December 2005

QTLP651C-R Red
QTLP651C-O Yellow-Orange
QTLP651C-AG Yellow-Green
QTLP651C-IB Blue
QTLP651C-E Orange
QTLP651C-Y Yellow
QTLP651C-IG True Green

Surface Mount LED Lamp Super Bright 1206 (Inner Lens)

Features

- Small footprint – 3.0(L) x 1.5(W) x 1.5(H) mm
- AlInGaP technology for -R, -E, -O, -Y and -AG
- InGaN/SiC technology for -IG and -IB
- Narrow viewing angle of 20°
- Water clear optics
- Moisture-proof packaging
- Available in 0.315" (8mm) width tape on 7" (178mm) diameter reel; 2,000 units per reel

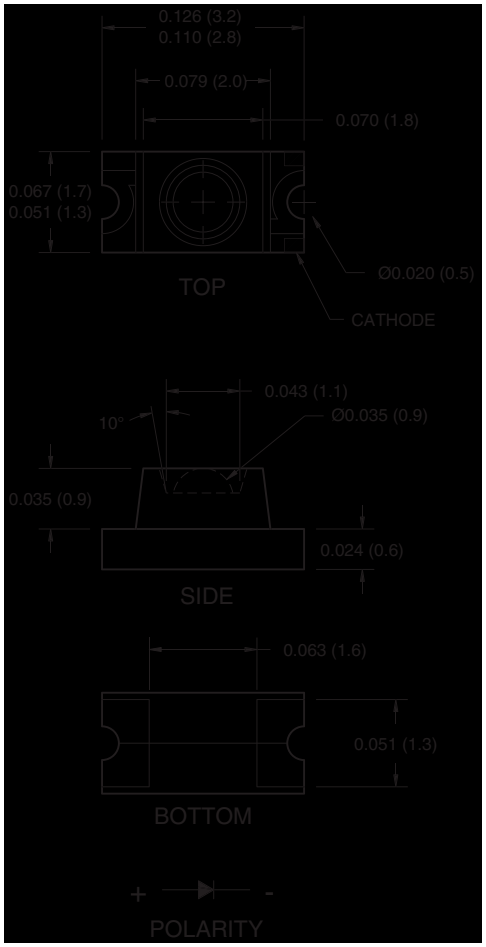
Applications

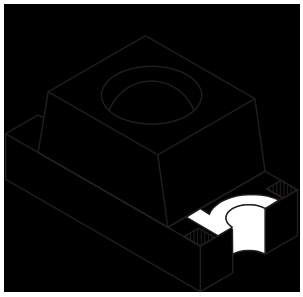
- Keypad backlighting
- Push-button backlighting
- LCD backlighting

Description

These surface mount chip LEDs are designed to fit industry standard footprint. The package features a recessed, inner lens that focuses the light output, offering greater luminous intensity for direct viewing.

Package Dimensions





NOTE:
Dimensions for all drawings are in inches (mm).
Tolerance is ±0.1mm unless otherwise noted.

Absolute Maximum Ratings (T_A = 25°C Unless otherwise specified)

Parameter	Symbol	QTLP651C					Unit
		-R	-E	-O	-Y	-AG	
Continuous Forward Current	I_F	30	30	30	25	30	mA
Peak Forward Current (f = 1.0 KHz, Duty Factor = 1/10)	I_{FM}	160	160	160	120	160	mA
Reverse Voltage	V_R	5	5	5	5	5	V
Power Dissipation	P_D	72	72	72	60	72	mW
Operating Temperature	T_{OPR}	-40 to +85					°C
Storage Temperature	T_{STG}	-40 to +90					°C
Lead Soldering Time	T_{SOL}	260 for 5 sec					°C

Absolute Maximum Ratings (T_A = 25°C Unless otherwise specified)

Parameter	Symbol	QTLP651C		Unit
		-IB	-IG	
Continuous Forward Current	I_F	30	30	mA
Peak Forward Current (f = 1.0 KHz, Duty Factor = 1/10)	I_{FM}	100	100	mA
Reverse Voltage	V_R	5	5	V
Power Dissipation	P_D	120	120	mW
Operating Temperature	T_{OPR}	-40 to +85		°C
Storage Temperature	T_{STG}	-40 to +90		°C
Lead Soldering Time	T_{SOL}	260 for 5 sec		°C

Electrical / Optical Characteristics (T_A = 25°C)

Part Number	Symbol	QTLP651C					Condition
		-R	-E	-O	-Y	-AG	
Luminous Intensity (mcd)							I_F = 20 mA
Minimum	I_V	25	25	25	25	15	
Typical		70	70	70	70	30	
Forward Voltage (V)							I_F = 20 mA
Maximum	V_F	2.4	2.4	2.4	2.4	2.4	
Typical		2.0	2.0	2.0	2.0	2.0	
Wavelength (nm)							I_F = 20 mA
Peak	λ_P	630	620	610	590	575	
Dominant	λ_D	624	615	605	589	573	
Spectral Line Half Width (nm)	$\Delta\lambda$	20	18	18	15	20	I_F = 20 mA
Viewing Angle (°)	$2\theta^1/2$	20	20	20	20	20	I_F = 20 mA

Electrical / Optical Characteristics (T_A = 25°C)

Part Number	Symbol	QTLP651C		Condition
		-IB	-IG	
Luminous Intensity (mcd)				I_F = 20 mA
Minimum	I_V	35	100	
Typical		45	140	
Forward Voltage (V)				I_F = 20 mA
Maximum	V_F	4.0	4.0	
Typical		3.5	3.5	
Wavelength (nm)				I_F = 20 mA
Peak	λ_P	465	520	
Dominant	λ_D	470	525	
Spectral Line Half Width (nm)	$\Delta\lambda$	25	35	I_F = 20 mA
Viewing Angle (°)	$2\theta^1/2$	20	20	I_F = 20 mA

Typical Performance Curves (QTLP651C-R, -E, -O, -Y and -AG)

Fig. 1 Forward Current vs. Forward Voltage

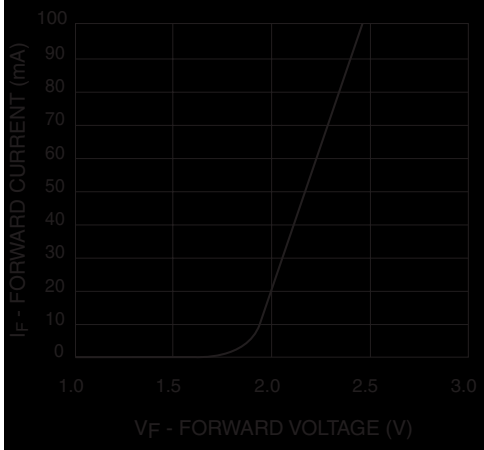


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

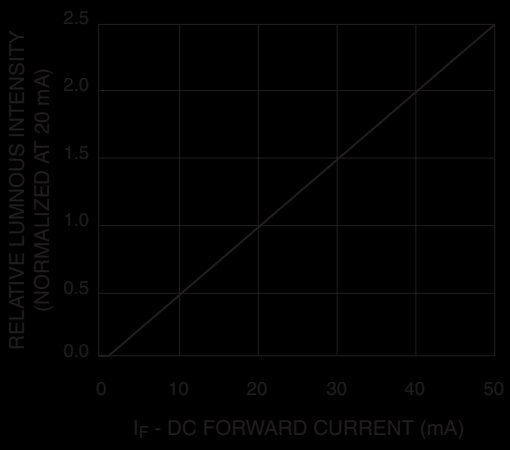


Fig. 3 Relative Intensity vs. Peak Wavelength

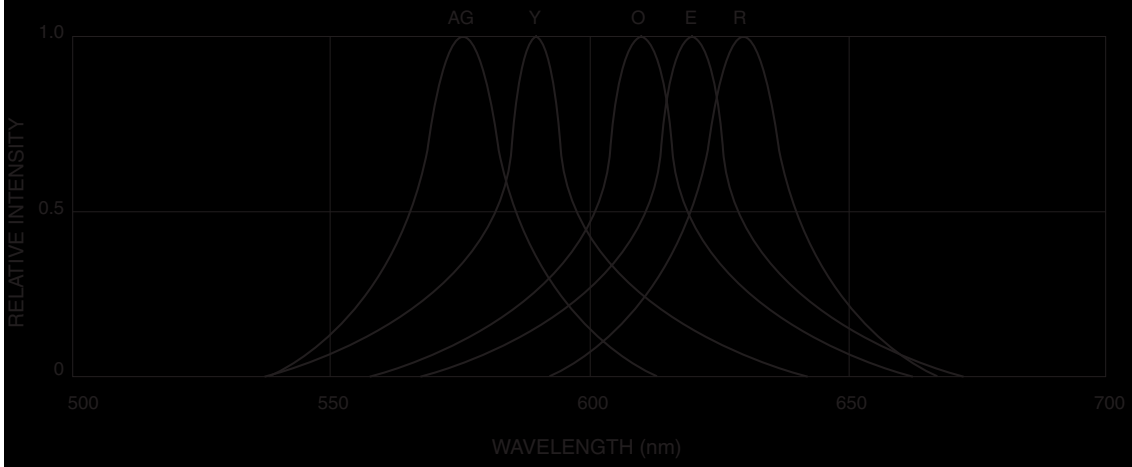


Fig.4 Radiation Diagram

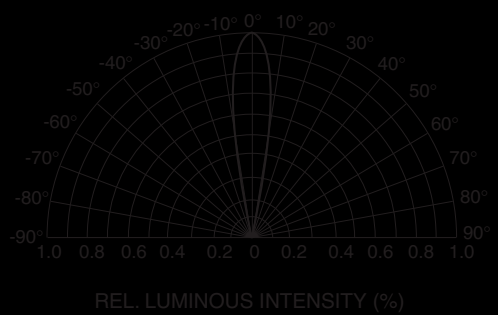
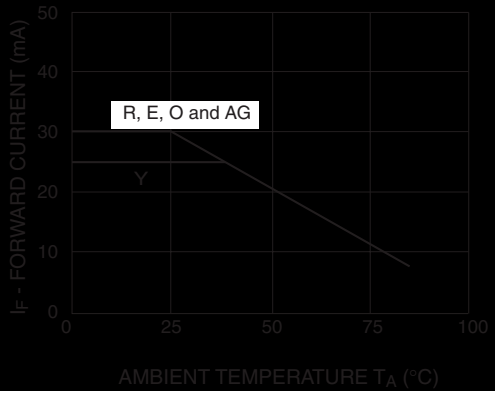


Fig.5 Maximum Forward Current vs. Ambient Temperature



Typical Performance Curves (QTLP651C-IG and -IB)

Fig. 1 Forward Current vs. Forward Voltage

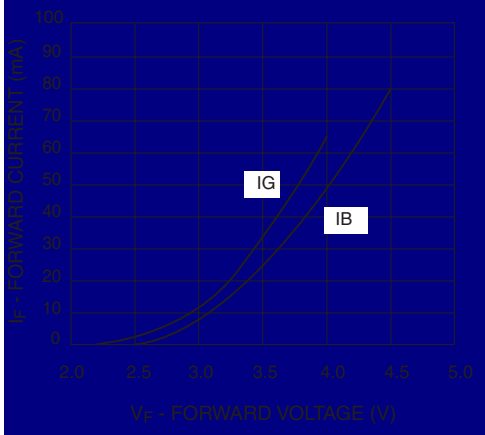


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

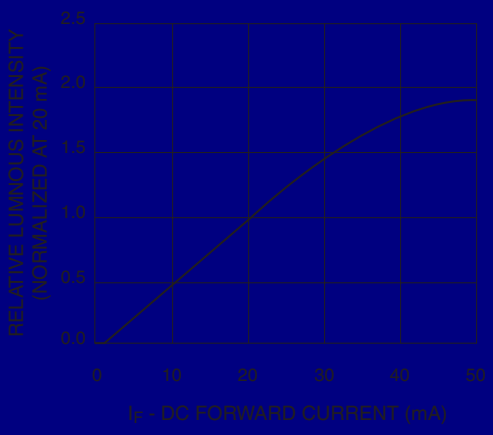


Fig. 3 Relative Intensity vs. Peak Wavelength

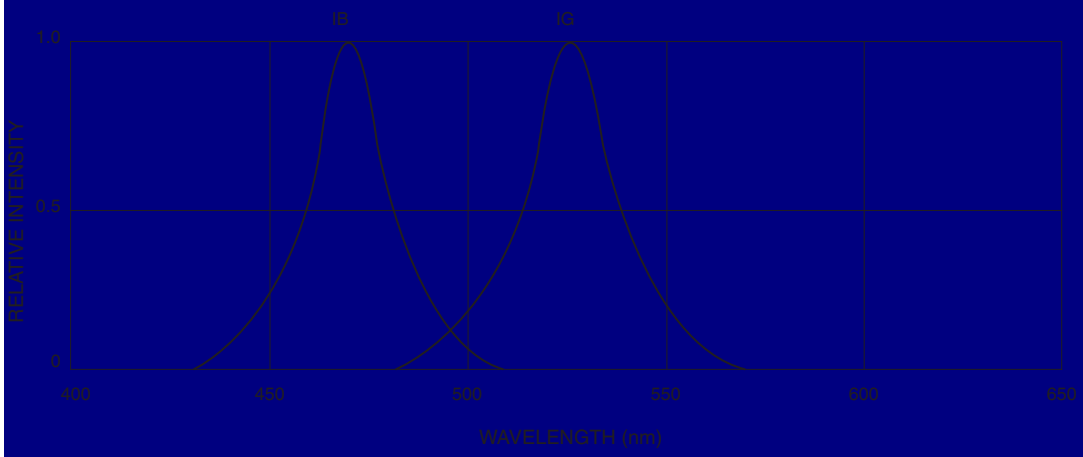


Fig.4 Radiation Diagram

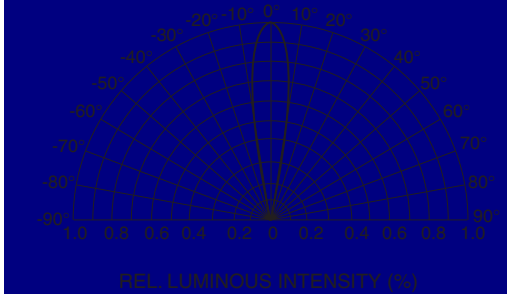
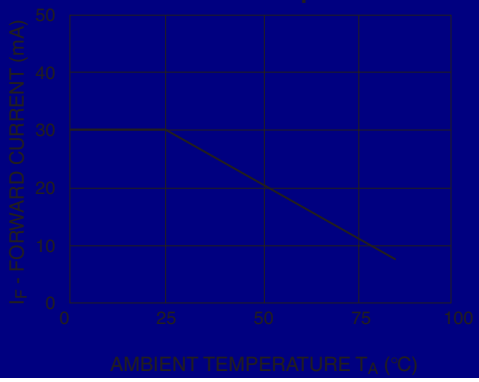
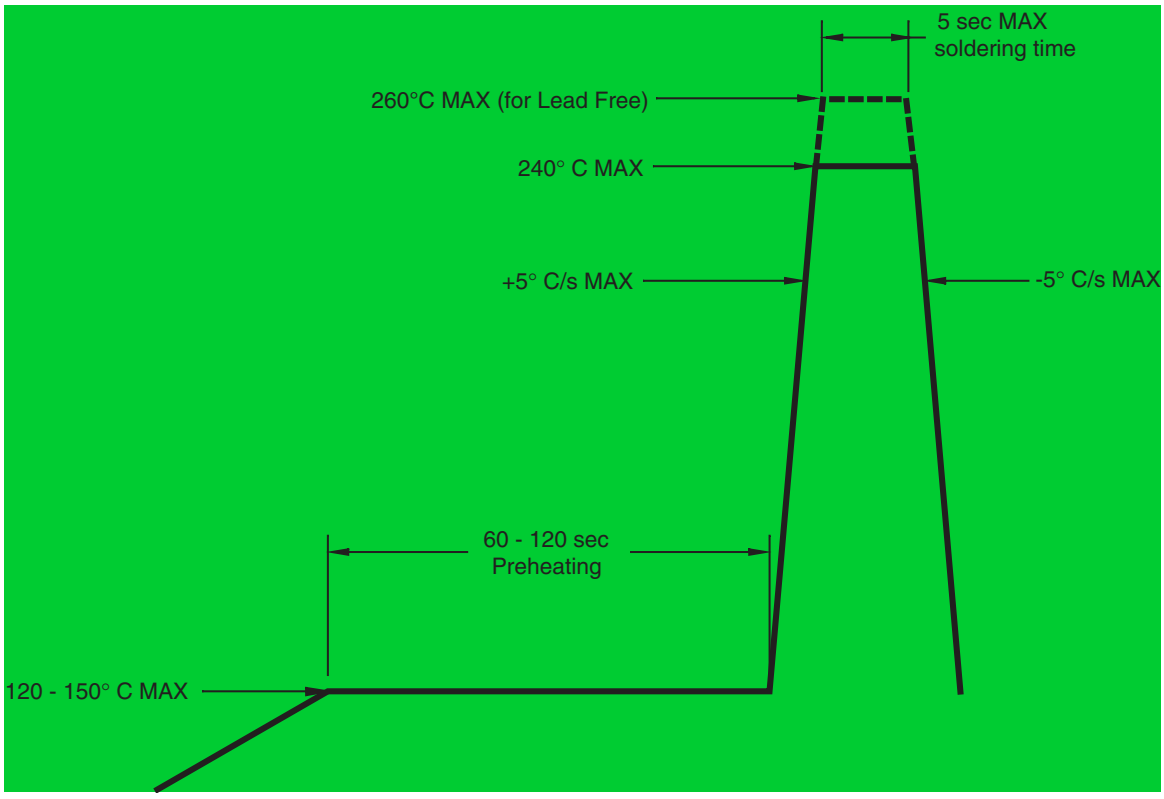


Fig.5 Maximum Forward Current vs. Ambient Temperature

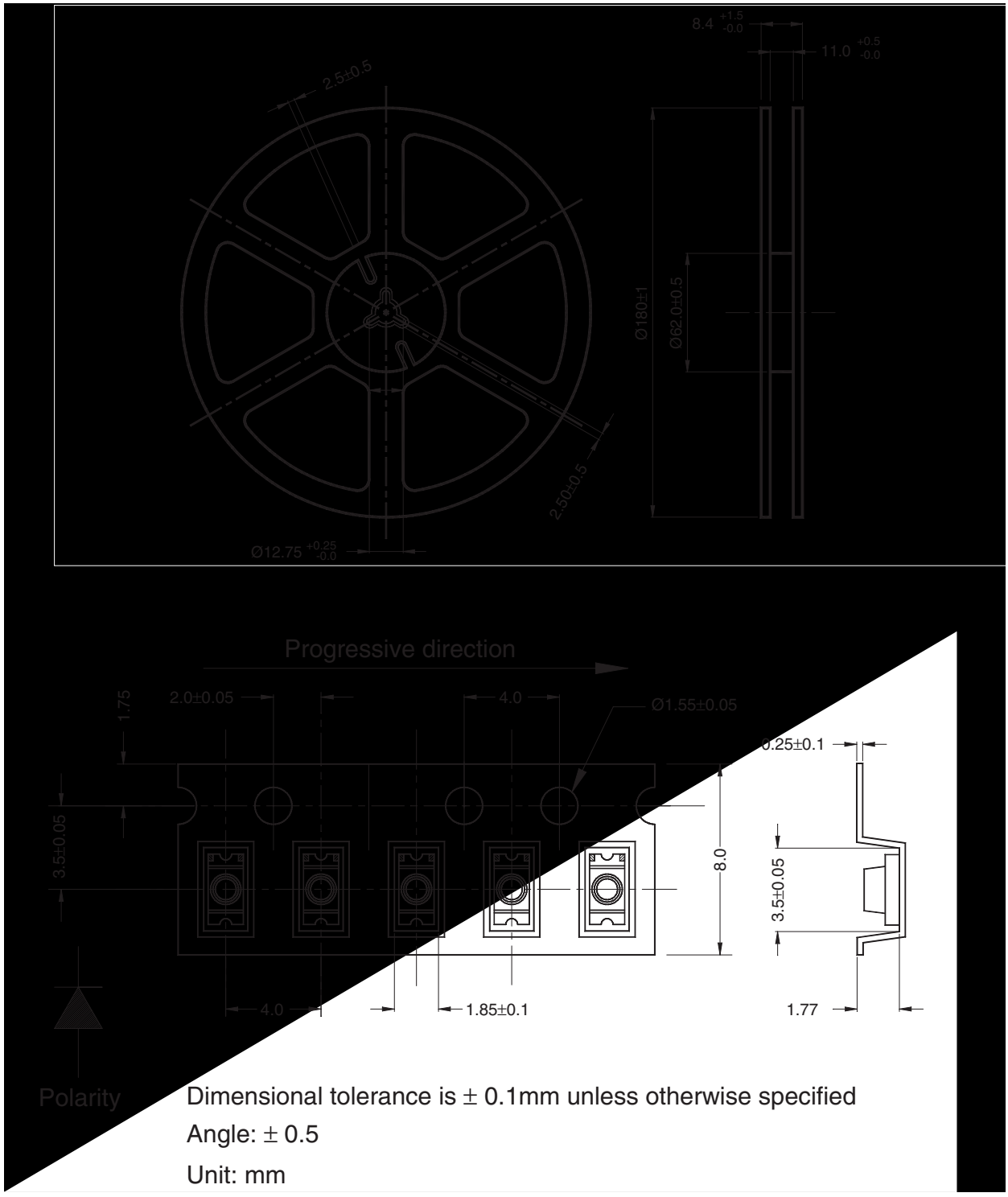


Recommended Printed Circuit Board Pattern

Recommended IR Reflow Soldering Profile



Tape and Reel Dimensions



Dimensional tolerance is ± 0.1mm unless otherwise specified

Angle: ± 0.5

Unit: mm