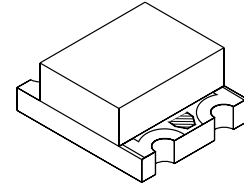
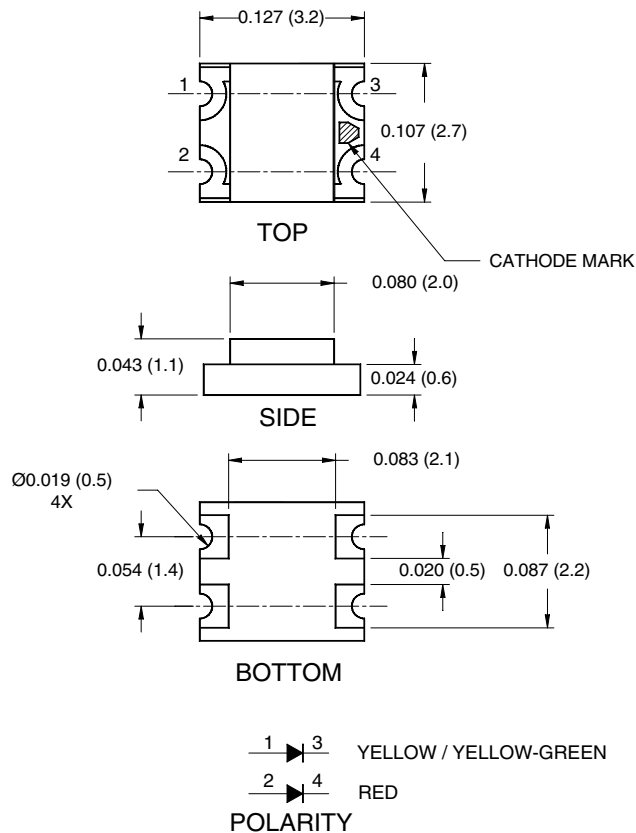


QTLP650C-RY Red/Yellow

QTLP650C-RAG Red/Yellow-Green

### PACKAGE DIMENSIONS



**NOTE:**

Dimensions for all drawings are in inches (mm).

### APPLICATIONS

- Keypad backlighting
- Push-button backlighting
- LCD backlighting

### DESCRIPTION

These super bright bi-color surface mount chip LEDs are designed to fit industry standard footprint. Small size, low profile and wide viewing angle make these LEDs ideal for backlighting applications and panel illumination.

### FEATURES

- Miniature footprint - 3.2(L) X 2.7(W) X 1.1(H) mm
- AllnGaP technology
- Wide viewing angle of 140°
- Water clear optics
- Moisture-proof packaging
- Available in 0.315" (8mm) width tape on 7" (178mm) diameter reel; 2,000 units per reel

**QTLP650C-RY** Red/Yellow

**QTLP650C-RAG** Red/Yellow-Green

**ABSOLUTE MAXIMUM RATINGS** (T<sub>A</sub> =25°C Unless otherwise specified)

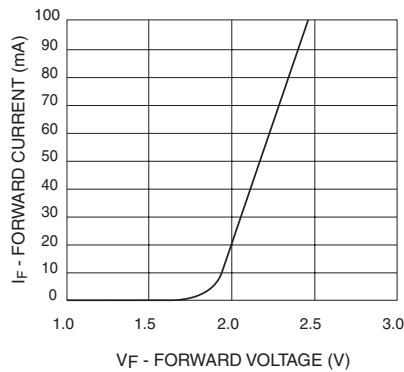
Parameter	Symbol	QTLP650C		Units
		-RY	-RAG	
Continuous Forward Current	I <sub>F</sub>	30 / 25	30 / 30	mA
Peak Forward Current (f = 1.0 KHz, Duty Factor = 1/10)	I <sub>FM</sub>	160 / 120	160 / 160	mA
Reverse Voltage	V <sub>R</sub>	5	5	V
Power Dissipation	P <sub>D</sub>	72 / 60	72 / 72	mW
Operating Temperature	T <sub>OPR</sub>	-40 to +85		°C
Storage Temperature	T <sub>STG</sub>	-40 to +90		°C
Lead Soldering Time	T <sub>SOL</sub>	260 for 5 sec		°C

