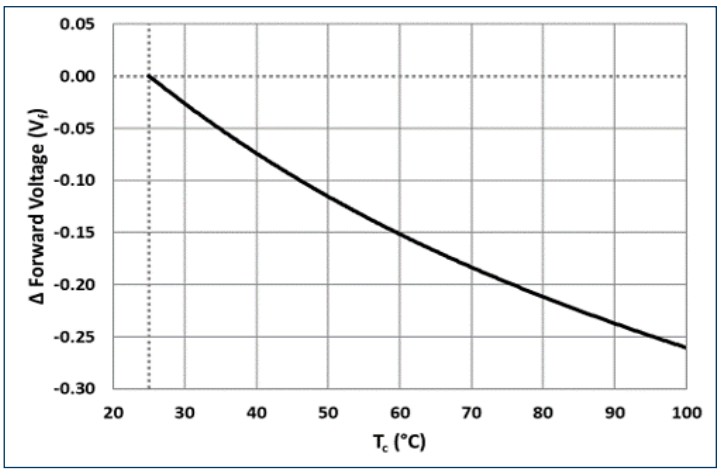


Forward Voltage - 395 nm

Forward current: $V_f = V(I_f)$, $T_c = 25°C$

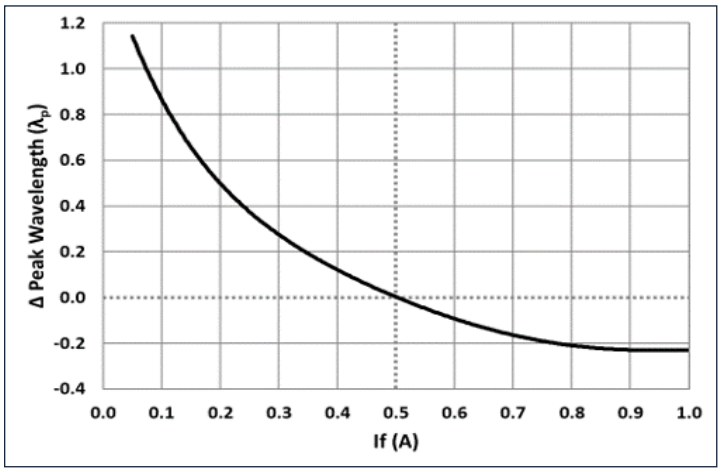


Temperature: $\Delta V_f = V(T_c) - V(25°C)$, $I_f = 0.5\ A$

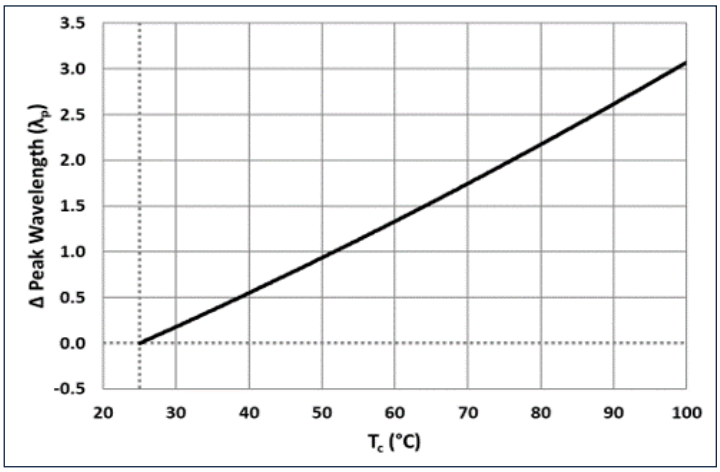


Peak Wavelength Shift - 395 nm

Forward current: $\Delta\lambda_p = \lambda_p(I_f) - \lambda_p(0.5\ A)$, $T_c = 25°C$

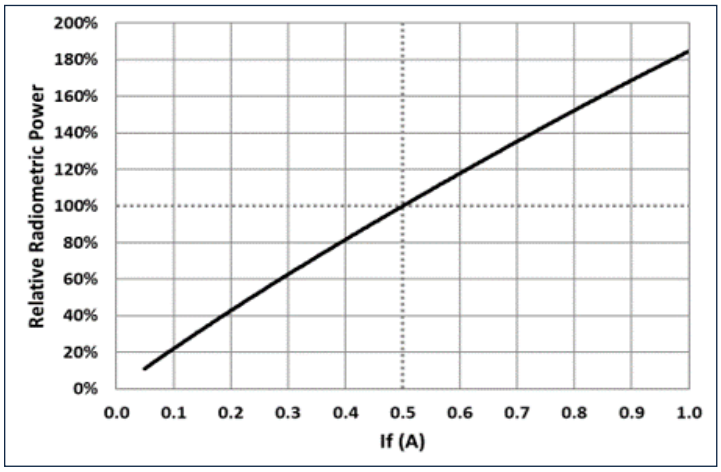


Temperature: $\Delta\lambda_p = \lambda_p(T_c) - \lambda_p(25°C)$, $I_f = 0.5\ A$

