LIGHTHOUSE LEDs

# Technical Data Sheet

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|---|---|
| **Product Name:** | 3 Watt High Power Star LED - Warm / Soft White |
| **Part Number:** | 3WATTSTARLEDWARMWHITE |
| **SKU:** | 3WATTSTARLEDWARMWHITE |
| **Package:** | 3W Star 20mm Aluminum PCB |
| **Date:** | 2026-03-30 |

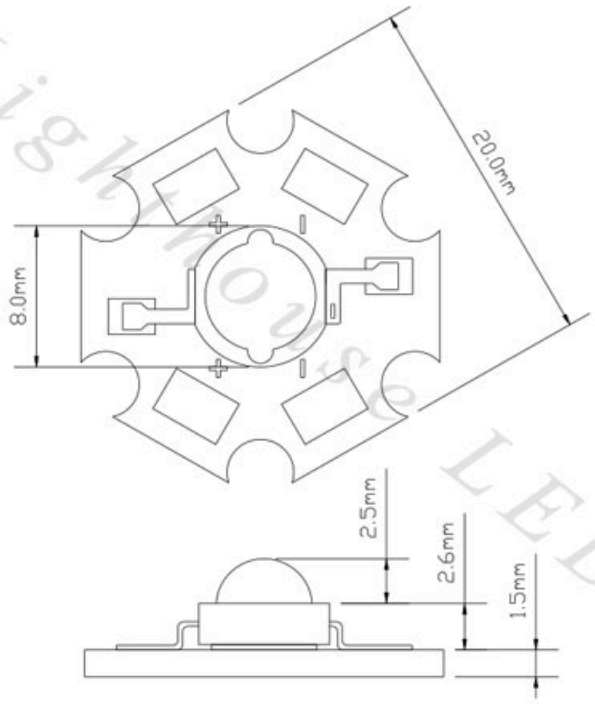
| Document Control | | |
|---|---|---|
| **Prepared by** | Checked by | Approved by |

Lighthouse LEDs

## 1. Features

- Package: 3W Star 20mm Aluminum PCB
- Color: Ultra Bright Warm White
- Lens: Clear/Diffused
- Die Material: InGaN
- RoHS Compliant, Lead-Free

## 2. Outline Dimensions

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| Unit | Tolerance | Die Material | Lens Color | Emission Color |
|---|---|---|---|---|
| mm | ±0.2mm | InGaN | Clear/Diffused | Warm White |

## 3. Electrical / Optical Characteristics (Ta = 25°C, RH 60%)

| Parameter | Symbol | Test Condition | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|
| Forward Voltage | VF | IF = 750mA | 3.2 | — | 3.6 | V |
| Reverse Current | IR | VR = 5V | — | — | 5 | μA |
| Luminous Flux | ΦV | IF = 750mA | 170 | — | 180 | lm |
| Viewing Angle | 2θ1/2 | IF = 750mA | — | 120 | — | ° |
| Dominant Wavelength | λd | IF = 750mA | — | 455 | — | nm |
| Spectral Line Half-Width | Δλ | IF = 750mA | — | 20 | — | nm |

Remark: Tolerance of intensity ±15%, wavelength ±1nm, forward voltage ±0.05V. For reference only.

## 4. Absolute Maximum Ratings (Ta = 25°C, RH 60%)

| Parameter | Symbol | Value | Unit | Remark |
|---|---|---|---|---|
| Forward Current | IF | 700 | mA | — |
| Peak Forward Current | IFM | 1000 | mA | F=1kHz, duty cycle 1/10 |
| Reverse Voltage | VRP | 5 | V | — |
| Power Dissipation | Pd | 3000 | mW | — |
| Operating Temperature | Tamb | -25 to +80 | °C | — |
| Storage Temperature | Tstg | -35 to +85 | °C | — |
| Soldering Temperature | Tsol | Reflow 260°C/5s | | |

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## 5. Typical Electrical / Optical Characteristic Curves

**Fig.1 Relative Intensity vs. Wavelength**

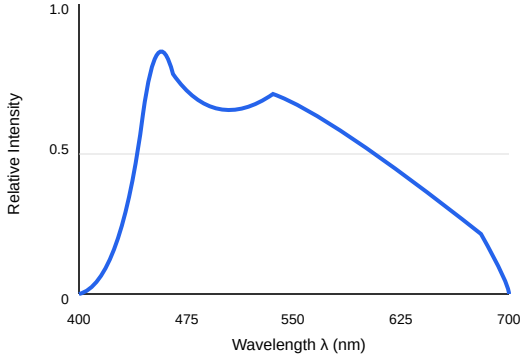



**Fig.2 Forward Current Derating vs. Temperature**

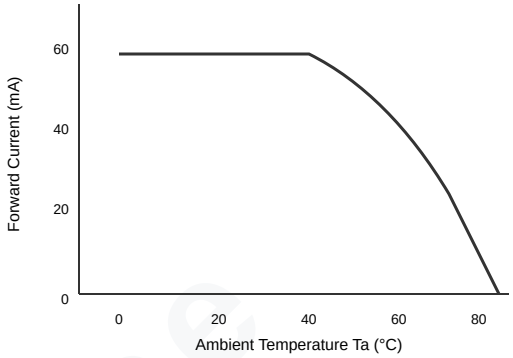



**Fig.4 Relative Intensity vs. Forward Current**

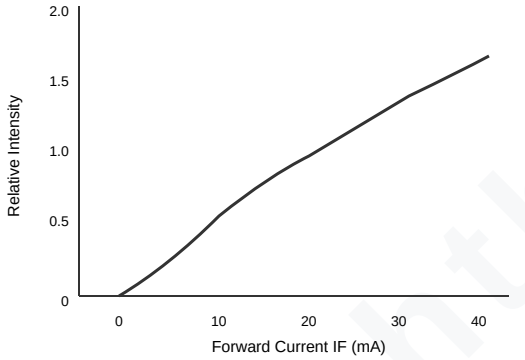



**Fig.5 Intensity vs. Ambient Temperature**

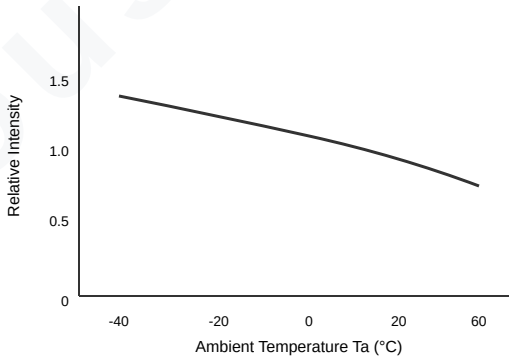
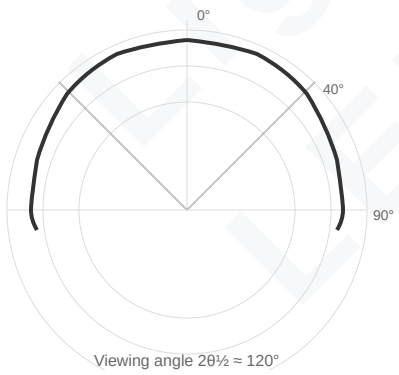



**Fig.6 Spatial Distribution (Radiation Pattern)**

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## 6. Reliability Test Data

| Test | Standard | Conditions | Duration | Qty | Failures |
|---|---|---|---|---|---|
| Life Test (room temp) | JIS7021:B4 | Ta = 25°C ±5°C, IF = 30mA | 100 hrs | 22 | 0 |
| High Temperature Storage | JIS7021:B10 / MIL-STD-202:210A | Ta = 85°C ±5°C | 1000 hrs | 22 | 0 |
| Low Temperature Storage | JIS7021:B12 | Ta = -35°C ±5°C | 1000 hrs | 22 | 0 |
| High Temp / Humidity | JIS7021:B11 / MIL-STD-202:103D | Ta = 85°C ±5°C, RH = 85% | 1000 hrs | 22 | 0 |
| Thermal Shock | JIS7021:B4 / MIL-STD-202:107D | -10°C ↔ +100°C, 5min each | 50 cycles | 22 | 0 |
| Temperature Cycling | JIS7021:A3 / MIL-STD-705:105E | -35°C ~ -25°C ~ 85°C ~ -35°C | 50 cycles | 22 | 0 |

## 7. Application Notes

- Always use a current-limiting resistor. See **lighthouseleds.com/blog/led-resistor-calculator.html**
- For AC or DCC power, add a bridge rectifier. See **lighthouseleds.com/blog/bridge-rectifier-led-ac-dcc-landscape-lighting.html**
- Observe polarity: longer lead = anode (+), shorter lead with flat = cathode (−).
- Do not exceed maximum forward current (700mA continuous).

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*Specifications subject to change without notice. Data is for reference only.*