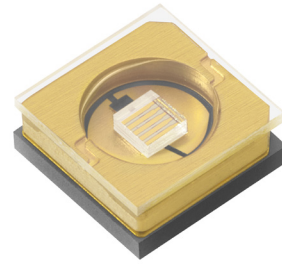


XBT-3535-340 nm

Surface Mount UVC LED



Features

- UV LED with 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 urea and creatinine analysis
- Phototherapy
- Solar panel testers

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Ordering Information

Ordering Part Numbers¹

Wavelength Range (nm)	Wavelength Bins	Radiometric Flux		Ordering Part Number
		Bin Kit Flux Code	Min. Flux (mW)	
340 - 350	340, 345	TBA	TBA	XBT-3535-UV-A130-340-00-ENG

Part Number Nomenclature

XBT	3535	UV	A130	<FFWWW-#>
Product Family	Chip Area	Color	Package Configuration	Bin Kit
XBT: UVC Surface Mount Package	3535: 3.5 mm ²	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) @ T _c = 25°C		
		Min. Flux (mW)	Max. Flux (mW)	350 mA	650 mA	800 mA
UV	CE	40	45	29	51	62
	CF	45	50	32	57	69
	CG	50	55	36	64	77
	CH	55	60	39	70	85
	DA	60	70	43	77	92
	DB	70	80	50	89	108
	DC	80	90	57	102	123

Wavelength Bins²

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

Note:

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



Absolute Maximum Ratings¹

Parameter	Symbol	Value	Unit
Forward Current	$I_{f\max}$	800	mA
Junction Temperature	$T_{j\max}$	100	°C

Note:

1. XBT-3535-UV LEDs are designed for operation up to an absolute maximum forward drive current as specified above. Product lifetime data is specified at typical forward drive currents. Sustained operation at absolute maximum currents will result in a reduction of device lifetime compared to typical forward drive currents. Actual device lifetimes will also depend on junction temperature.



Device Performance^{1,2}

Optical and Electrical Characteristics	Symbol	Value	Unit
Test Current	I_f	500	mA
Typical radiometric flux	Φ_V	50	mW
Forward Voltage	V_{fmin}	TBA	V
	$V_{f typ}$	4.6	
	$V_{f max}$	TBA	
FWHM	$\Delta\lambda$	TBA	nm
Viewing Angle	$2\theta_{1/2}$	130	°
Thermal Characteristics			
Thermal Resistance (junction to case) ³	$R_{\theta j-c}$	6.1	°C/W

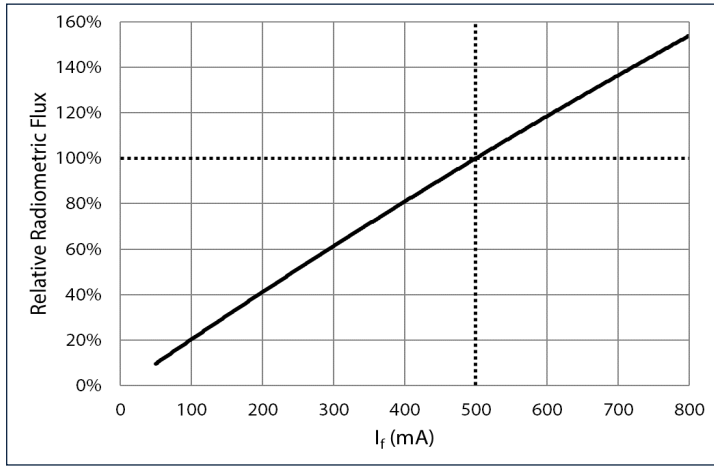
Note:

1. Ratings are based on operation at a constant temperature of $T_c = 25^\circ\text{C}$. 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 UVC 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. For more about thermal resistance calculation, please see <https://luminusdevices.zendesk.com/hc/en-us/articles/4416807960717-Thermal-Heatsink-Required-Rth-Calculator>

