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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



<b>QTLP651C-R</b>	Red	<b>QTLP651C-E</b>	Orange
<b>QTLP651C-O</b>	Yellow-Orange	<b>QTLP651C-Y</b>	Yellow
<b>QTLP651C-AG</b>	Yellow-Green	<b>QTLP651C-IG</b>	True Green
<b>QTLP651C-IB</b>	Blue		

**Surface Mount LED Lamp Super Bright 1206 (Inner Lens)**

**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

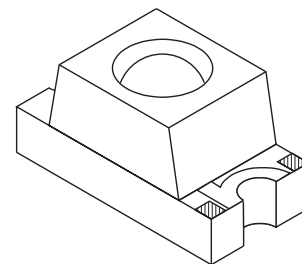
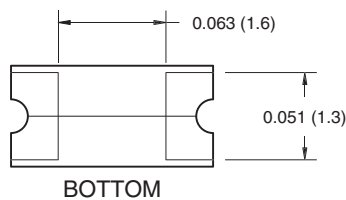
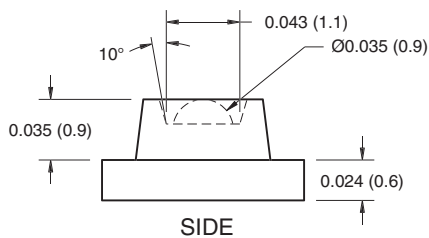
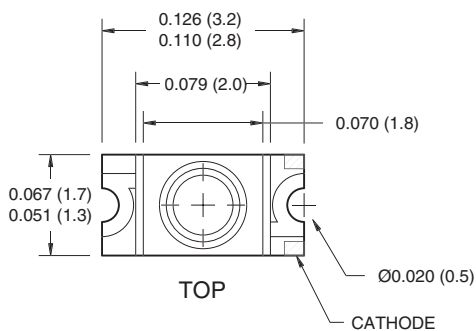
**Applications**

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

Parameter	Symbol	QTL651C					Unit
		-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	$V_R$	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	QTL651C		Unit
		-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	$V_R$	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		$^\circ\text{C}$

**Electrical / Optical Characteristics** ( $T_A = 25^\circ\text{C}$ )

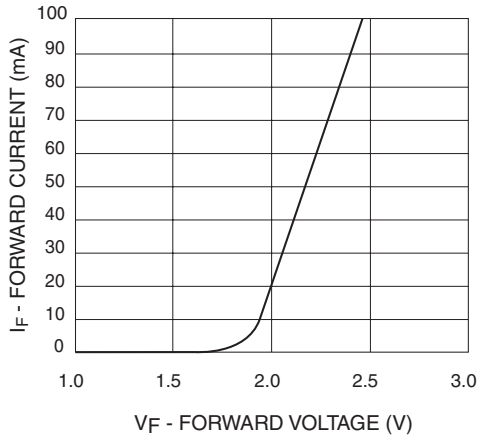
Part Number	Symbol	QTLP651C					Condition
		-R	-E	-O	-Y	-AG	
Luminous Intensity (mcd)	$I_V$						$I_F = 20 \text{ mA}$
Minimum		25	25	25	25	15	
Typical		70	70	70	70	30	
Forward Voltage (V)	$V_F$						$I_F = 20 \text{ mA}$
Maximum		2.4	2.4	2.4	2.4	2.4	
Typical		2.0	2.0	2.0	2.0	2.0	
Wavelength (nm)	$\lambda_P$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

