

QTLP650C-2 / QTLP650D-2 HER

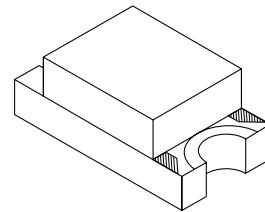
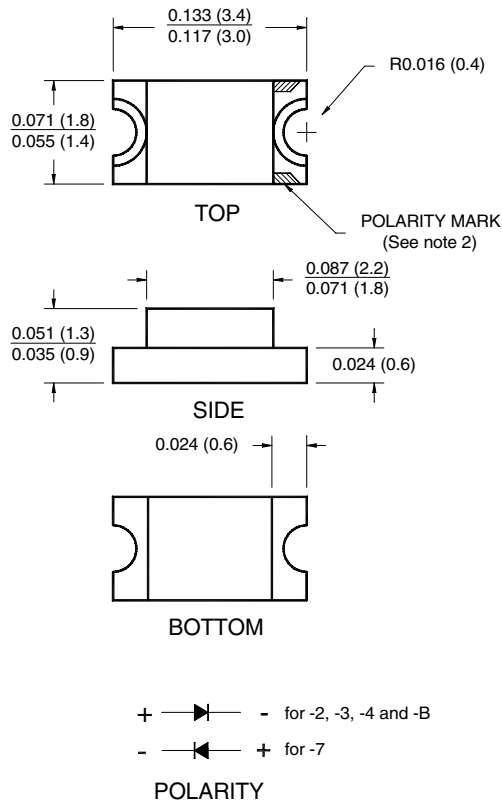
QTLP650C-3 / QTLP650D-3 Yellow

QTLP650C-4 / QTLP650D-4 Green

QTLP650C-7 / QTLP650D-7 AlGaAs Red

QTLP650C-B Blue

### PACKAGE DIMENSIONS



#### NOTE:

1. Dimensions for all drawings are in inches (mm).
2. Cathode for -2, -3, -4 and B. Anode for -7.

### APPLICATIONS

- Keypad backlighting
- Push-button backlighting
- LCD backlighting

### DESCRIPTION

These surface mount chip LEDs are designed to fit industry standard footprint. Low profile and wide viewing angle make these LEDs ideal choices for backlighting applications and panel illumination.

### FEATURES

- Small footprint - 3.2(L) X 1.6(W) X 1.1(H) mm
- Wide viewing angle of 140°(QTLP650C) or 160°(QTLP650D)
- Water clear (QTLP650C) or diffused (QTLP650D) 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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QTLP650C-7 / QTLP650D-7 AlGaAs Red

QTLP650C-B Blue

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

Parameter	Symbol	QTLP650C / QTLP650D					Units
		-2	-3	-4	-7	-B*	
Continuous Forward Current	I <sub>F</sub>	30	30	30	30	30	mA
Peak Forward Current (f = 1.0 KHz, Duty Factor = 1/10)	I <sub>FM</sub>	160	160	160	180	100	mA
Reverse Voltage (I <sub>R</sub> = 10 μA)	V <sub>R</sub>	5	5	5	5	5	V
Power Dissipation	P <sub>D</sub>	84	84	84	72	135	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)

Part Number	Symbol	QTLP650C / QTLP650D					Condition
		-2	-3	-4	-7	-B*	
Luminous Intensity (mcd)	I <sub>v</sub>	4 / 3	4 / 3	6 / 5	10 / 8	10 / -	I <sub>F</sub> = 20mA
Minimum		10 / 8	10 / 8	10 / 8	20 / 15	20 / -	
Forward Voltage (V)	V <sub>F</sub>	2.8	2.8	2.8	2.4	4.5	I <sub>F</sub> = 20mA
Maximum		2.0	2.0	2.1	1.9	3.8	
Wavelength (nm)	λ <sub>P</sub>	635	585	565	660	430	I <sub>F</sub> = 20mA
Peak		630	590	570	645	465	
Dominant	λ <sub>D</sub>	630	590	570	645	465	I <sub>F</sub> = 20mA
Spectral Line Half Width (nm)	Δλ	45	35	30	20	65	I <sub>F</sub> = 20mA
Viewing Angle (°)	2Θ <sub>1/2</sub>	140 / 160	140 / 160	140 / 160	140 / 160	140 / -	I <sub>F</sub> = 20mA