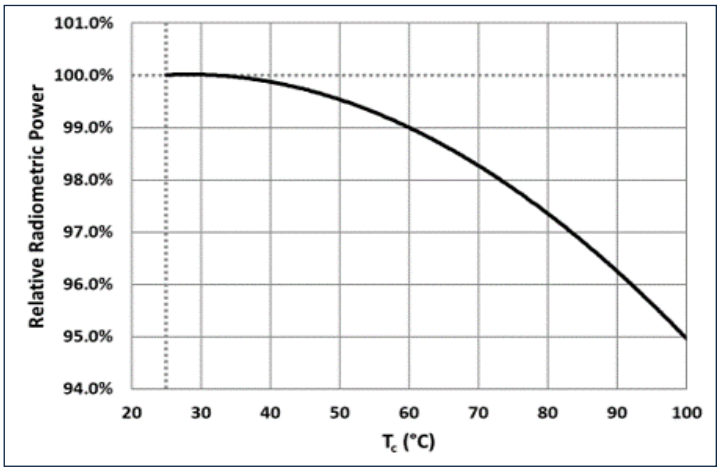


Relative Radiometric Flux - 405 nm

Forward current: $\varphi_v/\varphi_v(0.5\ A)$, $T_c = 25°C$

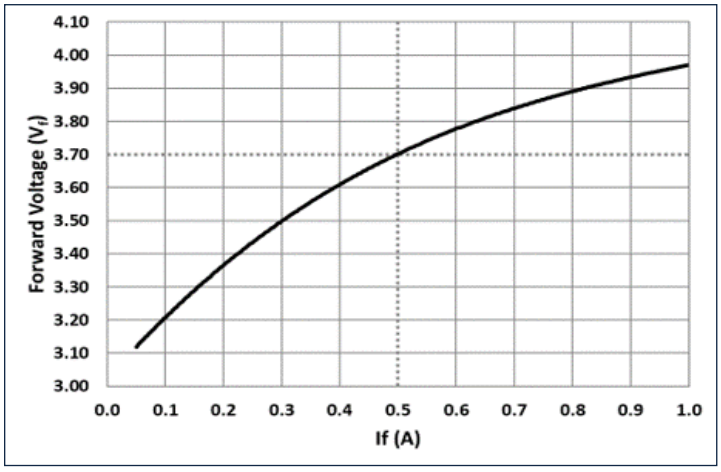


Temperature: $\varphi_v/\varphi_v(25°C)$, $I_f = 0.5\ A$

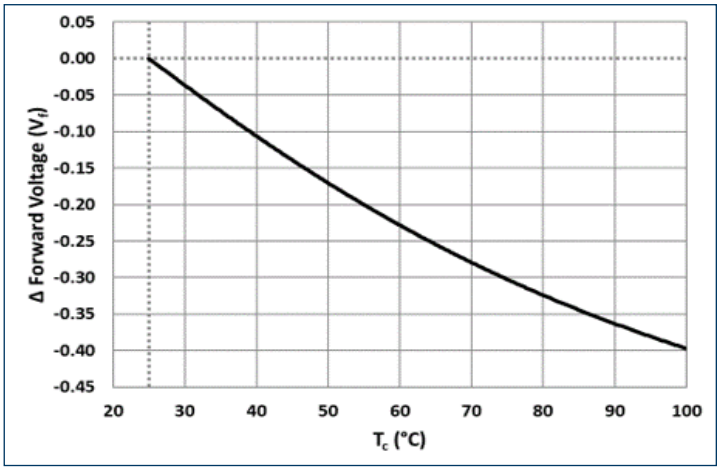


Forward Voltage - 405 nm

Forward current: $V_f = V(I_f)$, $T_c = 25°C$

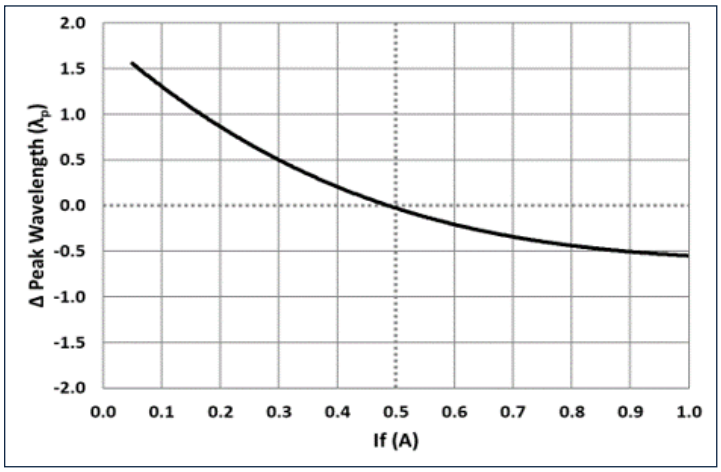


Temperature: $\Delta V_f = V(T_c) - V(25°C)$, $I_f = 0.5\ A$

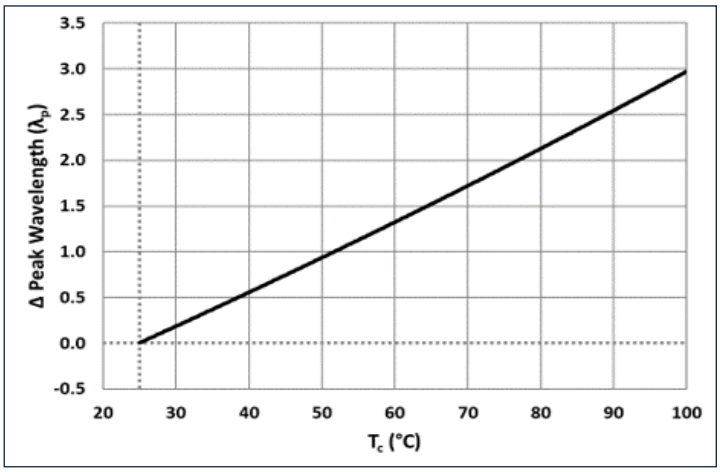


Peak Wavelength Shift - 405 nm

Forward current: $\Delta\lambda_p = \lambda_p(I_f) - \lambda_p(0.5\ A)$, $T_c = 25°C$



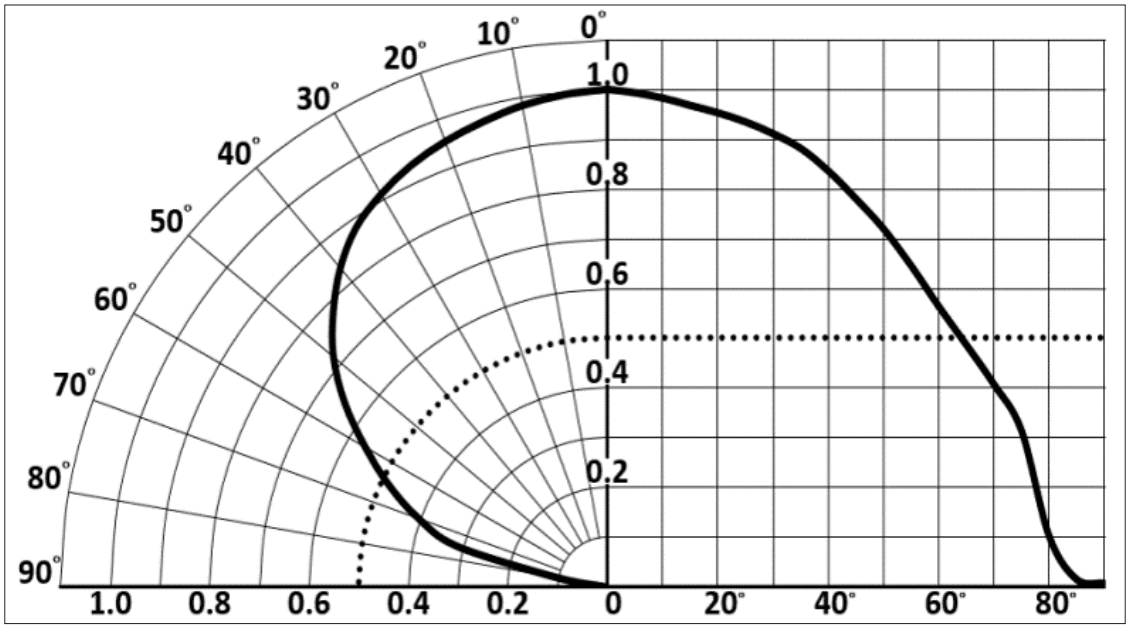
Temperature: $\Delta\lambda_p = \lambda_p(T_c) - \lambda_p(25°C)$, $I_f = 0.5\ A$



Angular Distribution and Typical Spectrum

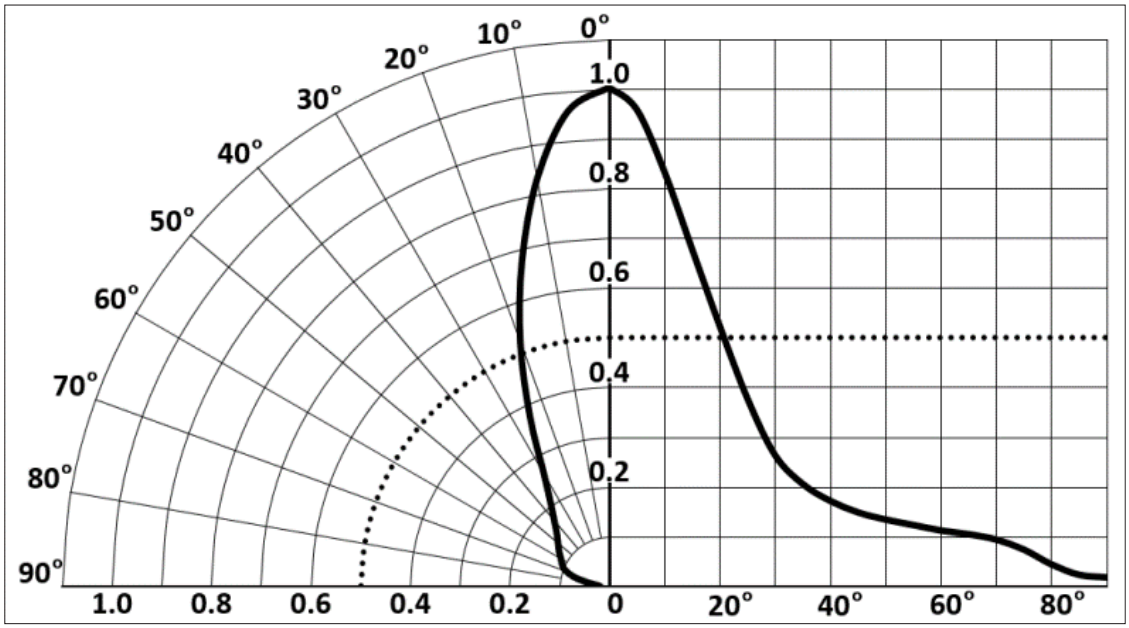
Angular Intensity Distribution - 130 degree

$I_{ref} = f(\Phi); T_c = 25°C$



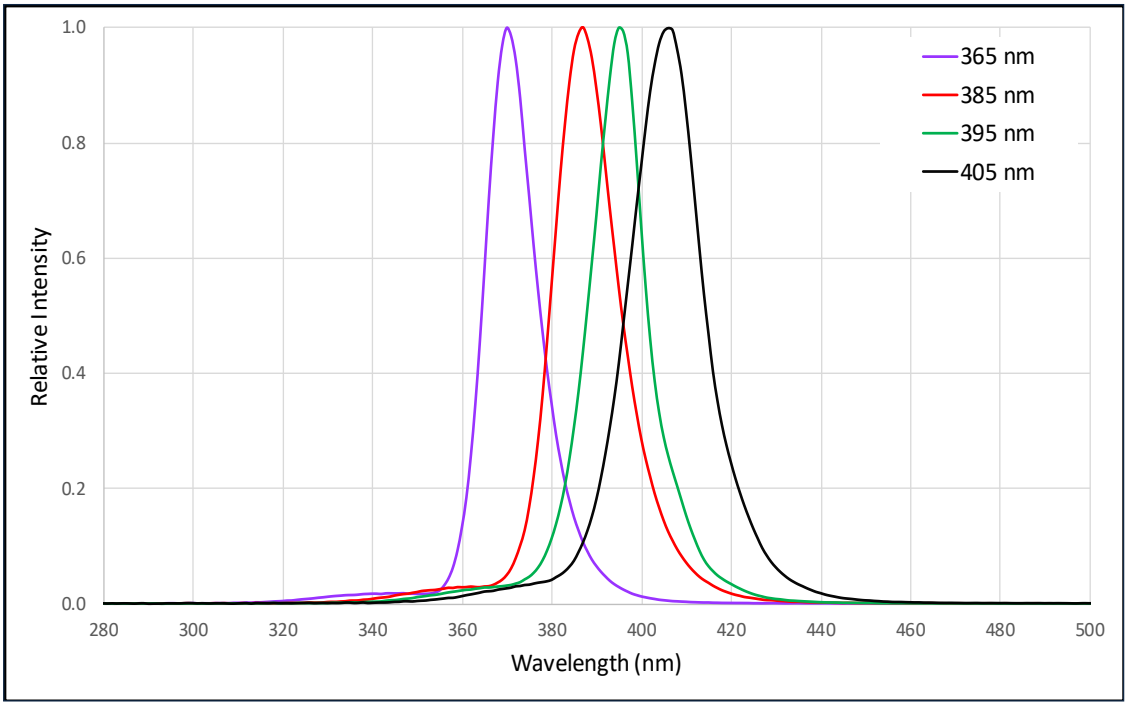
Angular Intensity Distribution - 40 degree

