

QTLP610C-R Red

QTLP610C-E Orange

QTLP610C-O Yellow-Orange

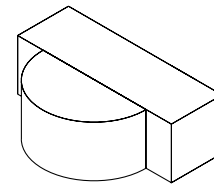
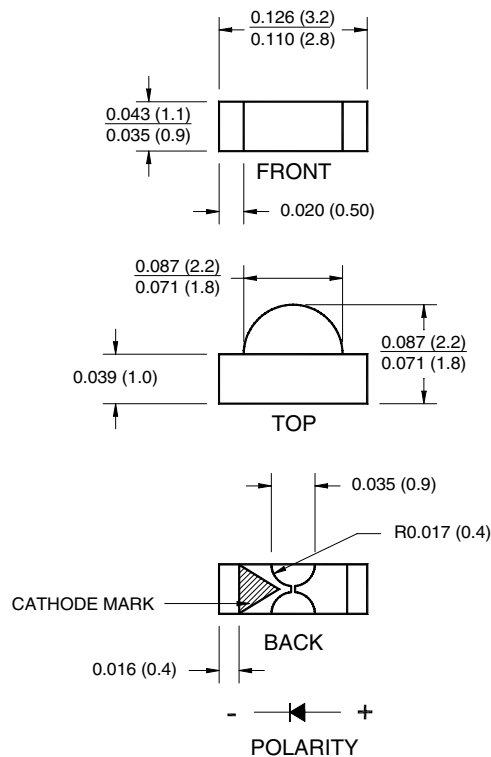
QTLP610C-Y Yellow

QTLP610C-AG Yellow-Green

QTLP610C-IG True Green

QTLP610C-IB Blue

### PACKAGE DIMENSIONS



NOTE:

Dimensions for all drawings are in inches (mm).

### APPLICATIONS

- LCD edge-lighting
- Edge card edge-lighting

### DESCRIPTION

These super bright right angle surface mount chip LEDs emit light in the lateral direction. Small size and wide viewing angle make these LEDs ideal choices for status indication in consumer electronics, industrial control and other applications.

### FEATURES

- Small footprint - 3.0(L) X 2.0(W) X 1.0(H) mm
- AlInGaP technology for -R, -E, -O, -Y and -AG
- InGaN/SiC technology for -IG and -IB
- Wide viewing angle of 120°
- Water clear optics
- Available in 0.315" (8mm) width tape on 7" (178mm) diameter reel; 2,000 units per reel

# SURFACE MOUNT LED LAMP

## SUPER BRIGHT RIGHT ANGLE

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**ABSOLUTE MAXIMUM RATINGS** ( $T_A = 25^\circ\text{C}$  Unless otherwise specified)

Parameter	Symbol	QTLP610C					Units
		-R	-E	-O	-Y	-AG	
Continuous Forward Current	$I_F$	30	30	30	25	30	mA
Peak Forward Current ( $f = 1.0 \text{ KHz}$ , Duty Factor = 1/10)	$I_{FM}$	160	160	160	120	160	mA
Reverse Voltage ( $I_R = 10 \mu\text{A}$ )	$V_R$	5	5	5	5	5	V
Power Dissipation	$P_D$	72	72	72	60	72	mW
Operating Temperature	$T_{OPR}$	-40 to +85					$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 to +90					$^\circ\text{C}$
Lead Soldering Time	$T_{SOL}$	260 for 5 sec					$^\circ\text{C}$

**ABSOLUTE MAXIMUM RATINGS** ( $T_A = 25^\circ\text{C}$  Unless otherwise specified)

Parameter	Symbol	QTLP610C		Units
		-IB	-IG	
Continuous Forward Current	$I_F$	30	30	mA
Peak Forward Current ( $f = 1.0 \text{ KHz}$ , Duty Factor = 1/10)	$I_{FM}$	100	100	mA
Reverse Voltage ( $I_R = 10 \mu\text{A}$ )	$V_R$	5	5	V
Power Dissipation	$P_D$	120	120	mW
Operating Temperature	$T_{OPR}$	-40 to +85		$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 to +90		$^\circ\text{C}$
Lead Soldering Time	$T_{SOL}$	260 for 5 sec		$^\circ\text{C}$

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ELECTRICAL / OPTICAL CHARACTERISTICS (T <sub>A</sub> =25°C)							
Part Number	Symbol	QTLP610C					Condition
		-R	-E	-O	-Y	-AG	
Luminous Intensity (mcd)	I <sub>V</sub>	20	20	20	20	10	I <sub>F</sub> = 20mA
Minimum		45	45	45	45	20	
Forward Voltage (V)	V <sub>F</sub>	2.4	2.4	2.4	2.4	2.4	I <sub>F</sub> = 20mA
Maximum		2.0	2.0	2.0	2.0	2.0	
Wavelength (nm)	λ <sub>P</sub>	630	620	610	590	575	I <sub>F</sub> = 20mA
Peak		624	615	605	589	573	
Dominant	λ <sub>D</sub>	20	18	18	15	20	I <sub>F</sub> = 20mA
Spectral Line Half Width (nm)	Δλ	120	120	120	120	120	I <sub>F</sub> = 20mA
Viewing Angle (°)	2Θ <sub>1/2</sub>						I <sub>F</sub> = 20mA

ELECTRICAL / OPTICAL CHARACTERISTICS (T <sub>A</sub> =25°C)				
Part Number	Symbol	QTLP610C		Condition
		-IB	-IG	
Luminous Intensity (mcd)	I <sub>V</sub>	20	60	I <sub>F</sub> = 20mA
Minimum		30	100	
Forward Voltage (V)	V <sub>F</sub>	4.0	4.0	I <sub>F</sub> = 20mA
Maximum		3.5	3.5	
Wavelength (nm)	λ <sub>P</sub>	465	520	I <sub>F</sub> = 20mA
Peak		470	525	
Dominant	λ <sub>D</sub>	25	35	I <sub>F</sub> = 20mA
Spectral Line Half Width (nm)	Δλ	120	120	I <sub>F</sub> = 20mA
Viewing Angle (°)	2Θ <sub>1/2</sub>			I <sub>F</sub> = 20mA

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### TYPICAL PERFORMANCE CURVES (QTLP610C-R, -E, -O, -Y and -AG)

Fig. 1 Forward Current vs. Forward Voltage

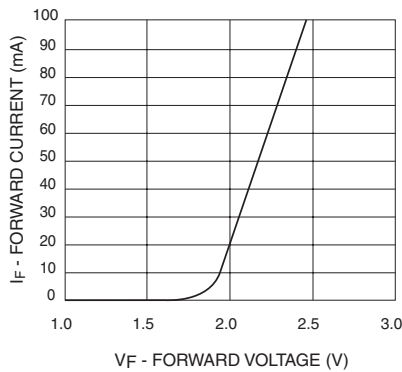


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

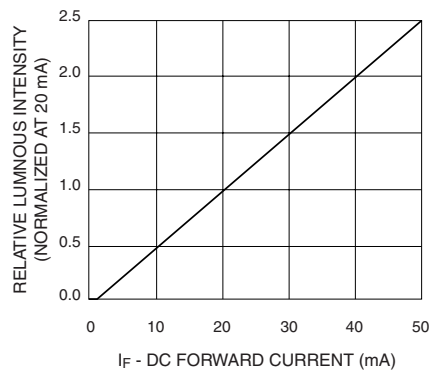


Fig. 3 Relative Intensity vs. Peak Wavelength

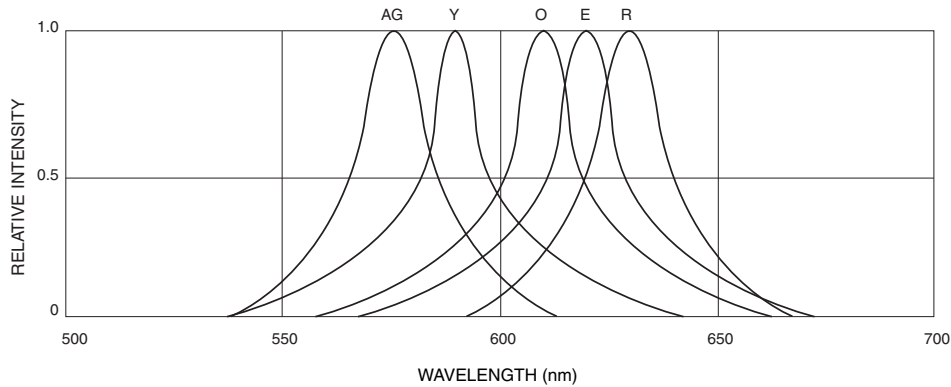


Fig. 4 Radiation Diagram

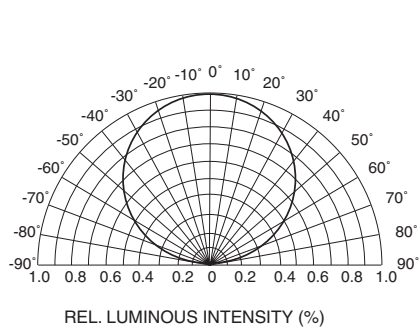
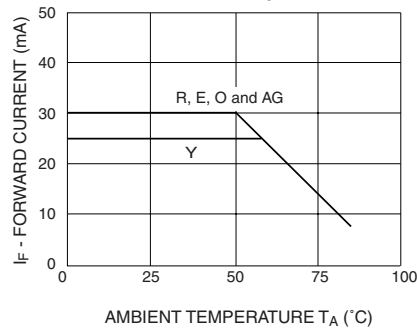


Fig. 5 Maximum Forward Current vs. Ambient Temperature



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### TYPICAL PERFORMANCE CURVES (QTLP610C-IG and -IB)

Fig. 1 Forward Current vs. Forward Voltage

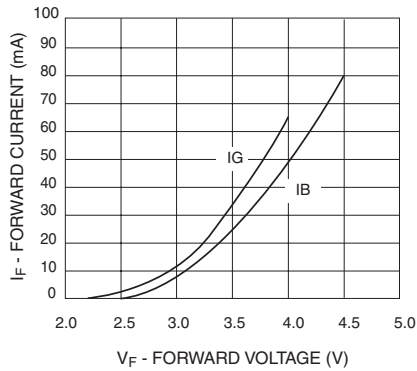


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

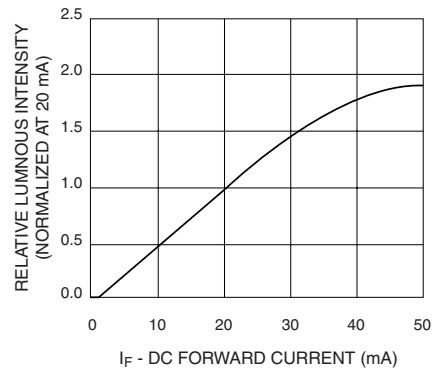


Fig. 3 Relative Intensity vs. Peak Wavelength

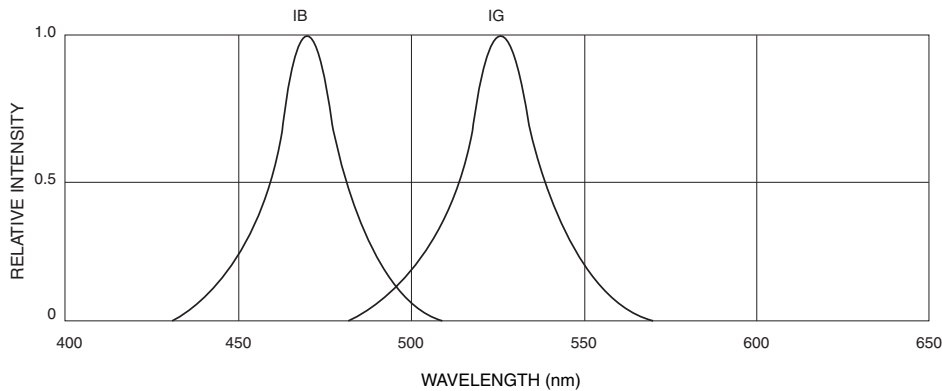


Fig. 4 Radiation Diagram

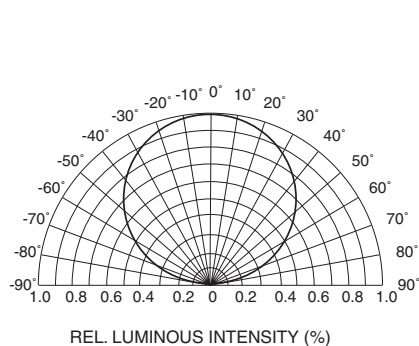
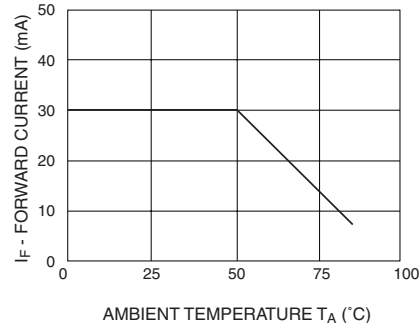


Fig. 5 Maximum Forward Current vs. Ambient Temperature



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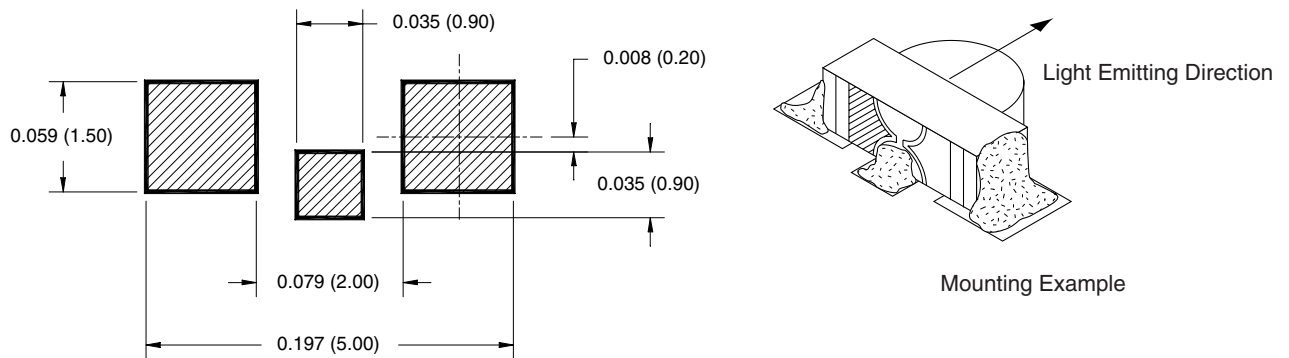
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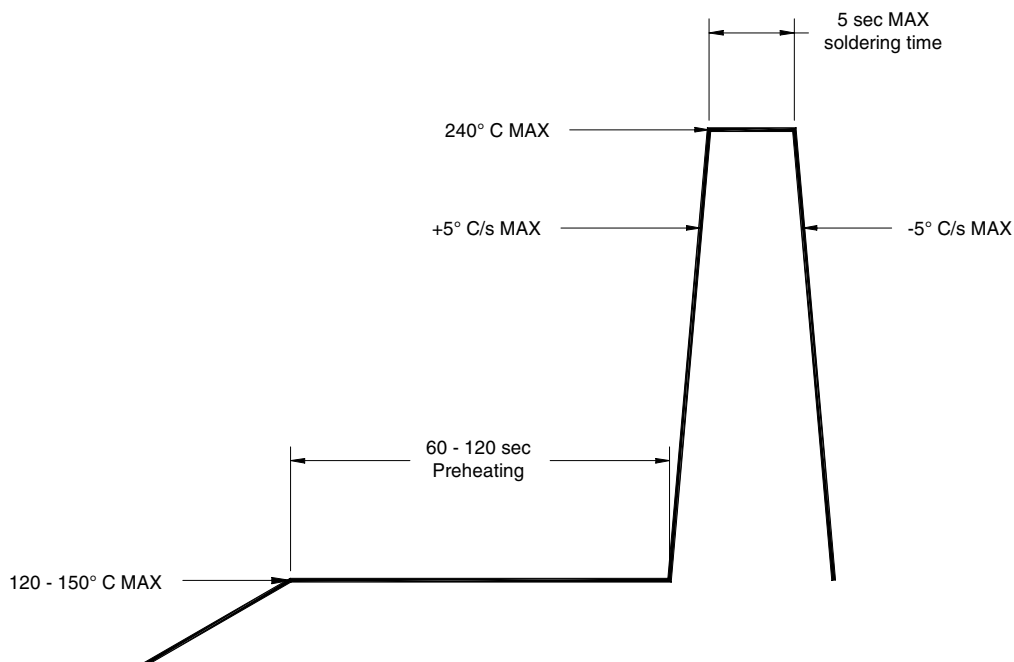
QTLP610C-IG True Green

QTLP610C-IB Blue

### RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



### RECOMMENDED IR REFLOW SOLDERING PROFILE



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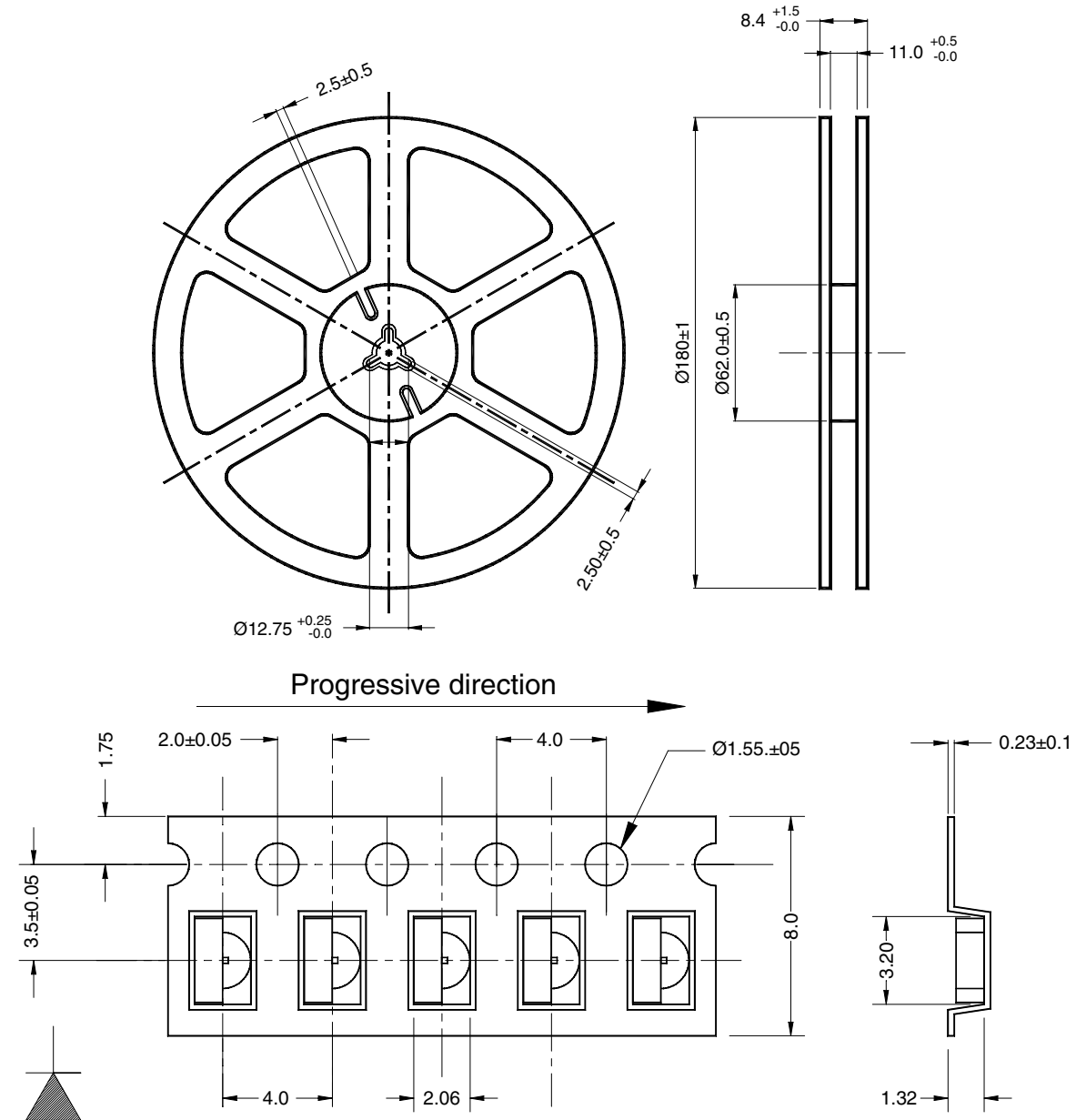
QTLP610C-Y Yellow

QTLP610C-AG Yellow-Green

QTLP610C-IG True Green

QTLP610C-IB Blue

### TAPE AND REEL DIMENSIONS



Polarity

Dimensional tolerance is  $\pm 0.1$ mm unless otherwise specified

Angle:  $\pm 0.5$

Unit: mm

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#### **DISCLAIMER**

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.