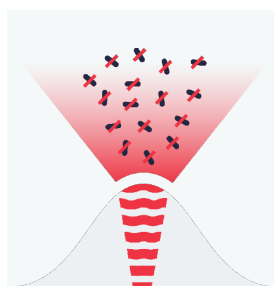




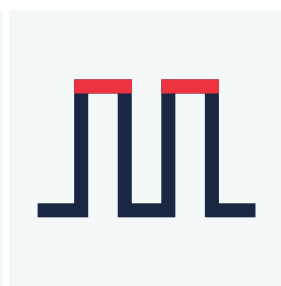
Klaran® LE

Klaran LE (Light Engines) are plug and play modules for manufacturers to quickly add UVC LED disinfection to applications that require surface or air treatment. Klaran LE uses Klaran WD Series high-performance UVC LEDs which emit UV light in the ideal germicidal range (260 nm to 270 nm). Klaran LE includes a board mounted 12V LED driver so the engine can be conveniently integrated into a variety of applications.



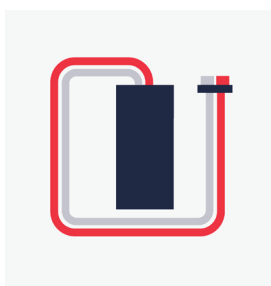
260 NM TO 275 NM: MOST EFFECTIVE FOR DISINFECTION

Emitting UV light at the peak germicidal wavelength, Klaran LE (Light Engine) can help prevent the spread of dangerous viral and bacterial pathogens such as MRSA and C. diff.



ON DEMAND PERFORMANCE: GET LONGER LIFE DISINFECTION

Compared to UV lamps, which are constantly operating and require annual replacement, UVC LEDs are on only when disinfection is needed. This conserves UVC LED lifetime and helps extend disinfection maintenance cycles to many years.



INTEGRATED DRIVER: PLUG AND PLAY UVC PURIFICATION

Klaran LE modules can be conveniently added to new or existing products. Manufacturers can leverage Klaran's international team of Application Engineers to explore the best options for product integration.



PREDICTABLE SERVICE LIFE: PERFORMANCE YOU CAN COUNT ON

Robustly characterized, Klaran WD UVC LEDs provide confidence that your disinfection solution perform reliably for its design lifetime.



HIGH PERFORMANCE ALUMINUM NITRIDE: LOW COST DISINFECTION

Klaran WD Series LEDs are produced from Crystal IS' proprietary Aluminum Nitride substrates which support high yields of UVC LEDs for cost effective solutions.

Product Nomenclature

Part Number	Driver	Length	LED Count	LED Output	LED Drive Current
LE-24V-3V-HC	24Vdc	80mm	3	50mW	350mA
LE-12V-9V-HC	12Vdc	250mm	9	50mW	355mA
LE-24V-12V-HC	24Vdc	160mm	12	50mW	350mA

LE-24V-3V-HC



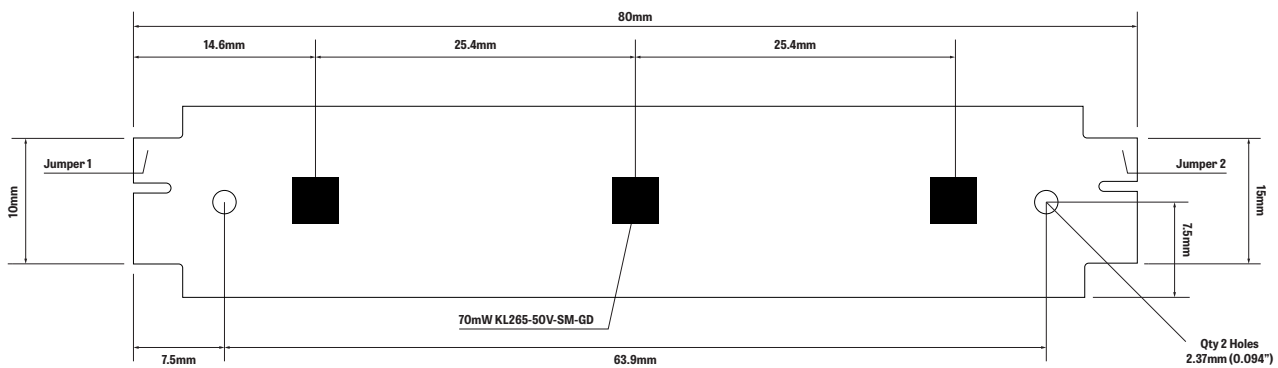
Electrical Characteristics

Characteristic	Unit	Min	Typical	Max	Note
Power Input Voltage (VCC)	V	22.8	24	25.2	
Power Consumption (LED ON)	W	-	8	-	

Physical Characteristics

Characteristic	Unit	Min	Typical	Max	Note
Length	mm		80		
Width	mm		15		
Ambient Temperature Range (LED ON)	°C	5	-	50	
Ambient Temperature Range (LED OFF)	°C	5	-	85	
Relative Humidity	%	40	-	75	

Mechanical Dimensions



LE-12V-9V-HC



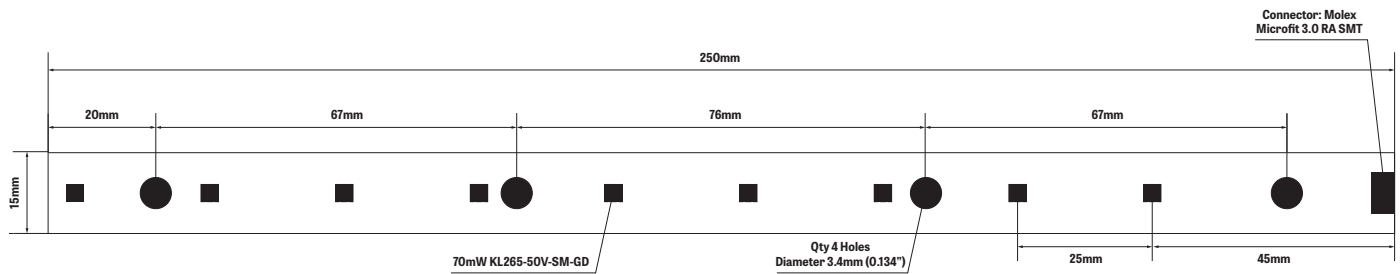
Electrical Characteristics

Characteristic	Unit	Min	Typical	Max	Note
Power Input Voltage (VCC)	V	11.4	12	12.6	Constant DC Voltage
Power Consumption (LED ON)	W	-	26	-	

Physical Characteristics

Characteristic	Unit	Min	Typical	Max	Note
Length	mm		250		
Width	mm		15		
Ambient Temperature Range (LED ON)	°C	5	-	50	
Ambient Temperature Range (LED OFF)	°C	5	-	85	
Relative Humidity	%	40	-	75	

Mechanical Dimensions



LE-24V-12V-HC



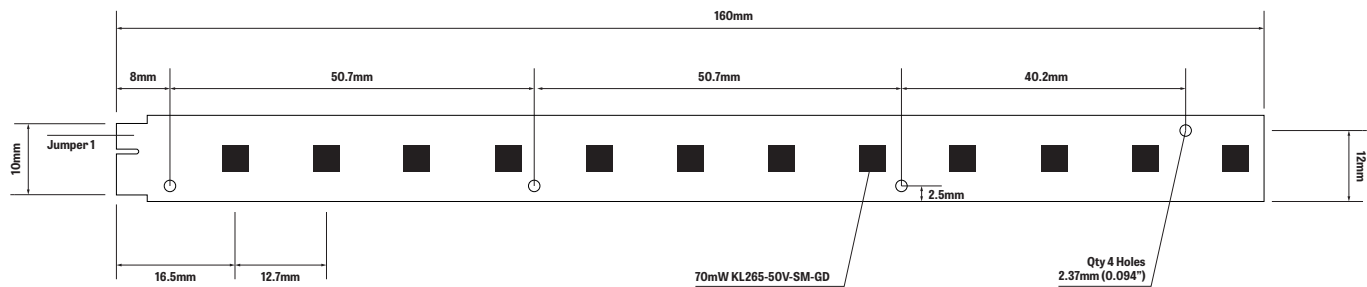
Electrical Characteristics

Characteristic	Unit	Min	Typical	Max	Note
Power Input Voltage (VCC)	V	22.8	24	25.2	
Power Consumption (LED ON)	W	-	29	-	

Physical Characteristics

Characteristic	Unit	Min	Typical	Max	Note
Length	mm		160		
Width	mm		12		
Ambient Temperature Range (LED ON)	°C	5	-	50	
Ambient Temperature Range (LED OFF)	°C	5	-	85	
Relative Humidity	%	40	-	75	

Mechanical Dimensions



Handling Precautions

- LEDs are ESD (electrostatic discharge) sensitive; static electricity and surge voltages seriously damage UV LEDs and can result in product failure
 - Ensure that tools, jigs and machines being used are properly grounded
 - LED mounting equipment should include protection against voltage surge
 - Use proper ESD protection, including grounded wrist straps, ESD footwear and clothes
- The UVC LED is not protected by a lens and requires careful handling
 - Do not handle the LED with bare hands as it may contaminate the LED surface and affect the optical characteristics.
 - Avoid touching the LED die
- Do not use adhesives that outgas organic vapor
- Dropping the product may cause damage
- If handling the product with tweezers, use only the side of the package and be careful not to apply excessive force
- Verify the light engine with the product before use
- Proper thermal management is required to prevent warpage and damage to the modules and its components.
- Do not apply mechanical force or excess vibration during handling or normal operation.

Storage Precautions

- Product complies with JEDEC MSL1 or equivalent and is shipped in a moisture proof package (with silica desiccant). See IPC/JEDEC STD-202 for moisture sensitivity details.

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 warning labels on products/systems that use UV LEDs.

RoHS 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 2015/863 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).

DISCLAIMER

The specifications, characteristics, and technical data presented in this datasheet are subject to change without prior notice. It is recommended that the most updated specifications, characteristics, and technical data be used in your application.

The information in this document has been compiled from reference materials and other sources believed to be reliable, and given in good faith. No warranty, either expressed or implied, is made, however, to the accuracy and completeness of the information, nor is any responsibility assumed or implied for any loss or damage resulting from inaccuracies or omissions. Each user bears full responsibility for making their own determination as to the suitability of Crystal IS products, recommendations or advice for its own particular use. Crystal IS makes no warranty or guarantee, express or implied, as to results obtained in end-use, nor of any design incorporating its Products, recommendation or advice.

Each user must identify and perform all tests and analyses necessary to ensure that its finished application incorporating Crystal IS' products will be safe and suitable for use under end-use conditions. Each user of devices assumes full responsibility to become educated in and to protect from harmful irradiation. Crystal IS specifically disclaims any and all liability for harm arising from buyer's use or misuse of UVC devices either in development or end-use.



WE INVITE YOU TO LEARN MORE ABOUT OUR UVC LEDs.

KLARAN[®]

Crystal IS, Inc., an Asahi Kasei Company

70 Cohoes Avenue, Green Island, NY 12183

518.271.7375 | www.cisuvc.com | sales@cisuvc.com

© 2020 Crystal IS, Inc. All rights reserved. Crystal IS, Klaran and the Crystal IS logo are trademarks of Crystal IS, Inc. and/or its affiliates. All other trademarks are the property of their respective owners. 1089-2003