\* Available only in QTLP650C

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QTLP650C-7 / QTLP650D-7 AlGaAs Red

QTLP650C-B Blue

### TYPICAL PERFORMANCE CURVES

Fig. 1 Forward Current vs. Forward Voltage

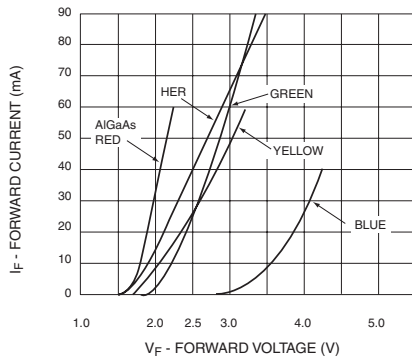


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

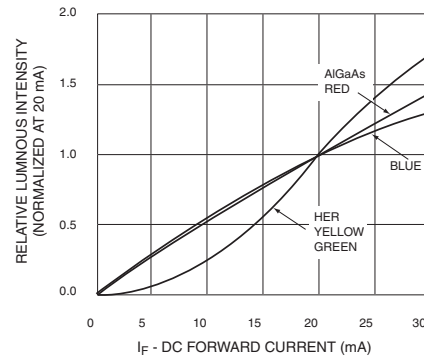


Fig. 3 Relative Intensity vs. Peak Wavelength

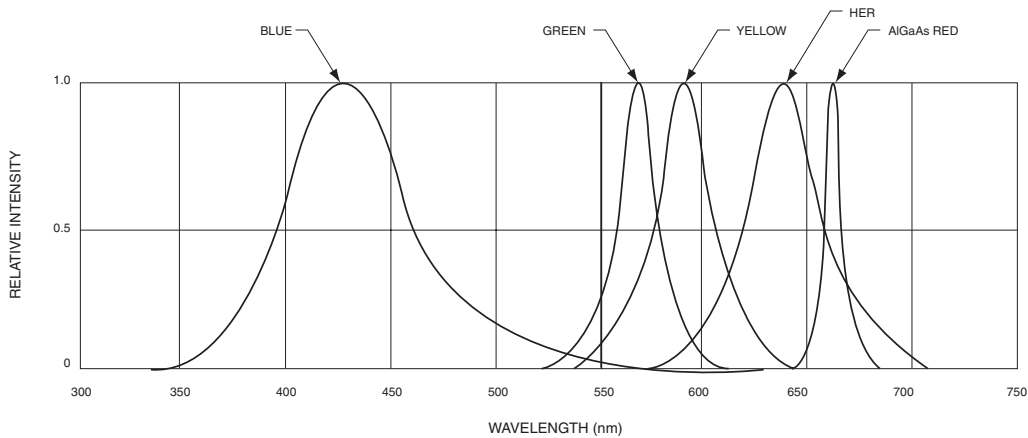


Fig.4 Radiation Diagram

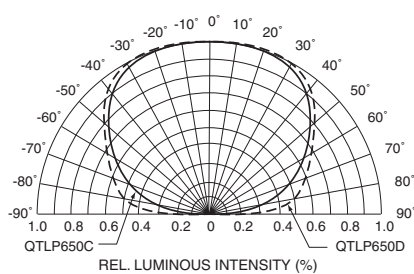
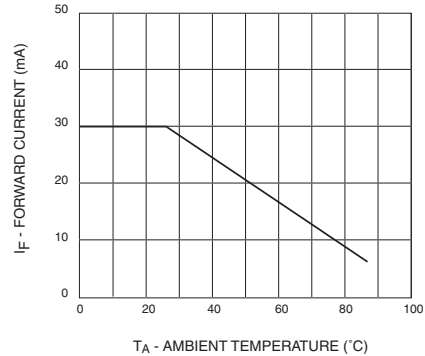


Fig.5 Maximum Forward Current vs. Ambient Temperature



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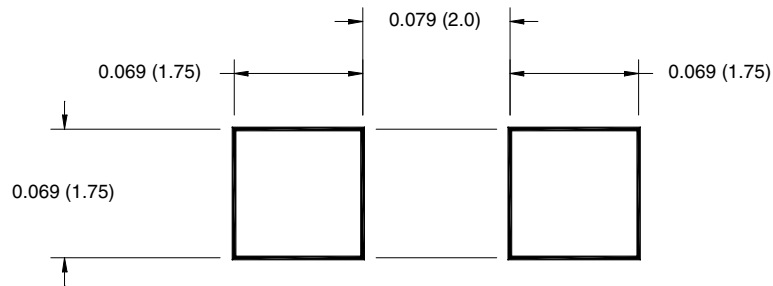
QTLP650C-3 / QTLP650D-3 Yellow

QTLP650C-4 / QTLP650D-4 Green

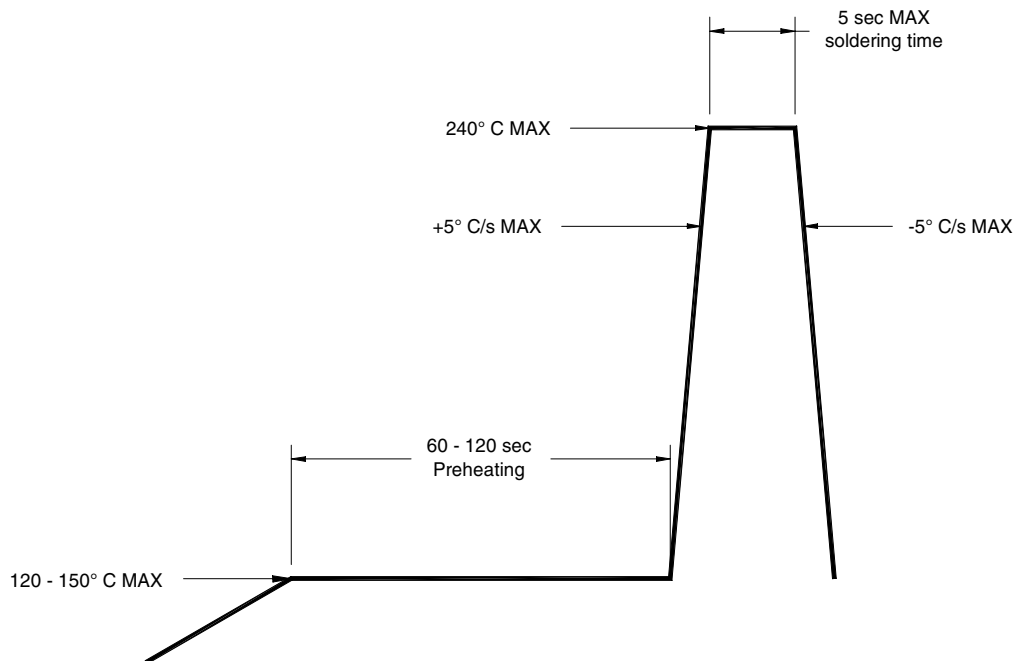
QTLP650C-7 / QTLP650D-7 AlGaAs Red

QTLP650C-B Blue

### RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



### RECOMMENDED IR REFLOW SOLDERING PROFILE



QTLP650C-2 / QTLP650D-2 HER

