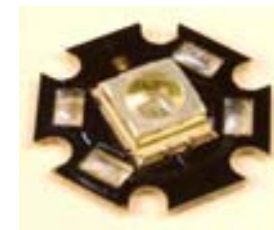


Features

- Drive current range up to 700mA
- XR XLamp mounted on 1.0 mm double-sided FR4 PCB with nickel gold plated 70µm copper and thermal vias (electrically isolated from LED die)
- Connection via solder pads
- Class II ESD Rating (HBM per Mil-Std-883D)
- Water clear Lambertian pattern lens
- RoHS compliant - Lead free



Electro / Optical Characteristics White Lamp $I_F = 350 \text{ mA}$ $T_a = 25^\circ\text{C}$

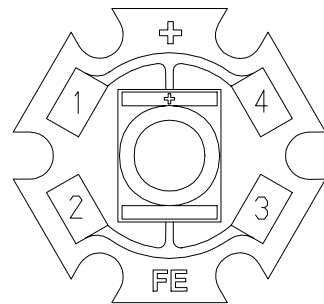
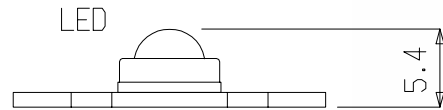
Part Number	Emitting Colour	Die Material	Colour Temperature		Forward Voltage V_F	Luminous Flux	Viewing \angle $2\theta_{1/2}$
			min	max			
FEL-HL1WRWWC	White	InGaN/SiC	2700	10000	4.0	57 typical	100
FEL-HL1WRWWWC	Warm White	InGaN/SiC	< 4444		4.0	30.6 minimum	100
Units			°K		VDC max	lm	deg

Electro / Optical Characteristics Coloured Lamps $I_F = 350 \text{ mA}$ $T_a = 25^\circ\text{C}$

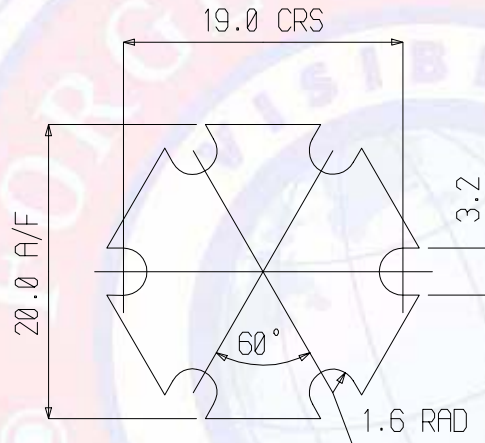
Part Number	Emitting Colour	Die Material	Wavelength Dom. λ_d		Forward Voltage V_F	Luminous Flux typical	Viewing \angle $2\theta_{1/2}$
			min	max			
FEL-HL1WRRWC	Red	AlGaInP	620	635	3.0	40	100
FEL-HL1WRRDOWC	Red orange	AlGaInP	610	620	3.0	49	100
FEL-HL1WRYWC	Amber	AlGaInP	585	595	3.0	42	100
FEL-HL1WRGWC	Green	InGaN/SiC	520	535	4.0	52	100
FEL-HL1WRCWC	Cyan	InGaN/SiC	500	510	4.0	45	100
FEL-HL1WRBWC	Blue	InGaN/SiC	465	475	4.0	19	100
FEL-HL1WRROYWC	Royal blue	InGaN/SiC	455	465	4.0	255 mW	100
Units			nm		VDC max	lm	deg

It is the responsibility of the customer to verify the suitability of the product for the application.

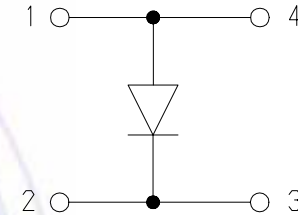
Package Outline



Dimensions in mm
Tol ± 0.25 mm unless stated



Connection Diagram



Note:

Industry standard procedures regarding static must be observed when handling product with InGaN/SiC die.

Maximum Ratings - See sheet 3 for details

Characteristic	Condition	Symbol	Rating	Units
DC Forward Current	Warm White & Amber	I_F	350	mA
	Other Colours (see sheet 3)	I_F	700	mA
Reverse Voltage	$I_R = 10 \mu A$	V_R	5	V
LED Junction Temperature		T_j	145	°C
Operating Temperature		T_{opr}	- 40 to + 85	°C
Storage Temperature		T_{stg}	- 40 to + 100	°C



WARNING

This range of LEDs is produced with die having a high radiant flux. Care must be taken when viewing the product at close range as the light may be intense enough to cause damage to the human eye.

Drive Currents

In most cases a secondary heatsink will be required to ensure compliance with Cree's lumen maintenance projections.

A thermally conductive interface material should be used between the product and the heat sink.

Suitable materials include silicone thermal grease, thermally conductive epoxy adhesive and thermally conductive foam pads.

This product has a thermal resistance of 55°/W (LED junction to ambient) when operated without a secondary heatsink in free air. When fixed centrally to a heatsink comprising a 50 x 50 x 1.6 mm plate of mild steel for example, the thermal resistance is 13°C/W. Cree projects XLamp LEDs to maintain an average of 70% lumen maintenance after 50,000 hours, provided the LED junction temperature (Tj) is maintained at or below 80°C.

The absolute maximum LED junction temperature is 145°C and the absolute maximum ambient operating temperature is 85°C.

The following tables give an indication of maximum ambient operating temperatures for products in a variety of conditions:

FEL-HL1WRXWC Range with AlGaInP die	Heatsink	Current	MAX Ambient Temperature	
			Tj = 80°C	Tj = 145°C
Red Red/Orange	No heatsink	350	37	85
	50 x 50 x 1.6 thick steel plate	700	60	85
Colour	Dims in mm	mA	°C	

FEL-HL1WRXWC Range with InGaN/SiC die	Heatsink	Current	MAX Ambient Temperature	
			Tj = 80°C	Tj = 145°C
White Green Cyan Blue Royal Blue	No heatsink	350	17	85
	50 x 50 x 1.6 thick steel plate	700	48	85
Colour	Dims in mm	mA	°C	

Colour	White
Die Material	InGaN/SiC
Test Current I_F	350 mA
Test Temperature	25°C

Note

Information is collated from testing carried out in the Forge Europa laboratory using its custom-built automated LED test and measurement system. This unique facility measures the total luminous flux of discrete LEDs with great precision.

This information provided by the Life Test Laboratory gives vital data for any design team committed to total quality.

Forge Europa operates a policy of continuous development and reserves the right to make changes and improvements without prior notice.

Intensity variation over test duration