**ELECTRICAL / OPTICAL CHARACTERISTICS** (T<sub>A</sub> =25°C)

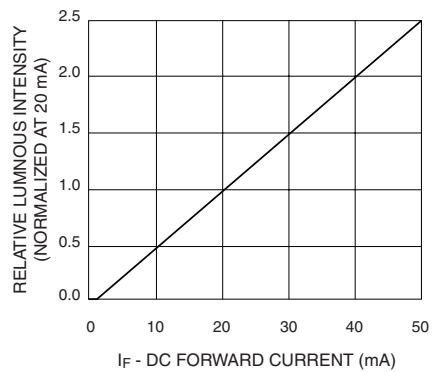
Parameter	Symbol	QTLP650C		Units
		-RY	-RAG	
Luminous Intensity (mcd)	I <sub>V</sub>	15 / 15	15 / 10	I <sub>F</sub> = 20mA
Minimum				
Typical		35 / 35	35 / 15	
Forward Voltage (V)	V <sub>F</sub>	2.4 / 2.4	2.4 / 2.4	I <sub>F</sub> = 20mA
Maximum				
Typical		2.0 / 2.0	2.0 / 2.0	
Wavelength (nm)	λ <sub>P</sub>	630 / 590	630 / 575	I <sub>F</sub> = 20mA
Peak				
Dominant	λ <sub>D</sub>	624 / 589	624 / 573	
Spectral Line Half Width (nm)	Δλ	20 / 15	20 / 20	I <sub>F</sub> = 20mA
Viewing Angle (°)	2Θ <sub>1/2</sub>	140	140	I <sub>F</sub> = 20mA

**TYPICAL PERFORMANCE CURVES**

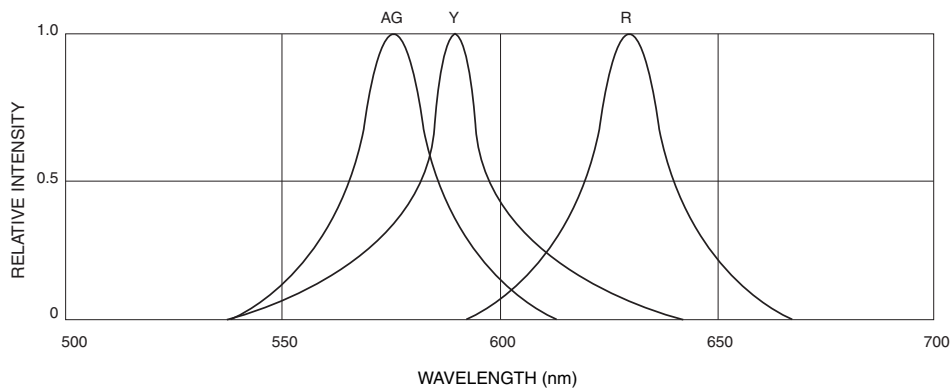
**Fig. 1 Forward Current vs. Forward Voltage**



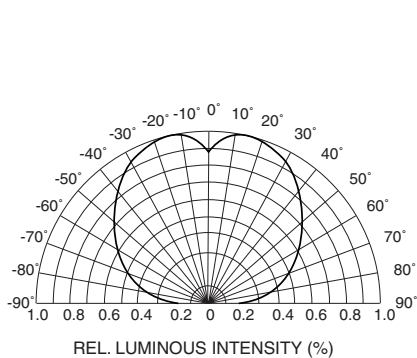
**Fig. 2 Relative Luminous Intensity vs. DC Forward Current**



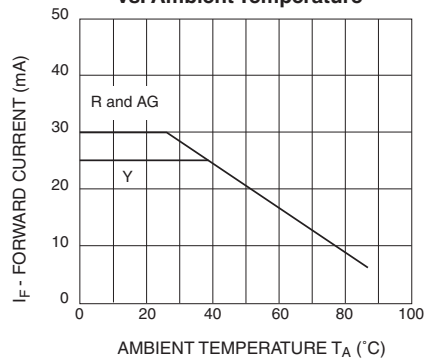
**Fig. 3 Relative Intensity vs. Peak Wavelength**



**Fig.4 Radiation Diagram**



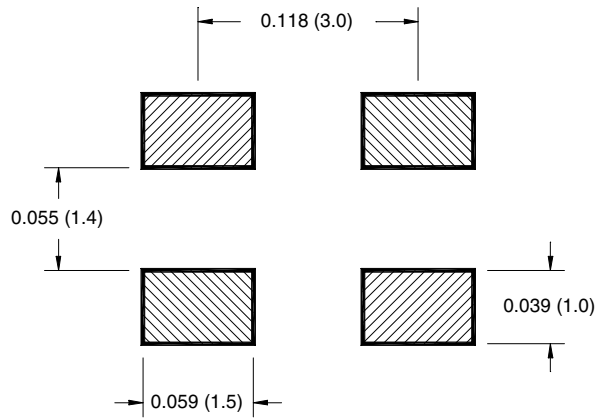
**Fig.5 Maximum Forward Current vs. Ambient Temperature**



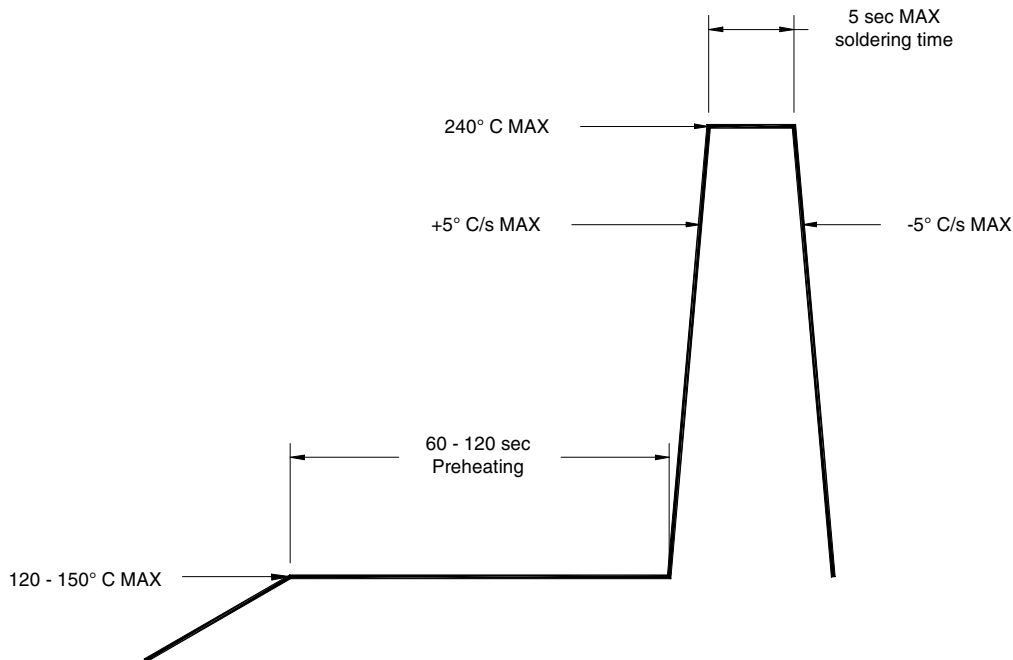
**QTLP650C-RY Red/Yellow**

**QTLP650C-RAG Red/Yellow-Green**

**RECOMMENDED PRINTED CIRCUIT BOARD PATTERN**



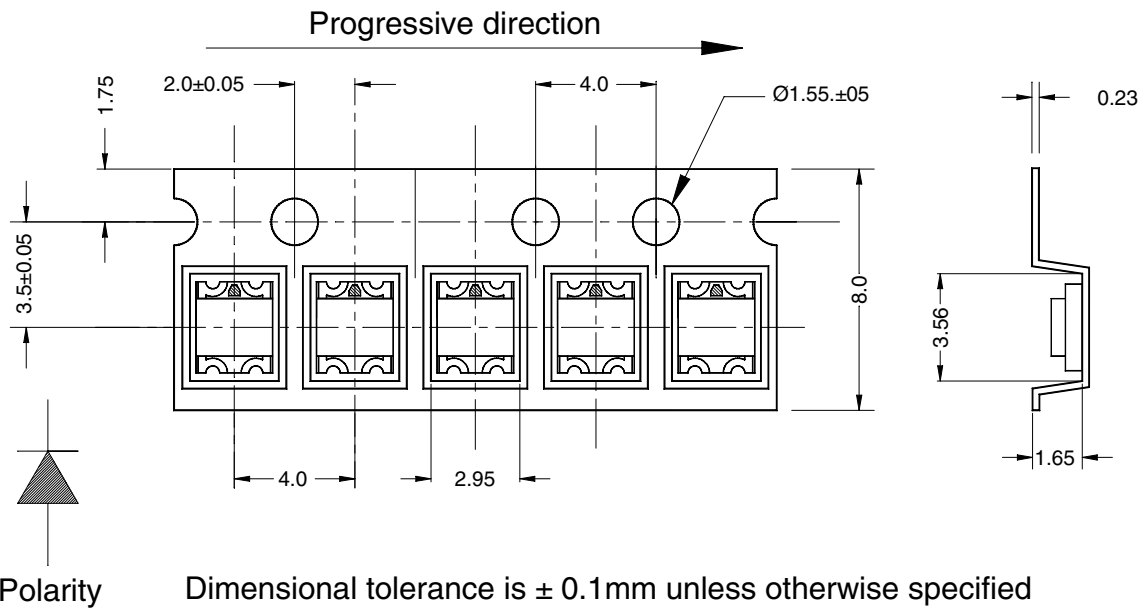
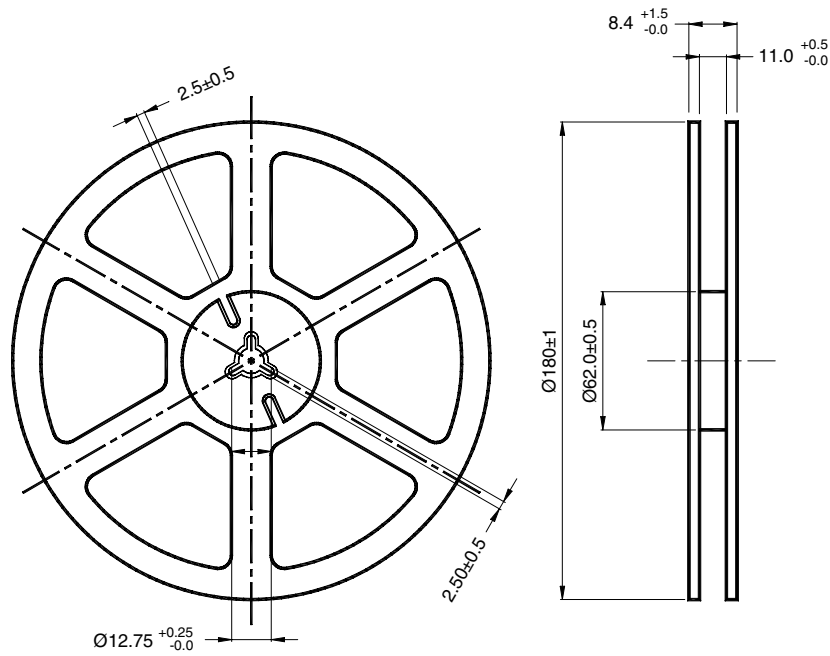
**RECOMMENDED IR REFLOW SOLDERING PROFILE**



QTLP650C-RY Red/Yellow

QTLP650C-RAG Red/Yellow-Green

**TAPE AND REEL DIMENSIONS**



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

Angle:  $\pm 0.5$

Unit: mm

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**QTLP650C-RY** Red/Yellow

**QTLP650C-RAG** Red/Yellow-Green

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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.