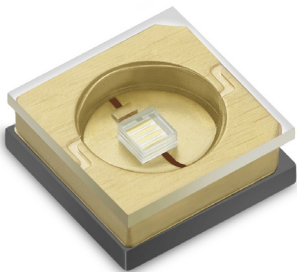


XBT-3535-UV-Mini

Surface Mount 308 nm UVB LED



Features

- UVB LED with peak wavelength from 300 - 315 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

- Phototherapy
- Disinfection
- UV curing
- Fluorescence spectroscopy
- Analytical instruments

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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) | |
| 300 - 315 | 300, 305, 310 | CB | 25 | XBT-3535-UV-A130H-M-CB-300-00 |

Part Number Nomenclature

| XBT | 3535 | UV | A130H-M | <FFWW-#> |
|--------------------------------|-----------------------|-----------------|--------------------------------------|---|
| Product Family | Package Size | Color | Package Configuration | Bin Kit |
| XBT: UVC Surface Mount Package | 3535: 3.5 mm x 3.5 mm | UV: Ultraviolet | A130H-M: 130 deg viewing angle, Mini | 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

Radiometric Flux Bins^{1, 2}

| Flux Bin ³ | Binning @ 150 mA, T _c = 25°C | | Correlated Minimum Flux (lm) @ T _j =85°C | | |
|-----------------------|---|----------------|---|--------|--------|
| | Min. Flux (mW) | Max. Flux (mW) | 50 mA | 100 mA | 225 mA |
| CB | 25 | 30 | 8.3 | 16.7 | 37.5 |
| CC | 30 | 35 | 10.0 | 20.0 | 45.0 |
| CD | 35 | 40 | 11.7 | 23.3 | 52.5 |
| CE | 40 | 45 | 13.3 | 26.7 | 60.0 |
| CF | 45 | 50 | 15.0 | 30.0 | 67.5 |

Wavelength Bins^{2, 3, 4}

| Color | Wavelength Bin ^{3, 6} | Binning @ 150 mA, T _c = 25°C ⁵ | |
|-------|--------------------------------|--|-------------------------|
| | | Minimum Wavelength (nm) | Maximum Wavelength (nm) |
| UV | 300 | 300 | 305 |
| | 305 | 305 | 310 |
| | 310 | 310 | 315 |

Forward Voltage Bins³

| Color | Voltage Bin | Binning @ 150 mA, T _c = 25°C ⁵ | |
|-------|-------------|--|---------------------|
| | | Minimum Voltage (V) | Maximum Voltage (V) |
| UV | V3 | 5.0 | 5.5 |
| | V4 | 5.5 | 6.0 |
| | V5 | 6.0 | 6.5 |
| | V6 | 6.5 | 7.0 |

Notes:

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. The wavelength bin as marked on the product label may be followed by a letter which is for internal use only.
5. T_c = Case temperature.



Absolute Maximum Ratings¹

| Parameter | | Symbol | Value | Unit |
|---|---------|------------------|-------|------|
| Forward Current | | $I_{f\max}$ | 225 | mA |
| Storage Temperature | Minimum | $T_{s\min}$ | -40 | °C |
| | Maximum | $T_{s\max}$ | 100 | |
| Junction Temperature | | T_j | 85 | |
| ESD withstand Voltage ANSI/ESDA/JEDEC JS-001 (HBM, Class 3B) | | V_{ESD} | 8000 | V |

Note:

1. XBT-3535-Mini 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.



Characteristics¹

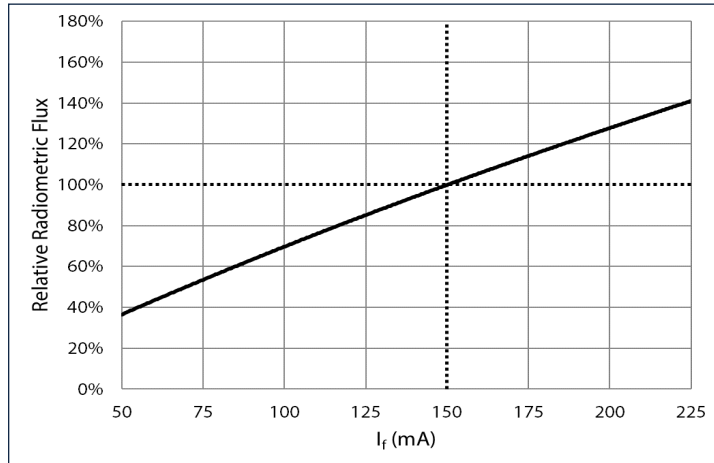
| Parameter ($I_f = 150 \text{ mA}$, $T_c = 25^\circ\text{C}$) | Symbol | Value | Unit |
|---|--------------------------|-------|------|
| Forward Current | I_f | 150 | mA |
| Forward Voltage | $V_{f \min}$ | 5.0 | V |
| | $V_{f \text{ typ}}$ | 5.6 | |
| | $V_{f \max}$ | 7.0 | |
| FWHM | $\Delta\lambda_{1/2}$ | 10 | nm |
| Viewing Angle | $2\theta_{1/2}$ | 130 | ° |
| Electrical Thermal Resistance (junction to solder point) ³ | $R_{th \text{ JS elec}}$ | 12.2 | °C/W |

Notes:

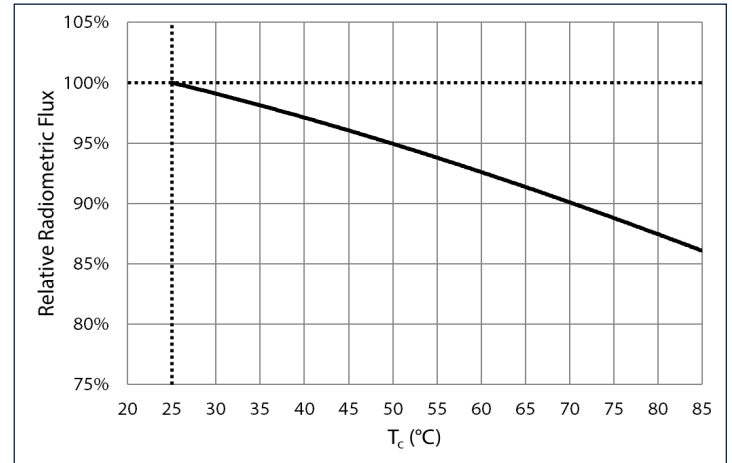
1. XBT-3535-Mini LEDs are short wavelength, deep UV LEDs. During operation, the LED emits high intensity UVB radiation, which is harmful to skin and eyes. UV light is also hazardous to skin and may cause cancer. Avoid exposure to deep UV light when LED is operational.
2. Measurements are in accordance with JEDEC 51-14.

Relative Radiometric Flux

Forward current: $\phi_v/\phi_v(150\text{ mA})$, 20 ms pulse, $T_c = 25^\circ\text{C}$

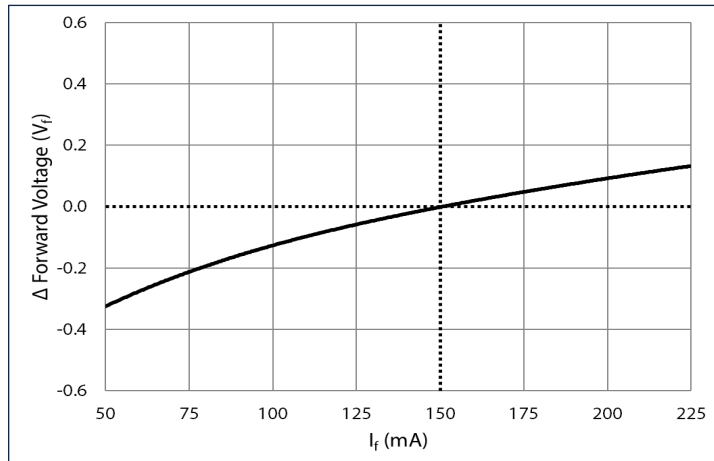


Temperature: $\phi_v/\phi_v(25^\circ\text{C})$, 20 ms pulse, $I_f = 150\text{ mA}$

