



## Standardized LED Bulb Family

Enabling Attractive and Cost Effective Mainstream Rear Lighting Design



Historically, LED rear-lighting functions emerged as differentiating feature in premium cars. Over recent years, this trend further rolled out into the mainstream segment. However, cost effectiveness of the solution is essential to allow mass adoption into the lower market segments. Engineering complexity and system costs must be minimized while every mainstream car model still deserves its own individualized design look. LUXEON® LR4, as standard LED bulb, enables an appropriate styling differentiation for mainstream vehicles in an attractive, fast and cost-effective way.

### FEATURES AND BENEFITS

Only one LED bulb: LR4

Cost-effective optical concept: a compact primary reflector and a broad and very shallow secondary reflector enabling a very flat lamp

Very homogeneous LIT appearance in a reflector-based system

Sharp contrast

### PRIMARY APPLICATIONS

Stylish oriented tail and stop functions for mainstream cars

# LUXEON® LR4: Enhance Your Design Opportunities for Mainstream Vehicles in a Cost-effective Way

LUXEON LR4 offers you a complete new spectrum of design opportunities. New innovative full-process integration in the manufacturing chain results in the highest quality products in mass volumes and solutions that last as long as the car itself.

## Outstanding Styling Flexibility

- Reflector-based designs – for slim aspect ratios
- Lightguide-based optical concepts – for 3D shaping
- Direct optics – for creative designs with efficient optics
- Indirect reflectors – for hidden light sources

## Design for OEM Quality and Reliability

- OEM ready (process audits and set-up in place)
  - High capacity with mass manufacturing platform.
  - Fully automated line, no operator involvement
  - Zero defect quality roadmap
  - 100% inspection integrated into automation process including visual and functional checks before and after burn-in
- Unprecedented levels of traceability and data collection
  - Unique barcode on every bulb
  - Full traceability of every process parameter
  - Production and technical specifications easily available for each product

## Superior Value Offering while Lowering Total Cost of Ownership

- Standardized and regulated specifications with multiple suppliers
- Easy replacement substantially lowers supply chain costs and complexity
- Long-term supply and supportability allows optimization of supply chain and serviceability
- Lower design-in effort (e.g. less complex than a system using many components, heat sink and driver included already, single release of light source, ability to use etalon bulbs for homologation and proof of consistency of manufacturing)
- Lower manufacturing effort: no need for a semiconductor environment, same handling as bulbs in the factory, no need for binning

## Product Specifications

Functions	stop and tail
Color	Red (according to ECE/SAE)
Luminous flux	80 lm stop, 6 lm tail at 13.5 V after 30 min continuous on Ratio of luminous flux 30 min / 1 min > 70%
Voltage range	9 V to 16 V
Power consumption	2.5 W at 13.5 V
Light emitting area	4.5 x 4.5 mm <sup>2</sup> stop, 1.5 x 1.5 mm <sup>2</sup> tail
Light emission pattern	Lambertian
Ambient temperature	-40 °C to +85 °C
Lifetime	Minimum 5000 h, L70B3 at Ta = 23 °C, 13.5 V DC for stop Minimum 10000 h, L70B3 at Ta = 23 °C, 13.5 V DC for tail
Maximum outer dimension	Cylinder with diameter of 38 mm and total depth of 34 mm
Electrical connector	MX64 3 Pin

## Future Range Extension of Standardized LED Bulb Family

LR3	LR4	LR5	LY3	LY5	LW3	LW5
Stop	Stop/Tail	Rear Fog, Stop	Rear TI	Front TI	Back-Up	DRL
80 lm	80/6 lm	120 lm	150 lm	280 lm	250 lm	350 lm

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