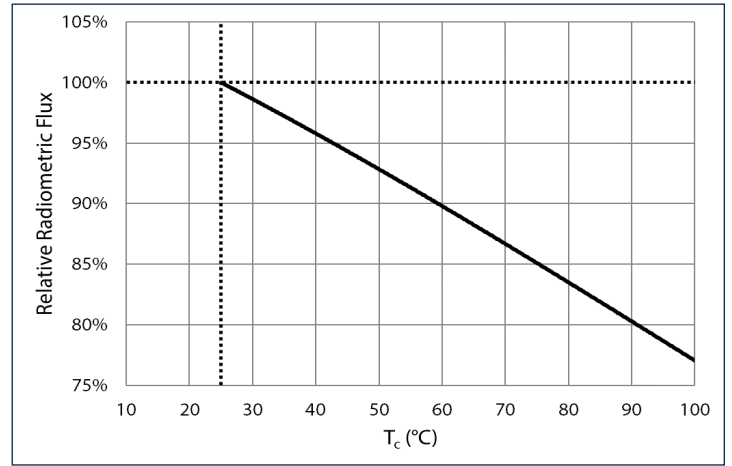


Relative Radiometric Flux

Forward current: $\phi_v/\phi_v(500\text{ mA})$, 20 ms pulse, $T_c = 25^\circ\text{C}$

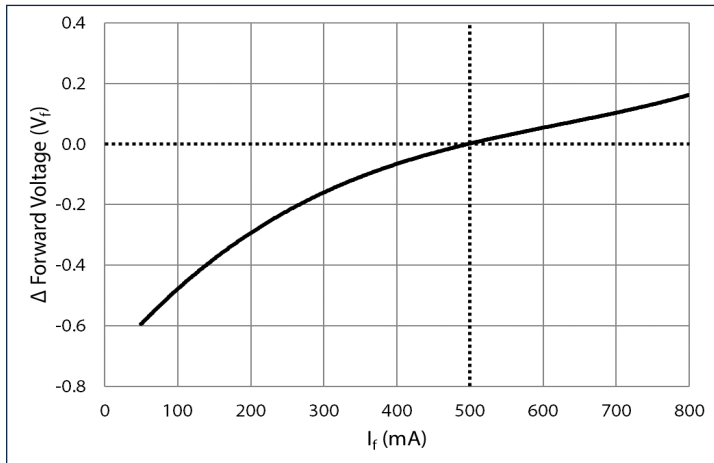


Temperature: $\phi_v/\phi_v(25^\circ\text{C})$, 20 ms pulse, $I_f = 500\text{ mA}$

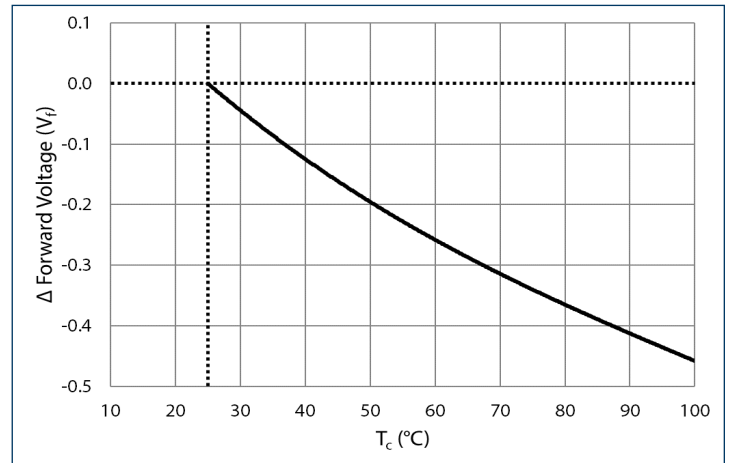


Forward Voltage Shift

Forward current: $\Delta V_f = V(I_f) - V(500\text{ mA})$, 20 ms pulse, $T_c = 25^\circ\text{C}$

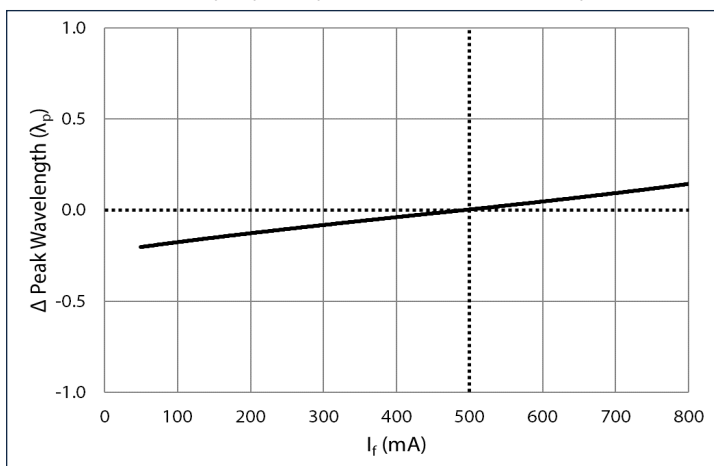


Temperature: $\Delta V_f = V(T_c) - V(25^\circ\text{C})$, 20 ms pulse, $I_f = 500\text{ mA}$

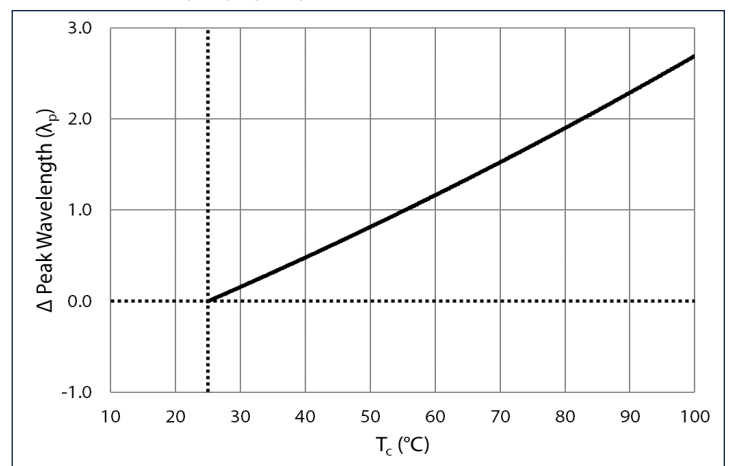


Peak Wavelength Shift

Forward current: $\Delta\lambda_d = \lambda_d(I_f) - \lambda_d(500\text{ mA})$, 20 ms pulse, $T_c = 25^\circ\text{C}$



Temperature: $\Delta\lambda_d = \lambda_d(T_c) - \lambda_d(25^\circ\text{C})$, 20 ms pulse, $I_f = 500\text{ mA}$