**Electrical / Optical Characteristics** ( $T_A = 25^\circ\text{C}$ )

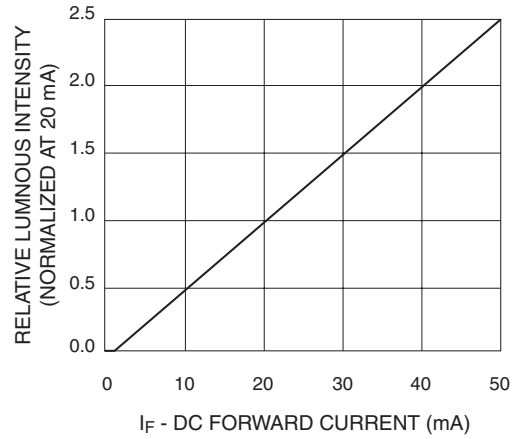
Part Number	Symbol	QTLP651C		Condition
		-IB	-IG	
Luminous Intensity (mcd)	$I_V$			$I_F = 20 \text{ mA}$
Minimum		35	100	
Typical		45	140	
Forward Voltage (V)	$V_F$			$I_F = 20 \text{ mA}$
Maximum		4.0	4.0	
Typical		3.5	3.5	
Wavelength (nm)	$\lambda_P$			$I_F = 20 \text{ mA}$
Peak		465	520	
Dominant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

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

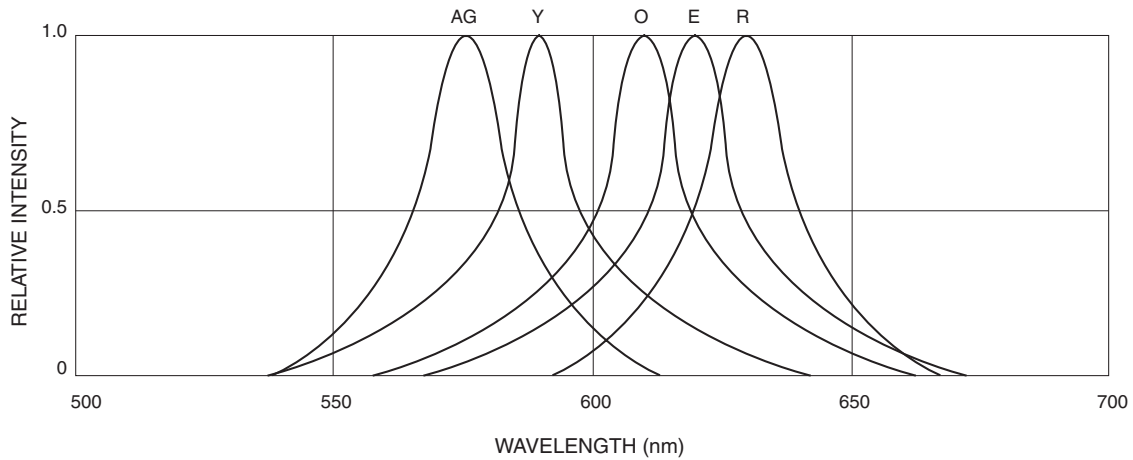
**Fig. 1 Forward Current vs. Forward Voltage**



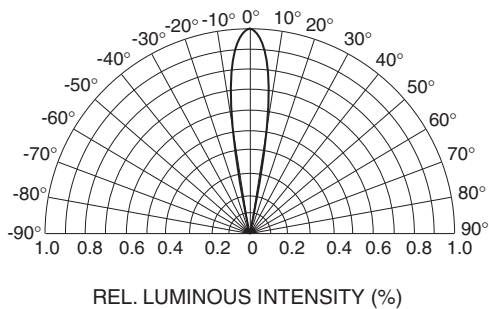
**Fig. 2 Relative Luminous Intensity vs. DC Forward Current**



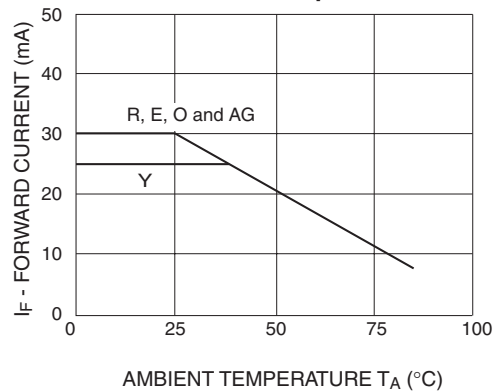
**Fig. 3 Relative Intensity vs. Peak Wavelength**



