



ARROWHEAD POINTERS LED LAMPS

LTL-8212A BRIGHT RED

LTL-8252A YELLOW

LTL-8222A HIGH EFFICIENCY RED

LTL-8292A ORANGE

LTL-8232A GREEN

LITE-ON INC

31E D 5536367 0002097 6 LTN

FEATURES

- HIGH VISIBILITY POINT SOURCE.
- MOST SUITABLE FOR DIRECTION INDICATOR OF TAPE RECORDER.
- RELIABLE AND RUGGED.
- I.C. COMPATIBLE/LOW CURRENT REQUIREMENTS.
- LOW POWER CONSUMPTION.

DESCRIPTION

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.

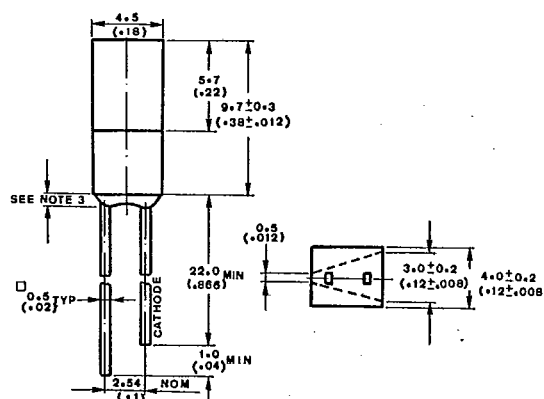
The Green source color devices are made with Gallium Phosphide on Gallium Phosphide Green Light Emitting Diode.

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

DEVICES

PART NO. LTL-	LENS		SOURCE COLOR
	COLOR	DIFFUSION	
8212A	Red	Diffused	Bright Red
8222A	Red	Diffused	Hi. Eff. Red
8232A	Green	Diffused	Green
8252A	Yellow	Diffused	Yellow
8292A	Orange	Diffused	Orange

PACKAGE DIMENSION



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.

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ABSOLUTE MAXIMUM RATINGS AT $T_A = 25^\circ\text{C}$

PARAMETER	BRIGHT RED	GREEN	YELLOW	HI. EFF. RED ORANGE	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 25°C	0.2	0.4	0.25	0.4	$\text{mA}/^\circ\text{C}$
Reverse Voltage	5	5	5	5	V
Operating Temperature Range	-55°C to $+100^\circ\text{C}$				
Storage Temperature Range	-55°C to $+100^\circ\text{C}$				
Lead Soldering Temperature [1.6mm (0.063in) From Body]	260°C for 5 Seconds				

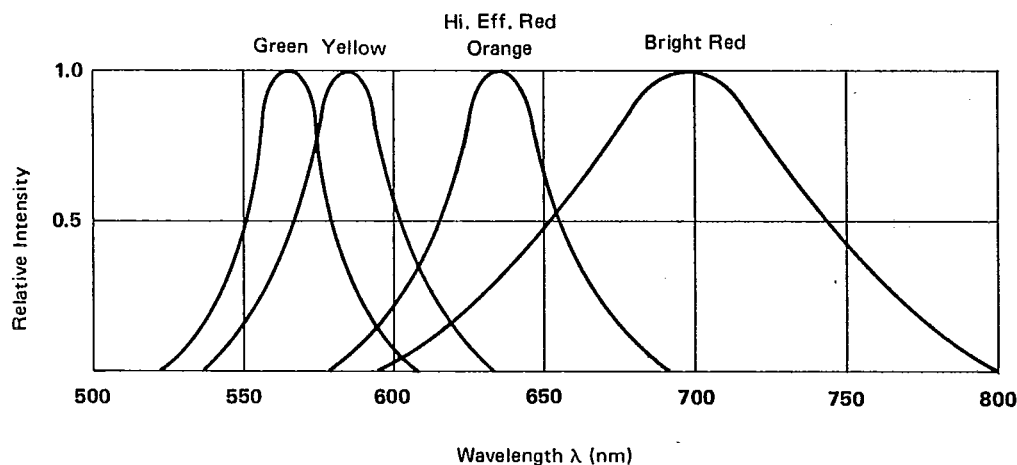


FIG. 1 RELATIVE INTENSITY VS. WAVELENGTH

ELECTRICAL/OPTICAL CHARACTERISTICS AND CURVES AT $T_A = 25^\circ\text{C}$

PARAMETER	SYMBOL	PART NO. LTL-	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Luminous Intensity	I_v	8212A 8222A	0.2 0.4	0.6 1.1		mcd	$I_F = 10\text{ mA}$ Note 1
Viewing Angle	$2\theta_{1/2}$	8212A 8222A		100		deg.	Note 2 (Fig. 6)
Peak Emission Wavelength	λ_{PEAK}	8212A 8222A		697 635		nm	Measurement @ Peak (Fig. 1)
Spectral Line Half Width	$\Delta\lambda$	8212A 8222A		90 40		nm	
Forward Voltage	V_F	8212A 8222A		2.1 2.0	2.8	V	$I_F = 20\text{ mA}$
Reverse Current	I_R	8212A 8222A			100	μA	$V_R = 5\text{ V}$
Capacitance	C	8212A 8222A		55 20		PF	$V_F = 0$ $f = 1\text{ MHz}$

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

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

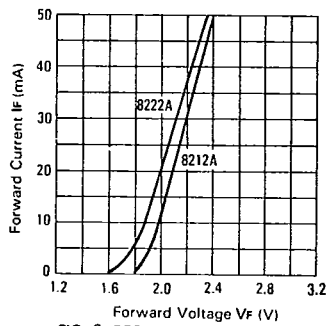


FIG. 2 FORWARD CURRENT VS. FORWARD VOLTAGE

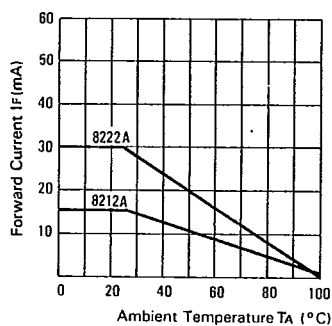


FIG. 3 FORWARD CURRENT DERATING CURVE

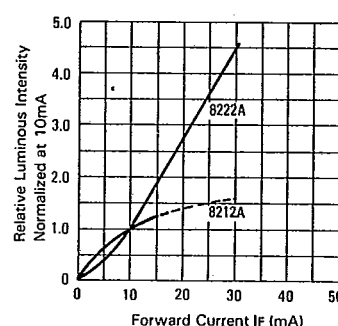


FIG. 4 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

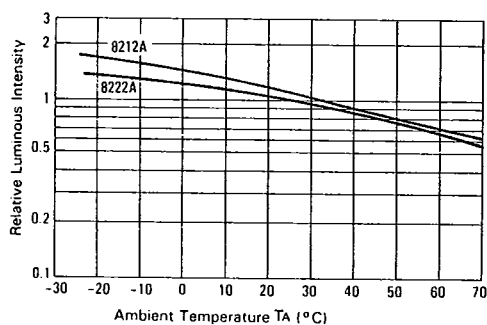


FIG. 5 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

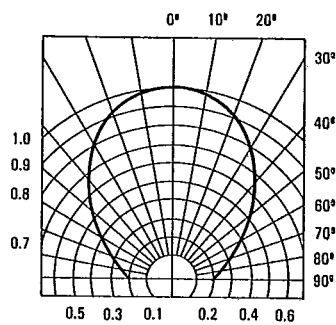


FIG. 6 SPATIAL DISTRIBUTION



ELECTRICAL/OPTICAL CHARACTERISTICS AND CURVES AT $T_A = 25^\circ\text{C}$

PARAMETER	SYMBOL	PART NO. LTL-	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Luminous Intensity	I_v	8232A 8252A	0.4 0.4	1.1 1.1		mcd	$I_F = 10\text{ mA}$ Note 1
Viewing Angle	$2\theta_{1/2}$	8232A 8252A		100		deg.	Note 2 (Fig. 11)
Peak Emission Wavelength	λ_{PEAK}	8232A 8252A		565 585		nm	Measurement @ Peak (Fig. 1)
Spectral Line Half Width	$\Delta\lambda$	8232A 8252A		30 35		nm	
Forward Voltage	V_F	8232A 8252A		2.1	2.8	V	$I_F = 20\text{ mA}$
Reverse Current	I_R	8232A 8252A			100	μA	$V_R = 5\text{ V}$
Capacitance	C	8232A 8252A		35 15		PF	$V_F = 0$ $f = 1\text{ MHz}$

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

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

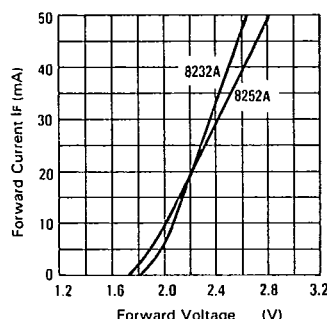


FIG. 7 FORWARD CURRENT VS. FORWARD VOLTAGE

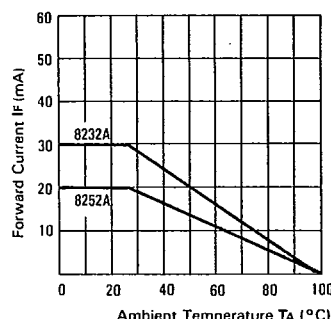


FIG. 8 FORWARD CURRENT DERATING CURVE

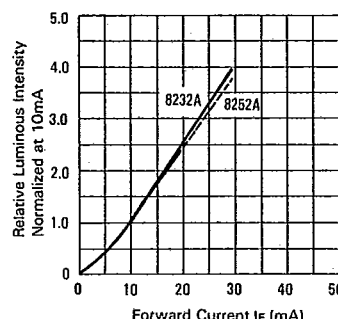


FIG. 9 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

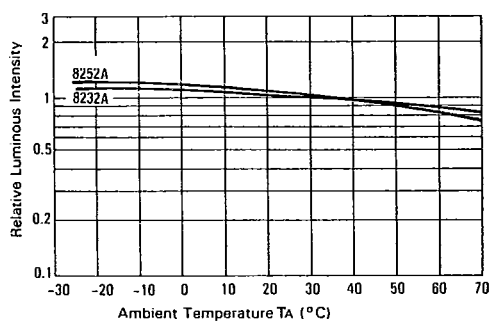


FIG. 10 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

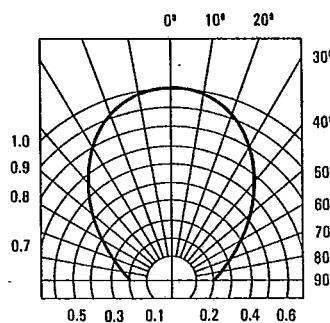


FIG. 11 SPATIAL DISTRIBUTION

ELECTRICAL/OPTICAL CHARACTERISTICS AND CURVES AT $T_A = 25^\circ\text{C}$

PARAMETER	SYMBOL	PART NO. LTL-	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Luminous Intensity	I_v	8292A	0.5	1.1		mcd	$I_F = 10\text{ mA}$ Note 1
Viewing Angle	$2\theta_{1/2}$	8292A		100		deg.	Note 2 (Fig. 16)
Peak Emission Wavelength	λ_{PEAK}			630		nm	Measurement @ Peak (Fig. 1)
Spectral Line Half Width	$\Delta\lambda$			40		nm	
Forward Voltage	V_F			2.0	2.8	V	$I_F = 20\text{ mA}$
Reverse Current	I_R				100	μA	$V_R = 5\text{ V}$
Capacitance	C			20		PF	$V_F = 0$ $f = 1\text{ MHz}$

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

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

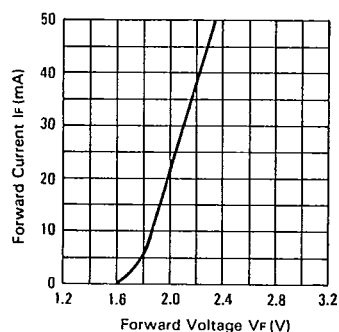


FIG. 12 FORWARD CURRENT VS. FORWARD VOLTAGE

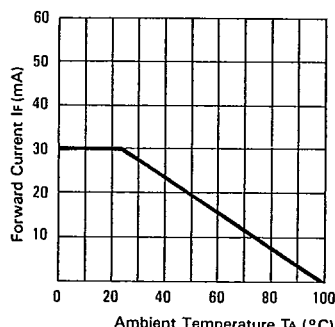


FIG. 13 FORWARD CURRENT DERATING CURVE

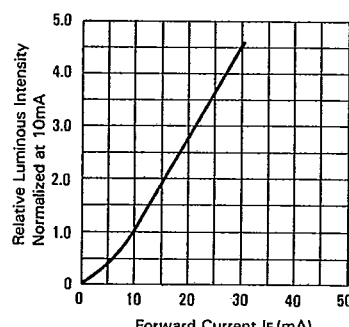


FIG. 14 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

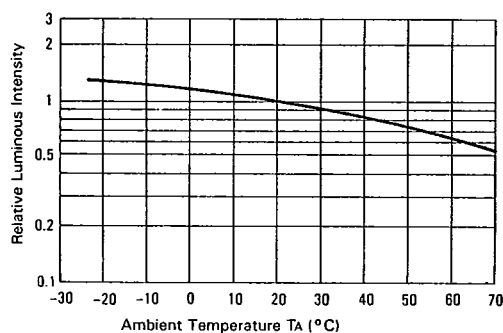


FIG. 15 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

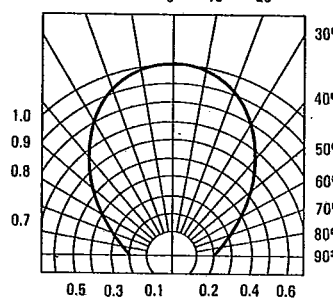


FIG. 16 SPATIAL DISTRIBUTION

