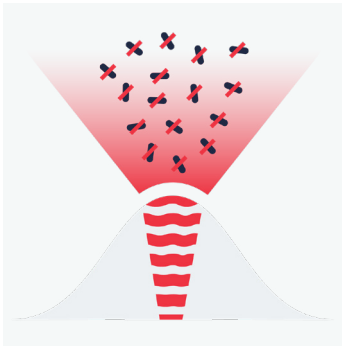
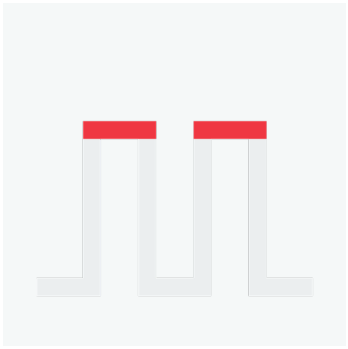
KLARAN®

Klaran® HC Series UVC LEDs





UVC LEDS FOR TRUE UVC DISINFECTION

Emitting UV light at the peak germicidal wavelength, Klaran HC Series UVC LEDs help combat healthcare-associated infections (HAIs) by preventing the spread of dangerous pathogens and superbugs such as MRSA and C. diff.

INSTANT ON

Klaran HC Series UVC LEDs deliver consistent, on-demand performance where it's needed most with unlimited on/off cycles.

BUILT FOR INFECTION PREVENTION

Klaran HC Series UVC LEDs are compliant with ISO 10993-5 Cytotoxicity, indicating bio-compatibility for Class I and Class II medical devices.

Product Nomenclature

Klaran LEDs are binned by peak wavelength and total power output (P_t).

Part Number	Peak Wavelength	Total Radiant Flux at 350 mA	
		Min	Max
KL265-35P-SM-HC	260 nm – 270 nm	15 mW	20 mW
KL265-35Q-SM-HC	260 nm – 270 nm	20 mW	25 mW

LED Characteristics

Characteristic	Unit	Typical	Max
Viewing angle[1]	degrees	120	
Forward voltage at 350 mA at T_s 35 °C[2]	V	8.45	10
Thermal resistance, junction-to-case at T_s 35 °C	°C/W	10	
Power dissipation at 350 mA at T_s 35 °C	W	2.96	3.50
Recommended Forward Current	mA	100	350

NOTES:

1. Viewing angle is twice of half-value angle. A half-value angle is the angle between axial direction and direction in which the light intensity value is half of the axial intensity.

2. T_s is defined as the temperature at the solder point. See Crystal IS AN010 for more information

Absolute Maximum Ratings

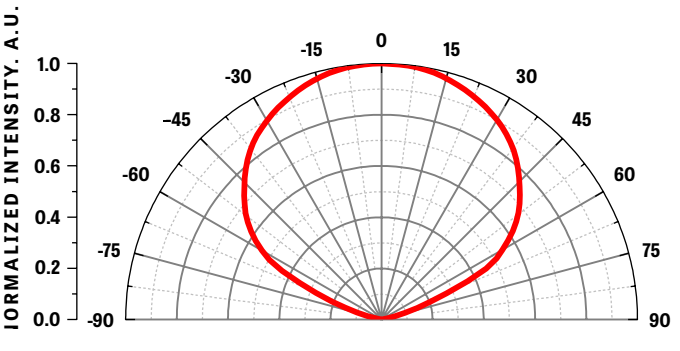
Characteristic	Unit	Min	Max
Forward current	mA	*	400
Reverse voltage	V		-5
Operating case temperature range	°C	-10	55
Storage temperature	°C	-40	100
Junction temperature	°C		115

** Note: Crystal IS recommends operating LEDs at a current greater than 10% of the noted operating maximum current to stabilize the LED characteristics.*

Typical Radiation Pattern

Klaran LEDs have a nominal viewing angle of 120°.

TYPICAL RADIATION PATTERN

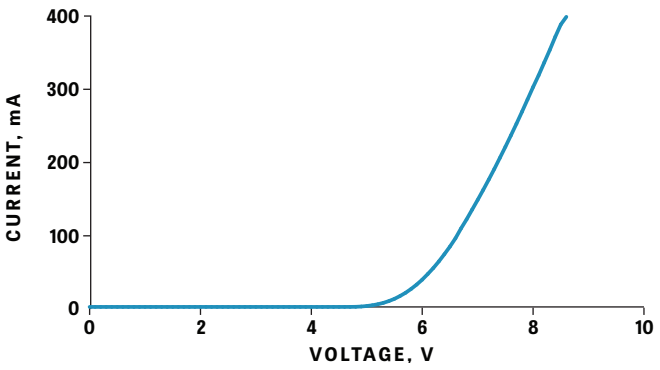


Test Conditions: I (CW) = 50 mA.
CW = Continuous Wave Mode

Typical Electrical Characteristics

The typical forward voltage is less than 10 V at an operating current of 350 mA.

ELECTRICAL CHARACTERISTICS

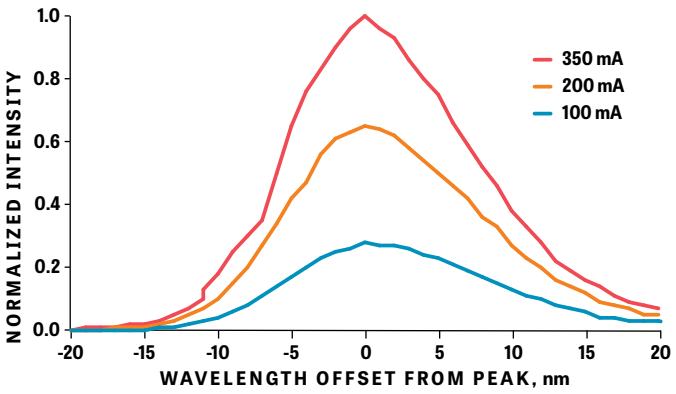


Test Conditions: Solder temperature (T_s) = 35 °C
Pulse mode operation from 1 mA to 350 mA

Typical Spectral Characteristics Over Current

The plot below shows the typical spectral emission curve for Klaran LEDs.

SPECTRUM OVER CURRENT

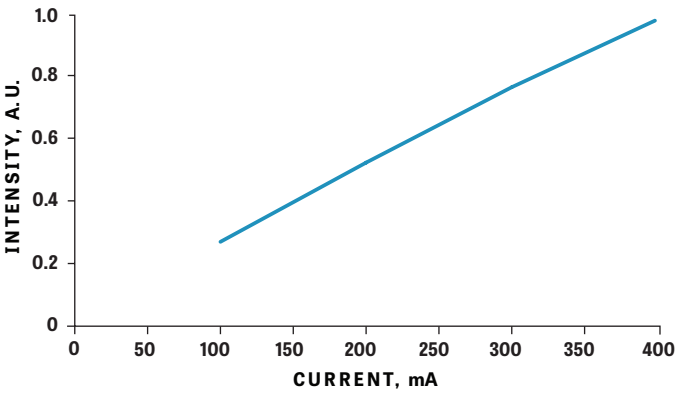


Test Conditions: Solder temperature (T_s) = 35 °C
Pulse mode operation

Typical Light Output Characteristics Over Current

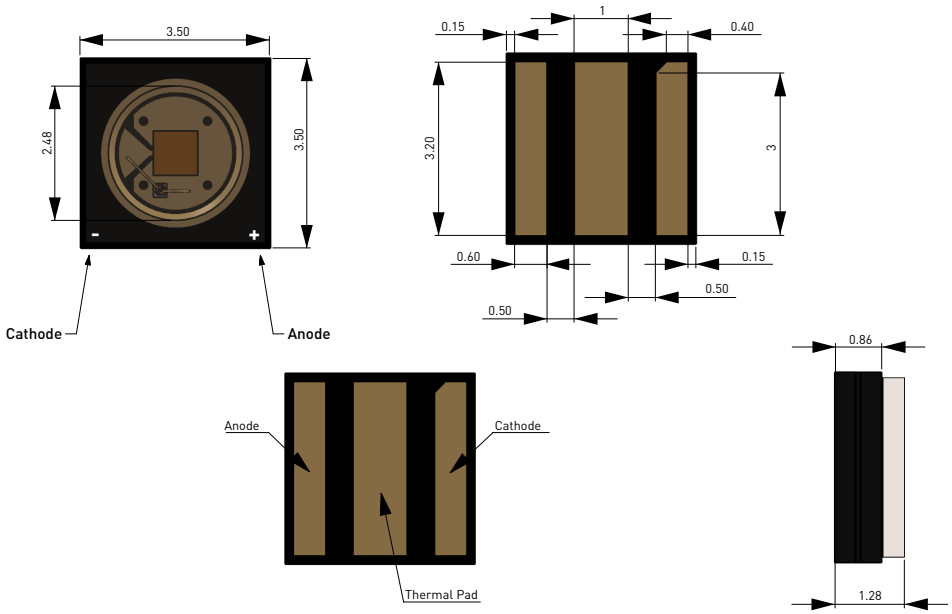
The plot below shows the typical variation in light output with forward current.

LIGHT OUTPUT OVER CURRENT

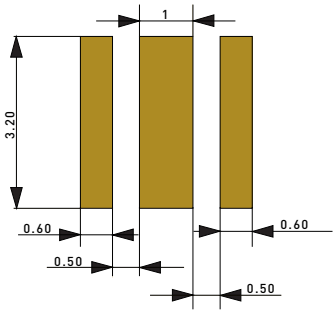


Test Conditions: Solder temperature (T_s) = 35 °C
Pulse mode operation

Mechanical Dimensions



SOLDER PATTERN

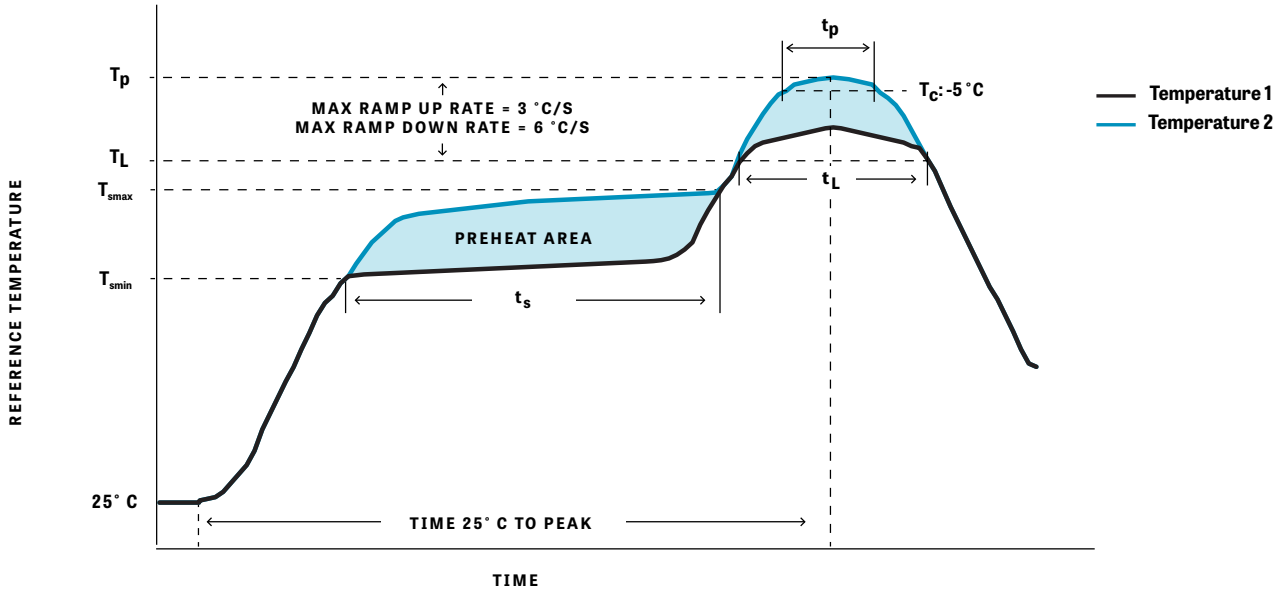


All dimensions are in millimeters. Unless noted otherwise, all dimensions have a tolerance of ± 0.05 mm.

Recommended Soldering Guidelines

The recommended solder reflow profile for Klaran UVC LEDs follows the JEDEC standard J-STD-020D.
Hand soldering is not recommended for these devices.

FIGURE 1



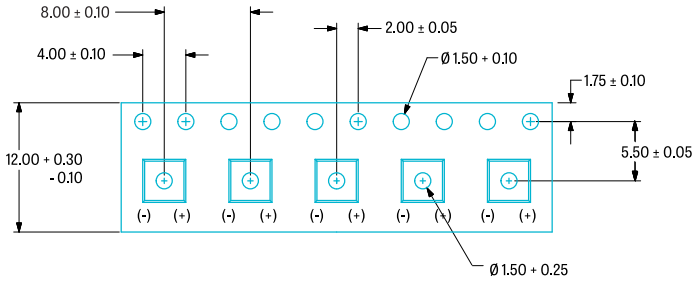
Guidelines

Profile Feature	Pb-Free Assembly
Preheat/Soak	
> Temperature Min (T_{smin})	150 °C
> Temperature Max (T_{smax})	200 °C
> Maximum Time (t_s) from T_{smin} to T_{smax}	60~120 seconds
Ramp-up rate (T_L to T_P)	3 °C/second max.
Liquidous Temperature (T_L)	217 °C
Time (t_L) maintained above T_L	60~150 seconds
Maximum peak package body temperature (T_P)	260 °C
Time (t_{tp}) within 5 °C of the specified temperature (T_C)	30 seconds
Ramp-down rate (T_P to T_L)	6 °C/second max.
Maximum Time 25 °C to peak temperature	8 minutes max.

Reel Packaging Specification

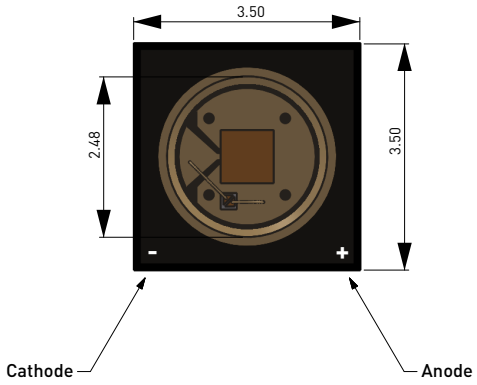
Klaran UVC LEDs are packed in tape and reel for machine manufacturing.

TAPE DIMENSIONS



All measurements are in millimeters (mm).

LED POSITION IN TAPE



Devices are placed with the cathode to the left so the polarity direction is cathode to anode.

REEL INFORMATION

Each reel includes a leader and trailer section that is not loaded with LEDs.

Handling Precautions

LEDs are sensitive to static electricity. When handling, proper ESD protection is required, including:

> Eliminating static charge

> Using grounded wriststrap, ESD footwear, clothes, and floors

> Grounded workstation and tools.

Eye Safety Guidelines

During operation, the LED emits high intensity ultraviolet (UV) light, which is harmful to skin and eyes. UV light is hazardous to skin and may cause cancer. Avoid exposure to UV light when LED is operational. Precautions must be taken to avoid looking directly at the UV light without the use of UV light protective glasses. Do not look directly at the front of the LED or at the LED's lens when LED is operational.

Attach the following warning labels on products/systems that use UV LEDs.

Compliance

The levels of environmentally sensitive, persistent biologically toxic (PBT), persistent organic pollutants (POP), or otherwise restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as adopted by EU member states on January 2, 2013.

WE INVITE YOU TO LEARN MORE ABOUT OUR UVC LEDs.

KLARAN®

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