

SST-08-UV

Surface Mount UVA

LED

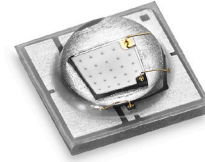


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Features

- High Power UV LED with peak wavelengths 365 nm, 385 nm, 395 nm and 405 nm
- Sulphur and corrosion resistance packaging for demanding applications
- Industry standard 3.5 mm x 3.5 mm package
- 130° and 40° viewing angle
- Built-in ESD Protection
- Environmentally friendly: REACH, RoHS and Halogen compliant

Applications

- Horticulture
- Curing- inks, coating and adhesives
- Photocatalytic air/water purification
- Medical and Analytic instrumentation
- Diagnostic
- Fluorescence Imaging

SST-08-UV Binning Structure

SST-08-UV LEDs are tested for radiometric flux and wavelength at a drive current of 500 mA, 20 ms single pulse at 25° C and placed into one of the following radiometric flux (F) and wavelength (WWW) bins. The LEDs can also be driven at other drive currents, to achieve the correlated flux values listed in the table.

Radiometric Flux Bins

Flux Bin (F) ⁴	Minimum Flux (mW) 500 mA, 25° C	Maximum Flux (mW) 500 mA, 25° C	Correlated Minimum Flux (mW) at 25° C		
			250 mA	350 mA	700 mA
E	720	810	360	500	1000
F	810	900	400	570	1125
G	900	990	450	630	1250
H	990	1080	495	700	1375

Note 1: Product lifetime is a function of drive current. Sustained operation at absolute maximum current of 750 mA will result in a reduction of device lifetime compared to typical forward drive currents (350 mA-500 mA). Actual device lifetimes will also depend on junction temperature. Contact Luminus for information on product lifetime.

Note 2: Correlated minimum flux values are for reference only. SST-08-UVs are tested and binned only at the test current of 500 mA.

Note 3: Luminus maintains a +/- 6% tolerance on flux measurements and +/- 1 nm on wavelength measurements.

Wavelength Bins

Wavelength Bin (WWW) ⁴	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 ⁴	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 4: Individual bins are not orderable. Please refer to product ordering information on page 3 for a list of ordering part numbers.

Part Number Nomenclature

SST — 08 — UV — <S###> — <FWWW-22>

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 B130 : B Solder pad 130° Viewing Angle B40 : B Solder pad 40° Viewing Angle	Flux (F) and Wavelength(WWW) bin, See ordering informaton

Ordering Part Number

The table below lists ordering part numbers available for SST-08-UV LEDs. The part number includes a bin kit, a group of flux and wavelength bins described in page 2, that are shippable for a given ordering part number. Individual flux or wavelength bins are not orderable . Flux bin listed is minimum bin shipped - higher bins may be included at Luminus' discretion.

Ordering Part Number - 130°

Wavelength Range	Wavelength Bins	Radiometric Flux		Solder Pad	Ordering Part Number
		Bin Kit Flux Code	Min. Flux (mW)		
365-375	365, 370	TBD	TBD	A	SST-08-UV-A130-365-ENG
380-390	380, 385	TBD	TBD	A	SST-08-UV-A130-385-ENG
390-400	390, 395	TBD	TBD	A	SST-08-UV-A130-395-ENG
400-410	400, 410	TBD	TBD	A	SST-08-UV-A130-405-ENG

Ordering Part Number - 40°

Wavelength Range	Wavelength Bins	Radiometric Flux		Solder Pad	Ordering Part Number
		Bin Kit Flux Code	Min. Flux (mW)		
365-375	365, 370	TBD	TBD	A	SST-08-UV-A40-365-ENG
380-390	380, 385	TBD	TBD	A	SST-08-UV-A40-385-ENG
390-400	390, 395	TBD	TBD	A	SST-08-UV-A40-395-ENG
400-410	400, 410	TBD	TBD	A	SST-08-UV-A40-405-ENG

Optical and Electrical Characteristics

Parameter	Symbol	Typical ⁵				Unit
		365-375	380-390	390-400	400-410	
Peak Wavelength Range	λ	365-375	380-390	390-400	400-410	nm
Test Current ⁶	I_f	500	500	500	500	mA
Peak Wavelength Typ	V_{f-min}	368	385	395	405	nm
Forward Voltage	V_{f-min}	3.0	3.0	3.0	3.0	V
	V_{f-typ}	3.7	3.4	3.3	3.5	V
	V_{f-max}	4.0	4.0	4.0	4.0	V
Radiometric Flux ⁷		TBD	TBD	TBD	TBD	
FWHM	$\Delta\lambda$	10	10	10	10	nm
Viewing Angle	$2\theta_{1/2}$	40 / 130	40 / 130	40 / 130	40 / 130	°
Thermal Resistance (junction-solder point)	R_{th}	TBD	TBD	TBD	TBD	°C/W

Absolute Maximum Ratings

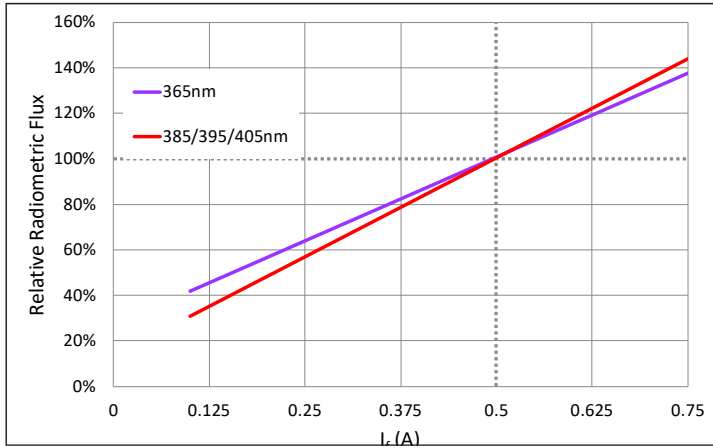
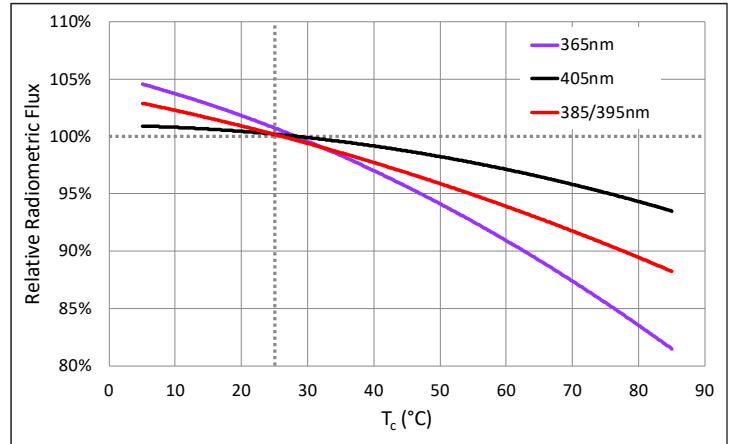
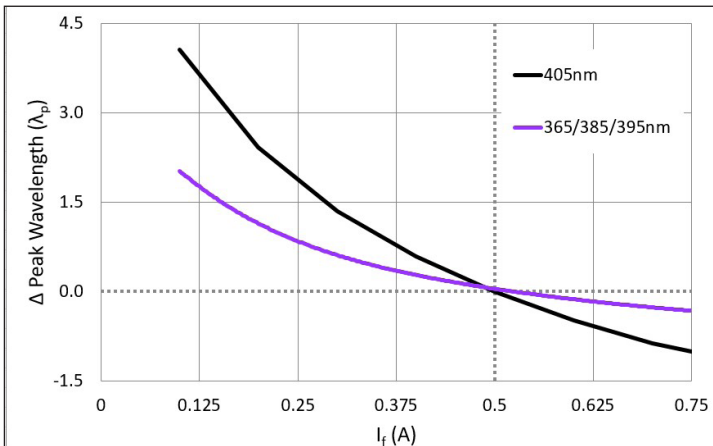
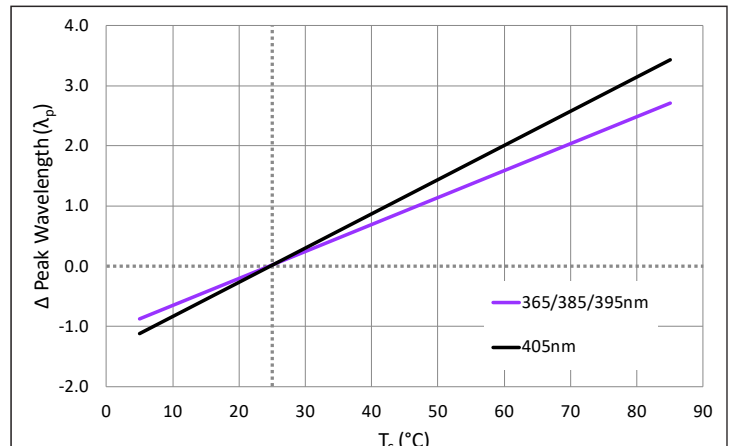
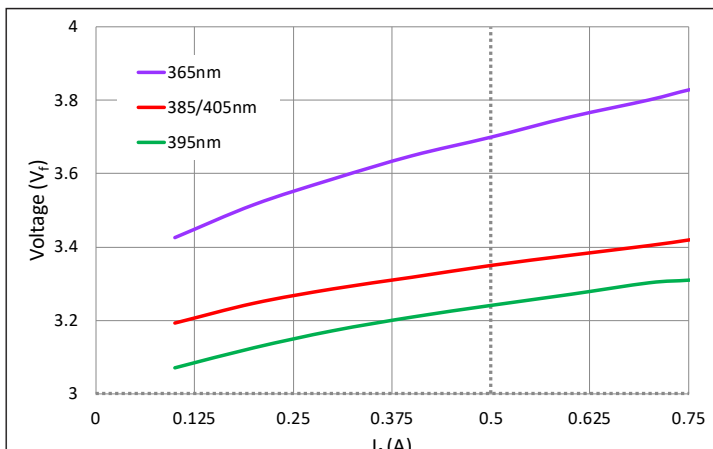
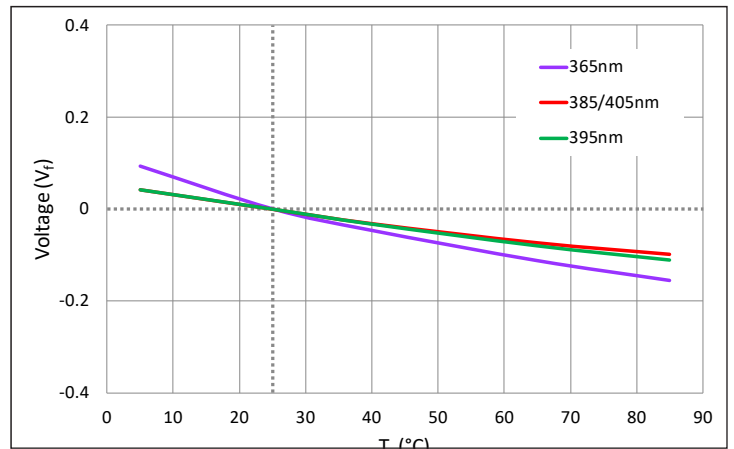
Parameter	Symbol	Value	Unit
Forward Current ⁸	I_{f-max}	750	mA
Case Temperature ⁸	T_c	100	°C
Storage Temperature Range	T_s	-40 to +100	°C
Soldering Temperature	T_{SLD}	JEDEC J-STD-020C, 260°C	°C
ESD Sensitivity (HBM)	V_B	6000	V

Note 5: Unless otherwise noted, values listed are typical. Devices are production tested and specified at 500 mA with a 20 ms pulse at 25°C.

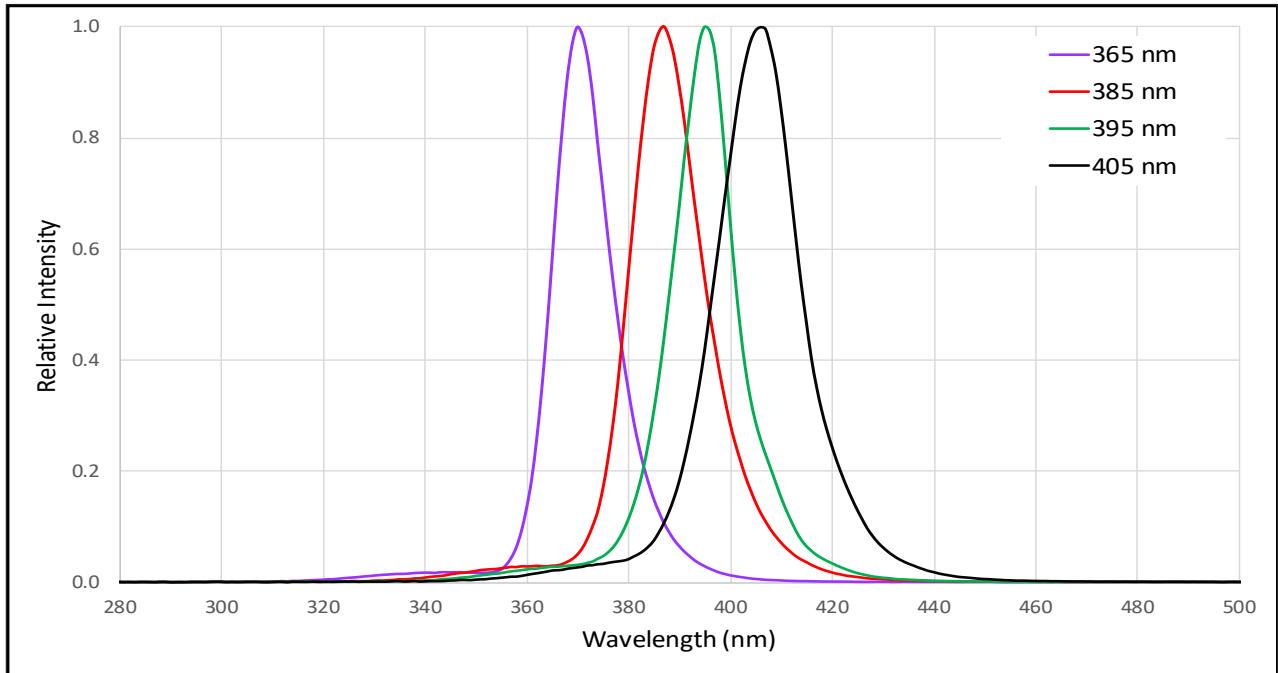
Note 6: SST-08-UV LEDs are devices are tested at 500 mA, they can be driven at CW currents ranging from 200 mA to 750mA and at duty cycles ranging from 1% to 100%. Drive current and duty cycle should be adjusted as necessary to maintain the junction temperature desired to meet application lifetime requirements.

Note 7: 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, contact Luminus.