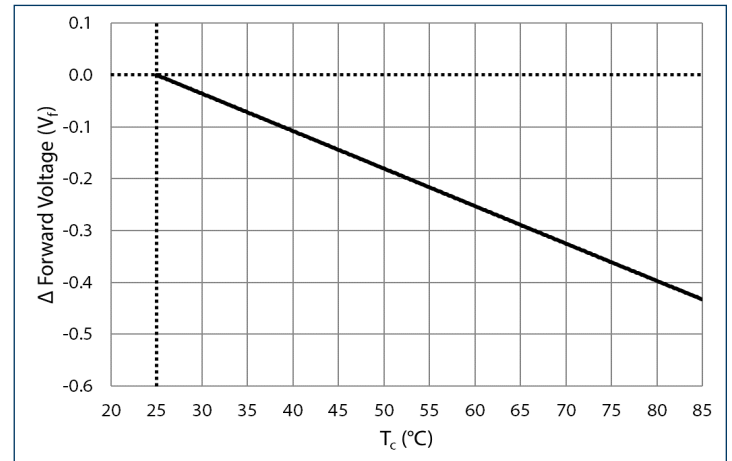


Forward Voltage Shift

Forward current: $\Delta V_f = V(I_f) - V(150\text{ mA})$, 20 ms pulse, $T_c = 25^\circ\text{C}$

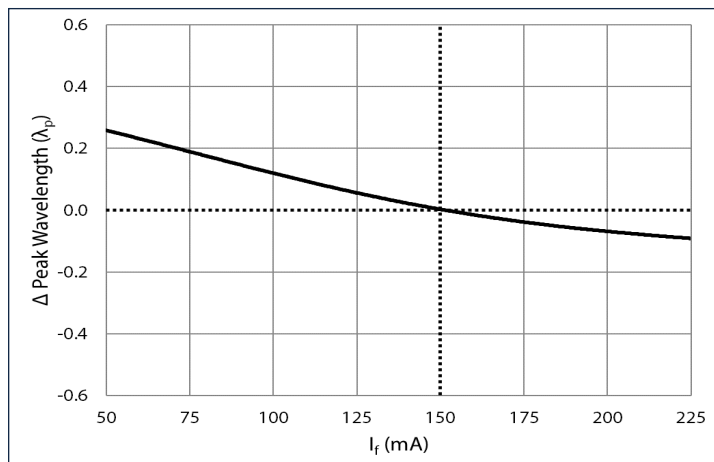


Temperature: $\Delta V_f = V(T_c) - V(25^\circ\text{C})$, 20 ms pulse, $I_f = 150\text{ mA}$

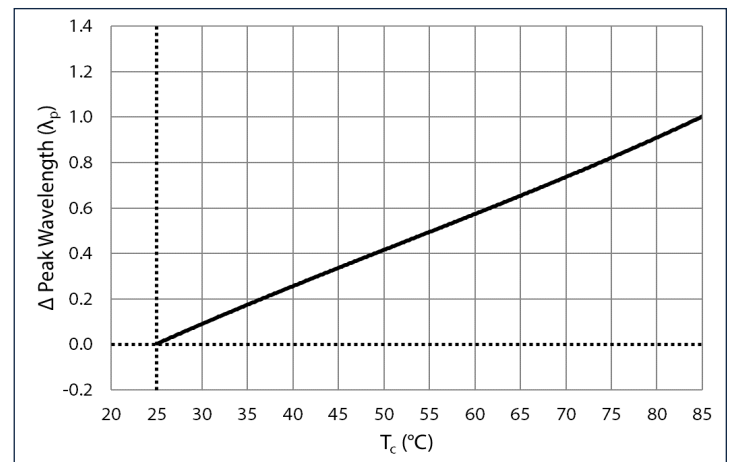


Peak Wavelength Shift

Forward current: $\Delta\lambda_d = \lambda_d(I_f) - \lambda_d(150\text{ mA})$, 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, $I_f = 150\text{ mA}$

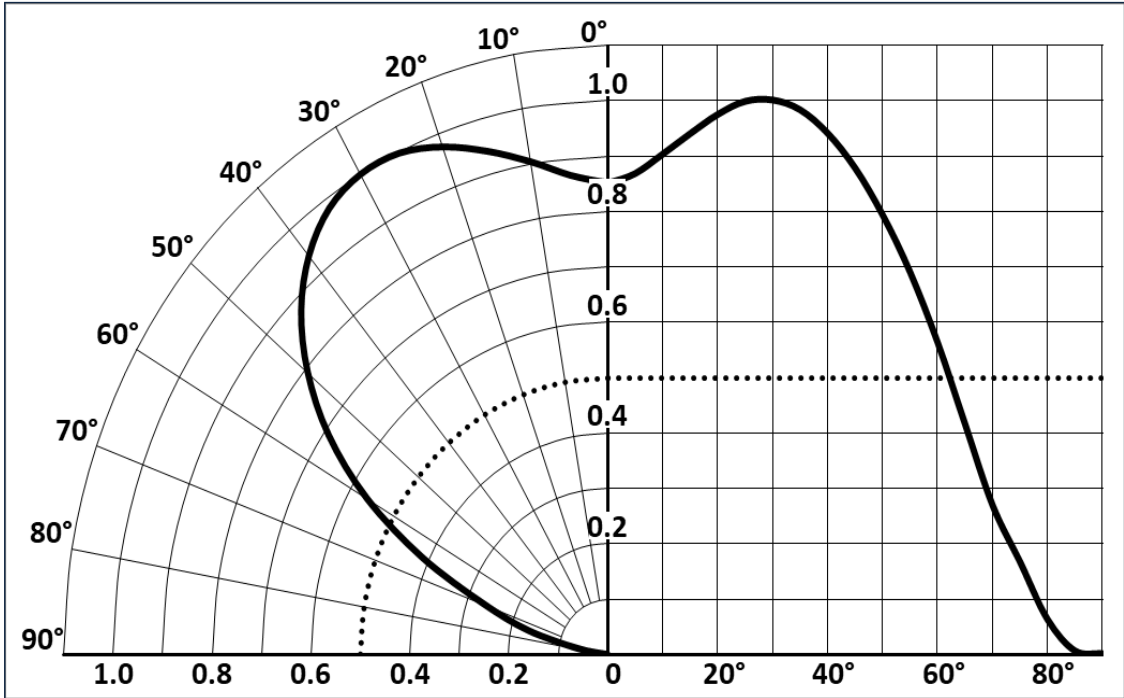




Angular distribution and Typical Spectrum

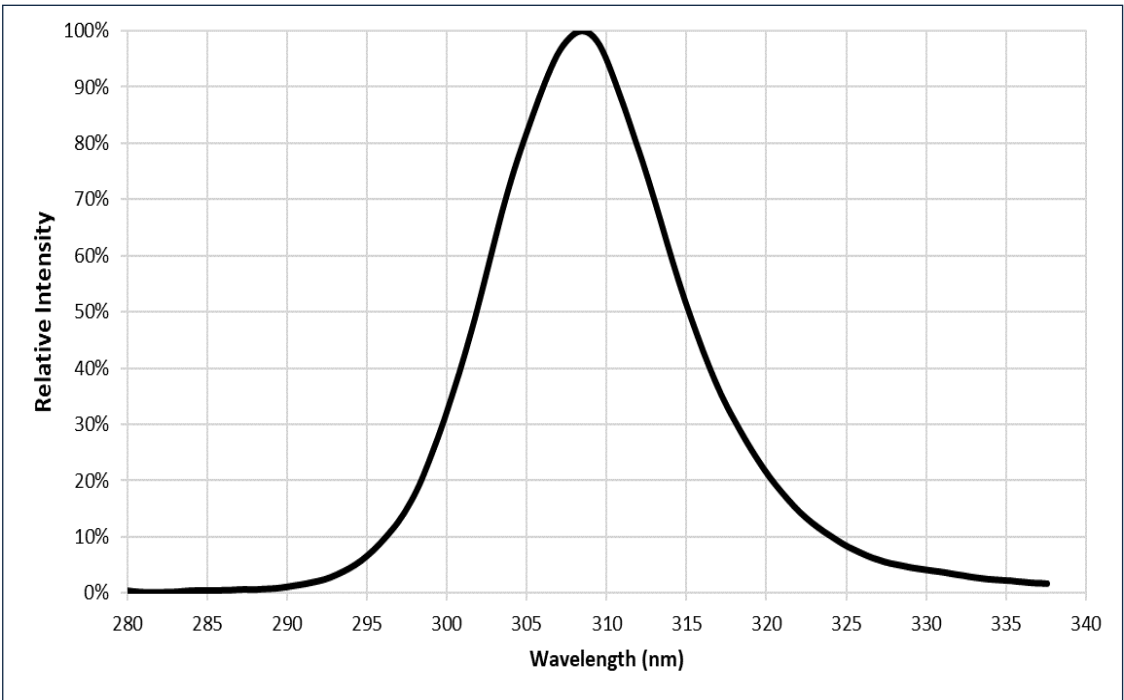
Angular distribution

$I_f = 150 \text{ A}; T_c = 25^\circ\text{C}$