$I_{ref} = f(\Phi); T_c = 25°C$

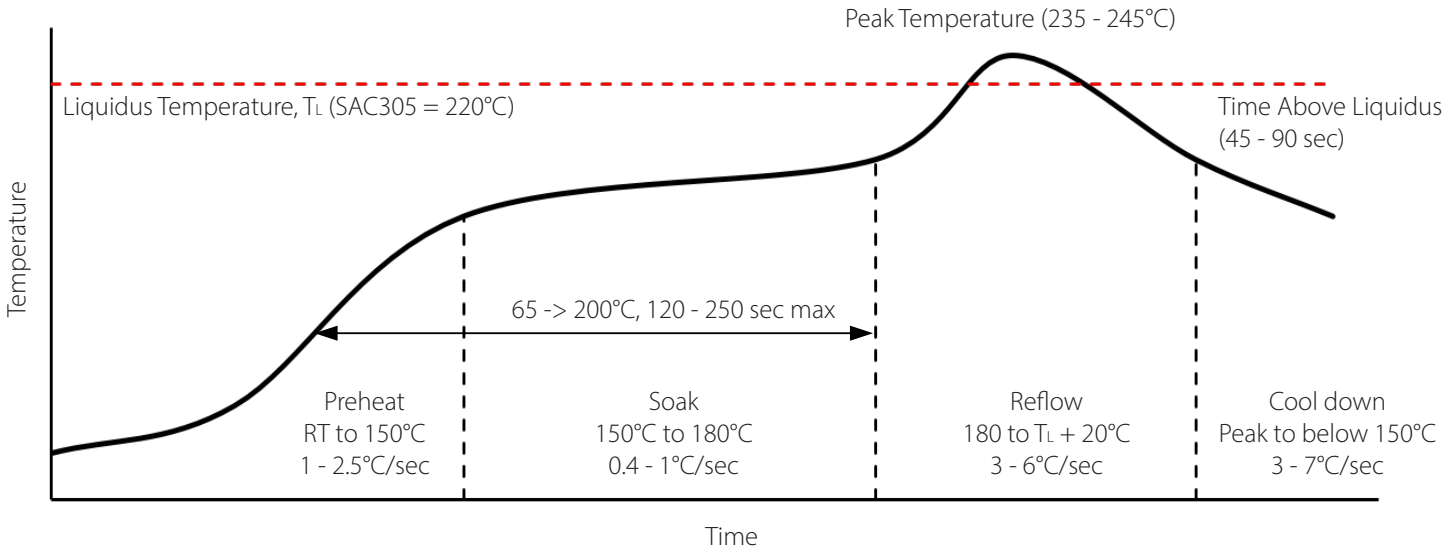


Typical Spectrum

$\Phi_{ref} = f(\lambda)$; I_f=0.5 A; T_c = 25°C



Soldering Profile



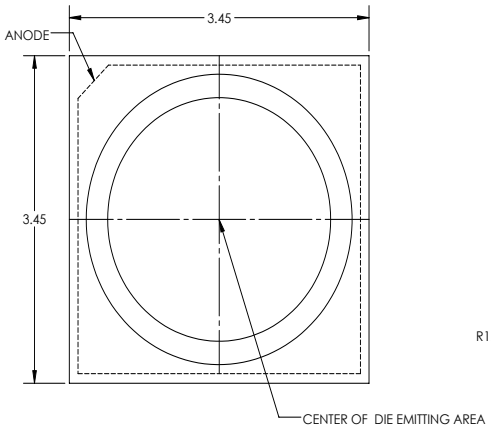
SMT Rework Guideline	Manual Hotplate Reflow	Hot Air Gun Reflow
Heating Time	< 60 sec	
Hotplate Temperature	< 245°C	< 150°C

Note:

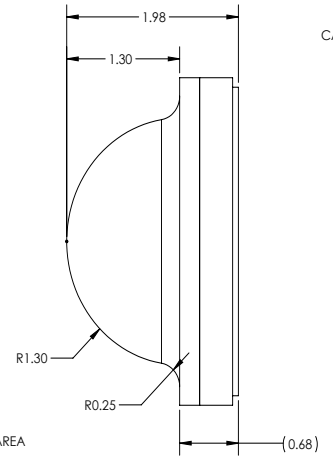
1. Product complies to Moisture Sensitivity Level 1 (MSL 1). This product is MSL 1 rated. However, MSL 3 environmental control is required to protect the Ag plated surface if the product is stored in open bags for long periods.
2. The numbers in the table are specific to SAC305. Luminus recommends using an SAC305 solder paste with a no-clean flux for RoHS compliant products.
3. During the pick and place process, axial forces on the dome (or window) should not exceed 0.5 Newtons (N).
4. Use of a multi-zone IR reflow oven with a nitrogen blanket is recommended.
5. Time-temperature profile of the reflow process showing the four functional profile zones are defined in IPC-7801. Temperature is referenced to the center of the PCB.
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.

