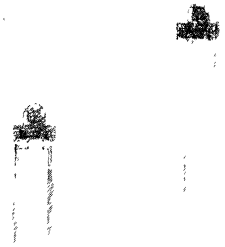
LITEON

(1.8mm) DOT POINT LED LAMPS

LTL-709R RED **LTL-709Y YELLOW**
LTL-709E HIGH EFFICIENCY RED LTL-709EA ORANGE
LTL-709L GREEN

FEATURES

- LOW POWER CONSUMPTION.
- GENERAL PURPOSE LEADS.
- I.C. COMPATIBLE/LOW CURRENT REQUIREMENTS.
- RELIABLE AND RUGGED.



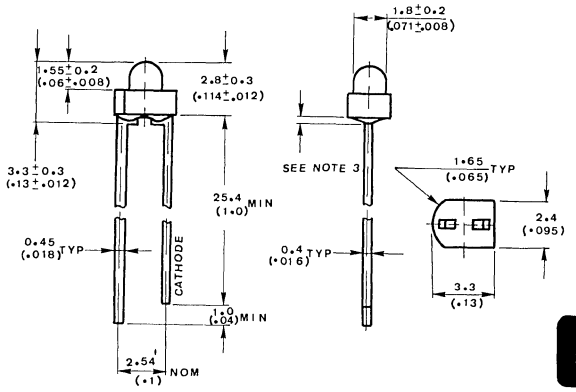
DESCRIPTION

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

DEVICES

PART NO. LTL–	LENS		SOURCE COLOR
	COLOR	DIFFUSION	
709R	Red	Diffused	Red
709E	Red	Diffused	Hi. Eff. Red
709L	Green	Diffused	Green
709Y	Yellow	Diffused	Yellow
709EA	Orange	Diffused	Orange

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 1.5mm (.059") max.
4. Lead spacing is measured where the leads emerge from the package.
5. Specifications are subject to change without notice.

LED LAMPS

ABSOLUTE MAXIMUM RATINGS AT $T_A = 25°C$

PARAMETER	RED	GREEN	YELLOW	HI. EFF. RED ORANGE	UNIT
Power Dissipation	80	100	60	100	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	200	120	80	120	mA
Continuous Forward Current	40	30	20	30	mA
Derating Linear From 25°C	0.5	0.4	0.25	0.4	mA/°C
Reverse Voltage	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 (0.063in) From Body]	260°C for 5 Seconds				

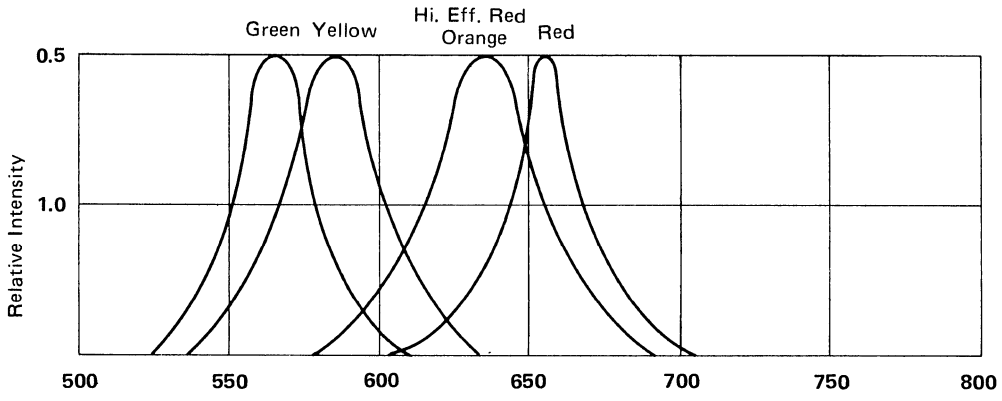


FIG. 1 RELATIVE INTENSITY VS. WAVELENGTH

ELECTRICAL/OPTICAL CHARACTERISTICS AND CURVES AT $T_A = 25°C$

PARAMETER	SYMBOL	PART NO. LTL–	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Luminous Intensity	Iv	709R 709E	0.3 0.7	0.7 3.0		mcd	I_F = 10 mA Note 1
Viewing Angle	$2\theta\frac{1}{2}$	709R 709E		25° 38°		deg.	Note 2 (Fig. 6) (Fig.11)
Peak Emission Wavelength	λPEAK	709R 709E		655 635		nm	Measurement @ Peak (Fig. 1)
Spectral Line Half Width	$\Delta\lambda$	709R 709E		24 40		nm	
Forward Voltage	V_F	709R 709E		1.7 2.0	2.0 2.8	V	I_F = 20 mA
Reverse Current	I_R	709R 709E			100	μA	V_R = 5V
Capacitance	C	709R 709E		30 20		PF	V_F = 0 f = 1 MHZ

NOTES: 1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commission Intenationale De L'Eclairage) eye-response curve.

2. $\theta\frac{1}{2}$ is the off-axis angle at which the liminous intensity is half the axial luminous intensity.

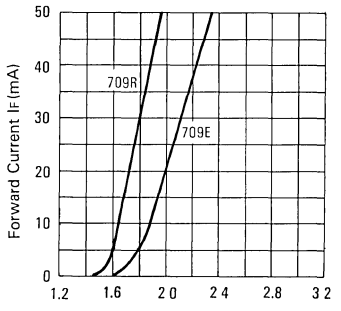


FIG. 2 FORWARD CURRENT VS FORWARD VOLTAGE

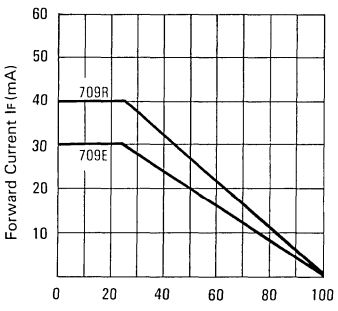


FIG 3 FORWARD CURRENT DERATING CURVE

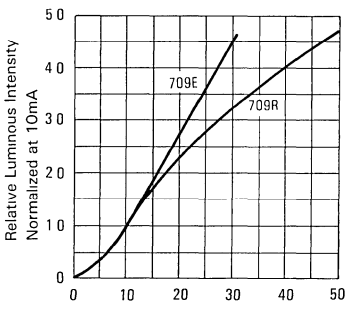


FIG. 4 RELATIVE LUMINOUS INTENSITY VS FORWARD CURRENT.

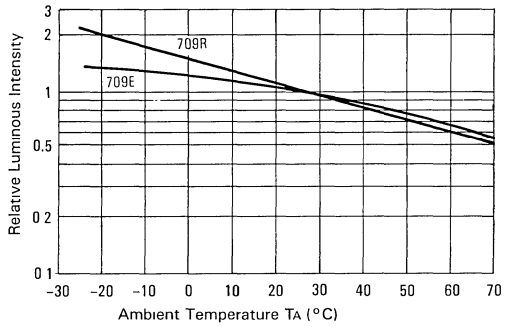


FIG 5 LUMINOUS INTENSITY VS AMBIENT TEMPERATURE

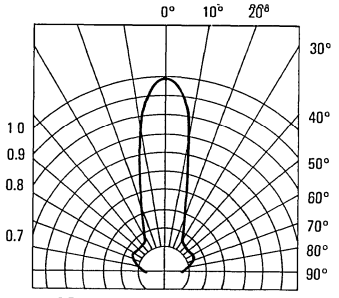


FIG 6 SPATIAL DISTRIBUTION

LED LAMPS

ELECTRICAL/OPTICAL CHARACTERISTICS AND CURVES AT T_A = 25°C

PARAMETER	SYMBOL	PART NO. LTL–	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Luminous Intensity	Iv	709L 709Y	0.5 1.1	1.5 3.5		mcd	I_F = 10 mA Note 1
Viewing Angle	$2\theta\frac{1}{2}$	709L 709Y		38°		deg.	Note 2 (Fig. 11)
Peak Emission Wavelength	λ_{PEAK}	709L 709Y		565 585		nm	Measurement @ Peak (Fig. 1)
Spectral Line Half Width	$\Delta\lambda$	709L 709Y		30 35		nm	
Forward Voltage	V_F	709L 709Y		2.1	2.8	V	I_F = 20 mA
Reverse Current	I_R	709L 709Y			100	μA	V_R = 5V
Capacitance	C	709L 709Y		35 15		PF	V_F = 0 f = 1 MHZ

NOTES: 1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commission Intenationale De L'Eclairage) eye-response curve.

2. $\theta\frac{1}{2}$ is the off-axis angle at which the liminous intensity is half the axial luminous intensity.

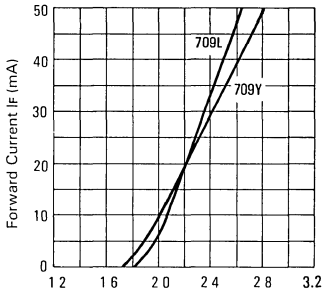


FIG 7 FORWARD CURRENT VS FORWARD VOLTAGE

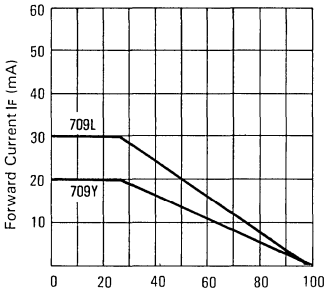


FIG 8 FORWARD CURRENT DERATING CURVE

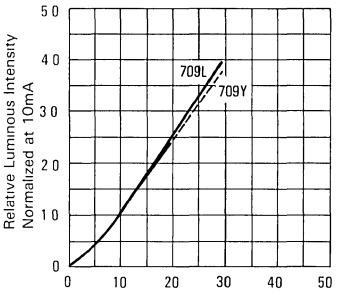


FIG 9 RELATIVE LUMINOUS INTENSITY VS FORWARD CURRENT

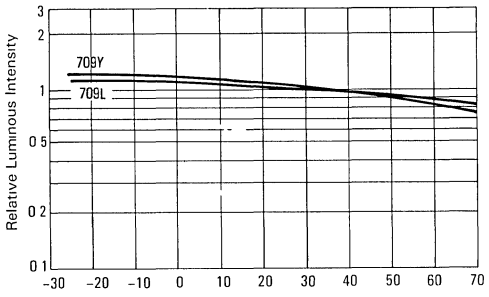


FIG 10 LUMINOUS INTENSITY VS AMBIENT TEMPERATURE

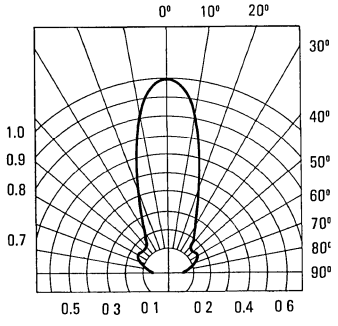


FIG 11 SPATIAL DISTRIBUTION

ELECTRICAL/OPTICAL CHARACTERISTICS AND CURVES AT $T_A = 25°C$

PARAMETER	SYMBOL	PART NO. LTL–	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Luminous Intensity	Iv	709EA	1.1	3.5		mcd	I_F = 10 mA Note 1
Viewing Angle	$2\theta\frac{1}{2}$	709EA		38°		deg.	Note 2 (Fig. 16)
Peak Emission Wavelength	λPEAK			630		nm	Measurement @ Peak (Fig. 1)
Spectral Line Half Width	Δλ			40		nm	
Forward Voltage	V_F			2.0	2.8	V	I_F = 20 mA
Reverse Current	I_R				100	μA	V_R = 5V
Capacitance	C			20		PF	V_F = 0 f = 1 MHZ

NOTES: 1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE (Commission Intenationale De L'Eclairage) eye-response curve.

2. $\theta\frac{1}{2}$ is the off-axis angle at which the liminous intensity is half the axial luminous intensity.

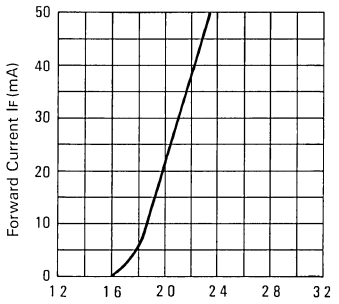


FIG 12 FORWARD CURRENT VS. FORWARD VOLTAGE

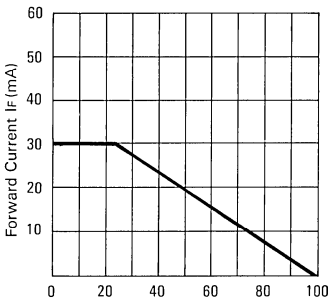


FIG 13 FORWARD CURRENT DERATING CURVE

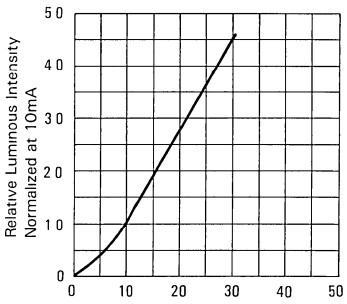


FIG 14 RELATIVE LUMINOUS INTENSITY VS FORWARD CURRENT

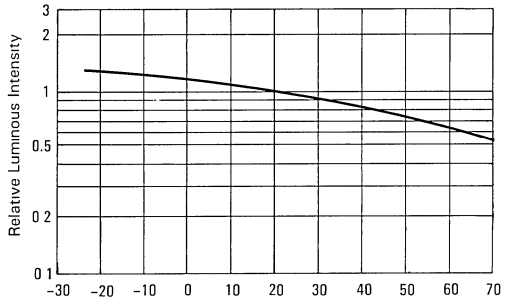


FIG. 15 LUMINOUS INTENSITY VS AMBIENT TEMPERATURE

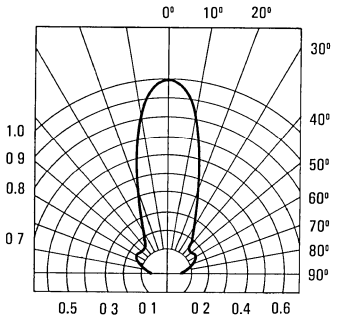


FIG. 16 SPATIAL DISTRIBUTION

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