Dot Point LED Lamps

LTL-709P Bright Red
LTL-709E High Efficiency Red
LTL-709L STD. Green
LTL-709Y Yellow

Features

- Low power consumption.
- General purpose leads.
- I.C. compatible/low current requirements.
- Reliable and rugged.

Description

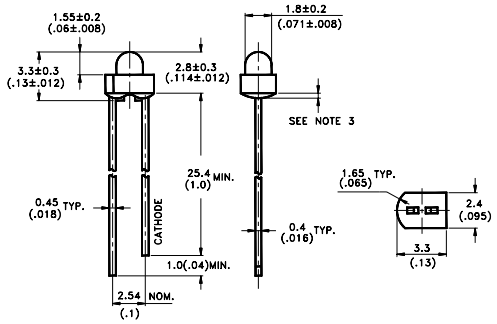
The Bright Red source color devices are made with Gallium Phosphide on Gallium Phosphide Red Light Emitting diode.

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

The STD. 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



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25mm (.010") unless otherwise noted.
3. Protruded resin under flange is 1.0mm (.04") 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
709P	Red Diffused	Bright Red
709E	Red Diffused	Hi. Eff. Red
709L	Green Diffused	STD. Green
709Y	Yellow Diffused	Yellow

Absolute Maximum Ratings at Ta=25℃

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

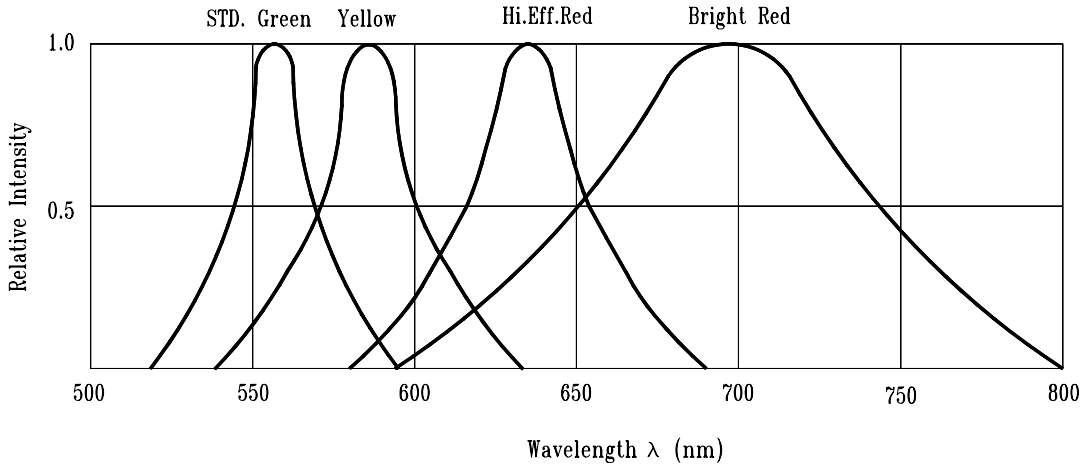


Fig.1 Relative Intensity vs. Wavelength

Electrical/Optical Characteristics at Ta=25℃

Parameter	Symbol	Part No. LTL-	Min.	Typ.	Max.	Unit.	Test Condition.
Luminous Intensity	Iv	709P 709E 709L 709Y	11 3.7 2.5 3.7	3.7 12.6 8.7 12.6		mcd	IF=10 mA Note 1,4
Viewing Angle	2 θ 1/2	709x		38		deg	Note 2 (Fig.7)
Peak Emission Wavelength	λ P	709P 709E 709L 709Y		697 635 560 585		nm	Measurement @Peak (Fig.1)
Dominant Wavelength	λ d	709P 709E 709L 709Y		657 623 561 588		nm	Note 3
Spectral Line Half Width	△λ	709P 709E 709L 709Y		90 40 30 35		nm	
Forward Voltage	VF	709P 709E 709L 709Y		2.1 2.0 2.1 2.1	2.6 2.6 2.6 2.6	V	IF=20mA
Reverse Current	IR	709x			100	μA	VR=5V
Capacitance	C	709P 709E 709L 709Y		55 20 35 15		pF	VF=0 , f=1MHz

Notes:1.Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2. θ1/2 is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
3.The dominant wavelength, λ d is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
4.Iv needs ± 15% additionary for guaranteed limits.

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

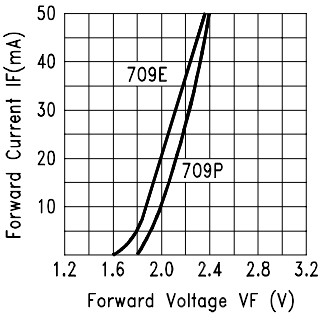


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

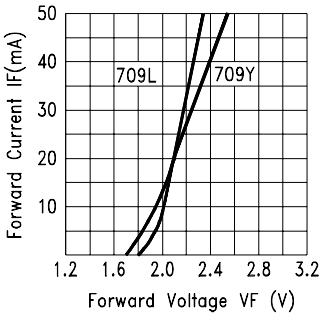


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

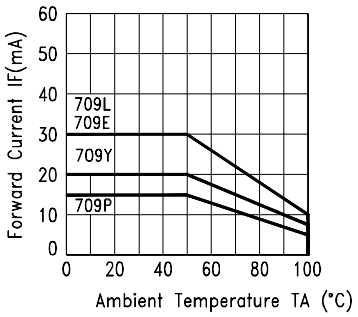


Fig.4 FORWARD CURRENT DERATING CURVE

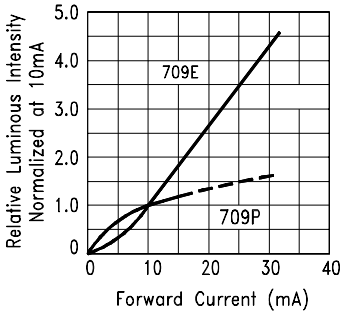


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

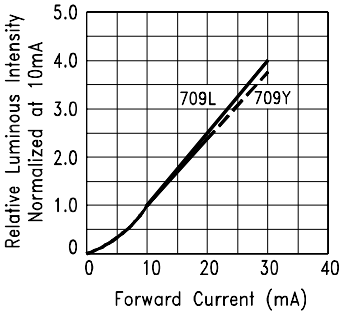


Fig.6 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

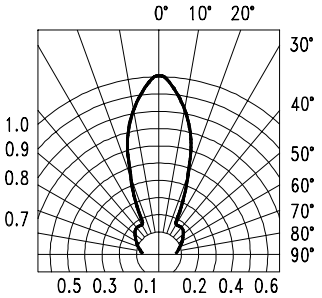


Fig.7 SPATIAL DISTRIBUTION

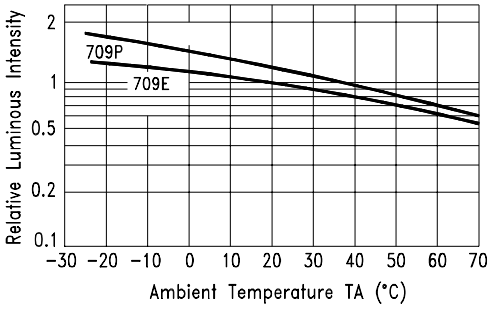


Fig.8 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

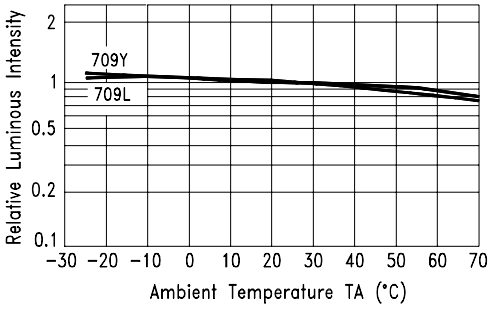


Fig.9 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE