

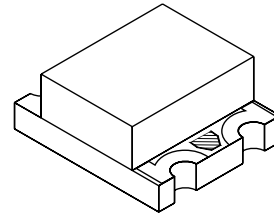
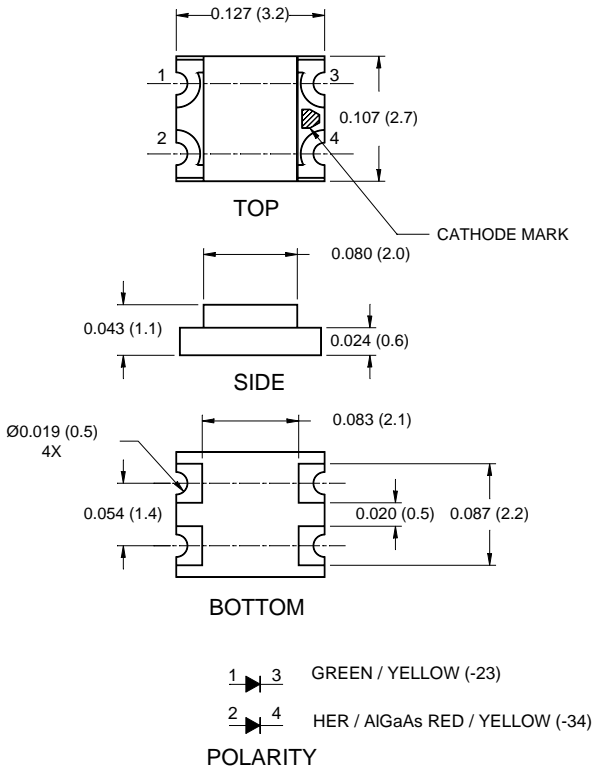
QTLP650C-23 HER/Yellow

QTLP650C-24 HER/Green

QTLP650C-34 Yellow/Green

QTLP650C-74 AlGaAs Red/Green

PACKAGE DIMENSIONS



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

| Parameter | Symbol | QTLP650C | | | | Units |
|--|-----------|---------------|-----------|-----------|-----------|------------------|
| | | -23 | -24 | -34 | -74 | |
| Continuous Forward Current | I_F | 30 / 30 | 30 / 30 | 30 / 30 | 30 / 30 | mA |
| Peak Forward Current ($f = 1.0$ KHz, Duty Factor = 1/10) | I_{FM} | 160 / 160 | 160 / 160 | 160 / 160 | 180 / 160 | mA |
| Reverse Voltage | V_R | 5 | 5 | 5 | 5 | V |
| Power Dissipation | P_D | 84 / 84 | 84 / 84 | 84 / 84 | 72 / 84 | 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 ($T_A = 25^\circ\text{C}$)

| Parameter | Symbol | QTLP650C | | | | Units |
|-------------------------------|--------|-----------|-----------|-----------|-----------|---------------------|
| | | -23 | -24 | -34 | -74 | |
| Luminous Intensity (mcd) | I_V | 2.5 / 4.0 | 2.5 / 4.0 | 4.0 / 4.0 | 9.0 / 4.0 | $I_F = 20\text{mA}$ |
| Minimum | | 4.0 / 6.5 | 4.0 / 6.5 | 6.5 / 6.5 | 15 / 6.5 | |
| Typical | V_F | 2.8 / 2.8 | 2.8 / 2.8 | 2.8 / 2.8 | 2.4 / 2.8 | $I_F = 20\text{mA}$ |
| Forward Voltage (V) | | 2.0 / 2.0 | 2.0 / 2.0 | 2.0 / 2.0 | 1.9 / 2.0 | |
| Maximum | I_P | 635 / 585 | 635 / 565 | 585 / 565 | 660 / 565 | $I_F = 20\text{mA}$ |
| Typical | | 630 / 590 | 630 / 570 | 590 / 570 | 645 / 570 | |
| Wavelength (nm) | I_D | 45 / 35 | 45 / 30 | 35 / 30 | 20 / 30 | $I_F = 20\text{mA}$ |
| Peak | 2U1/2 | 140 | 140 | 140 | 140 | $I_F = 20\text{mA}$ |
| Dominant | | 140 | 140 | 140 | 140 | |
| Spectral Line Half Width (nm) | | | | | | |
| Viewing Angle ($^\circ$) | | | | | | |

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TYPICAL PERFORMANCE CURVES

Fig. 1 Forward Current vs. Forward Voltage

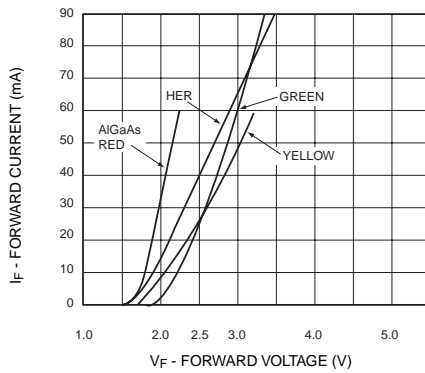


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

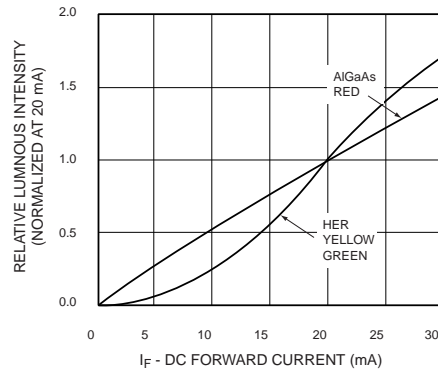


Fig. 3 Relative Intensity vs. Peak Wavelength

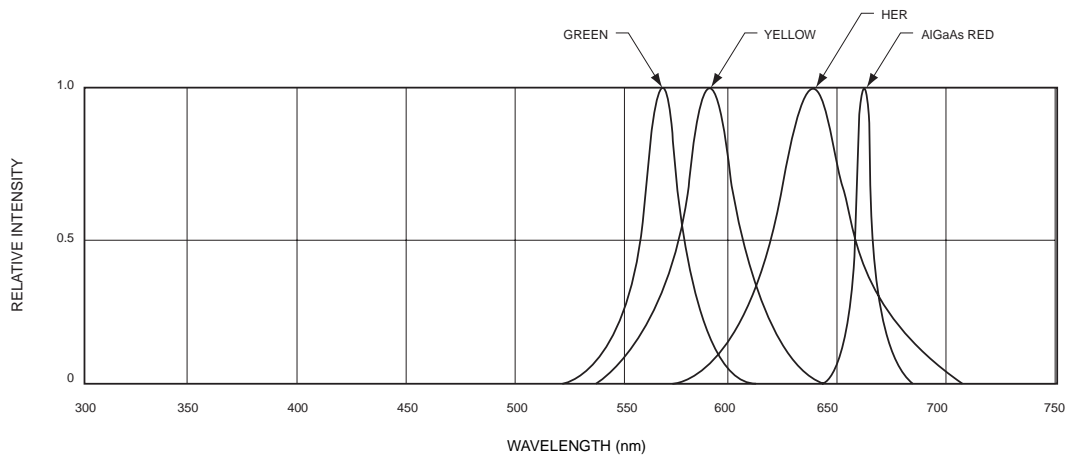


Fig.4 Radiation Diagram

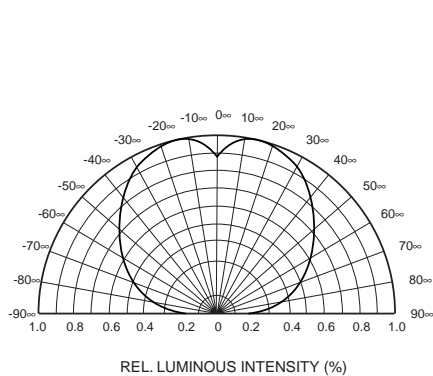
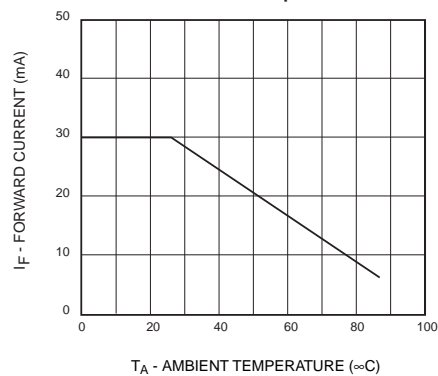


Fig.5 Maximum Forward Current vs. Ambient Temperature



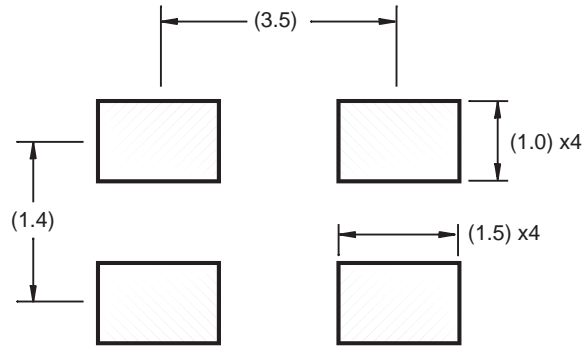
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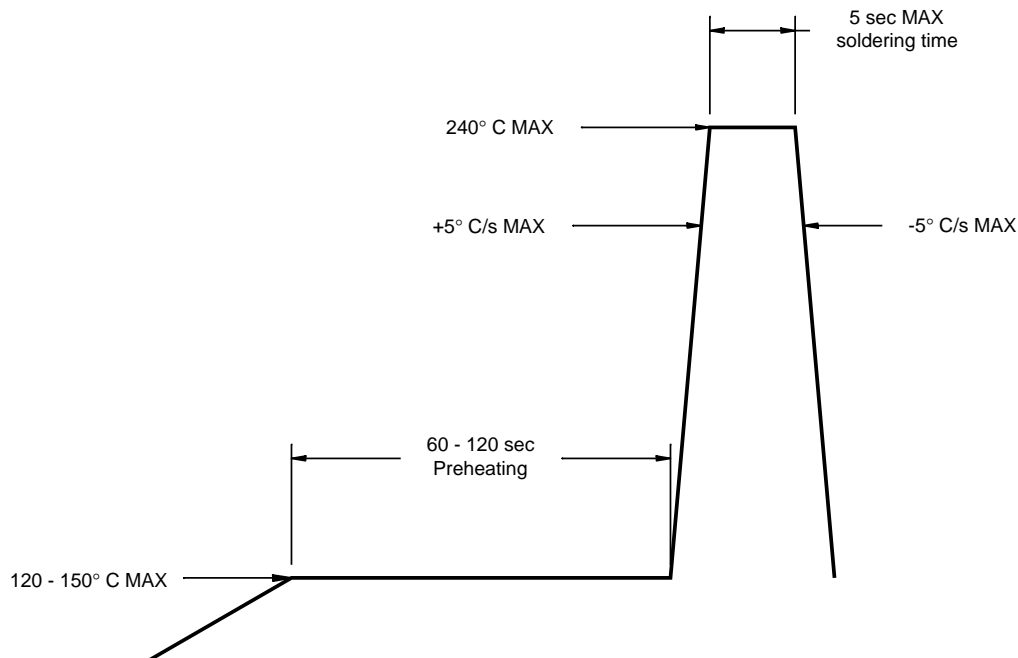
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RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



Note: All units are in mm

RECOMMENDED IR REFLOW SOLDERING PROFILE



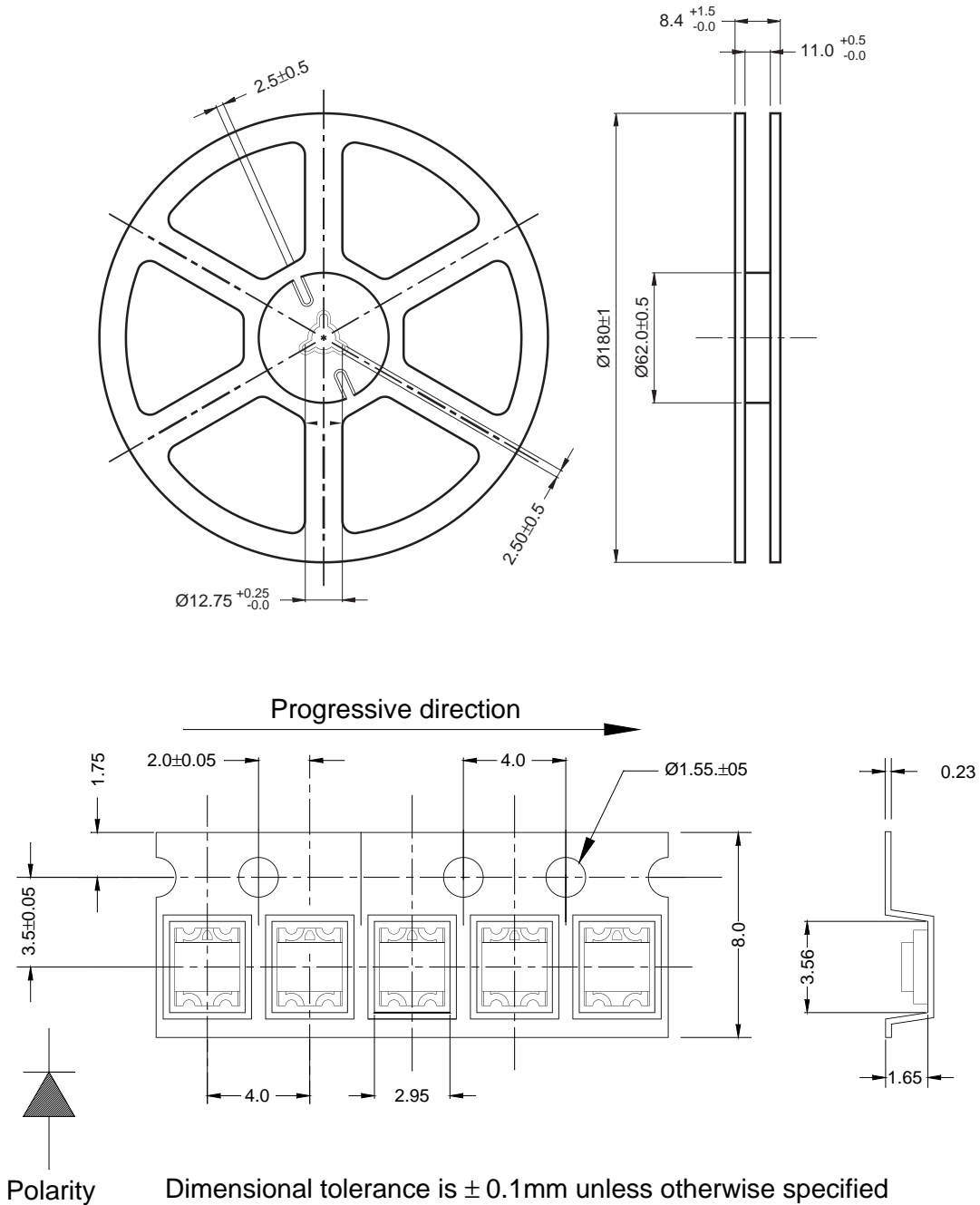
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TAPE AND REEL DIMENSIONS



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

Angle: ± 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.