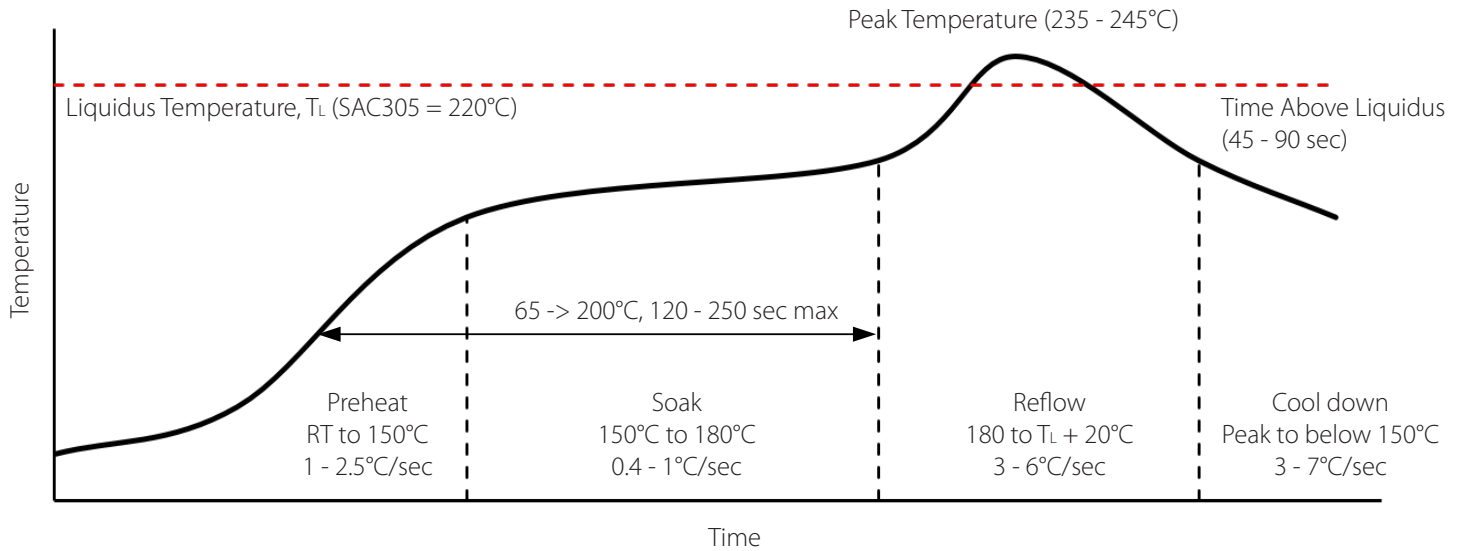
Typical Spectrum

$\Phi_{ref} = f(\lambda); I_f = 150 \text{ mA}; T_c = 25^\circ\text{C}$





Soldering Profile



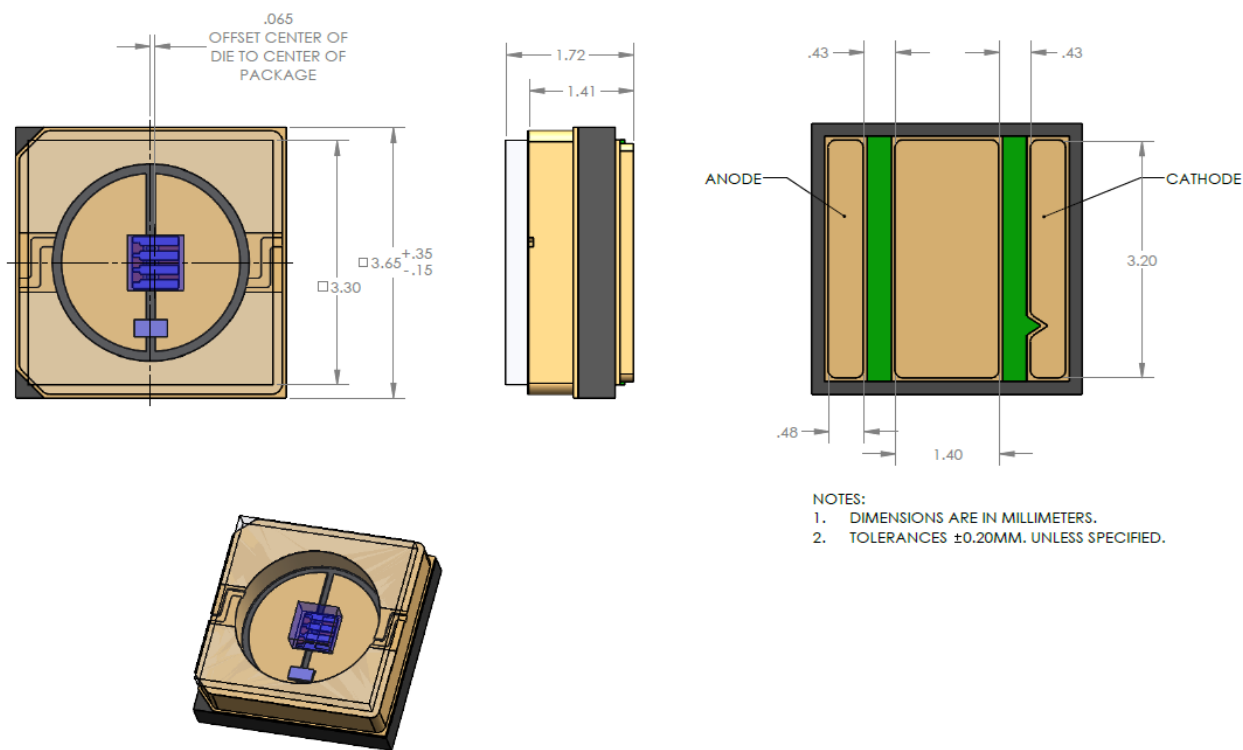
| SMT Rework Guideline | Manual Hotplate Reflow | Hot Air Gun Reflow |
|----------------------|------------------------|--------------------|
| Heating Time | < 60 sec | |
| Hotplate Temperature | < 245°C | < 150°C |

Note:

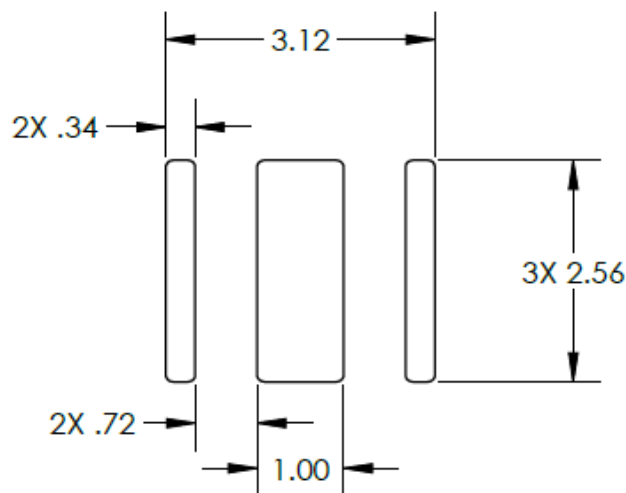
- Product complies to Moisture Sensitivity Level 1 (MSL 1).
- The numbers in the table are specific to SAC305. Luminus recommends using an SAC305 solder paste with a no-clean flux for RoHS compliant products.
- During the pick and place process, axial forces on the dome (or window) should not exceed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



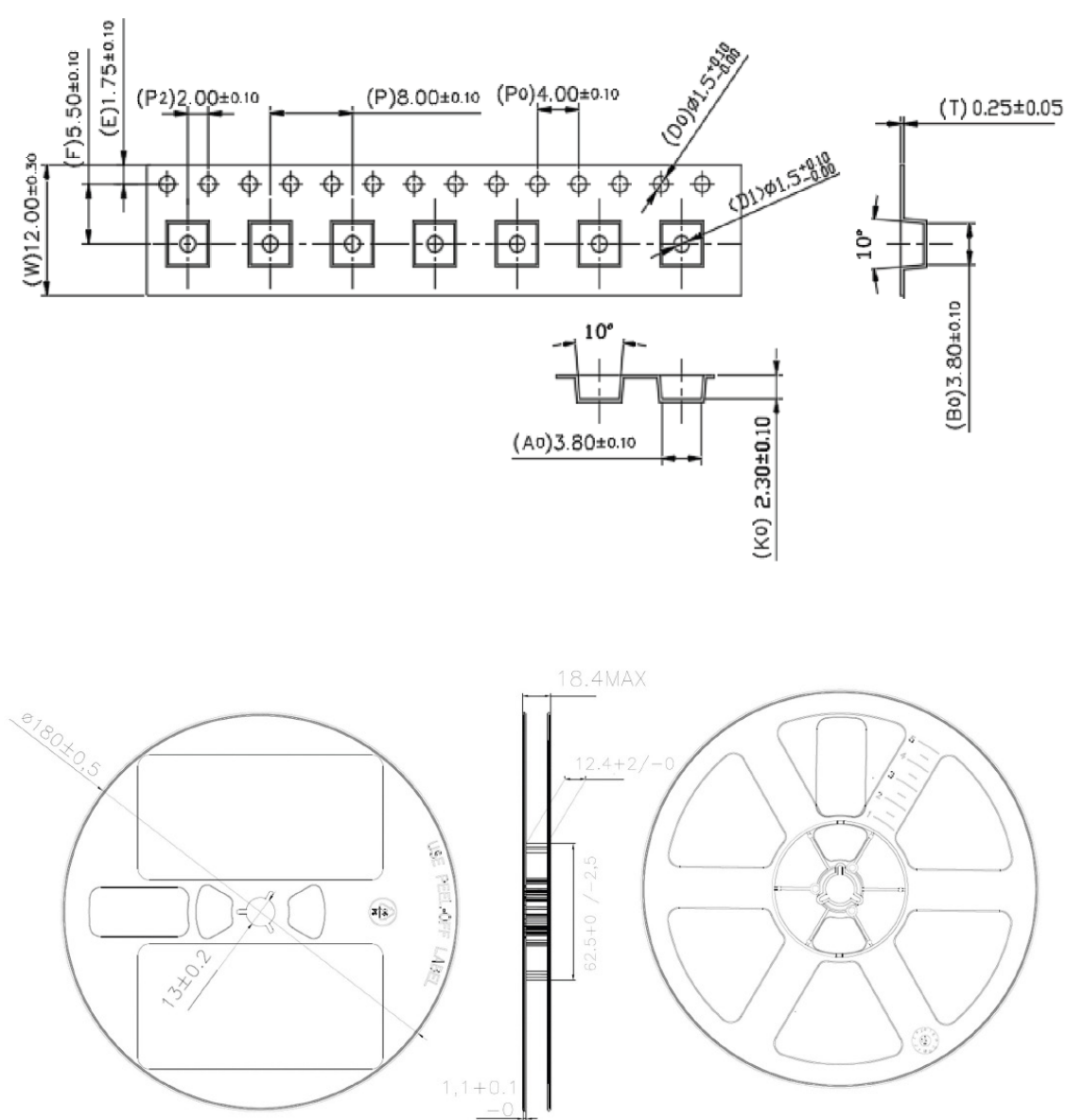
Recommended Solder Pad



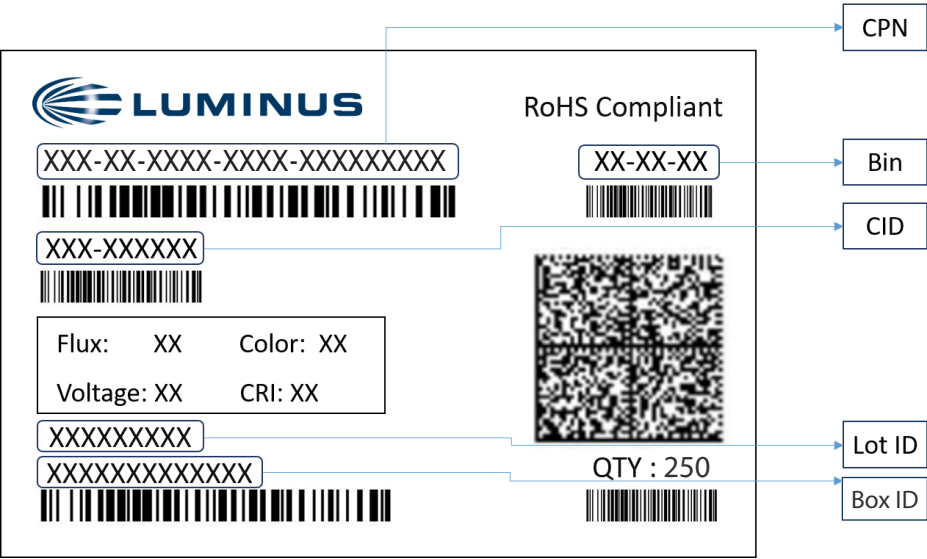


Shipping Reel Outline

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
- Wavelength: Bin as defined in page 3
- Voltage: Bin as defined on page 3
- Color: Bin as defined on page 3
- CRI: NA

Packing Configuration:

- Maximum of 250 devices per reel, minimum of 50 devices per reel
- Each reel is placed in an anti-static moisture barrier bag
- Partial reep may be shipped
- Shipping label is placed on top of each packaging box



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: 2008-Non-GLS under 150 mA, this product complies to Risk group 3 (RG3) High risk, exceed the limits for Risk Group 2.

Warning: This product emits invisible light - there is no aversion response.

Avoid eye and skin exposure to un-shielded product.

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



Revision History

| Rev | Date | Description of Change |
|-----|------------|---|
| 01 | 06/25/2023 | Initial release |
| 02 | 12/05/2024 | Fix MSL level typo from 3 to 1. Fix template format |

Mouser Electronics

Authorized Distributor

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[XBT-3535-UV-A130H-M-CB-300-00](#)