

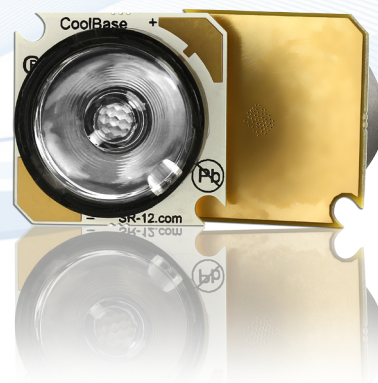
Overview

The SR-12 high power LED lighting assembly has been specifically designed to work as a drop-in replacement for Luxeon Star/O LED assemblies that are no longer manufactured by Philips Lumileds.

The assembly consists of a single Rebel LED reflow soldered to our CoolBase high thermal efficiency FR4 board with a Fraen FLP-N4-RE-HRF 9° optic fastened to the base with Momentive TSE3941 RTV silicone.

The SR-12 Rebel Star/O has a near identical form factor to the original Luxeon Star/O assembly and can be cooled and powered using the same heat sinking and current regulating driver used for the Star/O. The Rebel Star/O offers the added advantage of a more efficient cooling design and higher lumens output at the same drive current.

SR-12 Rebel Star/O assemblies can be ordered directly from our website at www.luxeonstar.com/sr-12.



Features:

- Drop-in replacement for the Luxeon Star/O
- Can be powered from the same circuit as the Star/O
- Higher lumens output
- Available with all currently produced Rebel LEDs
- RoHS compliant
- Pb free reflow soldered
- Extremely low thermal resistance.

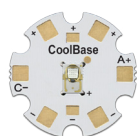
Base Construction

Built using our FR4 CoolBase, the Rebel Star/O base offers a typical thermal conductivity rate of 1.5°C/W with a base form factor that is identical to the original Luxeon Star/O design.

General Specifications

Parameter	Value
Base Type	1.6mm FR4 CoolBase
Base Thermal Performance (Not including LED)	1.5°C/W
Copper Weight	2 oz
Finishing	Immersion Gold
Solder Mask Color	High Temperature White
Solder Paste	AIM NC-258 No-Clean, Lead-Free
Max Operating Temperature (FR4 Base) ¹	95°C
Lens Adhesive	Momentive TSE3941 RTV Silicone
Overall Dimensions (mm)	25L x 25W x 13.6H
Weight	6g

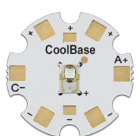
1. For maximum life, the FR4 board temperature must be kept below this value.



Key Differences Between the SR-12 and the Original Star/O Assemblies

While the SR-12 has been designed to be used as a drop-in replacement for the original Luxeon Star/O assembly, there are a few key differences that the designer needs to be aware of, including:

- The attached optic produces a 9° beam angle as opposed to a 10° angle produced by the original Star/O collimator.
- The Fraen lens holder has a slightly larger diameter of 21.8mm as opposed to 21.5mm for the original Star/O.
- Depending on the Rebel LED that is mounted, the SR-12 will produce a higher lumens output at 350mA as compared to the original Star/O. If required, the lumens output can be reduced by using a lower input current.
- Depending on the Rebel LED that is mounted to the SR-12, the forward voltage may be different than the original Luxeon Star/O. This will typically have no effect for most current regulating drive circuits, however the designer will need to confirm that the input voltage to the driver is high enough to power the connected LEDs.
- While the thermal efficiency of the SR-12 is significantly better than the original Luxeon Star/O, the designer still needs to confirm that the SR-12 is being adequately cooled.



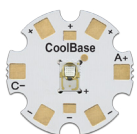
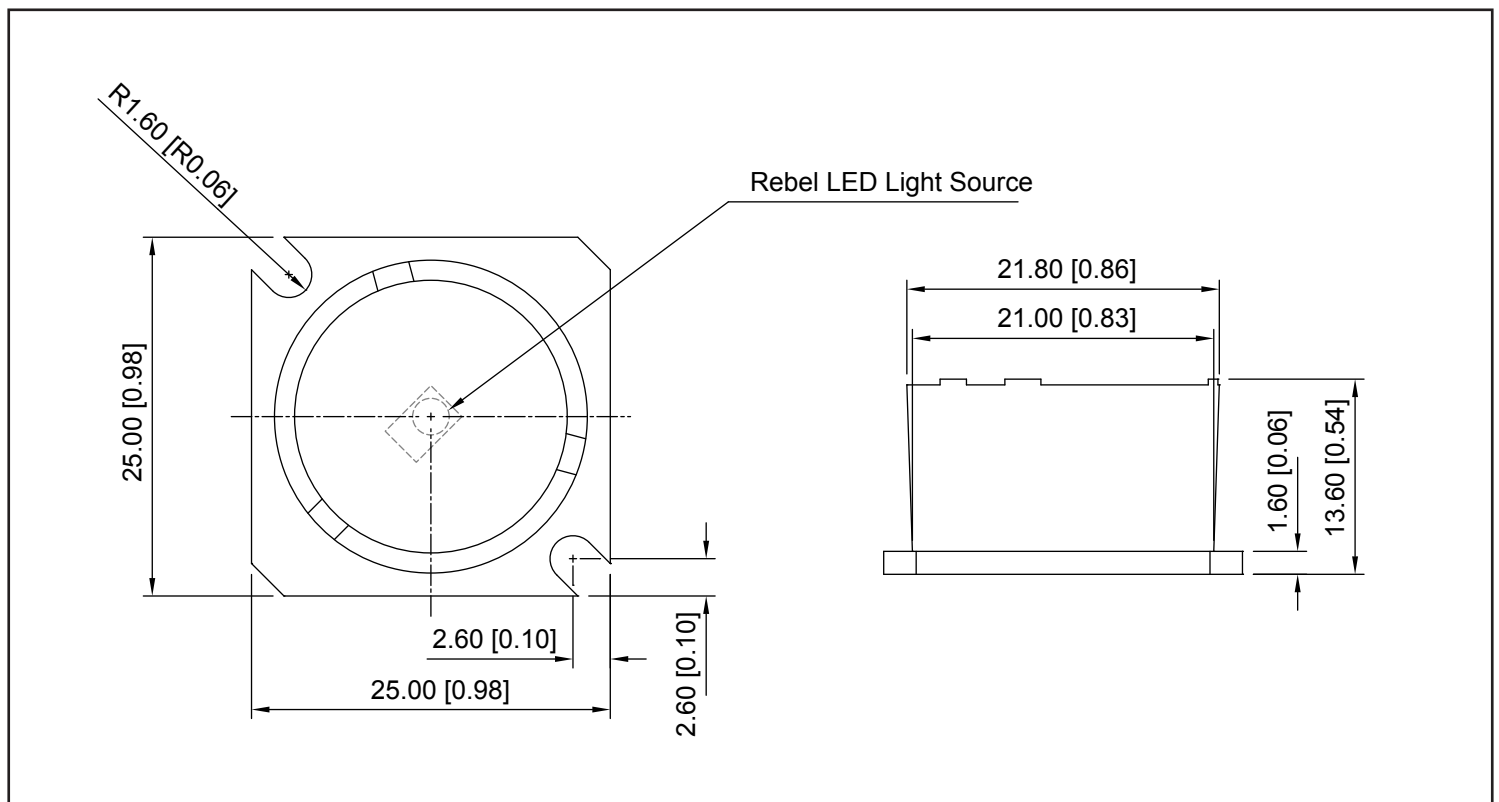
Mounting & Cooling

Use of this assembly requires careful attention to mounting and cooling to ensure that the junction temperature of the LED is kept well below the maximum rating as specified in the LED documentation published by Philips Lumileds.

For optimal cooling, we recommend that the assembly be mounted to a suitable heat sink (aluminum or copper) that is exposed to open air using a thermal interface material such as our [Bond-Ply® 100 pressure sensitive thermal tape](#) or [Arctic Silver™ Thermal Adhesive](#). The bottom of the LED assembly is electrically neutral, so it is not necessary to electrically isolate the LED base from the cooling surface.

Failure to ensure that the LED junction temperature is kept below its maximum temperature rating will result in poor color rendering, early degradation of light output, and premature LED failure!

Assembly Drawing



Safety:

The LED mounted onto this assembly will produce a highly intense point of light. Do not stare directly at the LED for any length of time.

Restricted Use:

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