

## Automotive LED U-series

High luminance LED enabling  
super-slim lamp designs



### Future Mobility Trend

As headlamps are often thought of as the “eyes” of an automobile, their indigenous design can convey a brand’s identity, as well as highlight a vehicle’s innovative technology. In an effort to create more stand out and unique designs, the demand for compact lamp components is increasing. LEDs with superior luminance, leading to simplified optic systems, are the ideal solution for improving design freedom.




### Feature

- High luminance of > 200 cd/mm<sup>2</sup> from small LES (Light Emitting Surface)
- High current driving capability with enhanced heat management
- Single PIG phosphor for uniform light distribution

### Benefit

- Enabling slimmer lamp to increase design freedom
- Miniaturization of optic size due to higher luminance (e.g. lamp height <20mm)

### Products Lineup

	Color	Power (W)	Number of Chips	Dimension (L x W x H mm)	LES Size (mm)	Typ. Luminance (cd/mm <sup>2</sup> )	Typ. Flux (lm)	Typ. Vf (V)	Typ. Rth_el (K/W)
	White	5	1	1.50 x 1.90 x 0.77	0.73 x 0.73	240	425	3.3	4.3
	White	10	2	2.46 x 3.10 x 0.77	1.58 x 0.73	225	842	6.6	2.5
	White	15	3	3.28 x 3.10 x 0.77	2.42 x 0.73	215	1262	9.9	1.8

\* @ 1.5A, 25°C, White (0.32, 0.33)

# Extremely Slimmer Headlamps

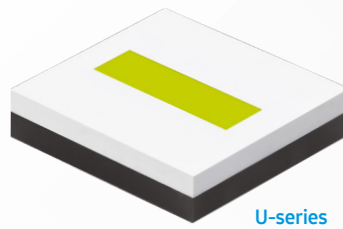
Reduce optic size for slimmer, more futuristic headlamp designs with the superior luminance of LEDs



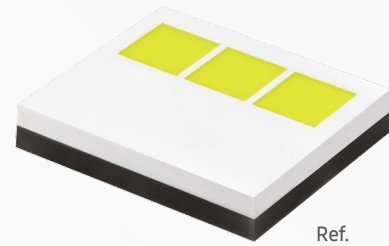
## Application Demonstration

With the highly intense luminance from a small LES, the Samsung U-series enables reducing the size of the optic system up to 15mm. This increases design freedom for slim and sleek lamp designs, while adding a highly desirable uniqueness that highlights any vehicle's brand identity.

### Smaller LES and single phosphor



U-series



Ref.

		U-series	Ref.	Remark
LES Size (mm)	1 chip	0.73 x 0.73	1.03 x 1.03	-50%
	2 chip	1.58 x 0.73	2.14 x 1.03	-48%
	3 chip	2.42 x 0.73	3.25 x 1.03	-47%

### Slimmer optic design with high-luminance LEDs

U-series

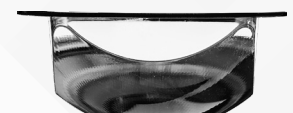


15 mm



30 mm

Ref.



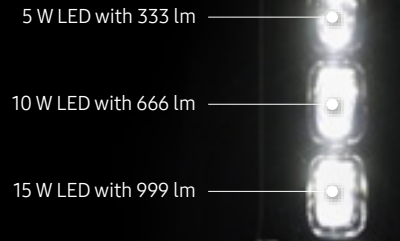
25 mm



35 mm

# Extremely Slimmer Headlamps

Outstanding far-field performance from extremely slim lens



## Light Distribution Demonstration

Thanks to the high luminance of U-series LEDs, headlamp can provide outstanding far-field performance. The slim lens, used to make the most of this high luminance feature, realizes superb performance. The actual light distribution measurement shows that a headlamp with U-series performed well, more than satisfying the UNECE Reg. 112 for low beams with about 120% margin at the most point.

- Luminous Flux: 1998 lm
  - Electrical Power: 15.8W
  - Flux on the Road: 1064 lm
  - Optical Efficiency: 53%
  - Maximum Intensity: 45,389 cd
- \* H [45,-45], V [10,-20] deg