**Fig.4 Radiation Diagram**

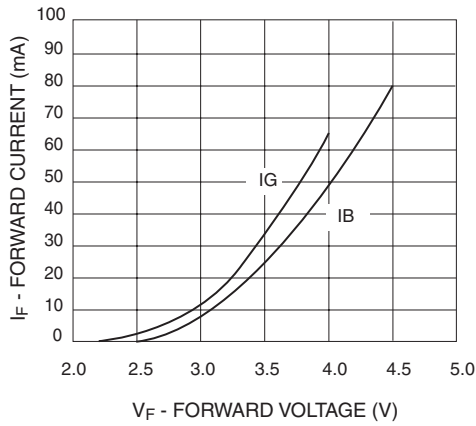


**Fig.5 Maximum Forward Current vs. Ambient Temperature**

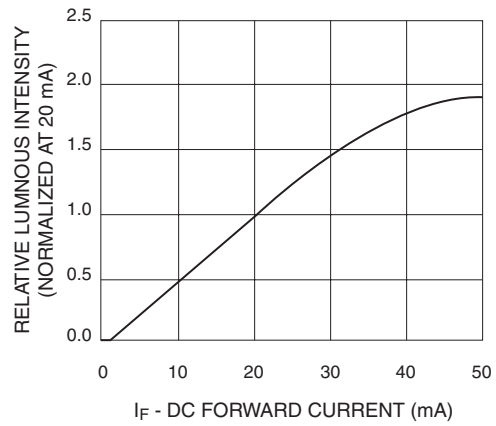


**Typical Performance Curves (QTLP651C-IG and -IB)**

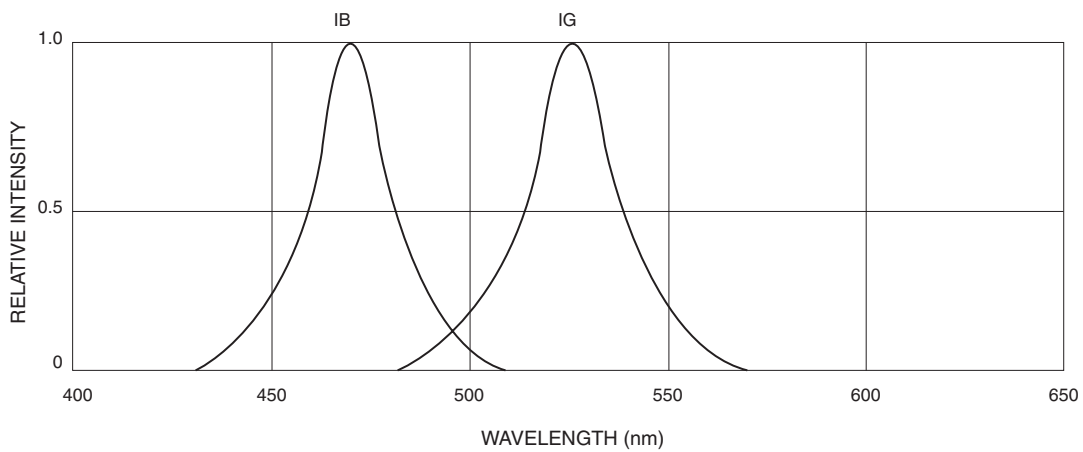
**Fig. 1 Forward Current vs. Forward Voltage**



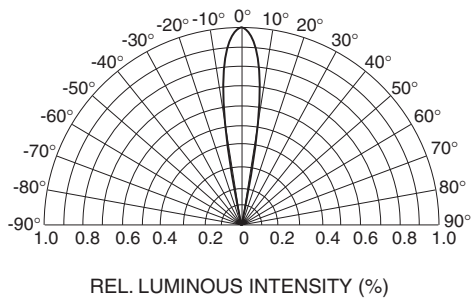
**Fig. 2 Relative Luminous Intensity vs. DC Forward Current**



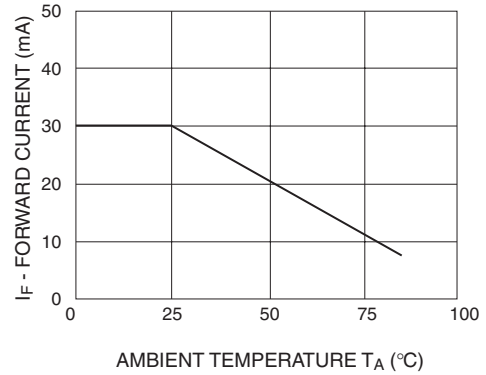
**Fig. 3 Relative Intensity vs. Peak Wavelength**



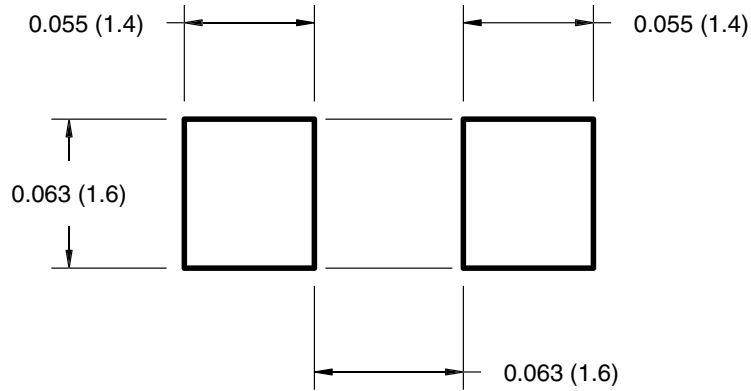
**Fig.4 Radiation Diagram**



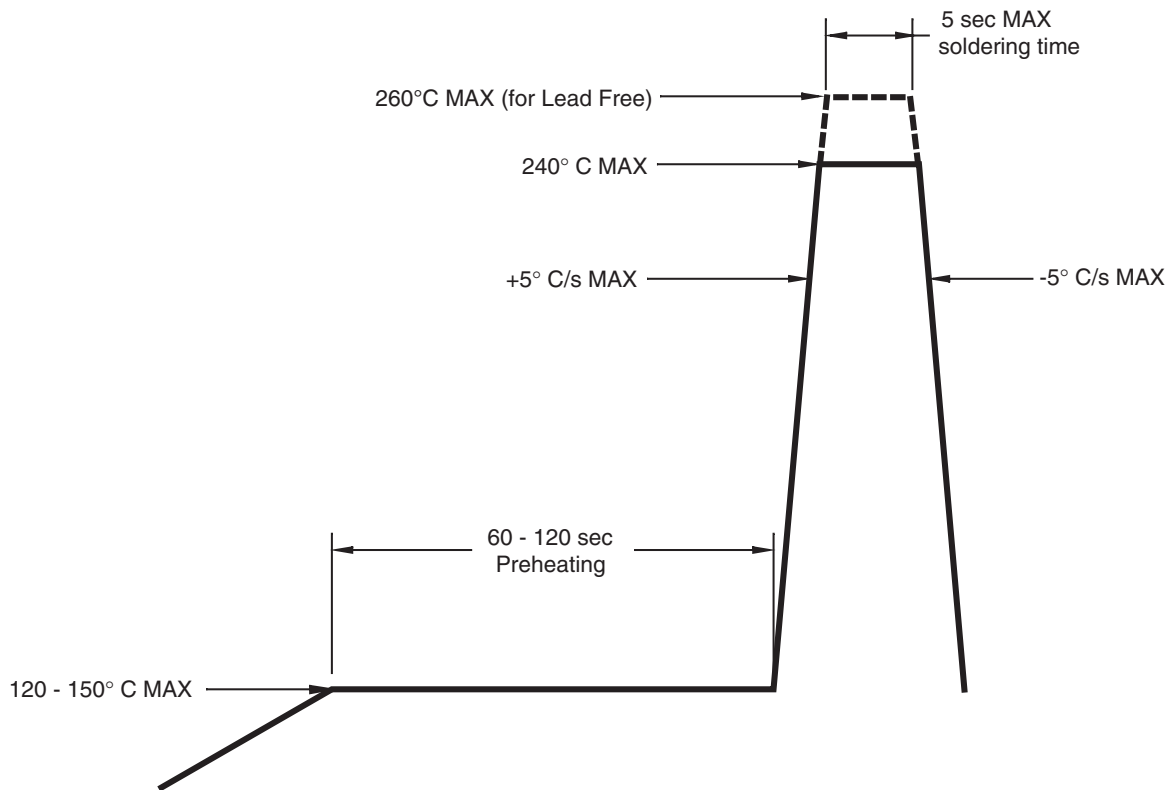
**Fig.5 Maximum Forward Current vs. Ambient Temperature**



