



T-1 3/4(5mm) Medium Profile LED Lamps

LTL-10203 Red

LTL-10213 Bright Red

LTL-10223 High Efficiency Red

LTL-10233 Green

LTL-10253 Yellow

Features

- Low Power Consumption.
- Wide Viewing Angle.
- Medium Profile: 7.24mm (0.285") Nominal.
- General Purpose Leads.
- I.C. Compatible/Low Current Requirement.
- Reliable And Rugged.

Description

The Red source color devices are made with Gallium Arsenide Phosphide on Gallium Arsenide Red Light Emitting Diode.

The Bright Red source color devices are made with Gallium Phosphide on Gallium Phosphide Red Light Emitting Diode.

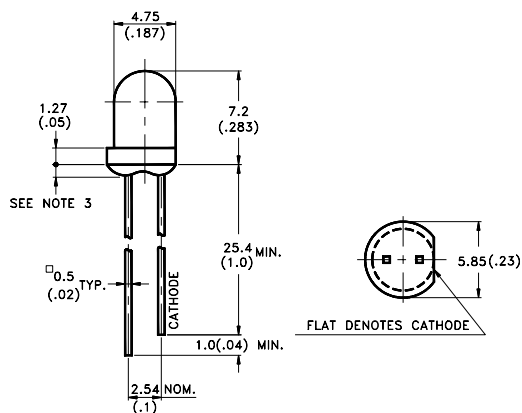
The High Efficiency Red and Orange source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

The Green source color devices are made with Gallium Phosphide on Gallium Phosphide Green Light Emitting Diode.

The Yellow source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow Light Emitting Diode.

Package Dimensions

LTL-102x3 Series



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25\text{mm}$ (.010") unless otherwise noted.
3. Protruded resin under flange is 1.5mm (.059") max.
4. Lead spacing is measured where the leads emerge from the package.
5. Specifications are subject to change without notice.

Devices

Part No. LTL-	Lens	Source Color
10203	Red Diffused	Red
10213	Red Diffused	Bright Red
10223	Red Diffused	Hi. Eff. Red
10233	Green Diffused	Green
10253	Yellow Diffused	Yellow

Absolute Maximum Ratings at Ta=25°C

Parameter	Red	Bright Red	Green	Yellow	Hi. Eff. Red	Unit
Power Dissipation	80	40	100	60	100	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	200	60	120	80	120	mA
Continuous Forward Current	40	15	30	20	30	mA
Derating Linear From 50°C	0.5	0.2	0.4	0.25	0.4	mA/°C
Reverse Voltage	5	5	5	5	5	V
Operating Temperature Range	-55°C to +100°C					
Storage Temperature Range	-55°C to +100°C					
Lead Soldering Temperature [1.6mm (.063 in.) from body]	260°C for 5 Seconds					