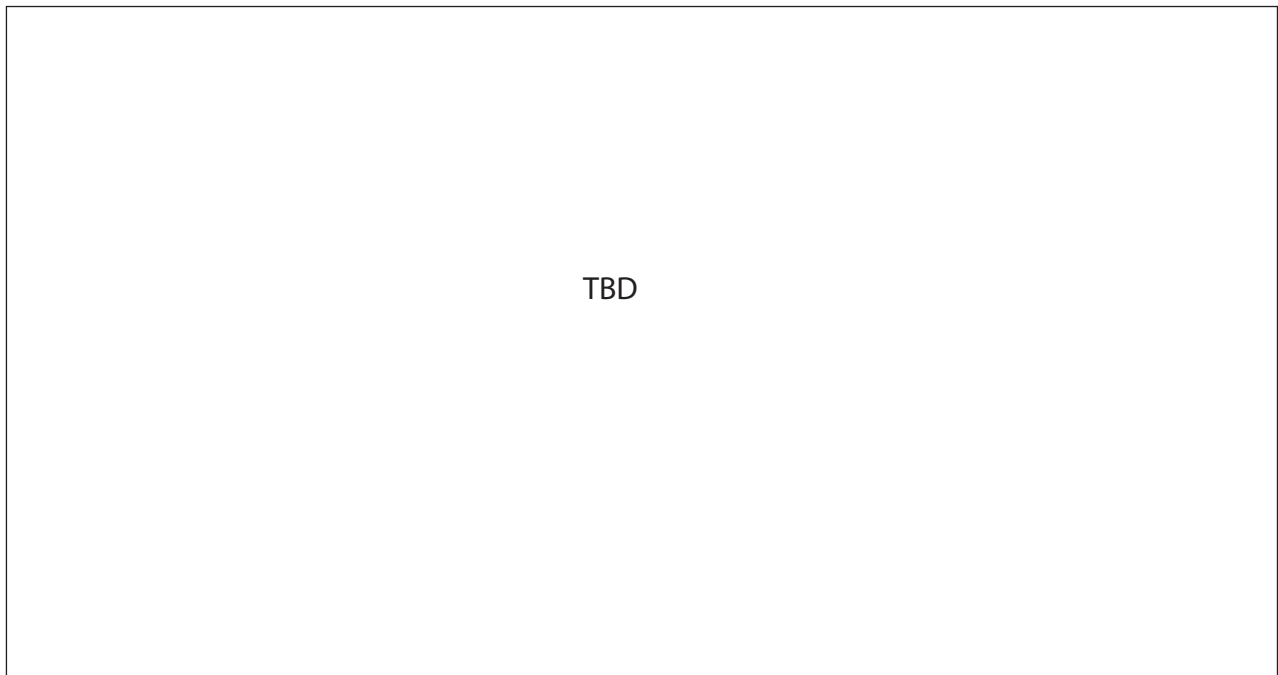
Note 8: SST-08-UV LEDs are designed for operation to an absolute maximum current as specified above. Product lifetime data is specified at or below maximum drive current. Sustained operation beyond absolute maximum currents will result in a reduction of device life time. Actual device lifetimes will also depend on case temperature and operation beyond maximum case 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.

