

# LIGHTHOUSE LEDs

## Technical Data Sheet

**Product Name:** 3mm Round Top Diffused Red LED - Ultra Bright

**Part Number:** 3MMDIFFUSEDROUNDTOPLEDRED

**SKU:** 3MMDIFFUSEDROUNDTOPLEDRED

**Package:** 3mm (T-1) Diffused Round Top

**Date:** 2026-03-30

### Document Control

Prepared by

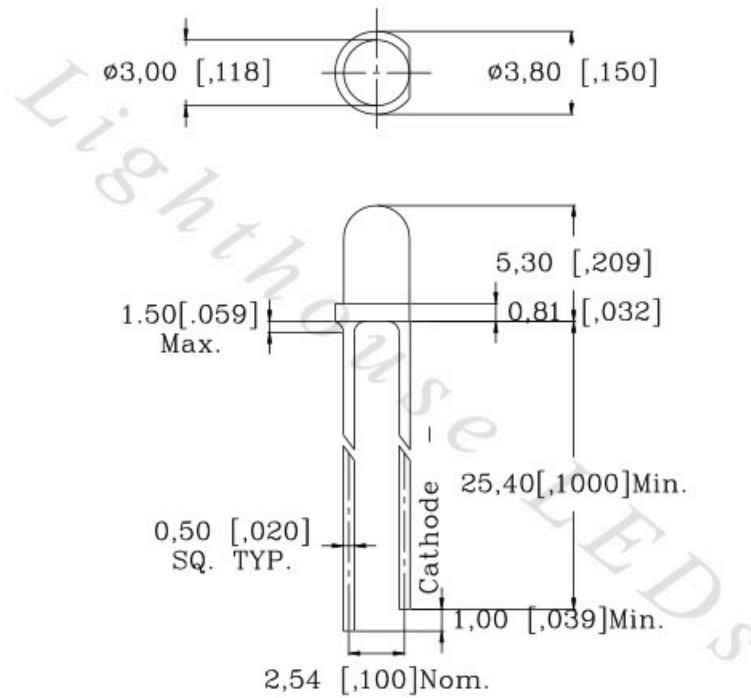
Checked by

Approved by

### 1. Features

- Package: 3mm (T-1) Diffused Round Top
- Color: Ultra Bright Red
- Lens: Diffused In Emitting Color
- Die Material: AlGaInP
- RoHS Compliant, Lead-Free

### 2. Outline Dimensions



*\*LED leads for a specific size/color/type may be a different length than shown, but will be the same consistency in size for that specific size/shape/color LED.*

Unit	Tolerance	Die Material	Lens Color	Emission Color
mm	±0.2mm	AlGaInP	Diffused In Emitting Color	Red

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

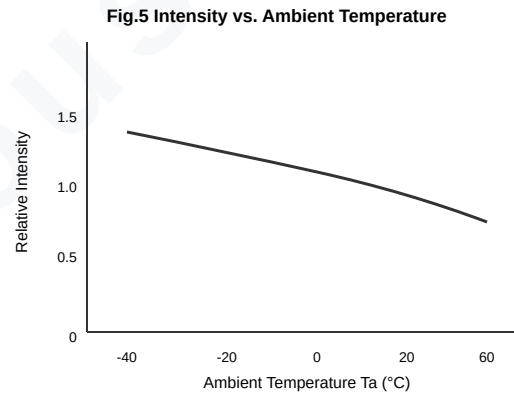
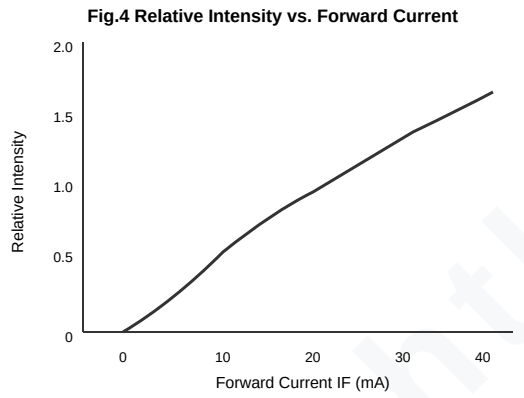
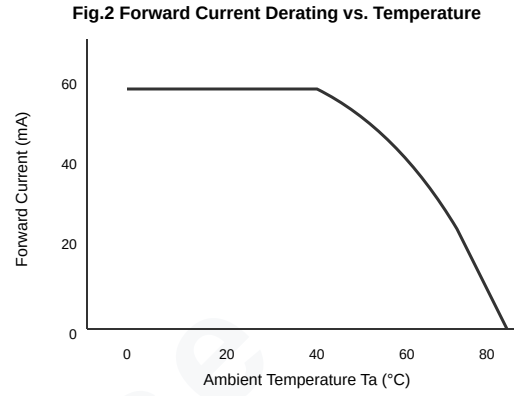
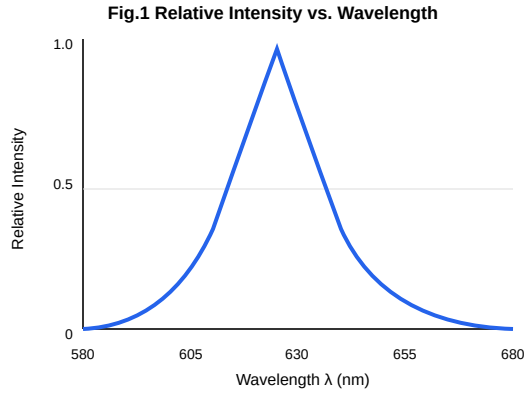
Parameter	Symbol	Test Condition	Min	Typ.	Max	Unit
Forward Voltage	VF	IF = 20mA	1.9	—	2.1	V
Reverse Current	IR	VR = 5V	—	—	5	μA
Luminous Intensity	IV	IF = 20mA	7000	—	9000	mcd
Viewing Angle	2θ1/2	IF = 20mA	—	120	—	°
Dominant Wavelength	λd	IF = 20mA	620	—	625	nm
Spectral Line Half-Width	Δλ	IF = 20mA	—	20	—	nm

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

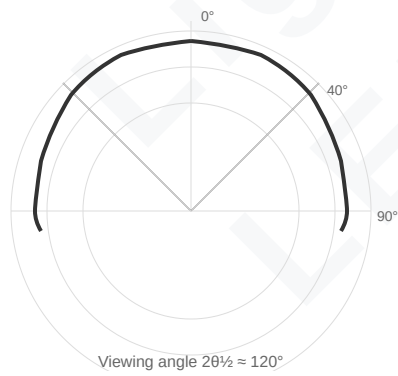
### 4. Absolute Maximum Ratings (Ta = 25°C, RH 60%)

Parameter	Symbol	Value	Unit	Remark
Forward Current	IF	20	mA	—
Peak Forward Current	IFM	75	mA	F=1kHz, duty cycle 1/10
Reverse Voltage	VRP	15	V	—
Power Dissipation	Pd	85	mW	—
Operating Temperature	Tamb	-25 to +80	°C	—
Storage Temperature	Tstg	-35 to +85	°C	—
Soldering Temperature	Tsol	320°C wave, 3mm from body, ≤5s		

### 5. Typical Electrical / Optical Characteristic Curves



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



## 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](http://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](http://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 (20mA continuous).

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