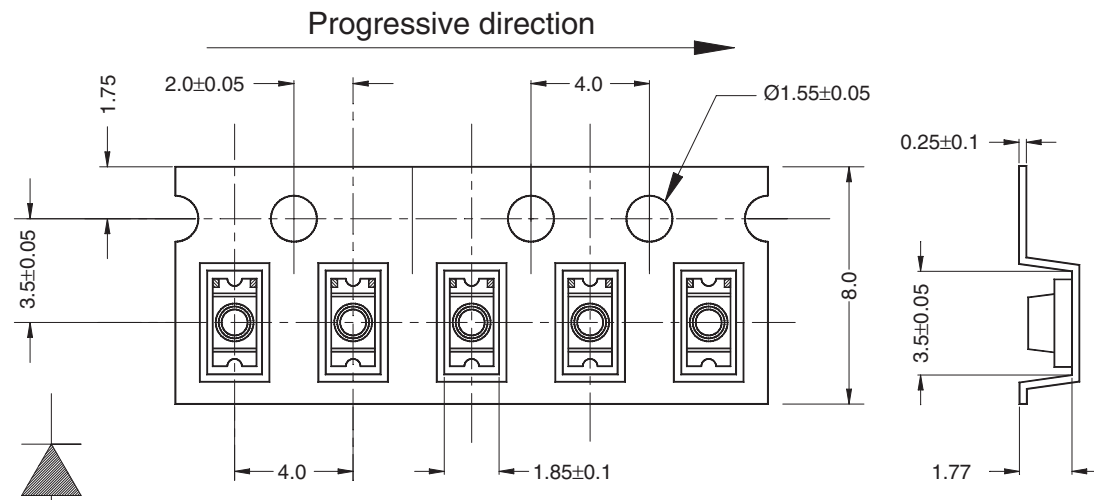
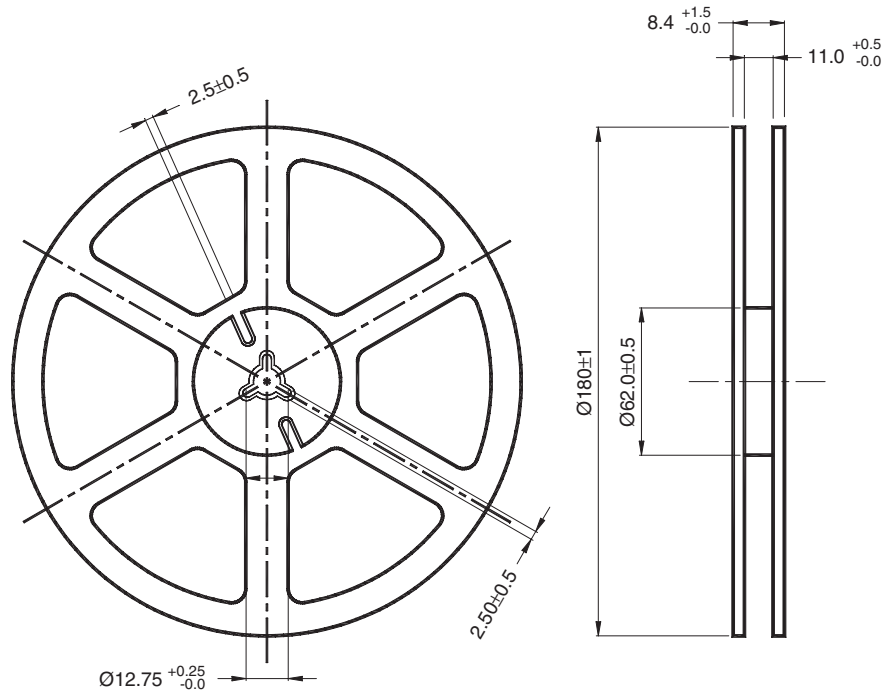
### Recommended Printed Circuit Board Pattern



### Recommended IR Reflow Soldering Profile



Tape and Reel Dimensions



Polarity

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

Angle:  $\pm 0.5$

Unit: mm



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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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