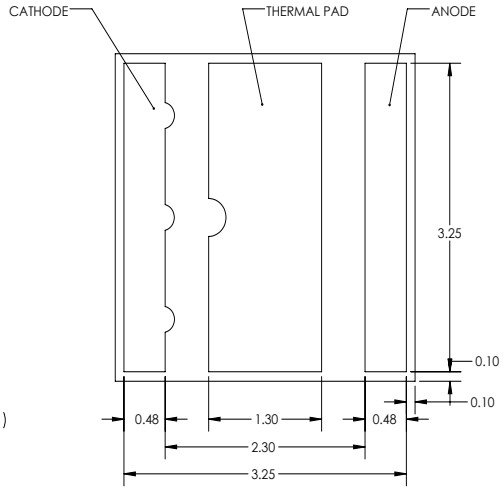
Mechanical Dimensions - A130H package



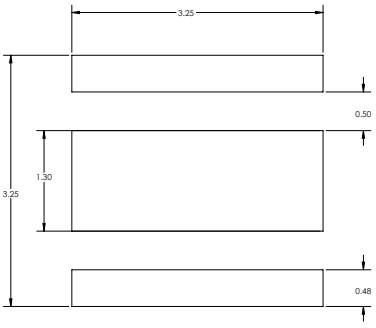
Front View



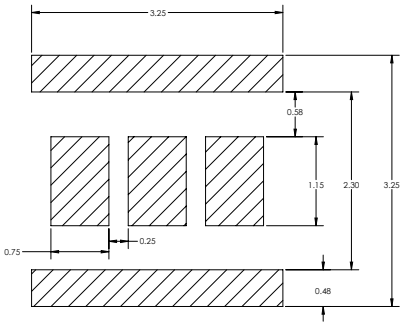
Side View



Back View



Recommended PCB Solder Pad Design

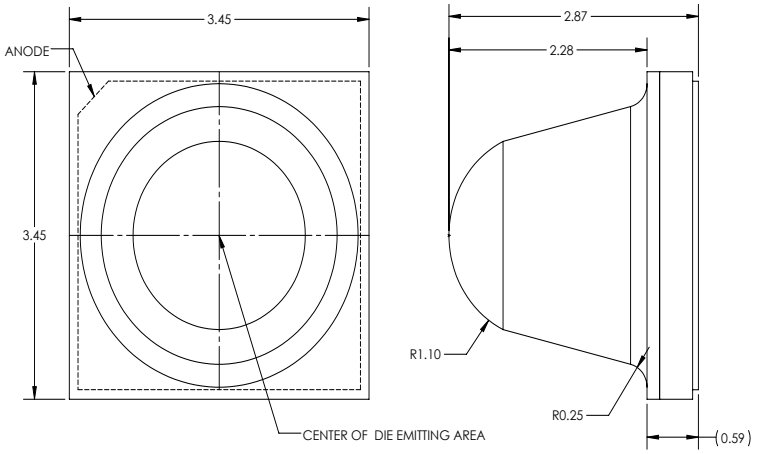


Recommended Stencil Pattern Design

Note:

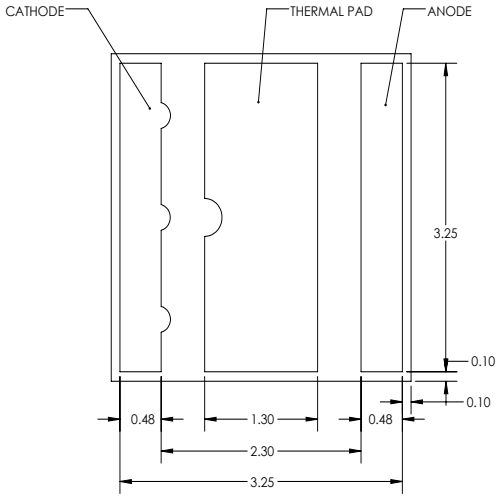
1. LEDs may have minor cosmetic differences, for e.g. slightly different hues, because of different supply sources. These differences are only cosmetic and do not affect form, fit or function of the LED.
2. All dimensions are in millimeter ± 0.13 mm.

