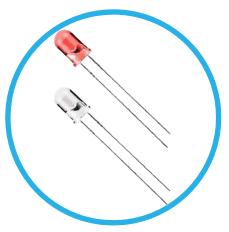


# LTH5MM12V Series 5mm (T-1 3/4) Through Hole LED Built in Resistor for 12VDC



# LTH5MM12VFR4100 - Red Water-Clear T-1 3/4 (5 mm) LED













## **Applications**

- Automotive
- Indoor and Outdoor Indication
- Industrial
- Appliances and Consumer Equipments
- Storage Servers

- Boats
- Railway
- Electronic Devices
- Residential and Landscape Lighting
- Infrastructure

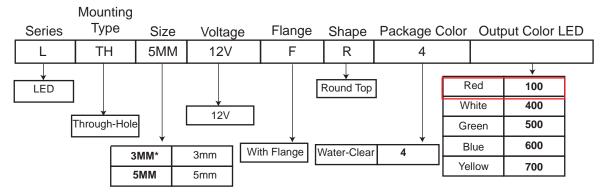
# **Key Features**

- Made with AllnGaP (Orange-Red)
- Through-hole technology
- Integrated resistor for 12VDC operation
- With Flange
- Water-Clear Lens
- LED Bulb Size: 5mm (T-1 3/4), also available in 3mm (T-1)

- RoHS and REACH Compliant
- High-Brightness LED
- Available in 5 colors (red, green, white, blue and yellow)
- Viewing Angle: 16° (red, green, yellow)
   and 20° (blue, white)
- Moisture Sensitive Level (MSL): 2

### **Ordering Data**

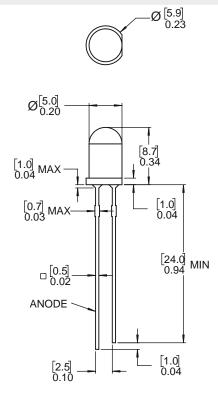
The LTH5MM12V Series is available in a range of standard features and options. To specify your LED, select one option from each column.



Part Numbers	Color
LTH5MM12VFR4100	Red
LTH5MM12VFR4400	White
LTH5MM12VFR4500	Green
LTH5MM12VFR4600	Blue
LTH5MM12VFR4700	Yellow

\*For 3mm option, please consult LTH3MM12V Series' datasheet

#### **Product Dimensions**



#### Notes:

- 1. All dimensions are in [millimeters] inches.
- 2. Tolerance is  $\pm [0.25]$  0.01 unless otherwise noted.
- 3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

## **Product Dimensions**

#### **ABSOLUTE MAXIMUM RATINGS**

(Ta=25°C)

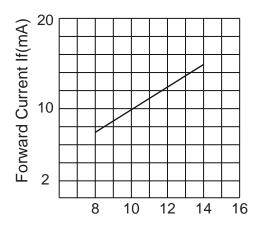
Parameter	Symbol	Ratings	Unit		
Peak Forward Current (duty 1/10 @ 1KHz)	lfp	100	mA		
Recommended Operating Current	IF(REC)	20	mA		
Power Dissipation	PD	85	mW		
Reverse Voltage	VR	5	V		
Operating Temperature Range	T <sub>OPR</sub>	-40~+85	°C		
Storage Temperature Range	T <sub>STG</sub>	-40~+100	°C		
Lead Soldering Temperature Range 1.6mm (1/16 inch) from body	Tsol	260°C for 5 seconds			

#### **OPTICAL-ELECTRICAL CHARACTERISTICS**

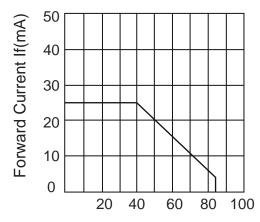
(Ta=25°C)

					`	
Parameter	Symbol	Test Condition	Min	Тур	Max	Unit
Luminous Intensity	lv	I <sub>F</sub> =12mA	3500	4500	6000	mcd
Peak Emission Wavelength	<b>λ</b> P			635		nm
Dominant Wavelength	λп		620	625	630	nm
Forward Voltage	VF		10	12	13	V
Spectral Line Half-Width	Δλ			17		nm
Viewing Angle	201/2			16		deg
Reverse Current	lR	V <sub>R</sub> =5V			10	μA

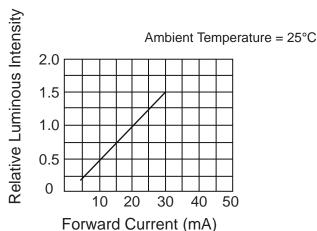
#### **Typical Electrical-Optical Characteristic Curves**



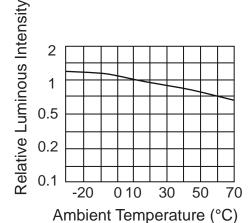
Forward Voltage(V)
Forward Current vs. Forward Voltage



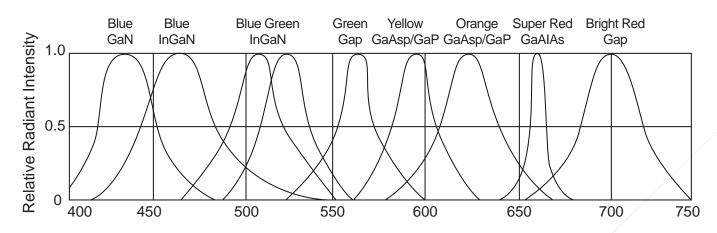
Ambient Temperature (°C)
Forward Current Derating Curve



Luminous Intensity vs. Forward Current



Luminous Intensity vs. Ambient Temperature



Wavelength λ (nm)
Relative Intensity vs. Wavelength

#### **Application Notes**

#### 1. Storage

The Storage Temperature and RH are: 5°C ~ 30°C, RH 60% or less.

We suggest our customers use our products within a year.

If the moisture absorbent material (silica gel) has faded away or the LEDs exceeded the storage time, bake treat more than 24 hours at 60°C ±5°C.

#### 2. Electrostatic Discharge (ESD)

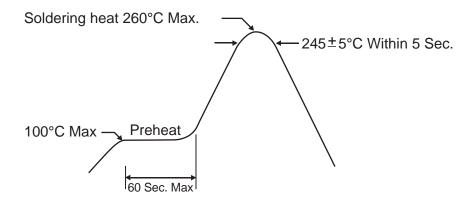
Static electricity or surge voltage will damage the LEDs.

Recommendations: Use a conductive wrist band or anti-electrostatic glove when handling these LEDs. All devices, equipment and machinery must be properly grounded.

Work tables, storage racks, etc. should be properly grounded. In the event of a manual working in process, make sure the devices are well protected from ESD at any time.

#### 3. Recommended Soldering Condition

#### Soldering heat (DIP)

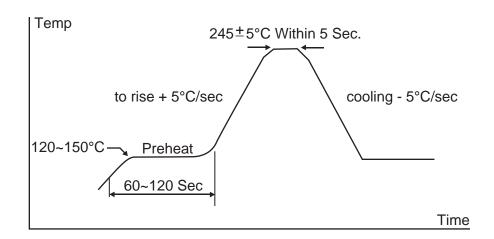


Temperature at tip of soldering iron: 350°C Max

Soldering time: 3 sec ±1 sec (once only)

# **Application Notes**

#### 4. Reflow Profile



# **Compliances and Approvals**