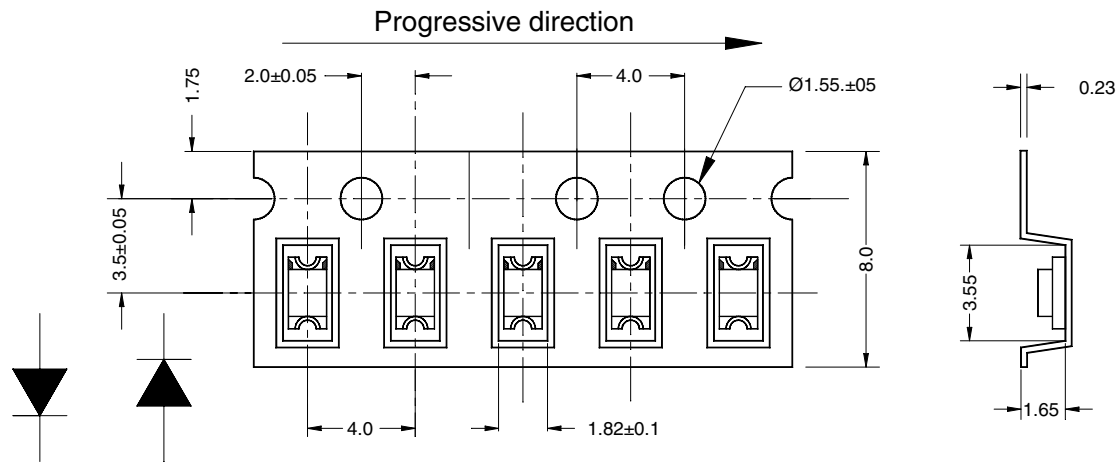
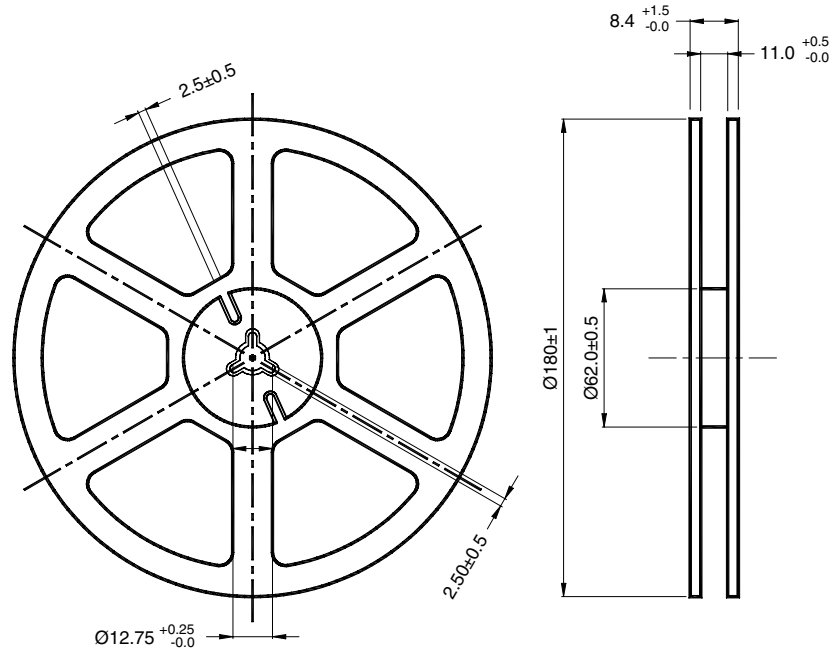
QTLP650C-3 / QTLP650D-3 Yellow

QTLP650C-4 / QTLP650D-4 Green

QTLP650C-7 / QTLP650D-7 AlGaAs Red

QTLP650C-B Blue

**TAPE AND REEL DIMENSIONS**



for -7 for -2, -3, -4 and -B

Polarity

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

Angle:  $\pm 0.5$

Unit: mm

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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.