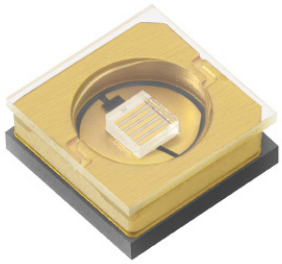
XBT-3535-340 nm

Surface Mount UVA LED



Features

- UV LED with with typical peak wavelength of 345 nm
- Compact form factor: 3.5 mm x 3.5 mm package with optically transparent window
- Viewing angle of 130 degrees
- Standard SMT process

Applications

- Analytical instruments for life sciences and medical applications
- Curing
- Blood gas measurements and urea analysis
- Phototherapy
- Solar panel testers

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Ordering Information

Ordering Part Numbers[1]

Wavelength Range (nm)	Wavelength Bins	Radiometric Flux		Ordering Part Number
		Bin Kit Flux Code	Min. Flux (mW)	
340 - 350	340, 345	DA	60	XBT-3535-UV-A130H-DA340-00

Part Number Nomenclature

XBT **3535** **UV** **A130** **<FFWWW-#>**

Product Family	Package size	Color	Package Configuration	Bin Kit
XBT: Surface Mount Package	3535: 3.5 x 3.5 mm	UV: Ultraviolet	A130: 130 degree viewing angle	Flux and Wavelength bin kit code - See ordering information

Note:

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

Binning Structure

XBT-3535-UV LEDs are tested at a drive current of 500 mA, 20 ms single pulse at 25°C and placed into one of the following radiometric flux and wavelength bins.

Radiometric Flux Bins[1,2]

Color	Flux Bin[3]	Binning @ 500 mA, T_c= 25°C[4,5]		Correlated Minimum Flux (mW) @350 mA, T_c= 25°C
		Min. Flux (mW)	Max. Flux (mW)	
UV	DA	60	70	43
	DB	70	80	50
	DC	80	90	57
	DD	90	100	64
	DE	100	120	70
	FA	120	140	85

Wavelength Bins[2]

Color	Wavelength Bin[3,6]	Binning @ 500 mA, T_c= 25°C[4,5]	
		Minimum Wavelength (nm)	Maximum Wavelength (nm)
UV	340	340	345
	345	345	350

Forward Voltage Bins

Color	Voltage Bin	Binning @ 500 mA, T_c= 25°C	
		Minimum Voltage (V)	Maximum Voltage (V)
UV	Vz	3.5	4
	V1	4	4.5
	V2	4.5	5
	V3	5	5.5

Note:

1. Luminus maintains a +/- 6% tolerance on flux measurements.
2. Products are production tested then sorted and packed by bin.
3. Individual bins are not orderable. Please refer to the Product Ordering information page for a list of orderable bin kits.
4. Product test condition: 500 mA, 20 ms pulse at 25 °C.
5. T_c= Case temperature.
6. The wavelength bin as marked on the product label may be followed by a letter which is for internal use only.

Absolute Maximum Ratings[1]

Parameter	Symbol	Value	Unit
Forward Current	$I_{f\,max}$	500	mA
Storage Temperature	$T_{s\,min}$	-40	°C
	$T_{s\,max}$	100	
Junction Temperature	$T_{j\,max}$	85	°C
ESD sensitivity ANSI/ESDA/JEDEC JS-001 (HBM, Class 2)	V_{ESD}	8000	V

Note:

1. XBT-3535-UV LEDs are designed for operation up to an absolute maximum forward drive current as specified above. Product lifetime is a function of drive current and junction temperature. Contact Luminus for more information on lifetimes.

Device Performance[1,2]

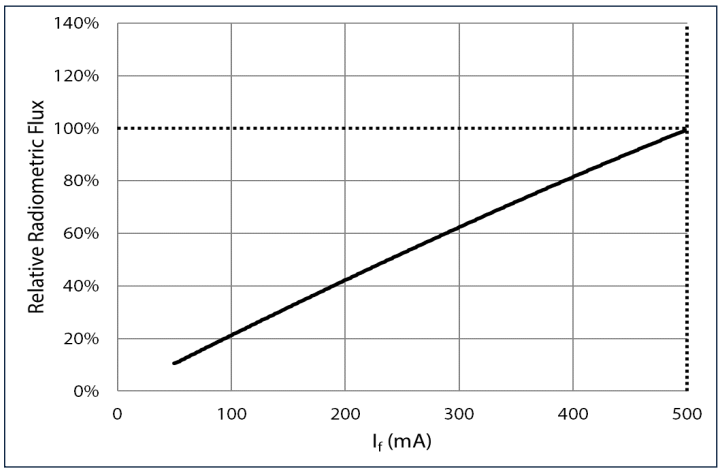
Optical and Electrical Characteristics	Symbol	Value	Unit
Test Current	I_f	500	mA
Typical radiometric flux	Φ_V	87	mW
Forward Voltage	$V_{f\,min}$	3.5	V
	$V_{f\,typ}$	4.6	
	$V_{f\,max}$	5.5	
FWHM	$\Delta\lambda$	12	nm
Viewing Angle	$2\theta_{1/2}$	130	°
Thermal Characteristics			
Thermal Resistance (junction to case)[3]	$R_{\theta j\text{-}c}$	6.1	°C/W

Note:

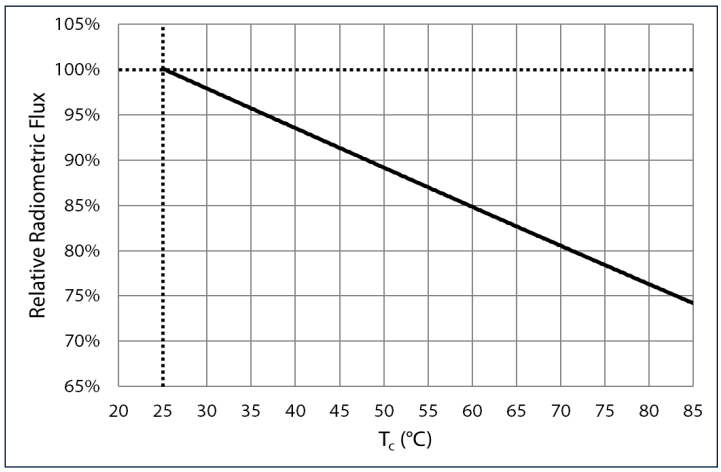
1. Ratings are based on operation at a constant temperature of T_c = 25°C. Test conditions: 500 mA, 20 ms pulse at 25°C.
2. XBT-3535-UV LEDs are short wavelength, deep UV LEDs. During operation, the LED emits high intensity UV radiation, which is harmful to skin and eyes. UV light is also hazardous to skin and may cause cancer. Avoid exposure to deep UV light when LED is operational.
3. Measurements are in accordance with JEDEC 51-14.

Relative Radiometric Flux

Forward current: φ_v/φ_v(500 mA), 20 ms pulse, T_c= 25°C

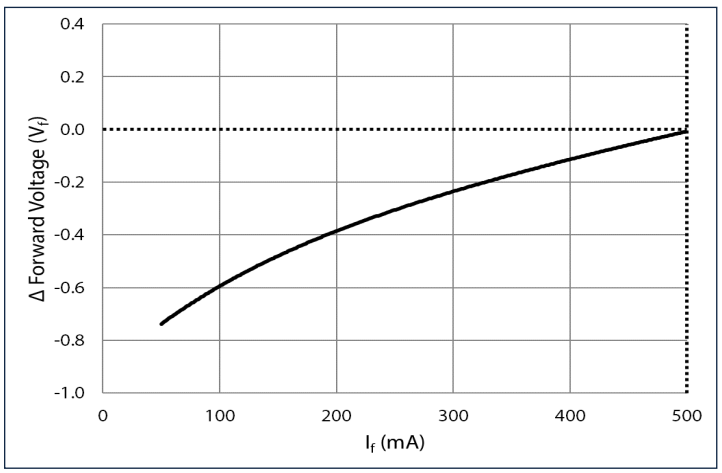


Temperature: φ_v/φ_v(25°C), 20 ms pulse, I_f = 500 mA

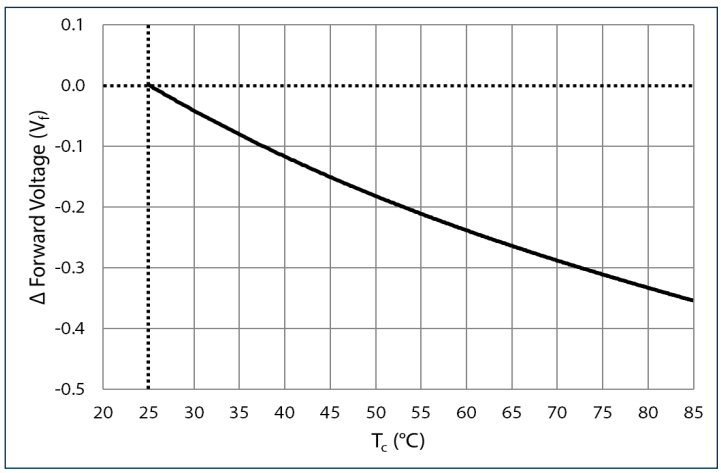


Forward Voltage Shift

Forward current: $\Delta V_f = V(I_f)$- V(500 mA), 20 ms pulse, T_c = 25°C

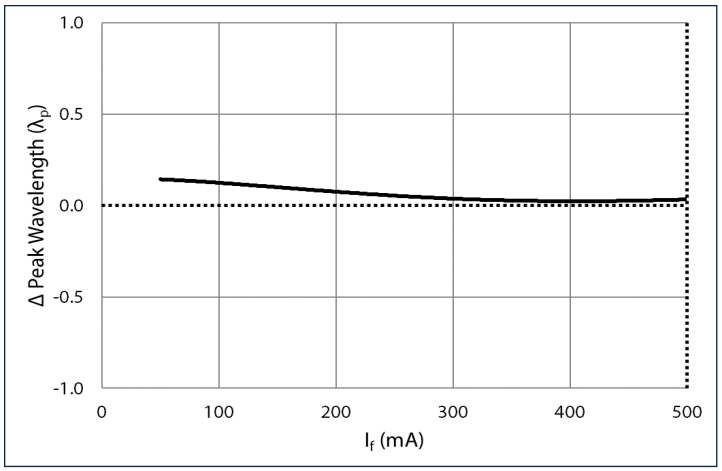


Temperature: $\Delta V_f = V(T_c)$ - V(25°C), 20 ms pulse, I_f = 500 mA

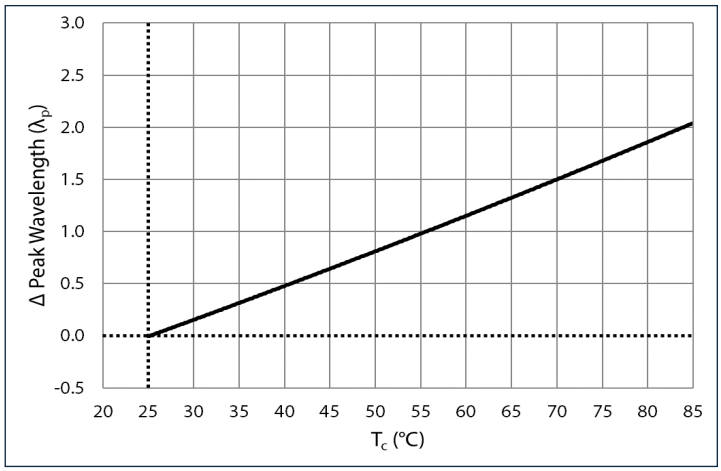


Peak Wavelength Shift

Forward current: $\Delta\lambda_d = \lambda_d(I_f) - \lambda_d$(500 mA), 20 ms pulse, T_c = 25°C



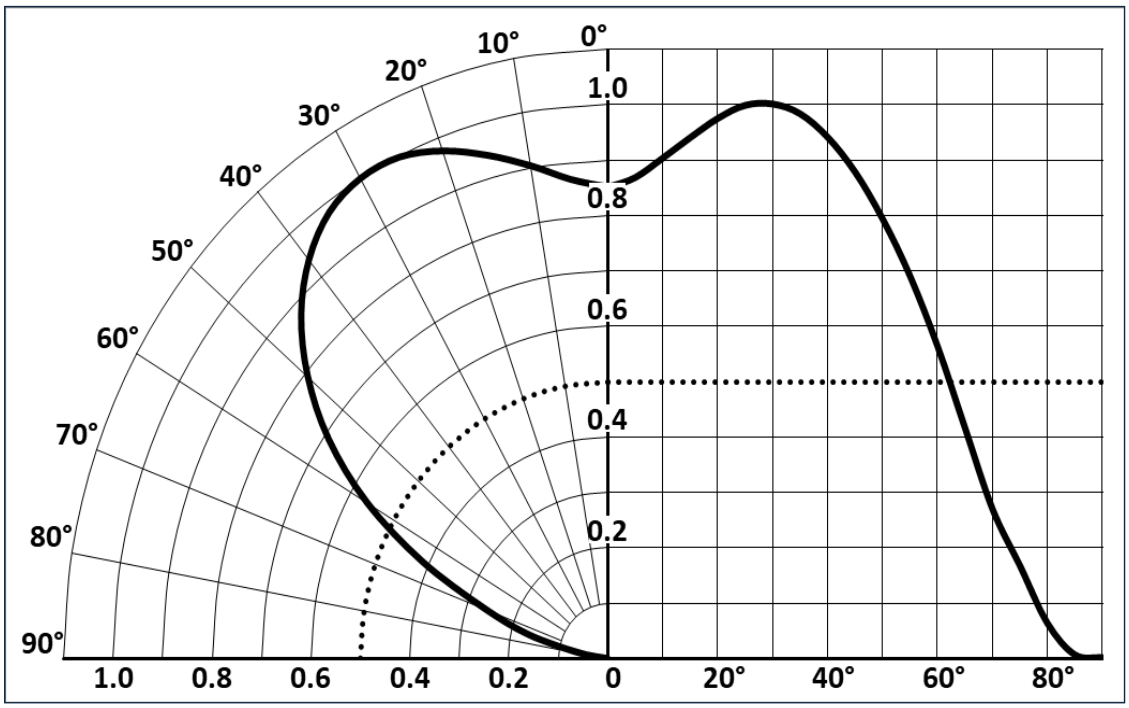
Temperature: $\Delta\lambda_d = \lambda_d(T_c) - \lambda_d$(25°C), 20 ms pulse, I_f = 500 mA



Angular distribution and Typical Spectrum

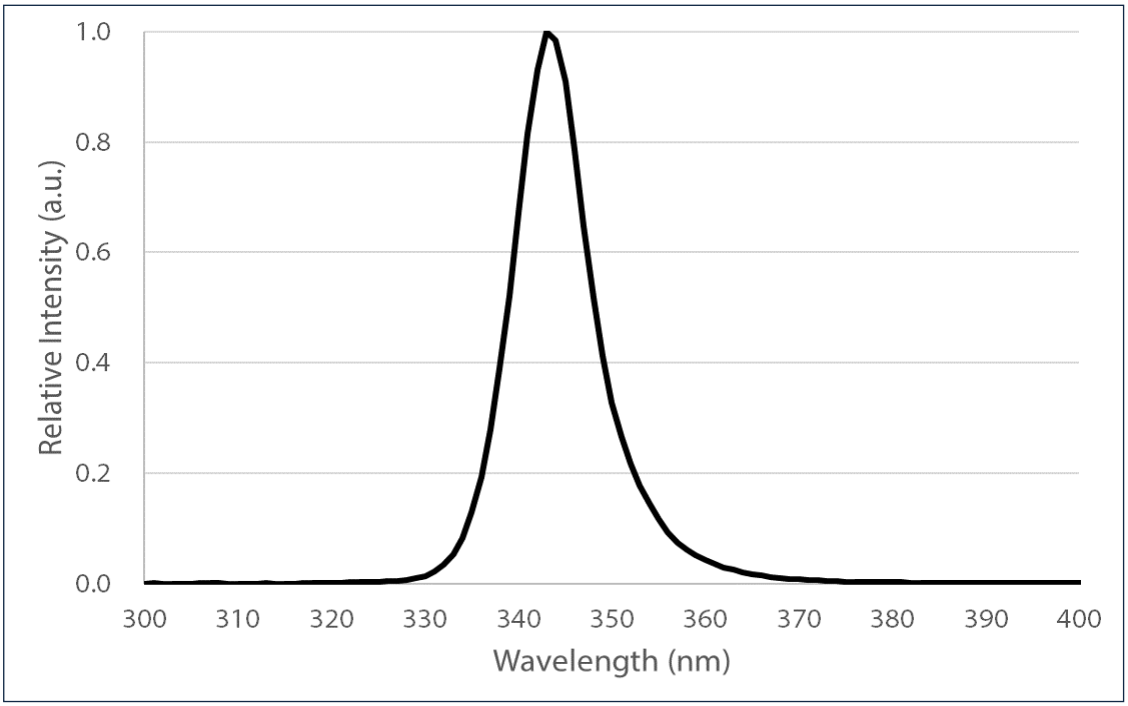
Angular distribution

I_f=500 mA, T_c=25°C

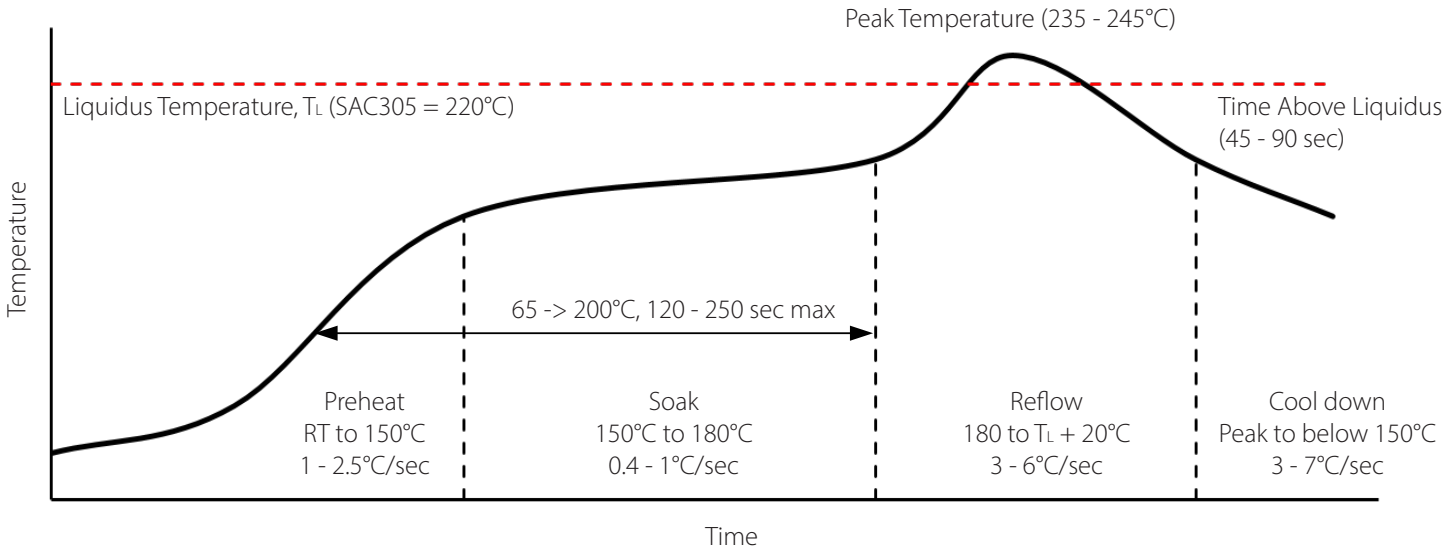


Typical Spectrum

$\Phi_{ref} = f(\lambda)$; I_f = 500 mA; T_c = 25°C



Soldering Profile



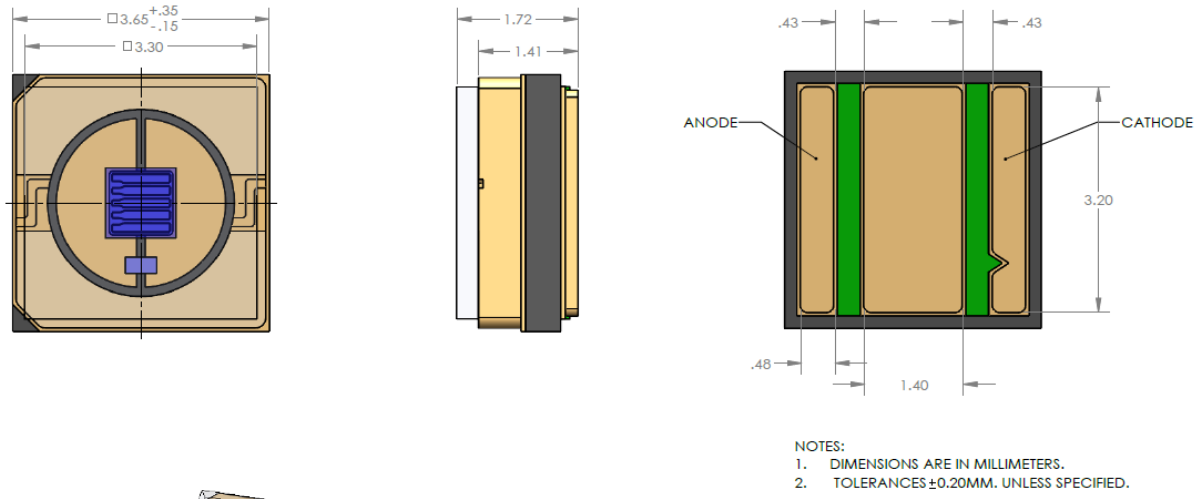
SMT Rework Guideline	Manual Hotplate Reflow	Hot Air Gun Reflow
Heating Time	< 60 sec	
Hotplate Temperature	< 245°C	< 150°C

Note:

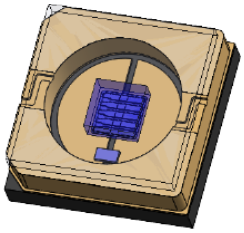
1. Product complies to Moisture Sensitivity Level 1 (MSL 1).
2. The numbers in the table are specific to SAC305. Luminus recommends using an SAC305 solder paste with a no-clean flux for RoHS compliant products.
3. During the pick and place process, axial forces on the dome (or window) should not exceed 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.

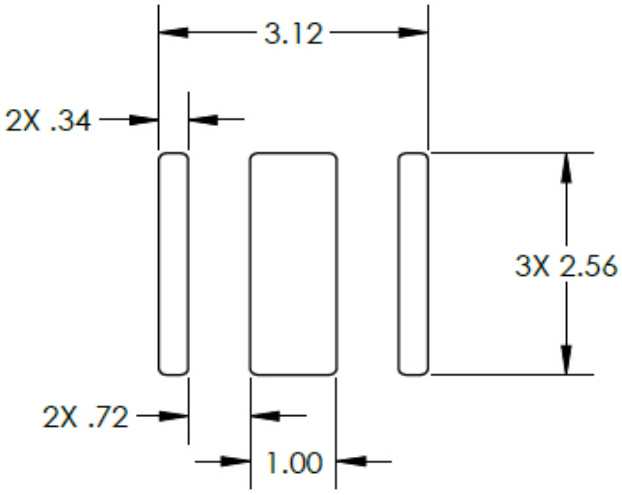
Mechanical Dimensions



NOTES:
1. DIMENSIONS ARE IN MILLIMETERS.
2. TOLERANCES ±0.20MM. UNLESS SPECIFIED.