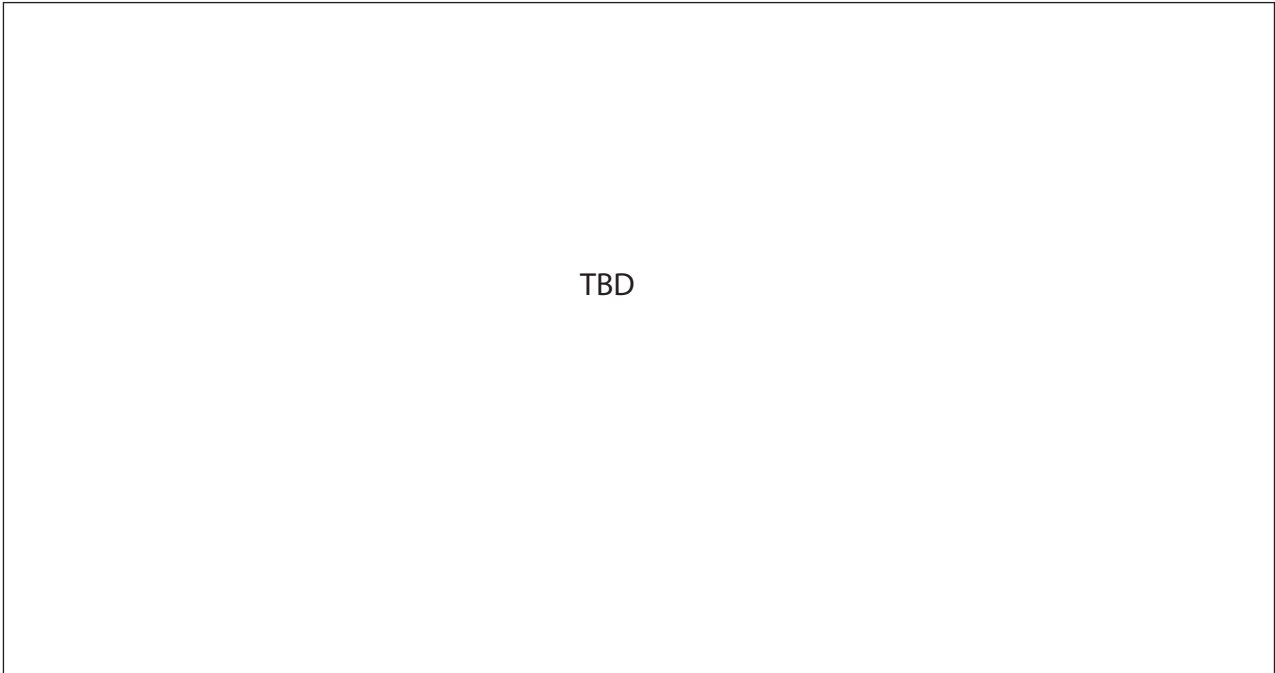
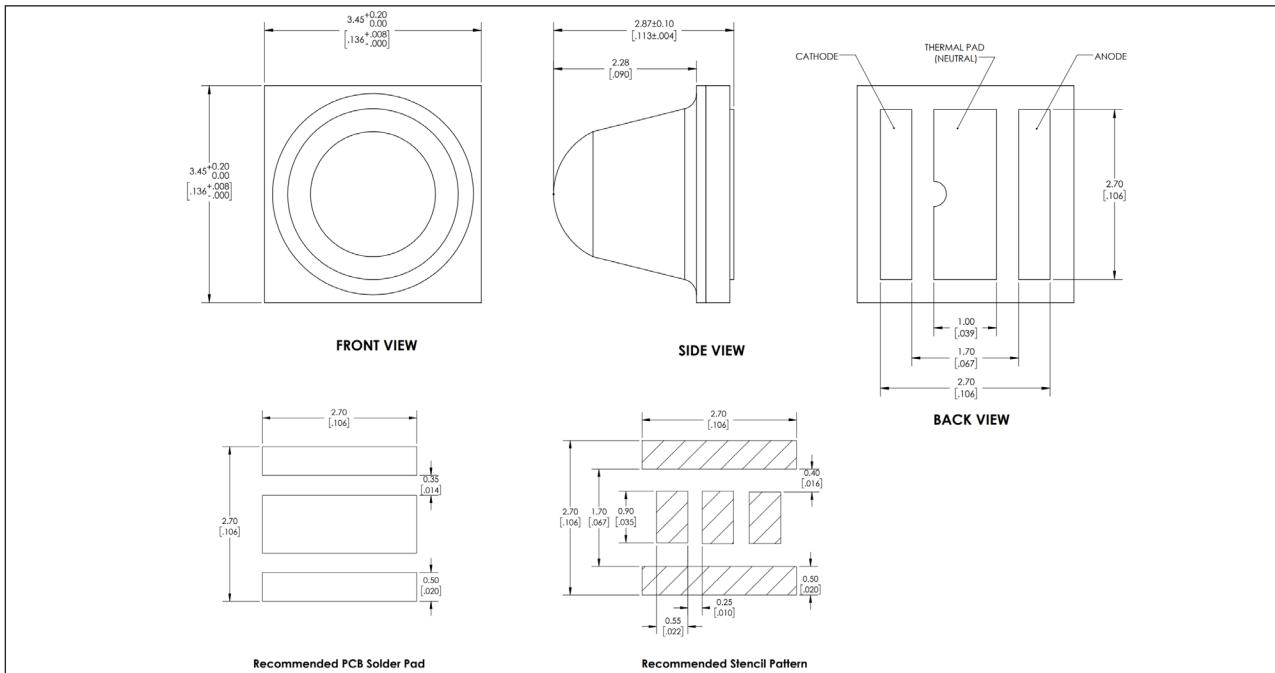
Optical & Electrical Characteristics
Relative Power vs. Forward Current
 $\phi/\phi_{(500\text{ mA})}$, 20 ms pulse, $T_c=25^\circ\text{C}$

Relative Power vs. Junction Temperature
 $\phi/\phi_{(25^\circ\text{C})}$, 20 ms pulse, 500 mA

Peak Wavelength Shift vs. Forward Current
 $\lambda_p = \lambda_p(I_f) - \lambda_p(500\text{ mA})$, 20 ms pulse, $T_c=25^\circ\text{C}$

Peak Wavelength Shift vs. Junction Temperature
 $\lambda_p = \lambda_p(T_j) - \lambda_p(25^\circ\text{C})$, 20 ms pulse, $I_f=500\text{ mA}$

Forward Voltage vs. Forward Current
 25°C , 20 ms pulse

Forward Voltage Shift vs. Junction Temperature
 $\Delta V_f = V_f(T_j) - V_f(25^\circ\text{C})$, 20 ms pulse, $I_f=500\text{ mA}$


Typical Spectrum

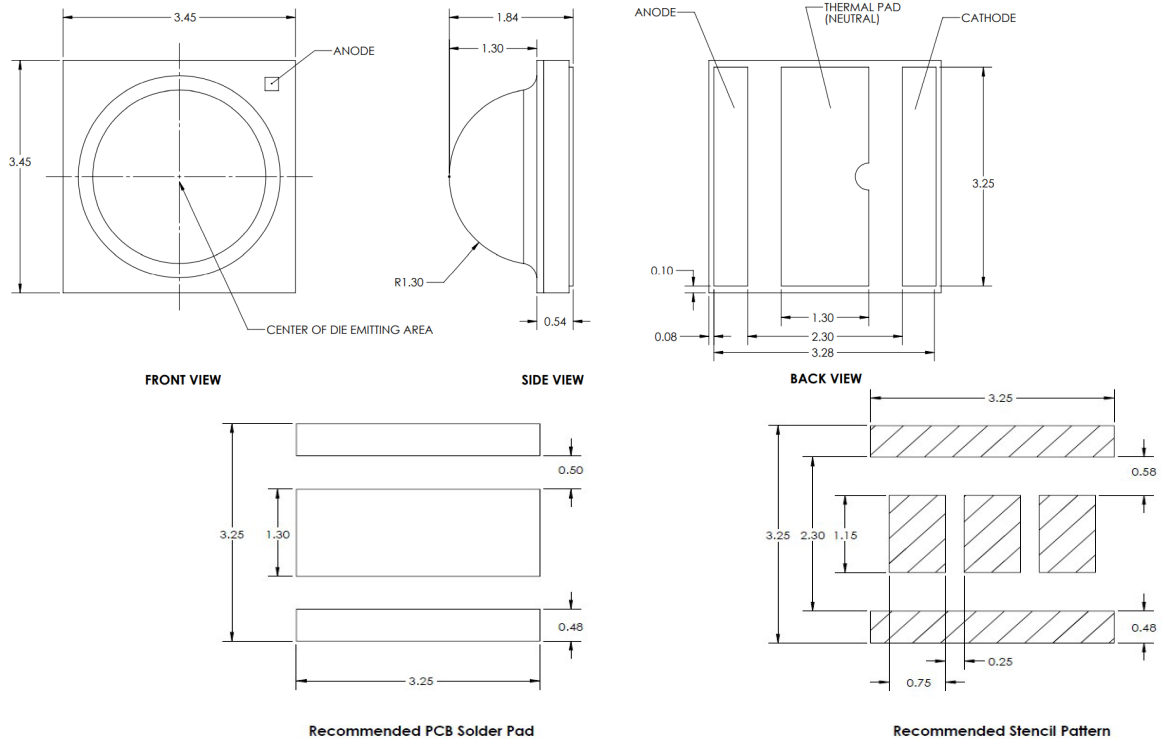


Radiation Pattern - 130°

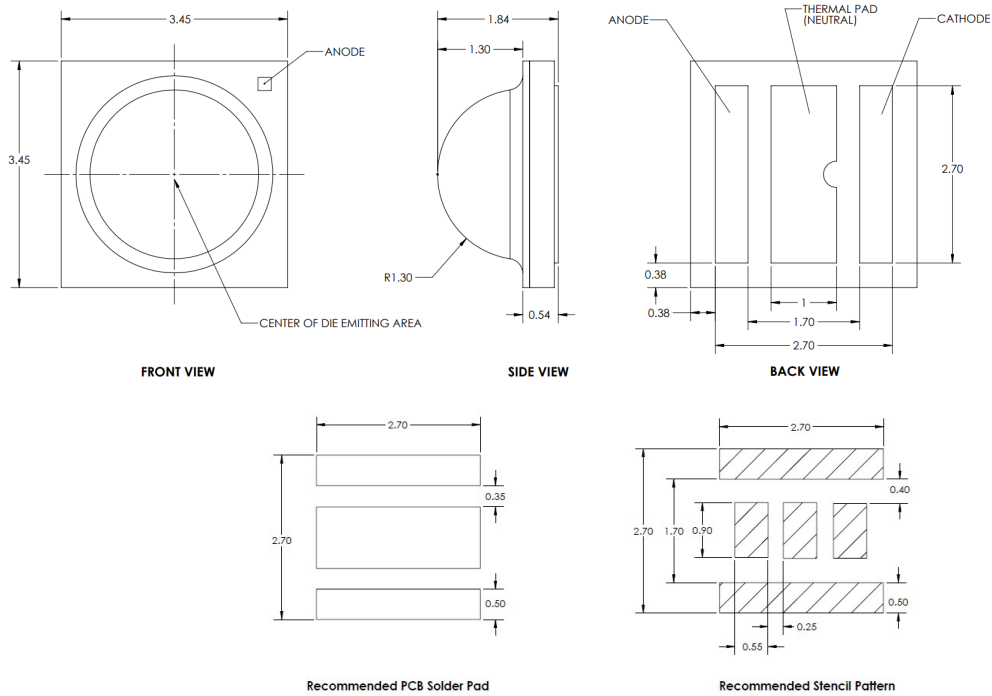


Radiation Pattern - 40°

Mechanical Dimensions - B40 Package


Mechanical Dimensions - A130 Package



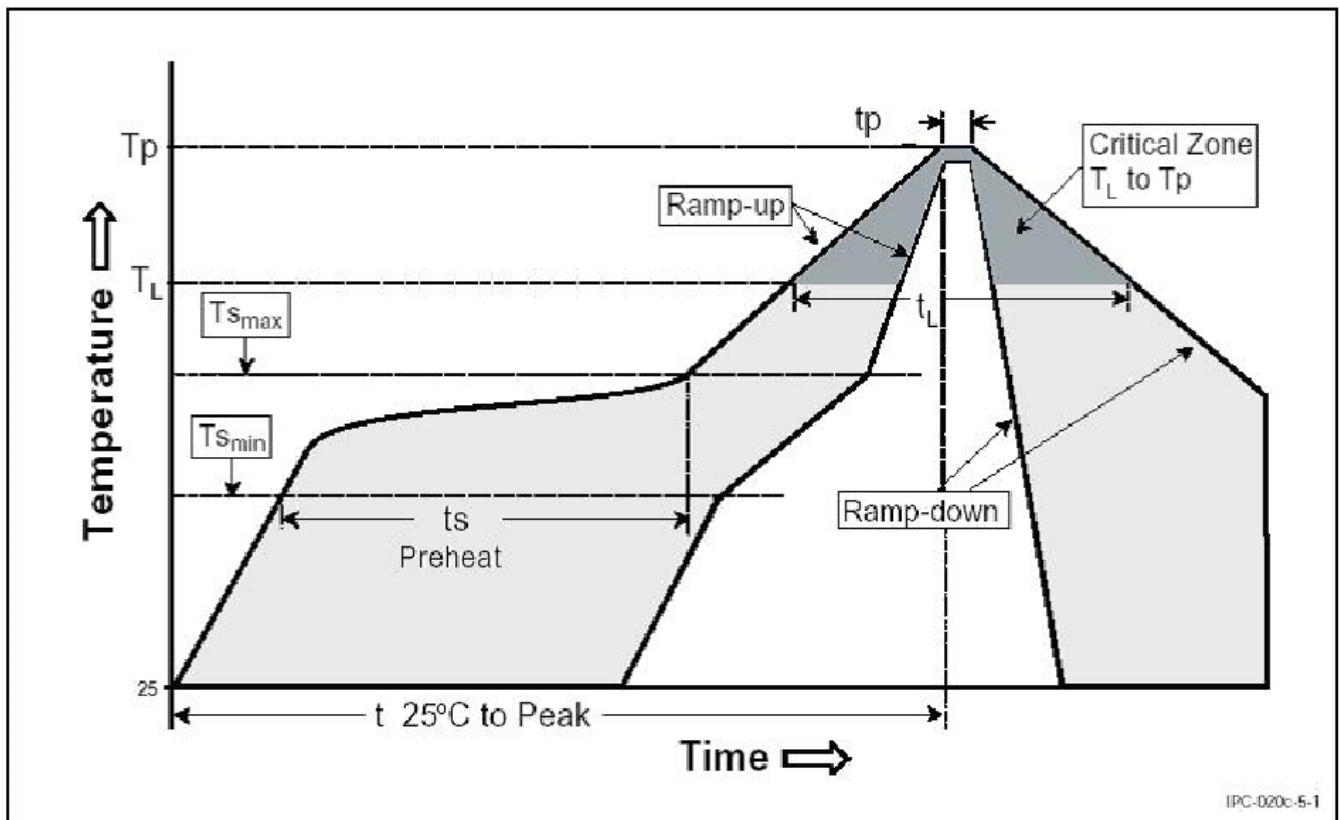
Mechanical Dimensions - B130 Package



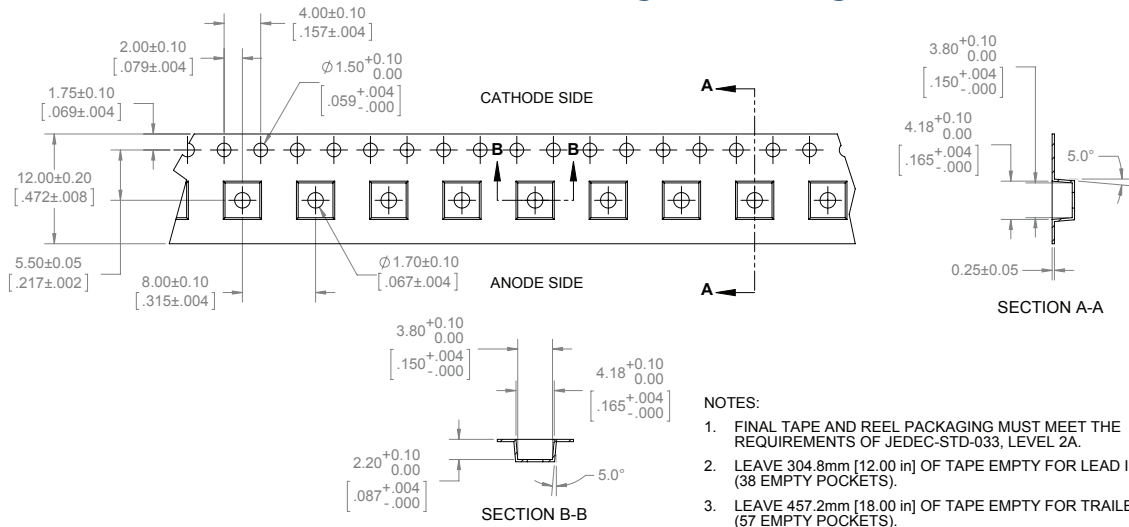
Soldering Profile

Profile Setting	Pb-Free Profile
Average Ramp-up Rate ($T_{s_{max}}, T_p$)	3 °C/sec
Preheat Temperature Min ($T_{s_{min}}$)	100 °C
Preheat Temperature Max ($T_{s_{max}}$)	150 °C
Preheat Time ($t_{s_{min}}$ to $t_{s_{max}}$)	60-120 sec
Liquidus Temperature (T_L)	217 °C
Time Maintained Above T_L (t_L)	60-150 sec
Peak Temperature (T_p)	255-260 °C
Time within 5°C of Actual Peak Temp (t_p)	Max 30 sec
Ramp-Down Rate	6°C /sec max
25°C to Peak Temperature time	8 mins max

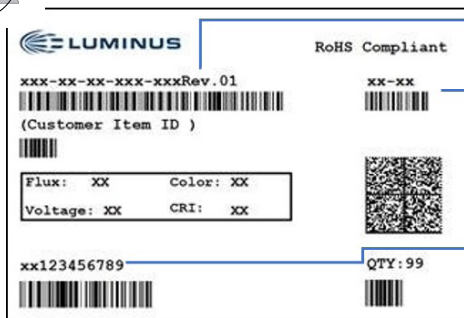
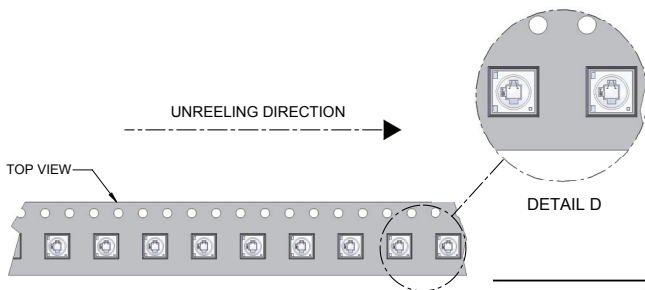
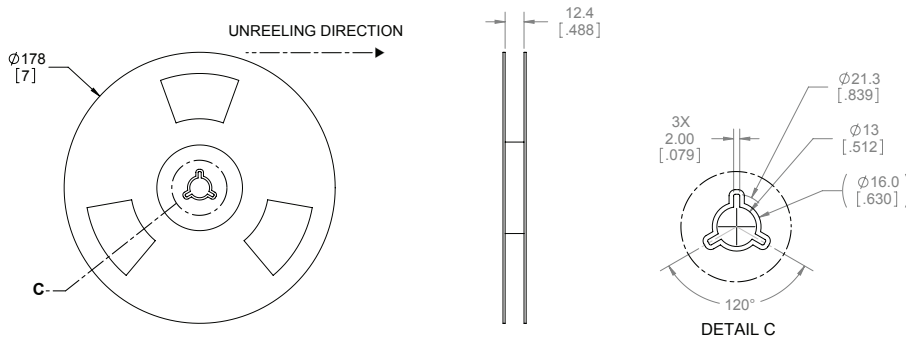
Luminus recommends that users follow the recommended soldering profile provided by the manufacturer of the solder paste used. Note that this general guideline may not apply to all PCB designs and configurations.



Packing & Labeling



- 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



- Luminus Ordering Part Number (format may vary based on product ordered)
- Bin Kit (flux and wavelength bins)
- Lot ID and Reel ID (for Luminus internal use)

Note 9: Maximum of 250 pcs/reel. Lower quantities may be shipped.

Note 10: Minimum of 50pcs/reel.

Note 11: Product complies to MSL Level 1.

Precautions for storage, handling and use of UV LEDs

1. UV Light

SST-08-UV LEDs are short wavelength, UV LEDs. During operation, the LED emits high intensity UVA radiation, which is harmful to skin and eyes. UV light is also hazardous to skin and may cause cancer. Avoid exposure to UV light when LED is operational.

2. Static Electricity (ESD)

While SST-08 LEDs are robust in nature, they are particularly sensitive to ESD (Electrostatic Discharge). Static electricity and surge voltages seriously damage UV LEDs and can result in complete failure of the device. Anti-electrostatic wristband or gloves are recommended when handling the LEDs. All devices, equipment and machinery must be properly grounded and precautions must be taken against surge voltages.

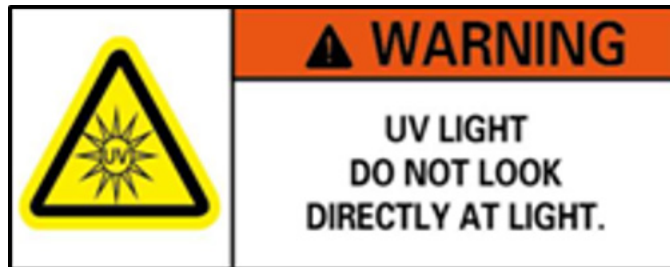
Reference: APN-002815 Electrical Stress Damage to LEDs and How to Prevent It

3. Operating Conditions

In order to ensure the correct functioning of these LEDs, compliance to maximum allowed specifications is important. UV LEDs are particularly sensitive to drive currents that exceed the max operating specifications and may be damaged by such drive currents. The use of current regulated drive circuits is strongly recommended when operating these devices. Customers should also provide adequate thermal management to ensure LEDs do not exceed maximum recommended temperatures. Operating LEDs at temperatures in excess of specification will result in damage and possibly complete failure of the device.

History of Changes

Rev		Description of Change
A	09/01/2022	RevB Preliminary Release
B	3/1/2022	PN Simplification



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[CSSRM4.24-V7V9-1-1-700-R33](#) [PBLA-15LTE](#) [020010030060020](#) [AA2810AVBS/D](#) [KT CSLNM1.13-MXMZ-34-0](#) [ELUC3535NUB-](#)
[P7085Q05075020-S21Q](#) [GY CSHPM1.23-KPKR-36-0-350-R18](#) [LZ4-V4UVH0-0000](#) [KB CULPM1.14-BPBQ-W2](#) [KB CULPM1.14-AUBQ-](#)
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[SPHWH2L3D30ED4V0H3](#) [XQEBLU-00-0000-000000202](#) [L1SP-DRD0002000000](#) [L1SP-LME0002000000](#) [LHUV-0405-A065](#) [LTPL-](#)
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