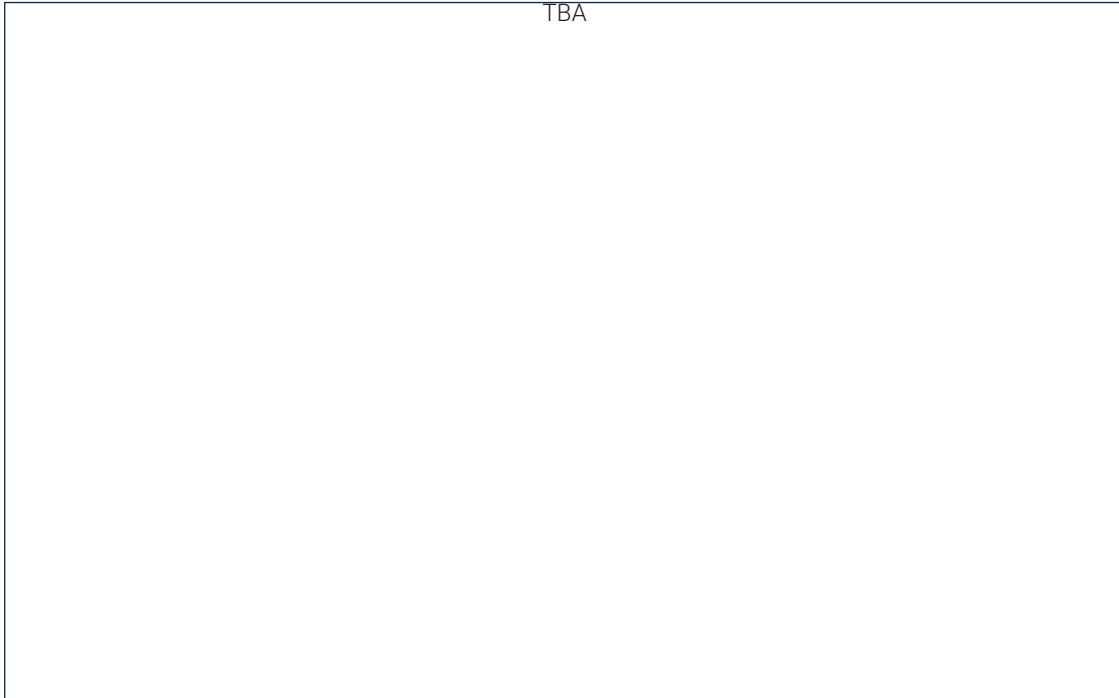




Angular distribution and Typical Spectrum

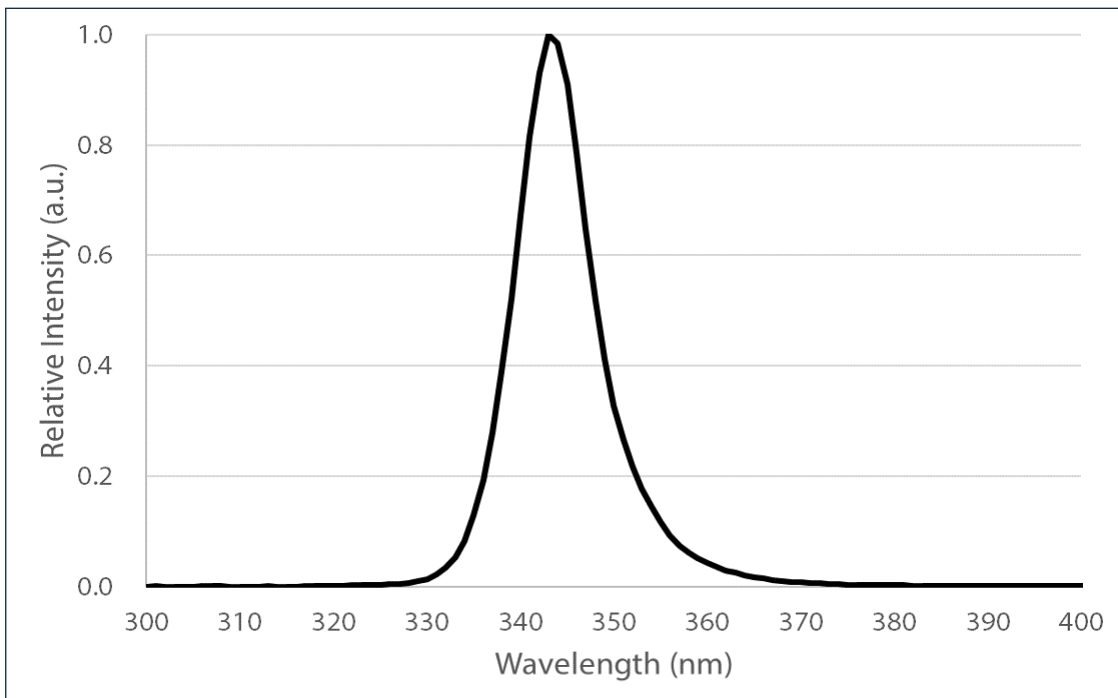
Angular distribution

$$I_{\text{ref}} = f(\Phi); T_c = 25^\circ\text{C}$$



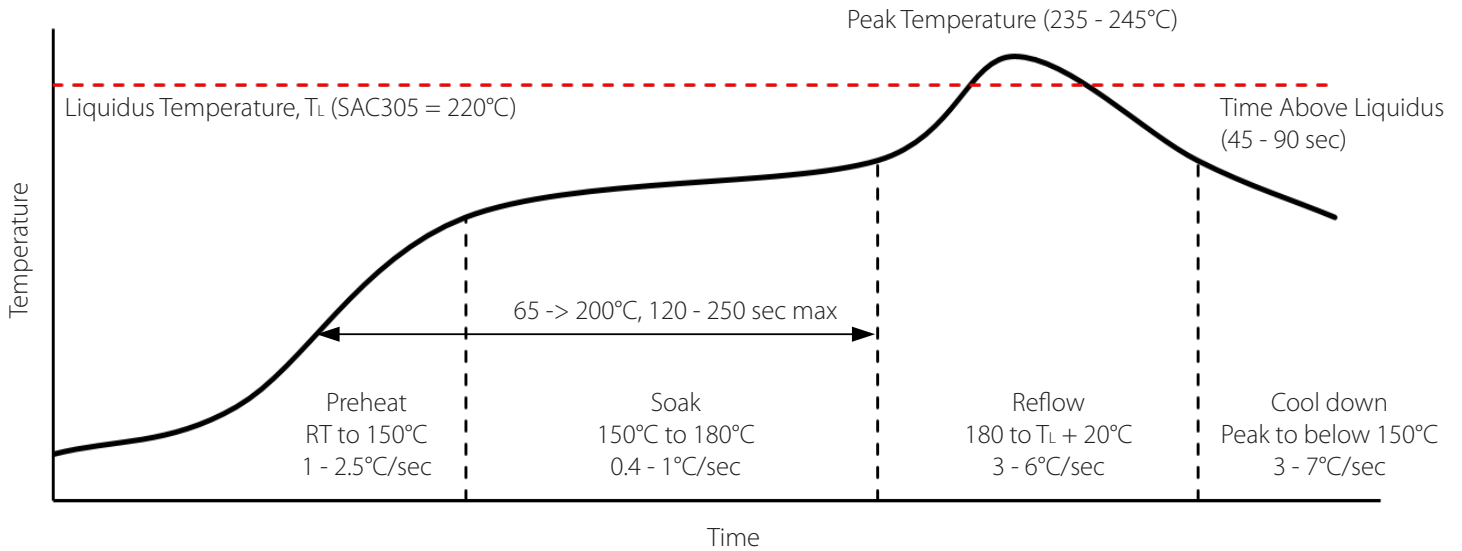
Typical Spectrum

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





Soldering Profile



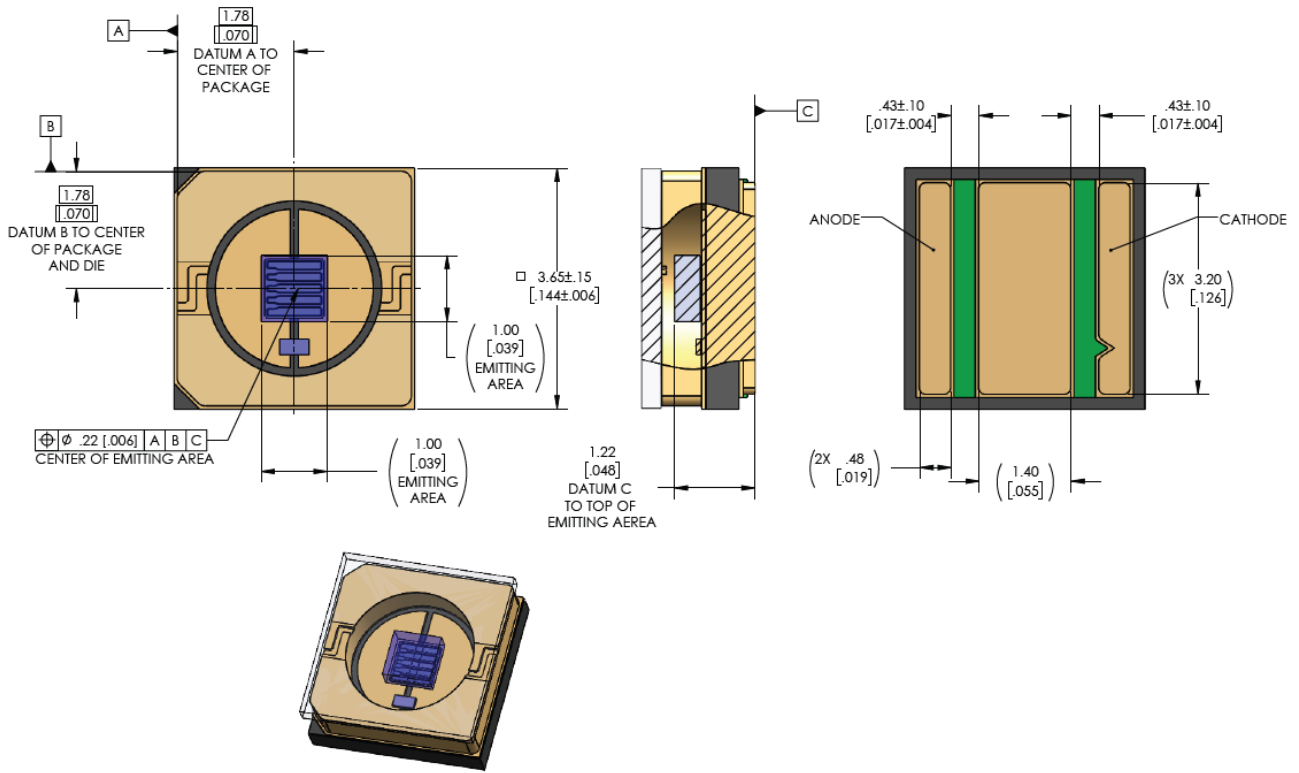
SMT Rework Guideline	Manual Hotplate Reflow	Hot Air Gun Reflow
Heating Time	< 60 sec	
Hotplate Temperature	< 245°C	< 150°C

Note:

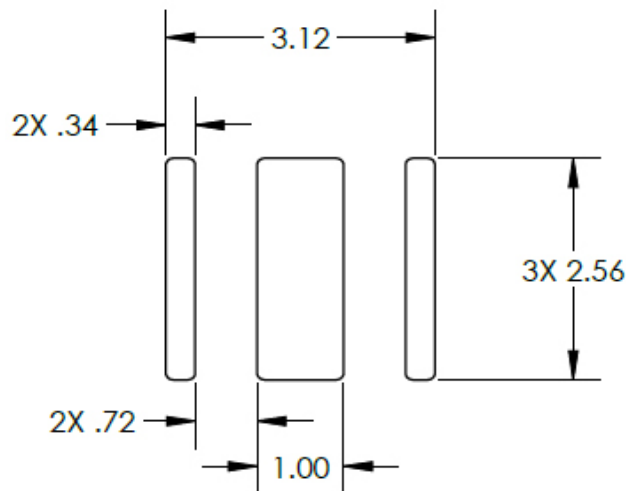
- Product complies to Moisture Sensitivity Level 1 (MSL 1).
- The numbers in the table are specific to SAC305. Luminus recommends using an SAC305 solder paste with a no-clean flux for RoHS compliant products.
- During the pick and place process, axial forces on the dome (or window) should not exceed 0.5 Newtons (N).
- 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. Temperature is referenced to the center of the PCB.
- 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.



Mechanical Dimensions



Recommended Solder Pad

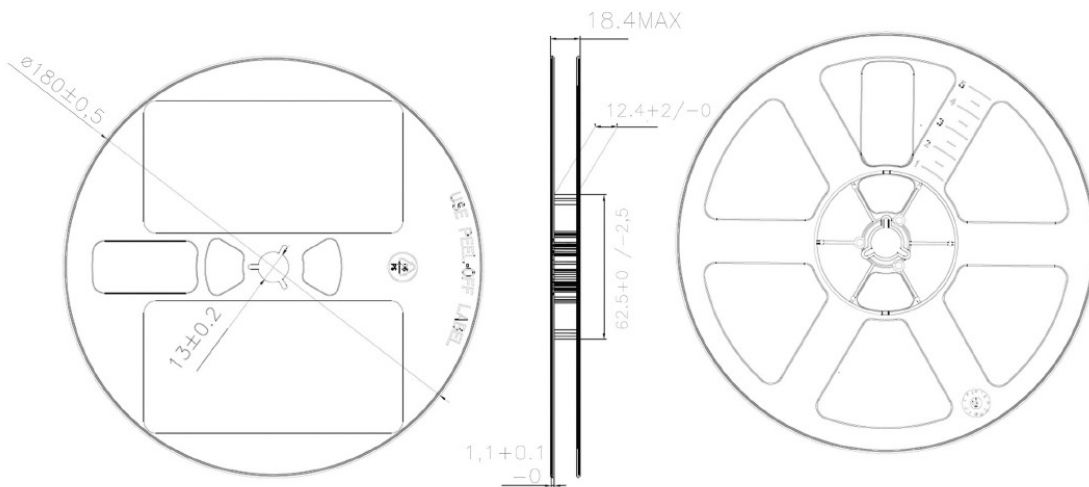
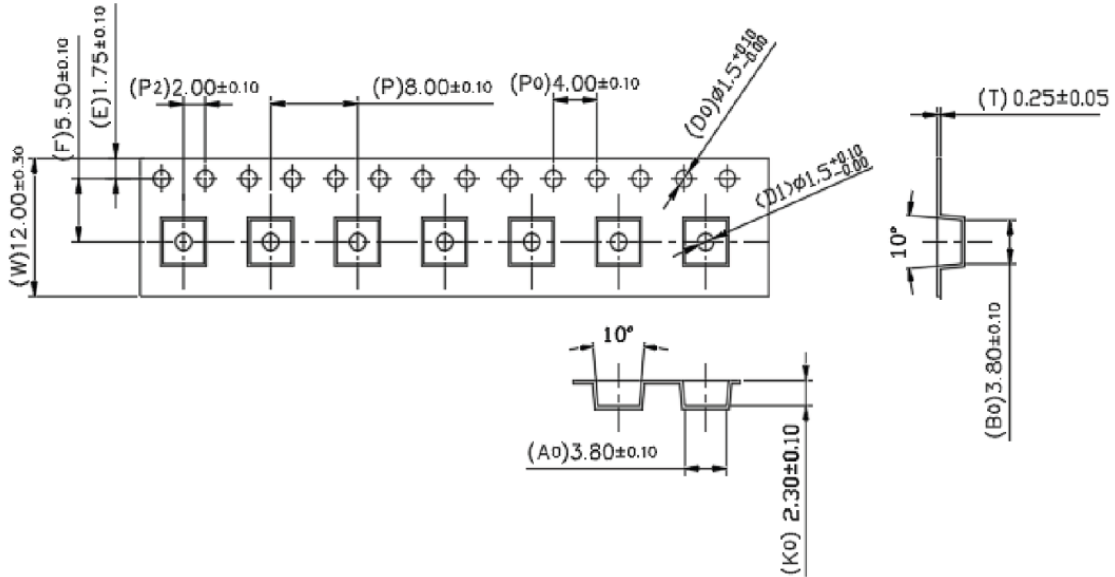




Shipping Reel Outline

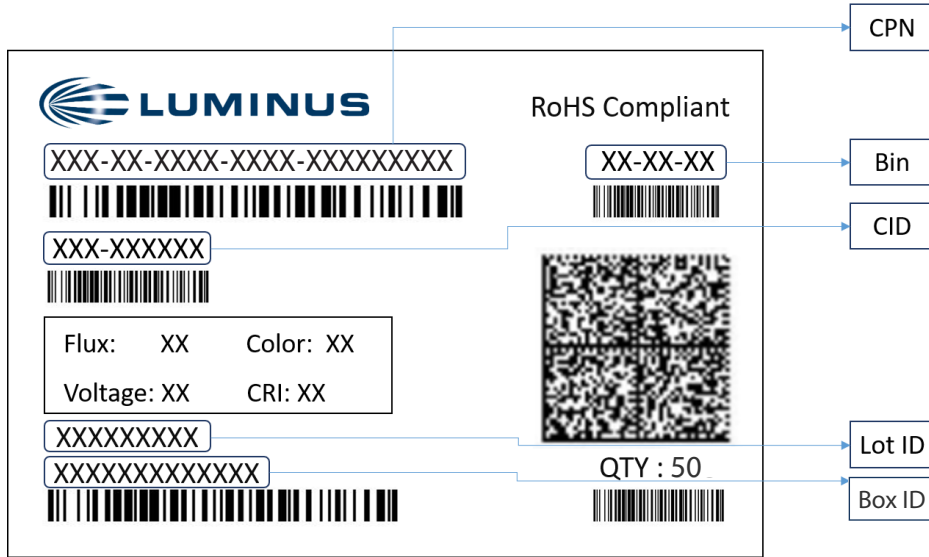
All XBT-3535 products are packaged and labeled with their respective bin as outlined in the tables on page 3.

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

TBA



Revision History

Rev	Date	Description of Change
A	2/14/2023	Initial release



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