Mechanical Dimensions - A40H package

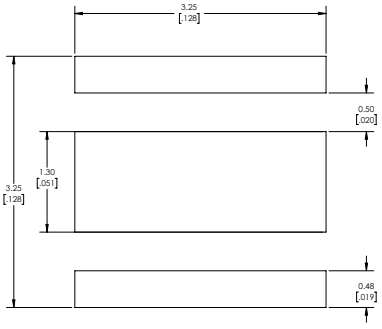


Front View

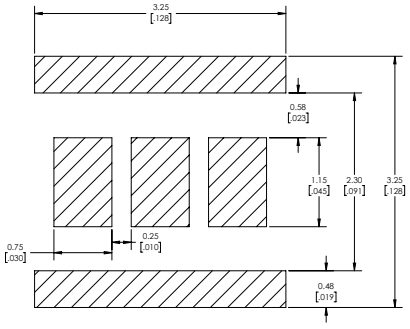
Side View



Back View



Recommended PCB Solder Pad Design

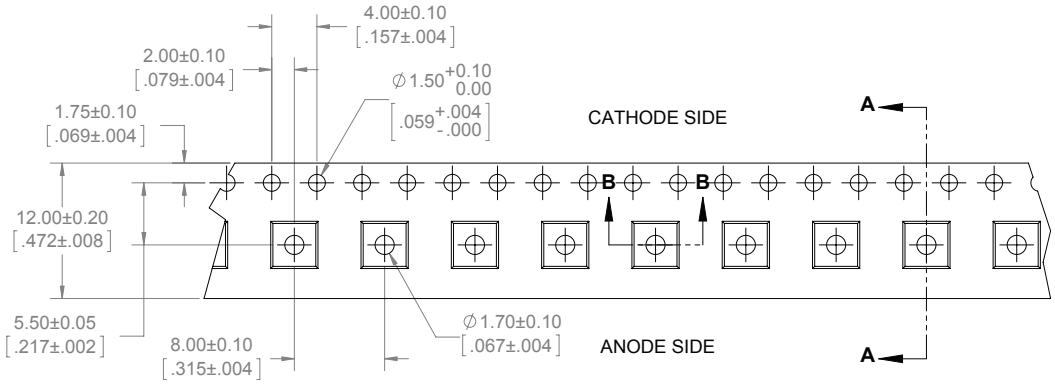


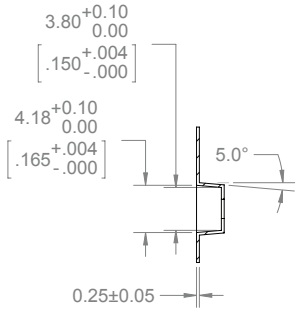
Recommended Stencil Pattern Design

Note:

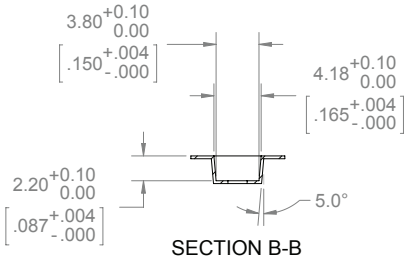
1. LEDs may have minor cosmetic differences, for e.g. slightly different hues, because of different supply sources. These differences are only cosmetic and do not affect form, fit or function of the LED.
2. All dimensions are in millimeter ± 0.13 mm.

Tape and Reel Outline





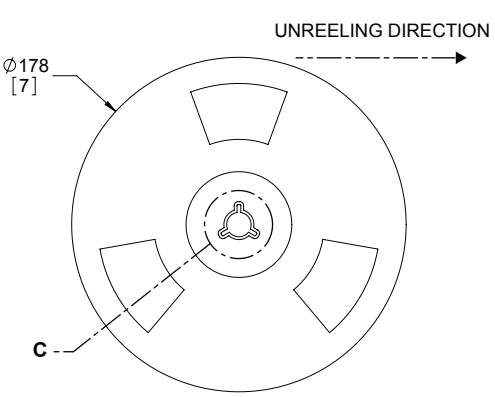
SECTION A-A

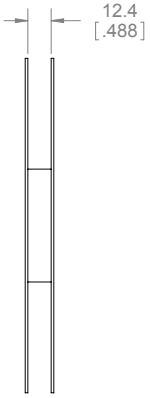


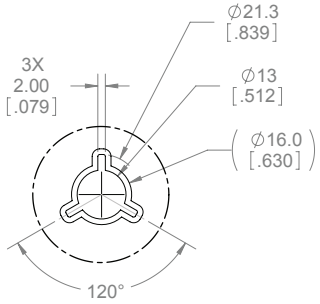
SECTION B-B

NOTES:

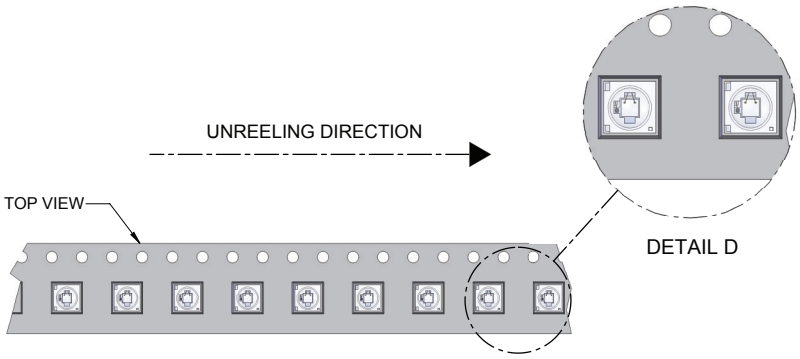
1. FINAL TAPE AND REEL PACKAGING MUST MEET THE REQUIREMENTS OF JEDEC-STD-033, LEVEL 2A.
2. LEAVE 304.8mm [12.00 in] OF TAPE EMPTY FOR LEAD IN (38 EMPTY POCKETS).
3. LEAVE 457.2mm [18.00 in] OF TAPE EMPTY FOR TRAILER (57 EMPTY POCKETS).
4. MUST COMPLY TO EIA-481-C-2003





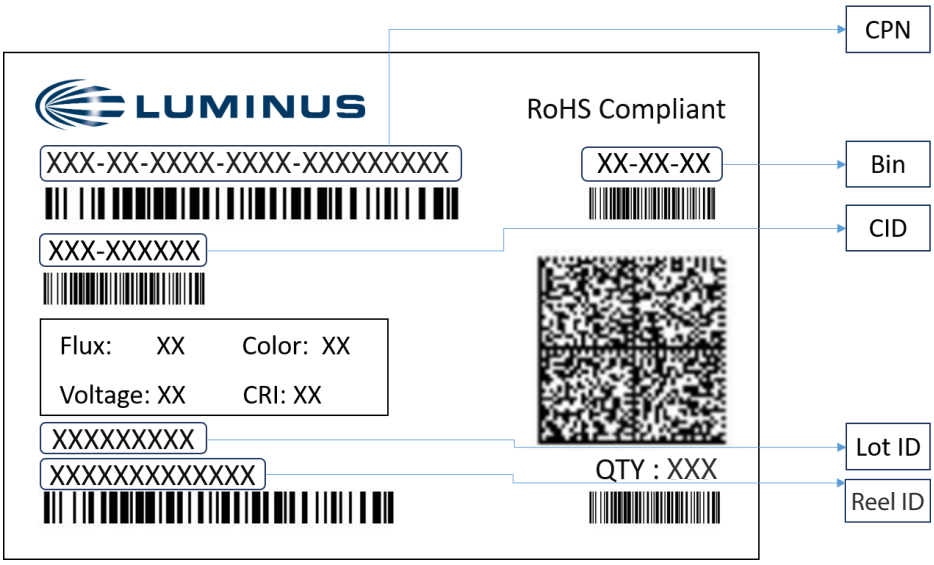


DETAIL C



DETAIL D

Shipping Label



Label Fields:

- CPN: Luminus ordering part number
- CID: Customer's part number
- QTY: Quantity of devices in pack
- Flux: Bin as defined on page 3
- Voltage: NA
- Color: Bin as defined on page 3
- CRI: NA

Packing Configuration:

- 500 pieces per pack with 1 reel
- Partial pack or tray may be shipped
- Each pack is enclosed in anti-static bag
- Shipping label is placed on top of each pack

Notes

Static Electricity

This product is sensitive to static electricity, and care should be taken when handling them. Static electricity or surge voltage will damage the LEDs. It is recommended to wear an anti-electrostatic wristband or anti-electrostatic gloves when handling the LEDs. All devices, equipment and machinery must be properly grounded. It is recommended that measures be taken to isolate LED processing equipment from potential sources of voltage surges.

Reference: APN-002815 Electrical Stress Damage to LEDs and How to Prevent It

Eye Safety

According to the test specification risk group IEC 62471-Non-GLS under 1.0 A, this product complies to Risk group (TBA)

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

Revision History

Rev	Date	Description of Change
01	03/01/2024	Initial release
02	09/26/2024	Added 40 degree ordering part numbers, angular intensity distribution and mechanical drawing
03	11/05/2024	Editorial - Corrected F flux bin from 900mW to 810mW