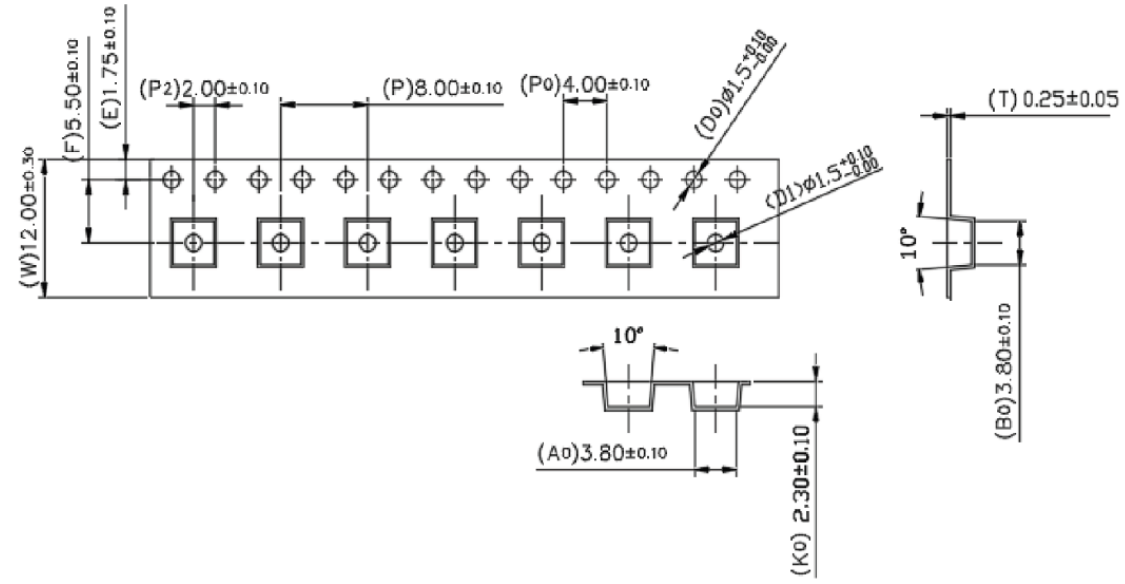
Recommended Solder Pad

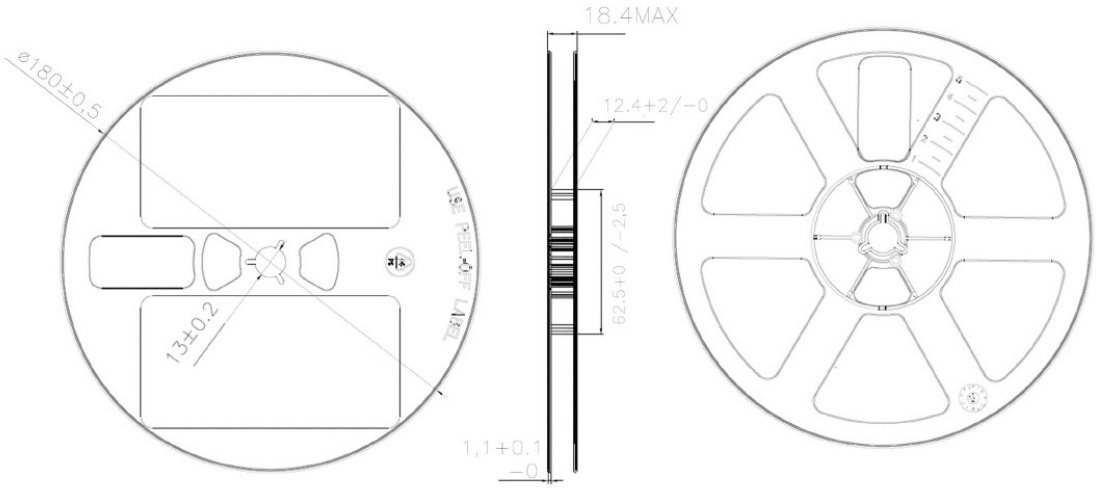


Shipping Reel Outline

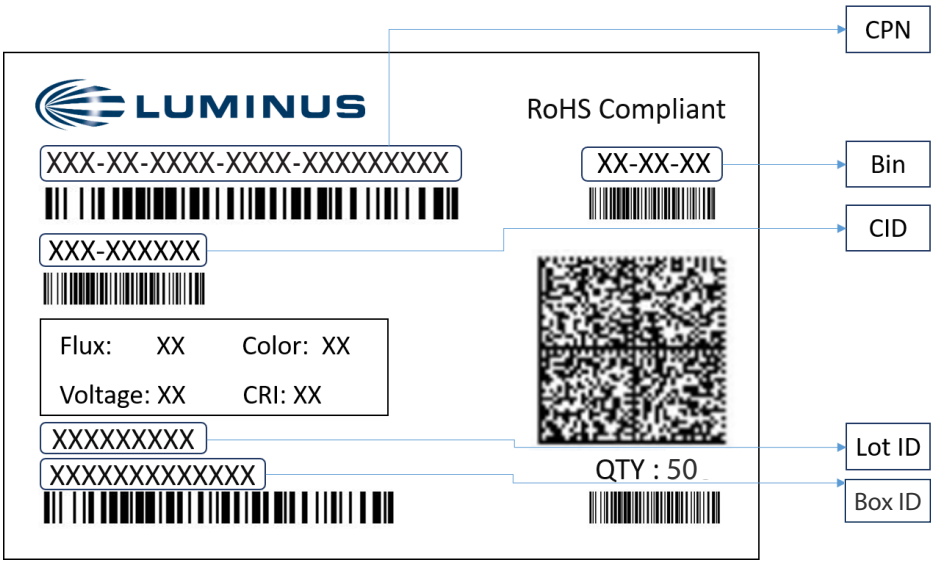
All XBT-3535 products are packaged and labeled with their respective bin as outlined in the tables on page 3.

Each reel will only contain one flux and one wavelength bin.





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:

- Maximum of 250 devices per reel, minimum of 50 devices per reel
- Partial pack or reel 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: 2006-Non-GLS under 500 mA, 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	06/12/2024	Initial release
01	08/19/2024	Editorial changes