



# SURFACE MOUNT LED LAMP STANDARD BRIGHT 1210

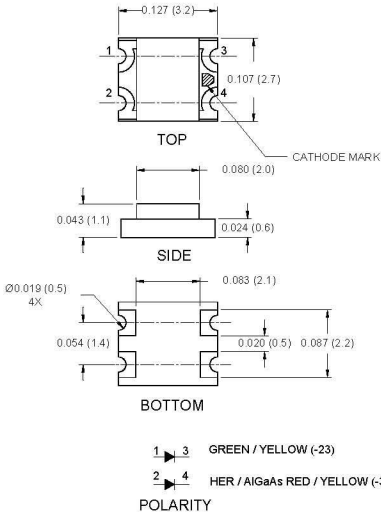
QTLP650C-23 HER/Yellow

QTLP650C-24 HER/Green

QTLP650C-34 Yellow/Green

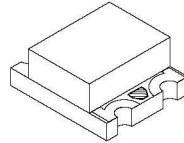
QTLP650C-74 AlGaAs Red/Green

## PACKAGE DIMENSIONS



### NOTE:

Dimensions for all drawings are in inches (mm).



## APPLICATIONS

- Keypad backlighting
- Push-button backlighting
- LCD backlighting

## DESCRIPTION

These 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
- 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



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

Parameter	Symbol	QTLP650C				Units
		-23	-24	-34	-74	
Continuous Forward Current	I <sub>F</sub>	30 / 30	30 / 30	30 / 30	30 / 30	mA
Peak Forward Current (f = 1.0 KHz, Duty Factor = 1/10)	I <sub>FM</sub>	160 / 160	160 / 160	160 / 160	160 / 160	mA
Reverse Voltage	V <sub>R</sub>	5	5	5	5	V
Power Dissipation	P <sub>D</sub>	84 / 84	84 / 84	84 / 84	72 / 84	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
		-23	-24	-34	-74	
Luminous Intensity (mcd)	I <sub>V</sub>	2.5 / 4.0	2.5 / 4.0	4.0 / 4.0	9.0 / 4.0	I <sub>F</sub> = 20mA
Minimum		4.0 / 6.5	4.0 / 6.5	6.5 / 6.5	15 / 6.5	
Typical	V <sub>F</sub>	2.8 / 2.8	2.8 / 2.8	2.8 / 2.8	2.4 / 2.8	I <sub>F</sub> = 20mA
Forward Voltage (V)		2.0 / 2.0	2.0 / 2.0	2.0 / 2.0	1.9 / 2.0	
Maximum	I <sub>P</sub>	635 / 585	635 / 565	585 / 565	660 / 565	I <sub>F</sub> = 20mA
Typical		630 / 590	630 / 570	590 / 570	645 / 570	
Wavelength (nm)	DI	45 / 35	45 / 30	35 / 30	20 / 30	I <sub>F</sub> = 20mA
Peak		140	140	140	140	
Dominant	2U1/2	140	140	140	140	I <sub>F</sub> = 20mA
Spectral Line Half Width (nm)		140	140	140	140	
Viewing Angle (°)						



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## TYPICAL PERFORMANCE CURVES

Fig. 1 Forward Current vs. Forward Voltage

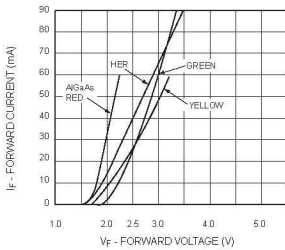


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

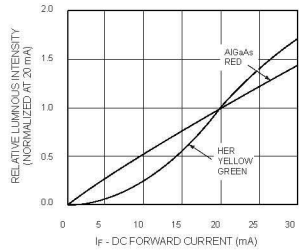


Fig. 3 Relative Intensity vs. Peak Wavelength

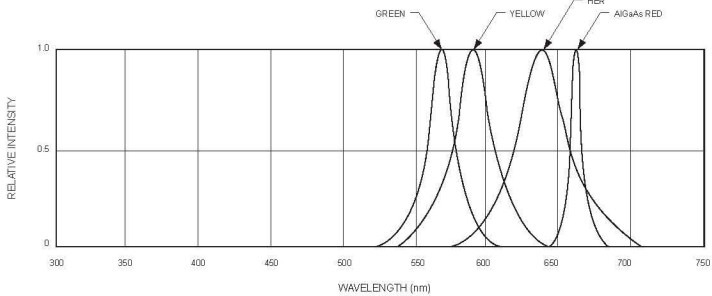


Fig.4 Radiation Diagram

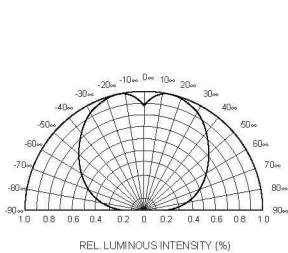
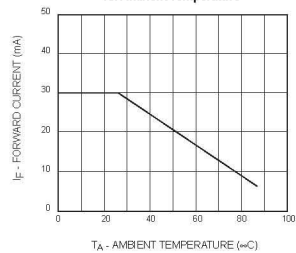


Fig.5 Maximum Forward Current vs. Ambient Temperature





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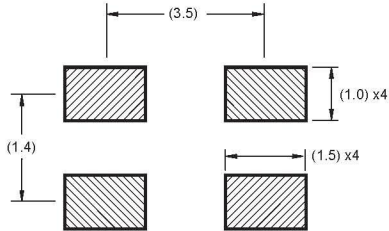
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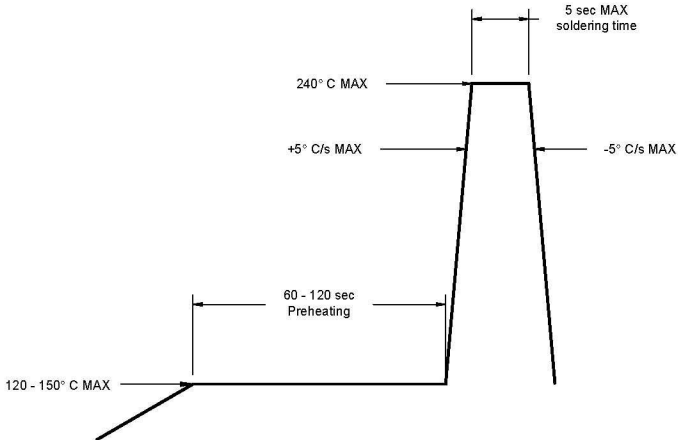
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## RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



Note: All units are in mm

## RECOMMENDED IR REFLOW SOLDERING PROFILE





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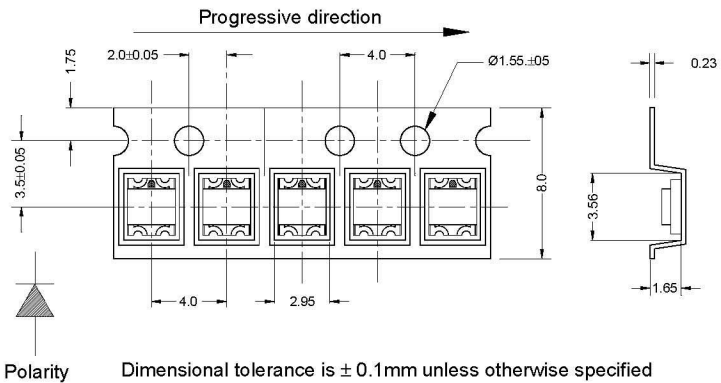
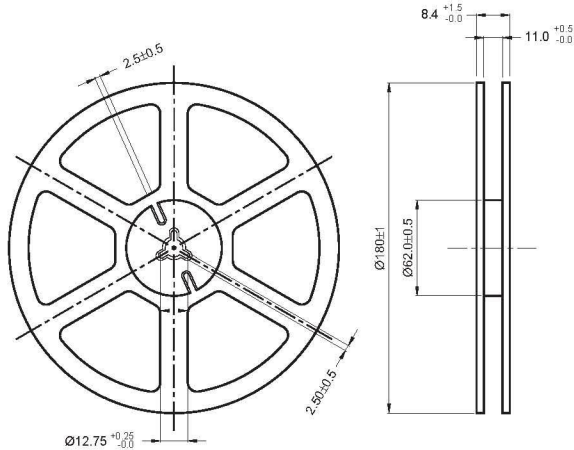
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## TAPE AND REEL DIMENSIONS



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

Angle:  $\pm 0.5$

Unit: mm



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