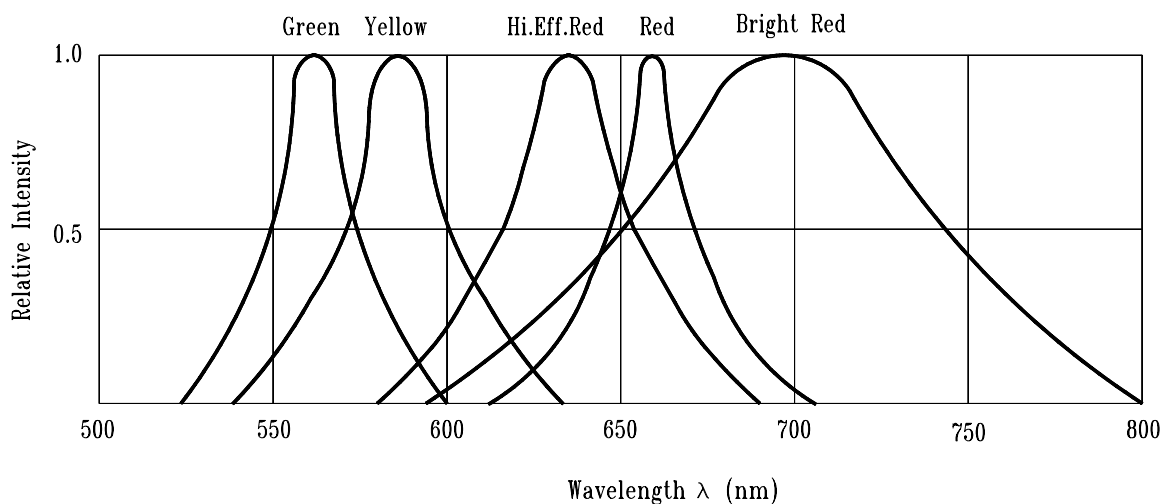


Fig.1 Relative Intensity vs. Wavelength

Electrical/Optical Characteristics at Ta=25°C

Parameter	Symbol	Part No. LTL-	Min.	Typ.	Max.	Unit.	Test Condition.
Luminous Intensity	Iv	10203	0.4	1.1		mcd	If=10 mA Note 1,4
		10213	1.7	5.6			
		10223	3.7	12.6			
		10233	3.7	12.6			
		10253	3.7	12.6			
Viewing Angle	$2\theta_{1/2}$	102x3		60		deg	Note 2 (Fig.7)
Peak Emission Wavelength	λP	10203		655		nm	Measurement @Peak (Fig.1)
		10213		697			
		10223		635			
		10233		565			
		10253		585			
Dominant Wavelength	λd	10203		651		nm	Note 3
		10213		657			
		10223		623			
		10233		569			
		10253		588			
Spectral Line Half Width	$\Delta\lambda$	10203		24		nm	
		10213		90			
		10223		40			
		10233		30			
		10253		35			
Forward Voltage	V _F	10203		1.7	2.0	V	If=20mA
		10213		2.1	2.6		
		10223		2.0	2.6		
		10233		2.1	2.6		
		10253		2.1	2.6		
Reverse Current	I _R	102x3			100	μA	V _R =5V
Capacitance	C	10203		30		pF	V _F =0 , f=1MHz
		10213		55			
		10223		20			
		10233		35			
		10253		15			

Notes:1.Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.

2. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

3.The dominant wavelength, λd is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

4.Iv needs $\pm 15\%$ additionaly for guaranteed limits.

Typical Electrical/Optical Characteristic Curves (25°C Ambient Temperature Unless Otherwise Noted)

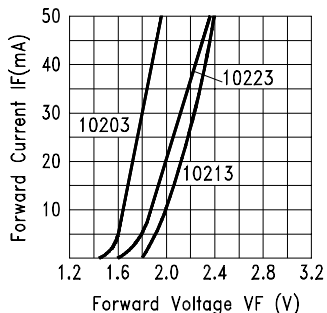


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

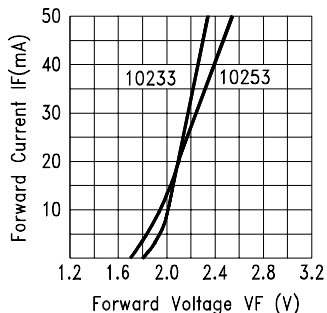


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

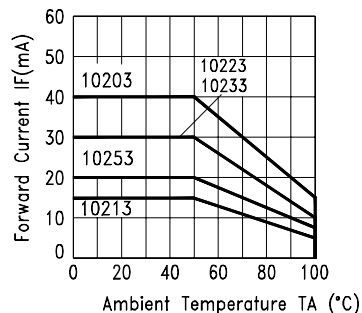


Fig.4 FORWARD CURRENT DERATING CURVE

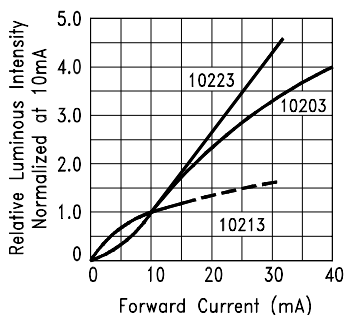


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

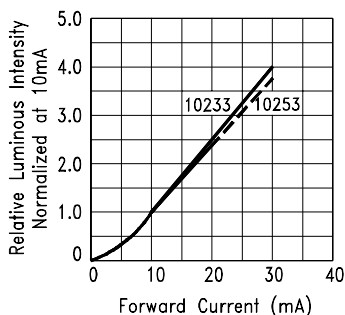


Fig.6 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

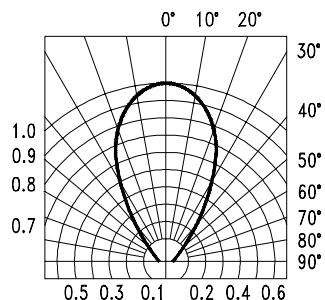


Fig.7 SPATIAL DISTRIBUTION

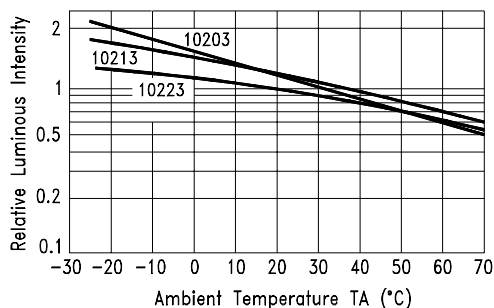


Fig.8 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

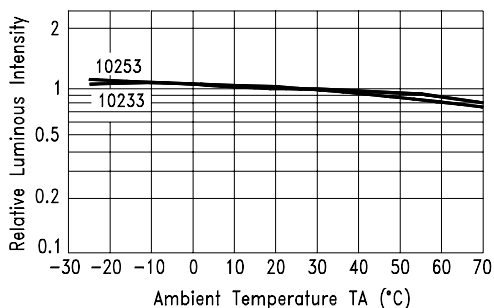


Fig.9 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE