T-1 (3mm) Bi-Polar Indicator LED Lamp

LTL-10CEJ Dual High Efficiency Red
LTL-10CGJ Dual Green
LTL-10CYJ Dual Yellow
LTL-10CDJ Yellow and Green
LTL-10CHJ Red Orange and Green

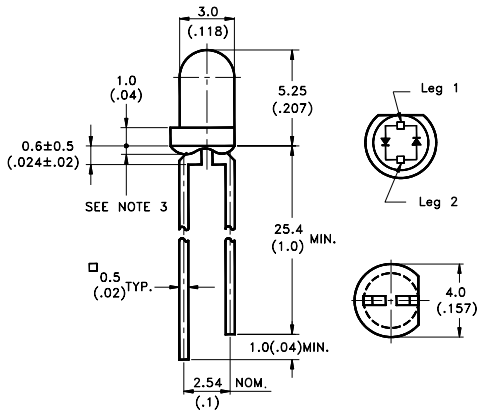
Features

- T-1 type package.
- Long life solid state reliability.
- Low power consumption.
- I.C. compatible.

Description

The LTL-10CXJ bipolar indicator lamp is a white diffused, with dual chips .
The viewing angle is wide.
The dual chips are operating Dependently of each other.
The Green LED is utilizing GaP on GaP.
The Hi-Efficiency Red LED is utilizing GaAsP on GaP.
The Yellow LED is utilizing GaAsP on GaP.
The Red Orange LED is utilizing GaAsP on GaP.

Package Dimensions



Part No. LTL-	Leg1	Leg2
10CEJ	N/A	N/A
10CGJ	N/A	N/A
10CYJ	N/A	N/A
10CDJ	Yellow Cathode	Green Cathode
10CHJ	Red Orange Cathode	Green Cathode

Devices

Part No. LTL-	Lens	Source Color
10CEJ	White Diffused	Hi. Eff. Red
10CGJ	White Diffused	Green
10CYJ	White Diffused	Yellow
10CDJ	White Diffused	Green
		Yellow
10CHJ	White Diffused	Green
		Red Orange

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.

Absolute Maximum Ratings at Ta=25℃

Parameter	Hi. Eff. Red	Green	Yellow	Red Orange	Unit
Power Dissipation	100	100	60	100	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	120	120	80	120	mA
Continuous Forward Current	30	30	20	30	mA
Derating Linear From 50℃	0.4	0.4	0.25	0.4	mA/℃
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				

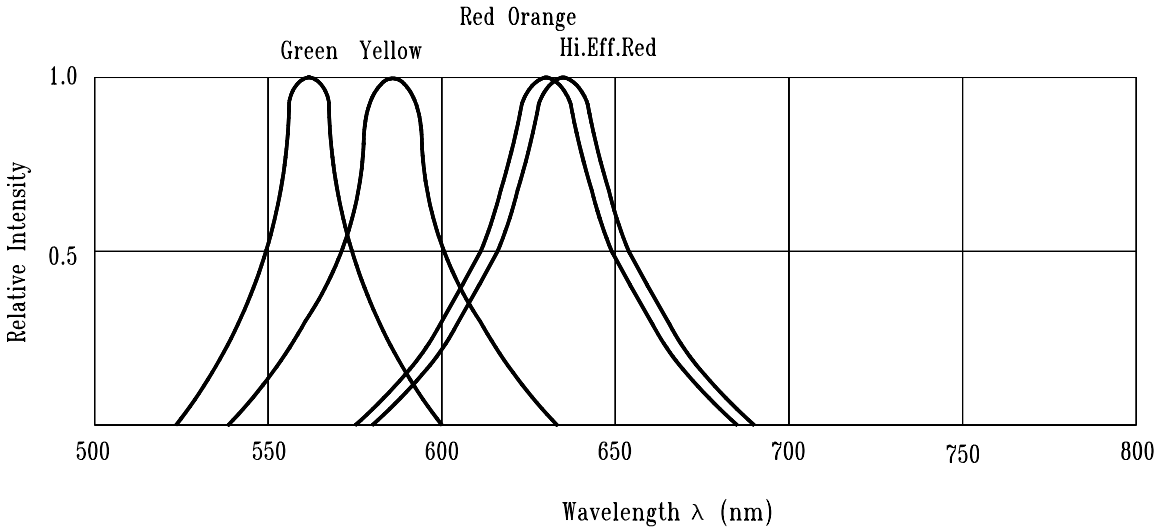


Fig.1 Relative Intensity vs. Wavelength

Electrical / Optical Characteristics and Curves at Ta=25℃

Parameter	Symbol	Part No. LTL-	Color	Min.	Typ.	Max.	Unit.	Test Condition.
Luminous Intensity	I_V	10CEJ	Hi.Eff.Red	3.7	12.6		mcd	I_F=20 mA Note 1,4
		10CGJ	Green	3.7	12.6			
		10CYJ	Yellow	2.5	8.7			
		10CDJ	Green	3.7	12.6			
			Yellow	2.5	8.7			
		10CHJ	Red Orange	2.5	8.7			
			Green	3.7	12.6			
Viewing Angle	$2\theta_{1/2}$	10CXJ			72		deg	Note 2 (Fig.7)
Peak Emission Wavelength	λP	10CEJ	Hi.Eff.Red		635		nm	Measurement @Peak (Fig.1)
		10CGJ	Green		565			
		10CYJ	Yellow		585			
		10CDJ	Green		565			
			Yellow		585			
		10CHJ	Red Orange		630			
			Green		565			
Dominant Wavelength	λd	10CEJ	Hi.Eff.Red		623		nm	Note 3
		10CGJ	Green		569			
		10CYJ	Yellow		588			
		10CDJ	Green		569			
			Yellow		588			
		10CHJ	Red Orange		621			
			Green		569			
Spectral Line Half Width	$\triangle\lambda$	10CEJ	Hi.Eff.Red		40		nm	
		10CGJ	Green		30			
		10CYJ	Yellow		35			
		10CDJ	Green		30			
			Yellow		35			
		10CHJ	Red Orange		40			
			Green		30			
Forward Voltage	V_F	10CEJ	Hi.Eff.Red		2.0	2.6	V	I_F=20mA
		10CGJ	Green		2.1	2.6		
		10CYJ	Yellow		2.1	2.6		
		10CDJ	Green		2.1	2.6		
			Yellow		2.1	2.6		
		10CHJ	Red Orange		2.0	2.6		
			Green		2.1	2.6		
Reverse Current	I_R	10CXJ				100	μA	V_R=5V,Note 5
Capacitance	C	10CEJ	Hi.Eff.Red		20		pF	V_F=0 , f=1MHz
		10CGJ	Green		35			
		10CYJ	Yellow		15			
		10CDJ	Green		35			
			Yellow		15			
		10CHJ	Red Orange		20			
			Green		35			

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, λ d is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.
4.I_V needs $\pm$ 15% additionary for guaranteed limits.
5.Reverse current is controlled by dice source.

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

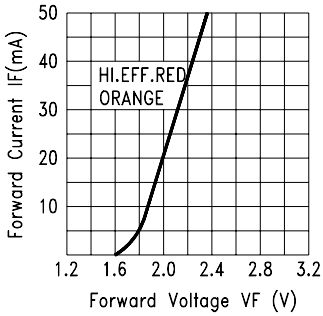


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

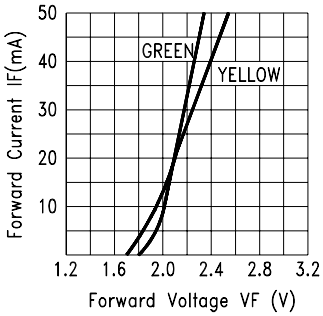


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

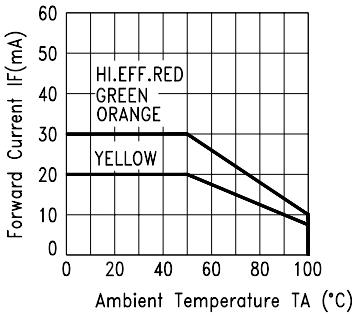


Fig.4 FORWARD CURRENT DERATING CURVE

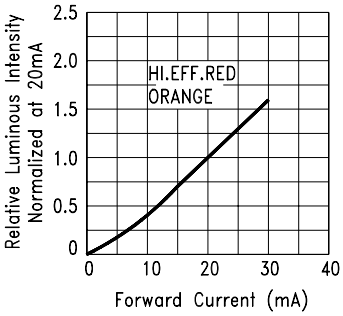


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

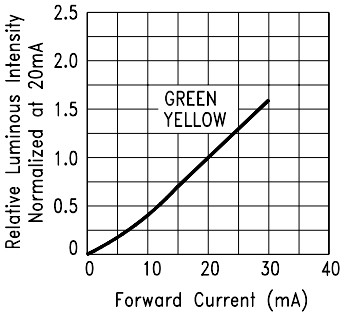


Fig.6 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

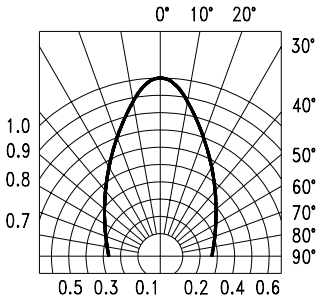


Fig.7 SPATIAL DISTRIBUTION

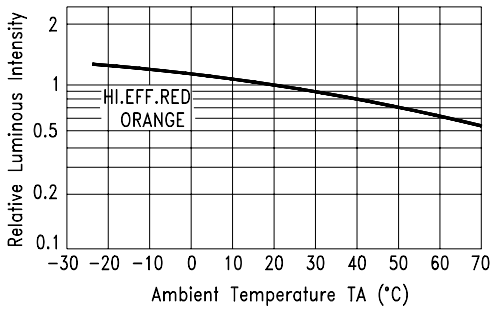


Fig.8 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

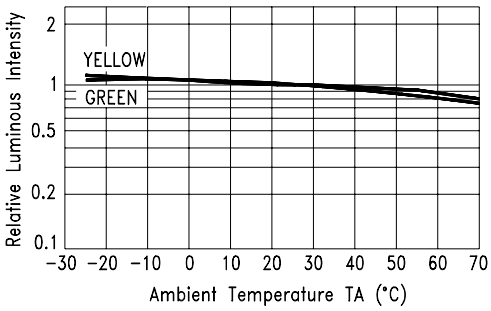


Fig.9 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE