

AUTOMOTIVE

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LUXEON F Family

Micro footprint package for design flexibility and high light output



LUXEON F are high-power, 1.9mm x 2.3mm LEDs that are specifically designed to support automotive functional intelligence systems, including advanced forward lighting systems, light guide, and matrix applications. LUXEON F are tested and binned at application conditions – 85°C for reliability, performance and lifetime in all exterior lighting applications. LUXEON F meets both SAE and ECE color specifications and provides finer granularity than existing systems.

FEATURES AND BENEFITS

Small form factor for dense packing ability and design flexibility

Undomed package allows for precise optical control

Low $\rm V_f$ and industry's lowest thermal resistance enables smaller heatsinks or smaller designs

HIEC/PAS 62707-1 white LED color binning

Adaptive Lighting Daytime Running Lights Front Fog Headlight - High/Low Beam - Cornering - Position Turn

LUXEON F Absolute Ratings.

| PARAMETER | PC AMBER | COOL WHITE |
|--|--|--------------|
| Minimum DC Forward Current | 50mA | 50mA |
| Maximum DC Forward Current | 700mA | 700mA |
| Maximum Junction Temperature ^[1] | 135°C | 150°C |
| Operating Case Temperature at Test Current ^[1] | -40 to 110°C | -40 to 120°C |
| Operating Case Temperature at Maximum Current ^[1] | -40 to 120°C | -40 to 120°C |
| Storage Temperature | -40 to 130°C | -40 to 130°C |
| Soldering Temperature | 240°C | 240°C |
| Allowable Reflow Cycles | 3 | |
| ESD Sensitivity ^[2] | 8kV HBM, 400V MM | |
| Reverse Voltage (Vr) | LUXEON LEDs are not designed to be driven in reverse bias | |
| Autoclave Conditions | 121°C at 2 ATM 100% Relative Humidity for 96 Hours Maximum | |

LUXEON F ES Absolute Ratings.

| PARAMETER | COOL WHITE | |
|--|--|--|
| Minimum DC Forward Current | 50mA | |
| Maximum DC Forward Current | 1000mA | |
| Maximum Junction Temperature ^[1] | 150°C | |
| Operating Case Temperature at Test Current ^[1] | -40 to 120°C | |
| Operating Case Temperature at Maximum Current ^[1] | -40 to 120°C | |
| Storage Temperature | -40 to 130°C | |
| Soldering Temperature | 240°C | |
| Allowable Reflow Cycles | 3 | |
| ESD Sensitivity ^[2] | 8kV HBM, 400V MM | |
| Reverse Voltage (Vr) | LUXEON LEDs are not designed to be driven in reverse bias | |
| Autoclave Conditions | 121°C at 2 ATM 100% Relative Humidity for 96 Hours Maximum | |

LUXEON F PLUS Absolute Ratings.

| PARAMETER | PC AMBER | COOL WHITE |
|--|--|--------------|
| Minimum DC Forward Current | 50mA | 50mA |
| Maximum DC Forward Current | 1000mA | 1000mA |
| Maximum Junction Temperature ^[1] | 135°C | 150°C |
| Operating Case Temperature at Test Current ^[1] | -40 to 110°C | -40 to 120°C |
| Operating Case Temperature at Maximum Current ^[1] | -40 to 120°C | -40 to 120°C |
| Storage Temperature | -40 to 130°C | -40 to 130°C |
| Soldering Temperature | 240°C | 240°C |
| Allowable Reflow Cycles | 3 | |
| ESD Sensitivity ^[2] | 8kV HBM, 400V MM | |
| Reverse Voltage (Vr) | LUXEON LEDs are not designed to be driven in reverse bias | |
| Autoclave Conditions | 121°C at 2 ATM 100% Relative Humidity for 96 Hours Maximum | |

LUXEON F PREMIUM Absolute Ratings.

| PARAMETER | COOL WHITE | |
|--|--|--|
| Minimum DC Forward Current | 50mA | |
| Maximum DC Forward Current | 1500mA | |
| Maximum Junction Temperature ^[1] | 150°C | |
| Operating Case Temperature at Test Current ^[1] | -40 to 130°C | |
| Operating Case Temperature at Maximum Current ^[1] | -40 to 110°C | |
| Storage Temperature | -40 to 130°C | |
| Soldering Temperature | 240°C | |
| Allowable Reflow Cycles | 3 | |
| ESD Sensitivity ^[2] | 8kV HBM, 400V MM | |
| Reverse Voltage (Vr) | LUXEON LEDs are not designed to be driven in reverse bias | |
| Autoclave Conditions | 121°C at 2 ATM 100% Relative Humidity for 96 Hours Maximum | |

Notes:

Proper current derating must be observed to maintain junction temperature below the maximum, so that the LED is maintained below the maximum rated operating case temperature. LUXEON F Family LEDs driven at or above the maximum rated operating case temperature may have shorter lifetime.
Measured using human body model and machine model (per AEC-Q101C).

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