LITEON

Chip LED Lamp

LTST- C150AKT / C190AKT Amber
LTST- C150EKT / C190EKT Orange
LTST- C150GKT / C190GKT Green
LTST- C150YKT / C190YKT Yellow
LTST- C150CKT / C190CKT GaAlAs Red
LTST- C155GYKT Green - Yellow
LTST- C155GEKT Green - Orange

Features

. Package in 8mm tape on 7" diameter reels.
. Compatible with automatic placement equipment.
. Standard with infrared and vapor phase reflow soldering process.
. EIA STD package.

Description

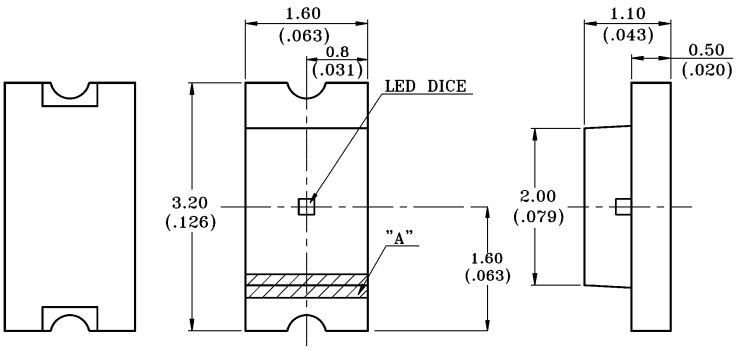
The AlGaAs Red source color are Aluminum Gallium Arsenide Red Light Emitting Diode.
The Amber source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Amber Light Emitting Diode.
The Orange source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange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

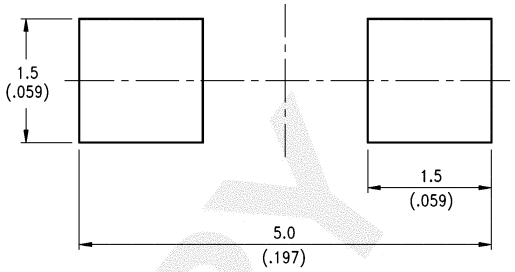
Part No. LTST-	Lens	Source Color
C150AKT C190AKT	Water Clear	GaAsP on GaP Amber
C150CKT C190CKT	Water Clear	AlGaAs on GaAs Red
C150EKT C190EKT	Water Clear	GaAsP on GaP Orange
C150GKT C190GKT	Water Clear	GaP on GaP Green
C150YKT C190YKT	Water Clear	GaAsP on GaP Yellow
C155GYKT	Water Clear	GaAsP on GaP Green-GaAsP on GaP Yellow
C155GEKT	Water Clear	GaAsP on GaP Green-GaAlAs on GaAs Red

(A) LTST-C150XKT

*Package Dimensions

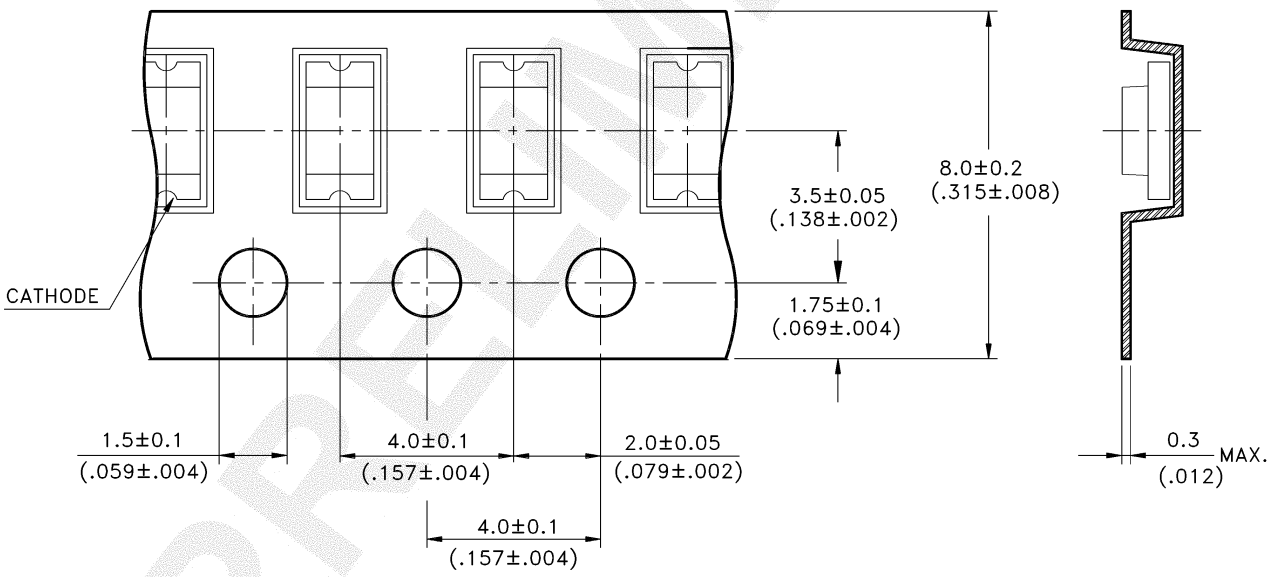


*Pad Dimensions



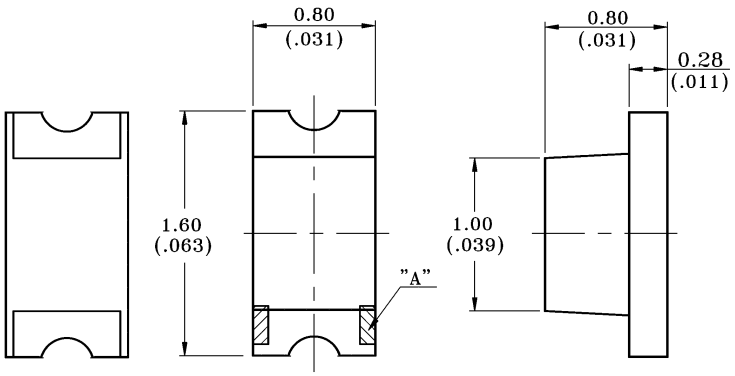
Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.1mm (.004") unless otherwise noted.
3. "A" identify cathode.
4. Specifications are subject to change without notice.

*Package Dimensions of Tape

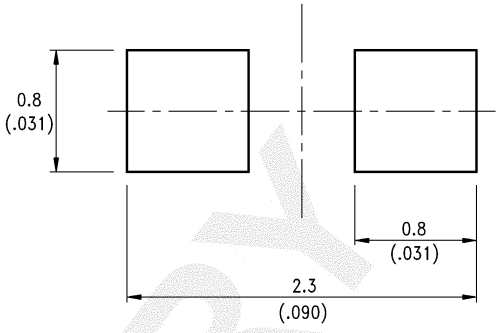


(B) LTST-C190XKT

*Package Dimensions

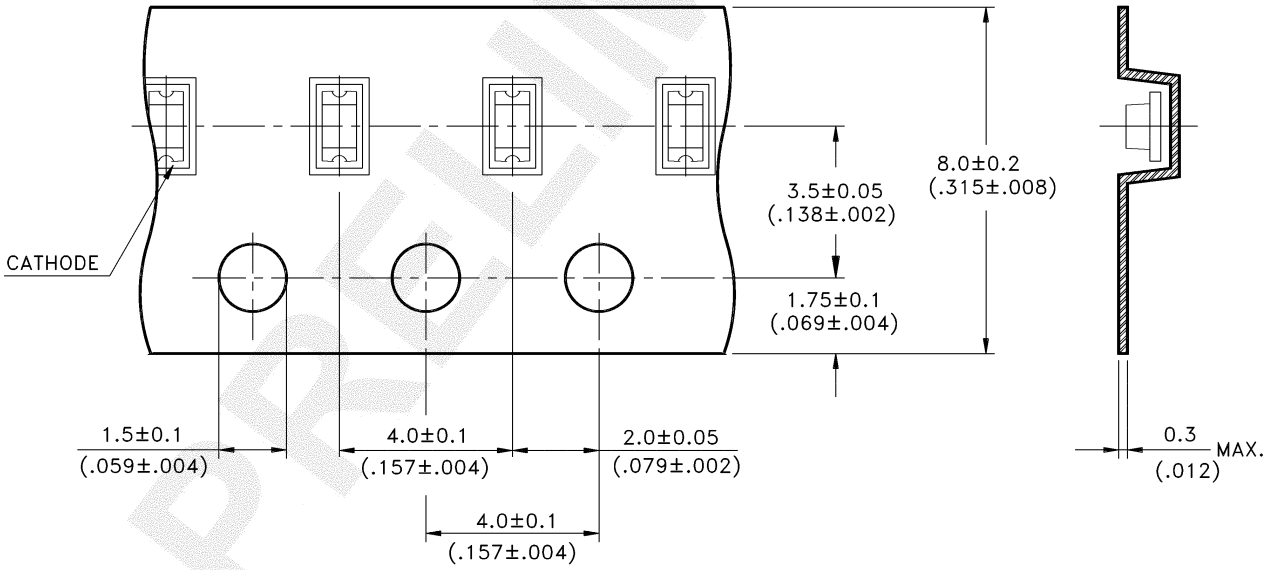


*Pad Dimensions



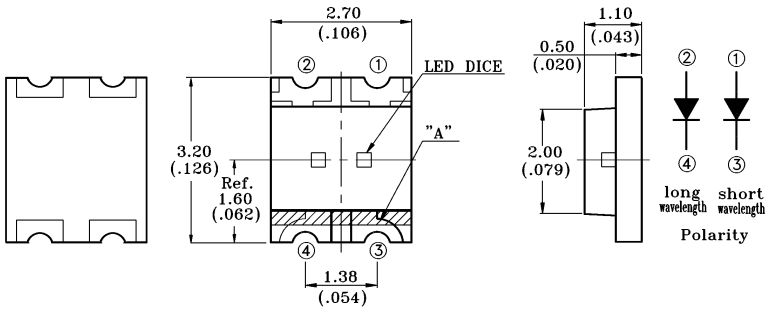
Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.1mm (.004") unless otherwise noted.
3. "A" identify cathode.
4. Specifications are subject to change without notice.

*Package Dimensions of Tape

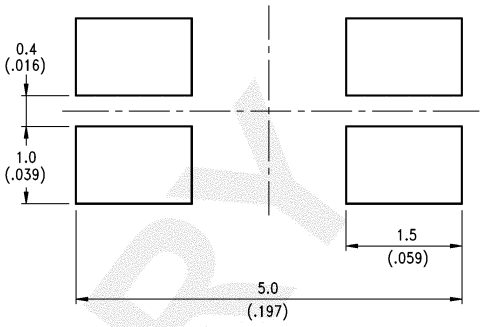


(C) LTST-C155XKT

*Package Dimensions

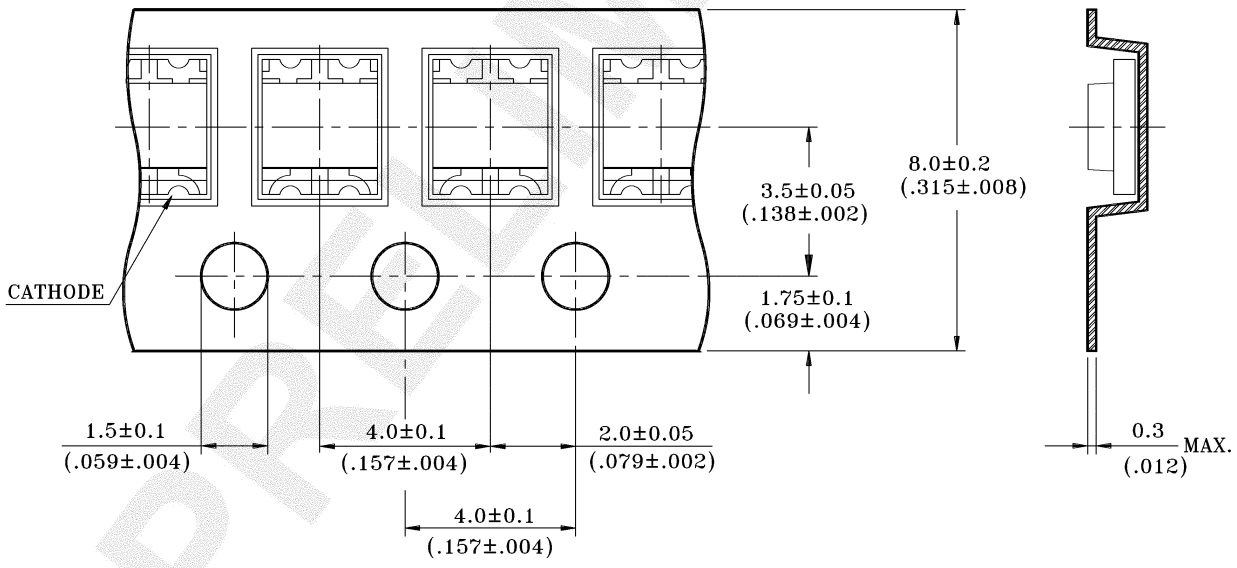


*Pad Dimensions

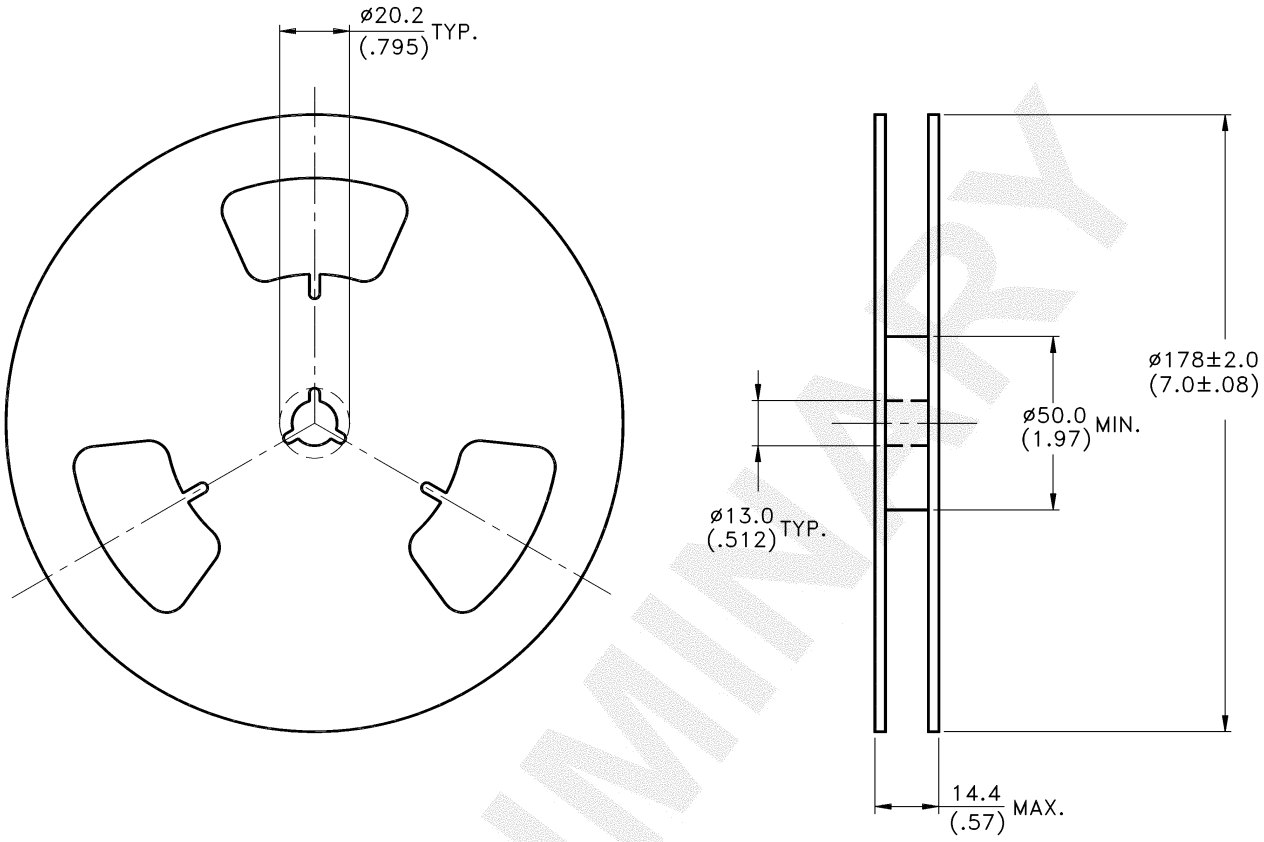


Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.1mm (.004") unless otherwise noted.
3. Specifications are subject to change without notice.

*Package Dimensions of Tape



Package Dimensions of Reel



Notes:
1. Empty component pockets sealed with top cover tape
2. 7 inch reel-3000 pieces per reel.
3. The maximum number of consecutive missing lamps are two.
4. In accordance with ANSI/EIA 481-1-A-1994 specifications.

Absolute Mmaximum Ratings at Ta=25 ℃

Parameter	Amber	Orange	Green	Yellow	GaAlAs Red	Unit
Power Dissipation	100	100	100	60	100	mW
Peak Forward Current (1/10 Duty Cycle,0.1ms Pulse Width)	120	120	120	80	200	mA
Continuous Forward Current	30	30	30	20	40	mA
Derating Linear From 50 ℃	0.6	0.6	0.6	0.4	0.8	mA/ ℃
Reverse Voltage	5	5	5	5	5	V
Operating Temperature Range	-55 ℃ to + 85 ℃					
Storage Temperature Range	-55 ℃ to + 85 ℃					
Wave Soldering Condition	260 ℃ for 5 seconds					
Infared Soldering Condition	260 ℃ for 5 seconds					
Vapor Phase Soldering Condition	215 ℃ for 3 minutes					

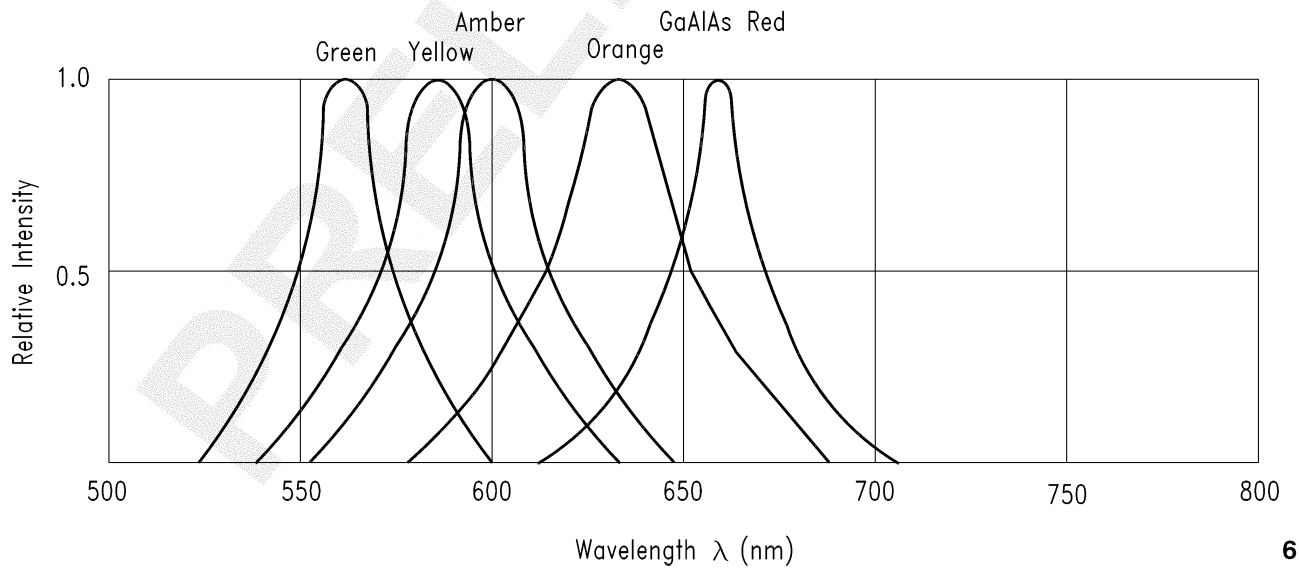


Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

Electrical/Optical Characteristics and Curves at Ta=25 ℃

Parameter	Symbol	Color	Part No. LTST-	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	GaAlAs Red	C150CKT C190CKT	3.0 3.0	20.0 20.0	100.0 100.0	mcd	IF = 10mA Note 1
		Amber	C150AKT C190AKT	1.0 1.0	6.0 6.0	30.0 30.0		
		Orange	C150EKT C190EKT	1.0 1.0	6.0 6.0	30.0 30.0		
		Green	C150GKT C190GKT	1.0 1.0	6.0 6.0	30.0 30.0		
		Yellow	C150YKT C190YKT	1.0 1.0	6.0 6.0	30.0 30.0		
Viewing Angle	2 θ ½	GaAlAs Red	C150CKT C190CKT		130 130		deg	Note 2 (Fig.6)
		Amber	C150AKT C190AKT		130 130			
		Orange	C150EKT C190EKT		130 130			
		Green	C150GKT C190GKT		130 130			
		Yellow	C150YKT C190YKT		130 130			
Peak Emission Wavelength	λ P	GaAlAs Red	C150CKT C190CKT		660 660		nm	Measurement @ peak (Fig.1)
		Amber	C150AKT C190AKT		610 610			
		Orange	C150EKT C190EKT		635 635			
		Green	C150GKT C190GKT		565 565			
		Yellow	C150YKT C190YKT		585 585			
Dominant Wavelength	λ d	GaAlAs Red	C150CKT C190CKT		638 638		nm	Note 3
		Amber	C150AKT C190AKT		602 602			
		Orange	C150EKT C190EKT		621 621			
		Green	C150GKT C190GKT		569 569			
		Yellow	C150YKT C190YKT		588 588			
Spectral Line Half-Width	Δ λ	GaAlAs Red	C150CKT C190CKT		20 20		nm	
		Amber	C150AKT C190AKT		35 35			
		Orange	C150EKT C190EKT		24 24			
		Green	C150GKT C190GKT		30 30			
		Yellow	C150YKT C190YKT		35 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, λd is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

Electrical/Optical Characteristics and Curves at Ta=25 ℃

Parameter	Symbol	Color	Part No. LTST-	Min.	Typ.	Max.	Unit	Test Condition
Forward Voltage	V_F	GaAlAs Red	C150CKT C190CKT		1.8 1.8	2.4 2.4	V	I_F = 20mA
		Amber	C150AKT C190AKT		2.1 2.1	2.6 2.6		
		Orange	C150EKT C190EKT		2.0 2.0	2.6 2.6		
		Green	C150GKT C190GKT		2.1 2.1	2.6 2.6		
		Yellow	C150YKT C190YKT		2.1 2.1	2.6 2.6		
Reverse Current	I_R	GaAlAs Red	C150CKT C190CKT			100 100	μA	V_R = 5V
		Amber	C150AKT C190AKT			100 100		
		Orange	C150EKT C190EKT			100 100		
		Green	C150GKT C190GKT			100 100		
		Yellow	C150YKT C190YKT			100 100		
Capacitance	C	GaAlAs Red	C150CKT C190CKT		30 30		PF	V_F = 0 f = 1 MHZ
		Amber	C150AKT C190AKT		15 15			
		Orange	C150EKT C190EKT		20 20			
		Green	C150GKT C190GKT		35 35			
		Yellow	C150YKT C190YKT		30 30			

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.

Electrical/Optical Characteristics and Curves at Ta=25 ℃

Parameter	Symbol	Color	Part No. LTST-	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	Green	C155GYKT C155GEKT	1.0 1.0	6.0 6.0	30.0 30.0	mcd	IF = 10mA Note 1
		Yellow	C155GYKT	1.0	6.0	30.0		
		Orange	C155GEKT	1.0	6.0	30.0		
Viewing Angle	2 θ 1/2	Green	C155GYKT C155GEKT		130 130		deg	Note 2 (FIG.6)
		Yellow	C155GYKT		130			
		Orange	C155GEKT		130			
Peak Emission Wavelength	λ P	Green	C155GYKT C155GEKT		565 565		nm	Measurement @ peak (FIG.1)
		Yellow	C155GYKT		585			
		Orange	C155GEKT		635			
Dominant Wavelength	λ d	Green	C155GYKT C155GEKT		569 569		nm	Note 3
		Yellow	C155GYKT		588			
		Orange	C155GEKT		621			
Spectral Line Half-Width	Δ λ	Green	C155GYKT C155GEKT		30 30		nm	
		Yellow	C155GYKT		35			
		Orange	C155GEKT		24			
Forward Voltage	VF	Green	C155GYKT C155GEKT		2.1 2.1	2.6 2.6	V	IF = 20mA
		Yellow	C155GYKT		2.1	2.6		
		Orange	C155GEKT		2.0	2.6		
Reverse Current	IR	Green	C155GYKT C155GEKT			100 100	μA	VR = 5V
		Yellow	C155GYKT			100		
		Orange	C155GEKT			100		
Capacitance	C	Green	C155GYKT C155GEKT		35 35		PF	VF = 0 f=1MHZ
		Yellow	C155GYKT		30			
		Orange	C155GEKT		20			

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.

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

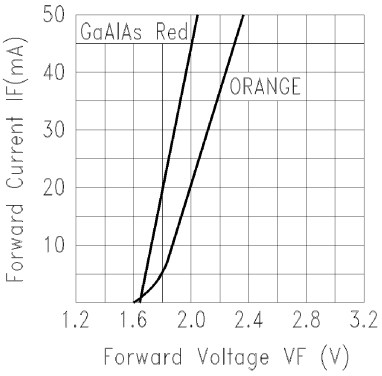


Fig.2 FORWARD CURRENT VS. FORWARD VOLTAGE

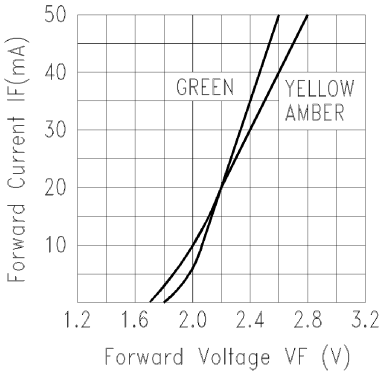


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

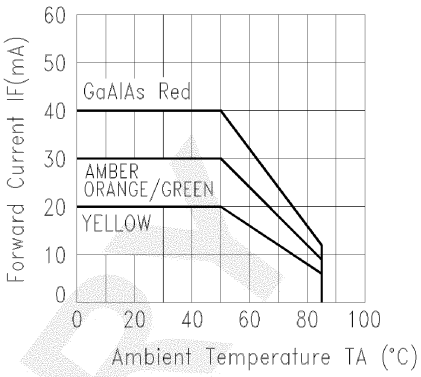


Fig.4 FORWARD CURRENT DERATING CURVE

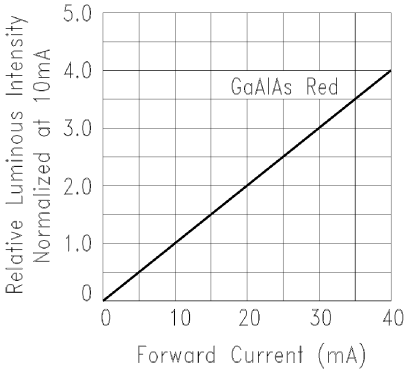


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

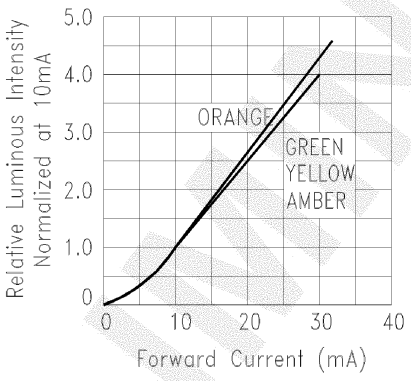


Fig.6 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

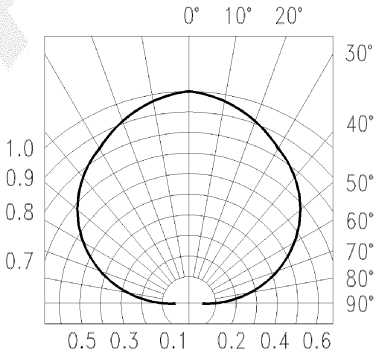


Fig.7 SPATIAL DISTRIBUTION

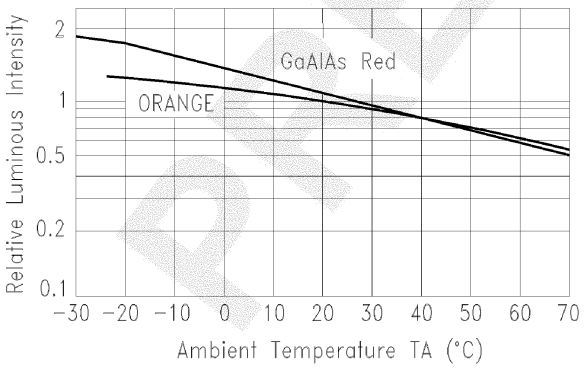


Fig.8 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

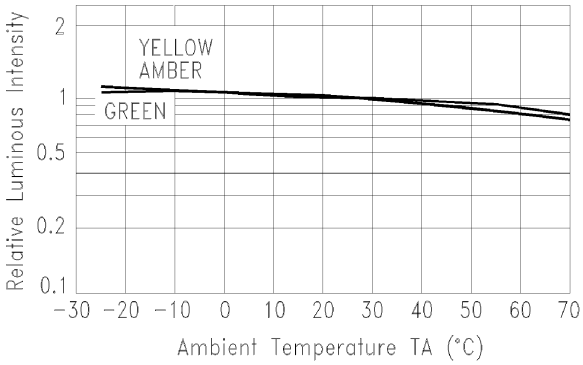


Fig.9 LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE