

SURFACE MOUNT LED LAMP

SUPER BRIGHT 1206 (Inner Lens)

QTLP651C-R Red

QTLP651C-E Orange

QTLP651C-O Yellow-Orange

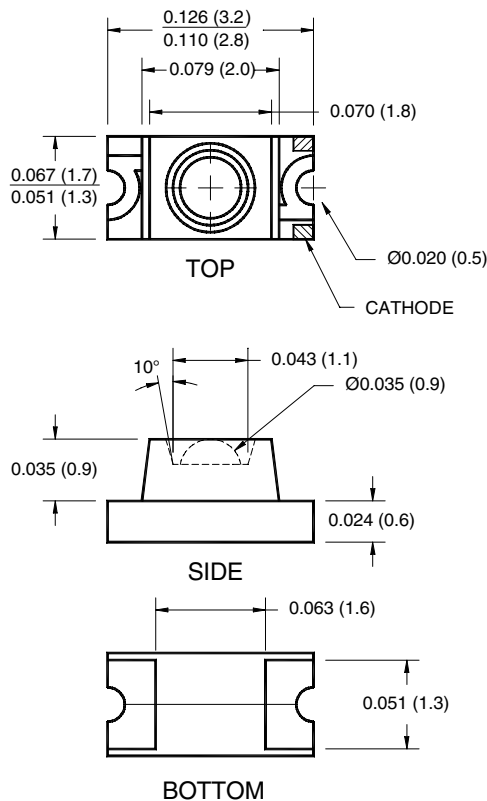
QTLP651C-Y Yellow

QTLP651C-AG Yellow-Green

QTLP651C-IG True Green

QTL P651C-IB Blue

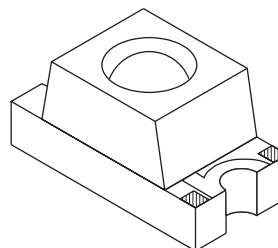
PACKAGE DIMENSIONS



NOTE:



Dimensions for all drawings are in inches (mm).



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.

FEATURES

- Small footprint - 3.0(L) X 1.5(W) X 1.5(H) mm
- AllInGaP 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

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ABSOLUTE MAXIMUM RATINGS (T_A =25°C Unless otherwise specified)

Parameter	Symbol	QTLP651C					Units
		-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		Units
		-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

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ELECTRICAL / OPTICAL CHARACTERISTICS (T_A = 25°C)

Part Number	Symbol	QTLP651C					Condition
		-R	-E	-O	-Y	-AG	
Luminous Intensity (mcd)	I _V						I _F = 20mA
Minimum		25	25	25	25	15	
Typical		70	70	70	70	30	
Forward Voltage (V)	V _F						I _F = 20mA
Maximum		2.4	2.4	2.4	2.4	2.4	
Typical		2.0	2.0	2.0	2.0	2.0	
Wavelength (nm)	λ _P						I _F = 20mA
Peak		630	620	610	590	575	
Dominant	λ _D	624	615	605	589	573	
Spectral Line Half Width (nm)	Δλ	20	18	18	15	20	I _F = 20mA
Viewing Angle (°)	2Θ _{1/2}	20	20	20	20	20	I _F = 20mA

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A = 25°C)

Part Number	Symbol	QTLP651C		Condition
		-IB	-IG	
Luminous Intensity (mcd)	I _V			I _F = 20mA
Minimum		35	100	
Typical		45	140	
Forward Voltage (V)	V _F			I _F = 20mA
Maximum		4.0	4.0	
Typical		3.5	3.5	
Wavelength (nm)	λ _P			I _F = 20mA
Peak		465	520	
Dominant	λ _D	470	525	
Spectral Line Half Width (nm)	Δλ	25	35	I _F = 20mA
Viewing Angle (°)	2Θ _{1/2}	20	20	I _F = 20mA

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TYPICAL PERFORMANCE CURVES (QTLP651C-R, -E, -O, -Y and -AG)

Fig. 1 Forward Current vs. Forward Voltage

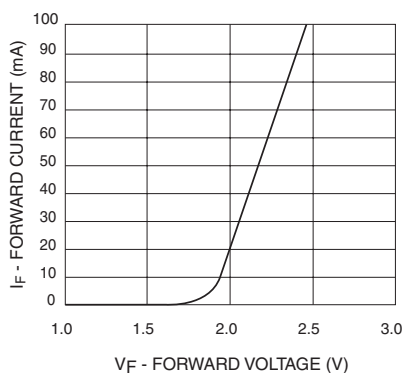


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

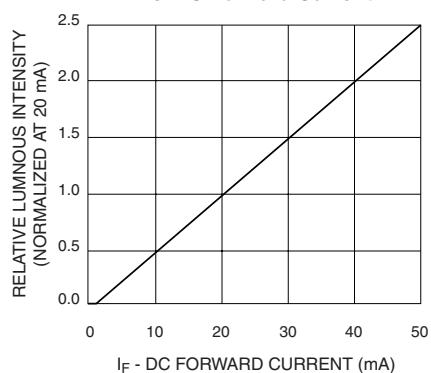


Fig. 3 Relative Intensity vs. Peak Wavelength

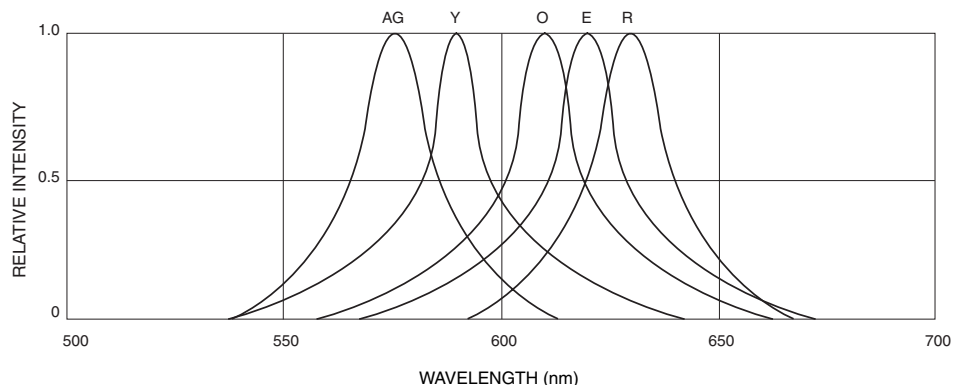


Fig. 4 Radiation Diagram

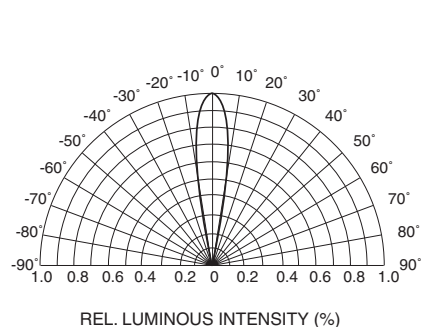
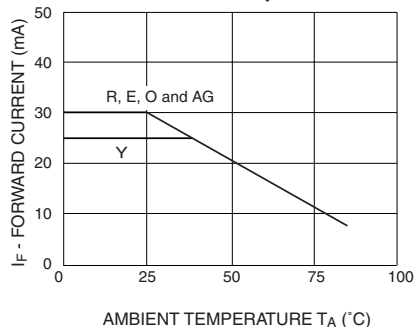


Fig. 5 Maximum Forward Current vs. Ambient Temperature



QTLP651C-R Red

QTLP651C-E Orange

QTLP651C-O Yellow-Orange

QTLP651C-Y Yellow

QTLP651C-AG Yellow-Green

QTLP651C-IG True Green

QTLP651C-IB Blue

TYPICAL PERFORMANCE CURVES (QTLP651C-IG and IB)

Fig. 1 Forward Current vs. Forward Voltage

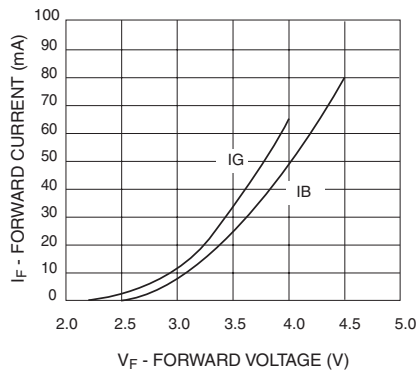


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

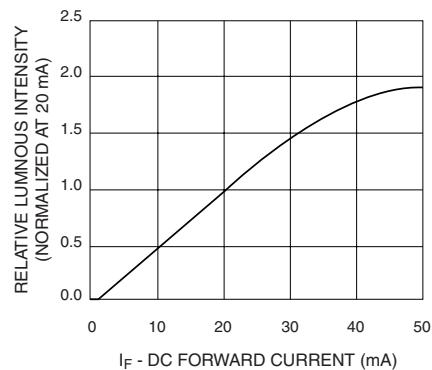


Fig. 3 Relative Intensity vs. Peak Wavelength

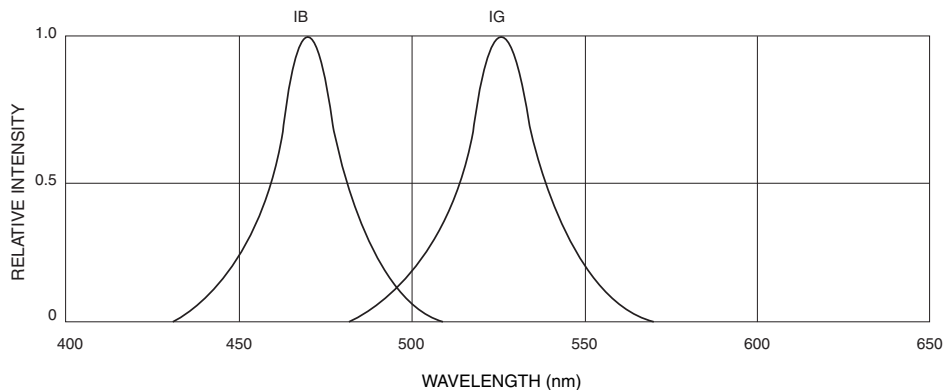


Fig.4 Radiation Diagram

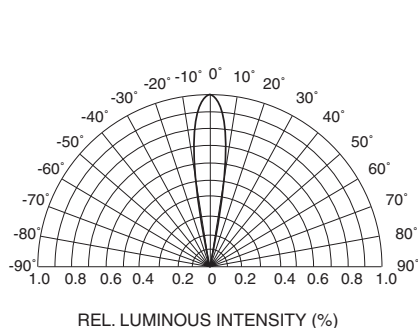
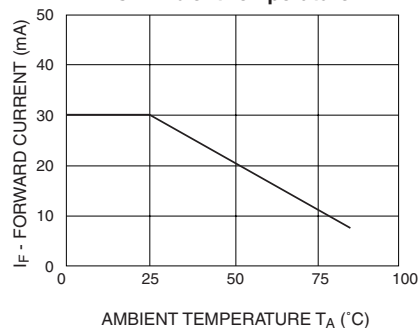


Fig.5 Maximum Forward Current vs. Ambient Temperature



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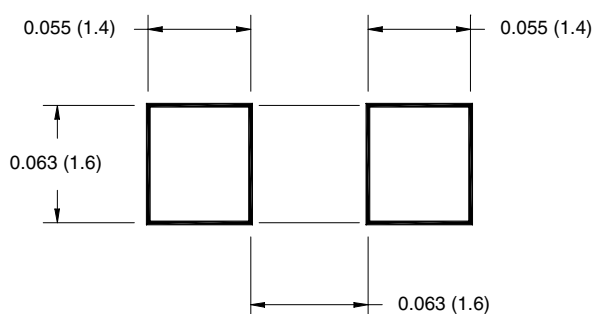
QTLP651C-Y Yellow

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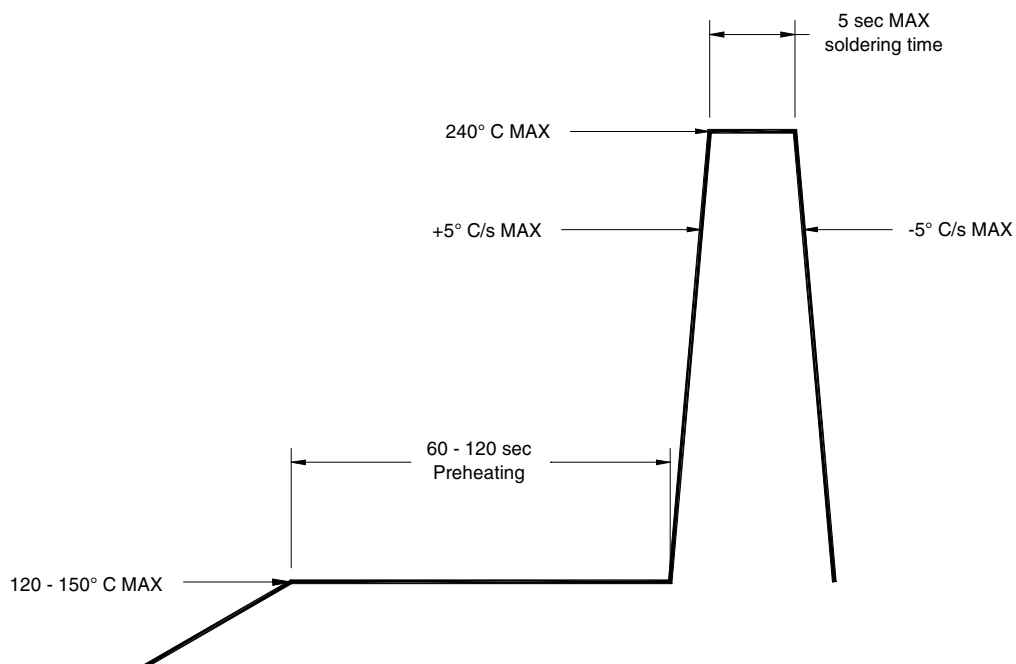
QTLP651C-IG True Green

QTLP651C-IB Blue

RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



RECOMMENDED IR REFLOW SOLDERING PROFILE



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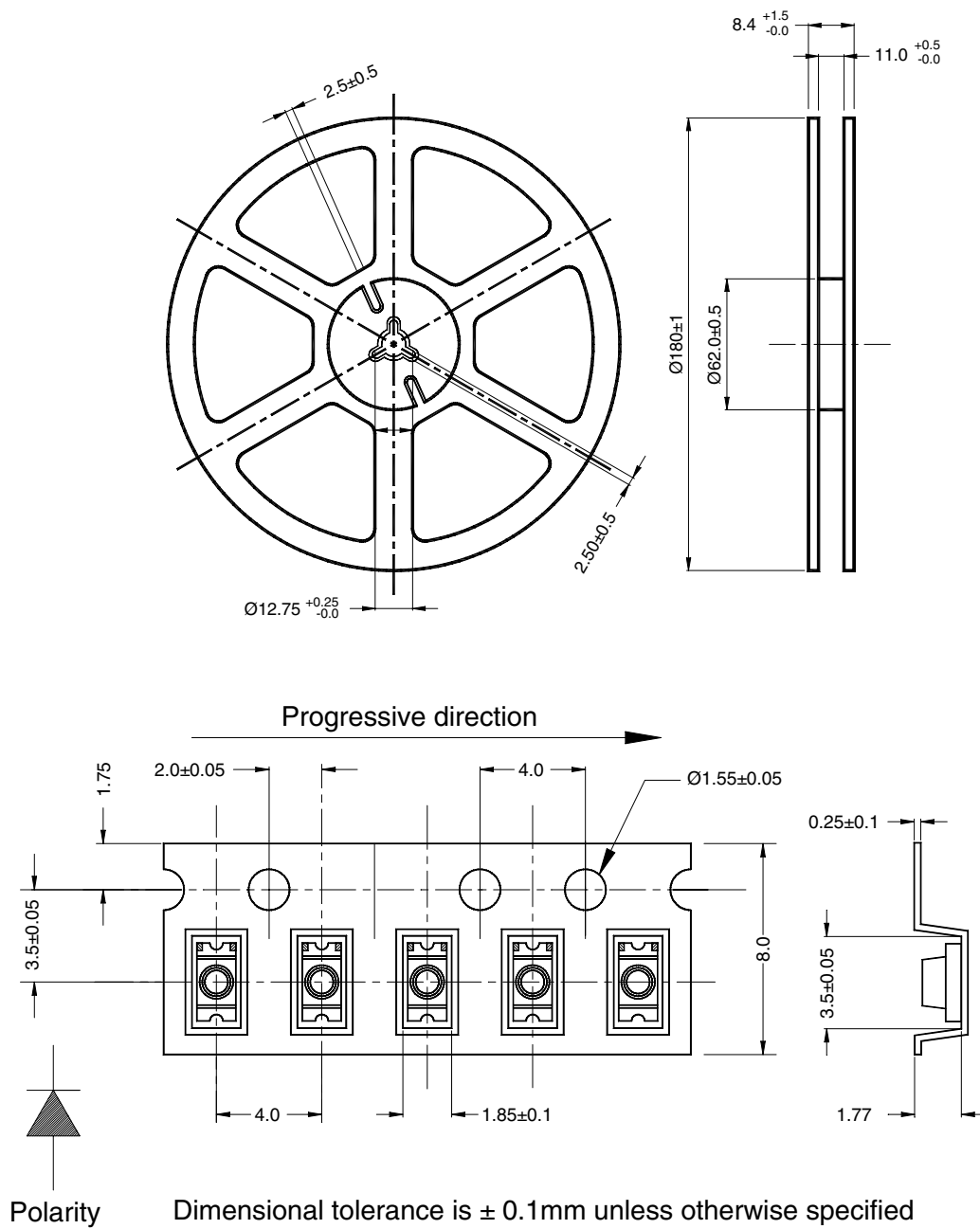
QTLP651C-Y Yellow

QTLP651C-AG Yellow-Green

QTLP651C-IG True Green

QTLP651C-IB Blue

TAPE AND REEL DIMENSIONS



Dimensional tolerance is $\pm 0.1\text{mm}$ unless otherwise specified

Angle: ± 0.5

Unit: mm

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DISCLAIMER

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