FGR Series 27mm Diameter Reflectors

for OSRAM Oslon SSL80, SSL150 & Golden Dragon Plus[1]

- **High efficiency**
- **Faceted designs provide homogeneous focused spot *and* spilled/direct light**

The FGR DP1 reflectors are specifically designed for the Oslon SSL80, SSL 150 and Golden Dragon Plus LEDs from Osram Opto Semiconductor.

A software-optimized aspheric profile combined with precision facets provides a homogeneous central spot as well as useful peripheral spilled light.

The high collection efficiency exceeds 90% of the total flux emitted by the LEDs.

Typical applications are:

- Flashlights/Torches
- General Illumination
- Reading Lamps
- Architectural Lighting
- Entertainment Lighting

(1) SSL 80, SSL 150 & Golden Dragon Plus are trademarks of Osram Opto-Semiconductor. For technical specification on these LEDs please refer to the LED datasheet or visit www.osram-os.com

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General Characteristics

Materials

Reflector Material	Black polycarbonate with vacuum deposited aluminum coating and a clear lacquer protective coating
Operating Temperature range	-40° C / + 95° C
Storage Temperature range	-40° C / + 95°C

Please note that small defects in the reflective coating, and flow lines and weld lines on the surfaces of the reflectors are acceptable if the optical performance of the reflector is within the specification described in the section "OPTICAL CHARACTERISTS".

IMPORTANT NOTE – Reflector handling and cleaning*:*

- *Handling: Always handle the reflectors by the outside surfaces or flange. Never touch the inside surfaces of the reflector with fingers; finger oils and contamination will absorb or refract light.*
- *Cleaning: Clean reflectors only if necessary. Use only soap and water to clean the surfaces and reflectors. CAUTION - Never expose the reflectors to alcohol or solvents, as they could damage the plastic.*

Scope

This datasheet provides information about the FGR reflector for Osram SSL 80, SSL 150 & Golden Dragon Plus LEDs.

- FGR-N1-DP1-0R narrow beam reflector

Optical Characteristics – On-axis Intensity[1], Beam Angle[2], Field Angle[3]

LED	Beam Shape	On-axis Intensity (peak)	Beam Angle (FWHM)	Field Angle (FW10%)
Oslon SSL 80 Cool White	Narrow	56.0 cd/lm	4°	10.5°
Oslon SSL 150 Cool White	Narrow	46.2 cd/lm	4.8°	10°
Oslon SSL 150 Warm White	Narrow	47.1 cd/lm	4.5°	8.5°
Oslon SSL 150 Red	Narrow	56.9 cd/lm	4°	7°
Oslon SSL 150 Blue	Narrow	28.4 cd/lm	4°	8.5°
Golden Dragon Plus Cool White	Narrow	49.3 cd/lm	4.3°	12°
Golden Dragon Plus Warm White	Narrow	51.6 cd/lm	3.8°	11°
Golden Dragon Plus Red	Narrow	61.0 cd/lm	3°	8.5°
Golden Dragon Plus Green	Narrow	47.7 cd/lm	3.8°	12.5°
Golden Dragon Plus Blue	Narrow	32.6 cd/lm	3.8°	12°

(1) To calculate the on-axis intensity (cd), multiply the on-axis value, above, of the lens (cd/lm) by the total flux (lm) of the LED used. See “Illumination Calculations” below.
(2) Luminous intensity depends on the flux binning and tolerances of the LEDs. Please refer to the LED datasheets for more details on flux binning.
(3) FWHM is the full angle where the beam intensity is half the on-axis peak intensity
(4) Field angle is the full angle where the beam intensity is 10% of the on-axis peak intensity

Illumination Calculations

To calculate intensity (cd): Find the central spot “on-axis intensity” value in the table above, then multiply this value by the luminous flux (lm) from your LED (refer to the LED datasheet for nominal lumen values.) For a more accurate calculation, refer to the intensity “ranking” (binning) tables on the datasheet for the specific LED.

Example calculations:

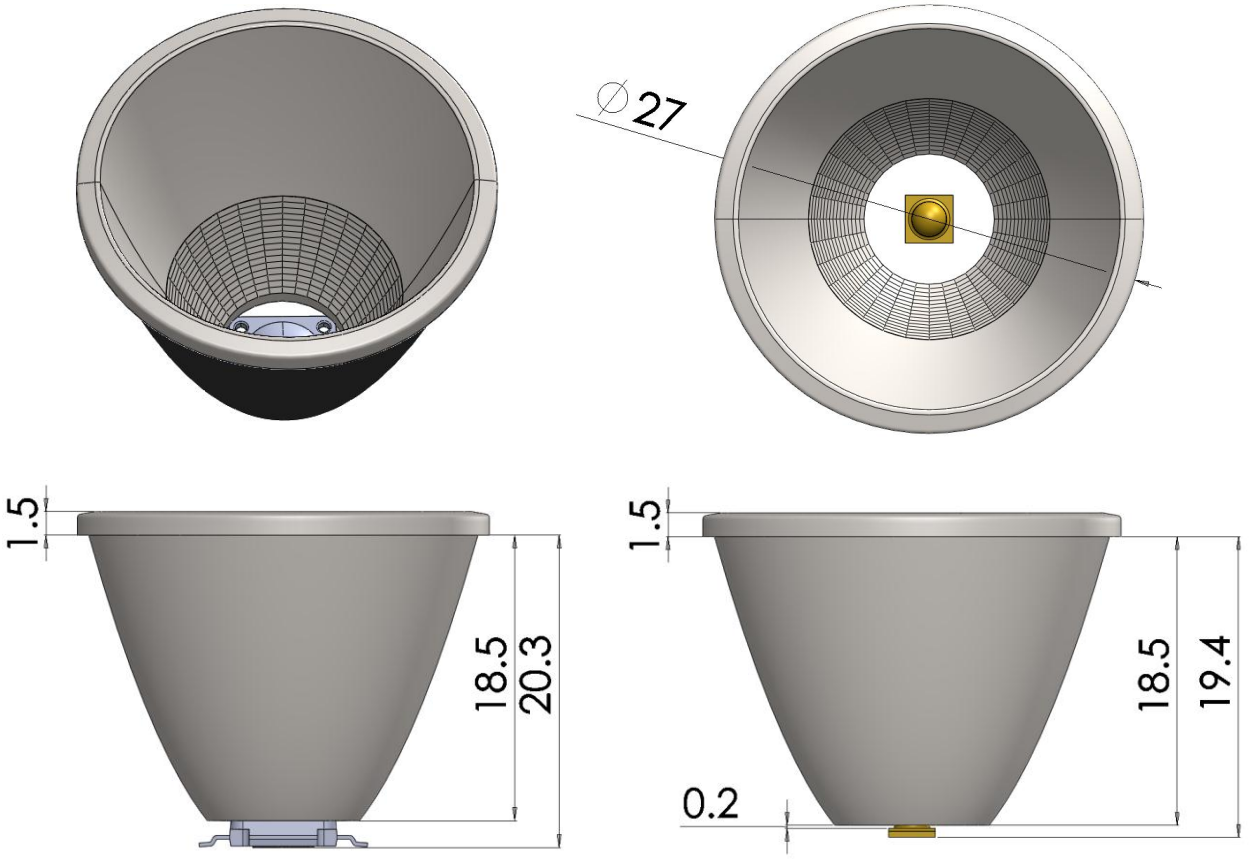
If the Fraen FGR-N1-DP1-0R reflector is used on an Oslon SSL80 Warm White LED driven at 350 mA, the typical luminous flux of the LED is 105 lumens.

The calculation is: (56 cd/lm) x (105 lumens) =5880 candela on-axis intensity.

One candela at 1-meter distance produces 1 Lux. This means the peak illuminance at 1 meter will be 5880 lux. The illuminance decreases as a function of the distance squared, so at 2 meters the peak illuminance will be 5880 / (2^2) = 1470 lux. At 3 meters distance, the peak illuminance will be 5880 / (3^2) = 653 lux.

The beam angle specified in the table above is 4 degrees FWHM (full angular width measured where the beam intensity equals half the on-axis maximum intensity.) This means at ±2 degrees off-axis (half of 4 degrees), the intensity should be half of 5880 candela or 2940 candela.

Mechanical Characteristics



PCB-to-Flange Height on Dragon Plus LED

PCB-to-Flange Height on Oslon LED

Figure 1. Front, side and rear views, with main dimensions.

CAUTION: For the best performance and beam appearance, the FGR reflector should be positioned so that the reflector's base is aligned with the top of the LED package, as shown above. The emitting surface or dome of the LED should be aligned with the center of the reflector cone.

The FGR reflector does not have any mechanical mounting features. It is designed with a mounting flange, allowing the designer to properly align and secure the reflector in their assembly.

Ordering Part Numbers

FGR-N1-DP1-0R

(The last two characters are ‘zero R’)