

QTLP650C-R Red

QTLP650C-E Orange

QTLP650C-O Yellow-Orange

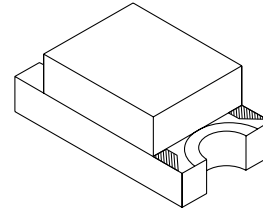
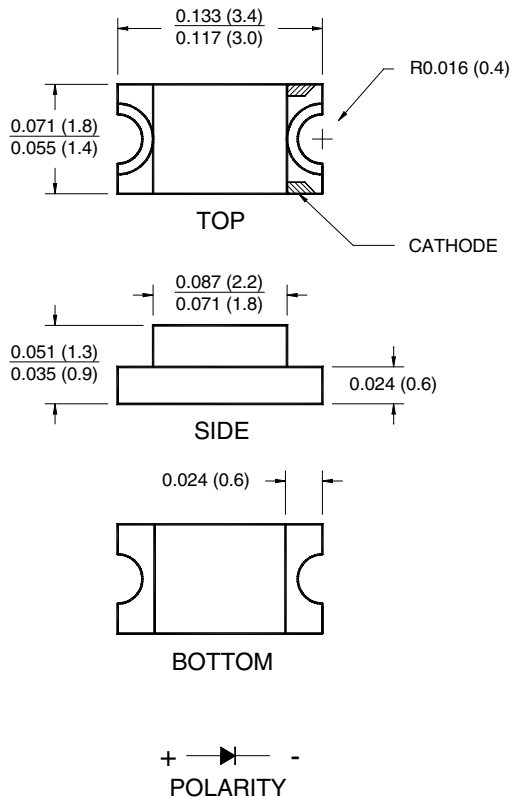
QTLP650C-Y Yellow

QTLP650C-AG Yellow-Green

QTLP650C-IG True Green

QTLP650C-IB Blue

PACKAGE DIMENSIONS



NOTE:

Dimensions for all drawings are in inches (mm).

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
- AllInGaP technology for -R, -E, -O, -Y and -AG
- InGaN/SiC technology for -IG and -IB
- 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°C Unless otherwise specified)

| Parameter | Symbol | QTLP650C | | | | | Units |
|---|------------------|---------------|-----|-----|-----|-----|-------|
| | | -R | -E | -O | -Y | -AG | |
| Continuous Forward Current | I _F | 30 | 30 | 30 | 25 | 30 | mA |
| Peak Forward Current (f = 1.0 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 | | | | | °C |
| Storage Temperature | T _{STG} | -40 to +90 | | | | | °C |
| Lead Soldering Time | T _{SOL} | 260 for 5 sec | | | | | °C |

ABSOLUTE MAXIMUM RATINGS (T_A =25°C Unless otherwise specified)

| Parameter | Symbol | QTLP650C | | Units |
|---|------------------|---------------|-----|-------|
| | | -IB | -IG | |
| Continuous Forward Current | I _F | 30 | 30 | mA |
| Peak Forward Current (f = 1.0 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 | | °C |
| Storage Temperature | T _{STG} | -40 to +90 | | °C |
| Lead Soldering Time | T _{SOL} | 260 for 5 sec | | °C |

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ELECTRICAL / OPTICAL CHARACTERISTICS (T_A =25°C)

| Part Number | Symbol | QTLP650C | | | | | Condition |
|-------------------------------|-------------------|----------|-----|-----|-----|-----|-----------------------|
| | | -R | -E | -O | -Y | -AG | |
| Luminous Intensity (mcd) | I _v | 25 | 25 | 25 | 25 | 15 | I _F = 20mA |
| Minimum | | 70 | 70 | 70 | 70 | 30 | |
| Typical | | | | | | | |
| Forward Voltage (V) | V _F | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | I _F = 20mA |
| Maximum | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | |
| Typical | | | | | | | |
| Wavelength (nm) | λ _P | 630 | 620 | 610 | 590 | 575 | I _F = 20mA |
| Peak | | 624 | 615 | 605 | 589 | 573 | |
| Dominant | λ _D | | | | | | |
| Spectral Line Half Width (nm) | Δλ | 20 | 18 | 18 | 15 | 20 | I _F = 20mA |
| Viewing Angle (°) | 2Θ _{1/2} | 140 | 140 | 140 | 140 | 140 | I _F = 20mA |

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A =25°C)

| Part Number | Symbol | QTLP650C | | Condition |
|-------------------------------|-------------------|----------|-----|-----------------------|
| | | -IB | -IG | |
| Luminous Intensity (mcd) | I _v | 35 | 100 | I _F = 20mA |
| Minimum | | 45 | 140 | |
| Typical | | | | |
| Forward Voltage (V) | V _F | 4.0 | 4.0 | I _F = 20mA |
| Maximum | | 3.5 | 3.5 | |
| Typical | | | | |
| Wavelength (nm) | λ _P | 465 | 520 | I _F = 20mA |
| Peak | | 470 | 525 | |
| Dominant | λ _D | | | |
| Spectral Line Half Width (nm) | Δλ | 25 | 35 | I _F = 20mA |
| Viewing Angle (°) | 2Θ _{1/2} | 140 | 140 | I _F = 20mA |

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TYPICAL PERFORMANCE CURVES (QTLP650C-R, -E, -O, -Y and -AG)

Fig. 1 Forward Current vs. Forward Voltage

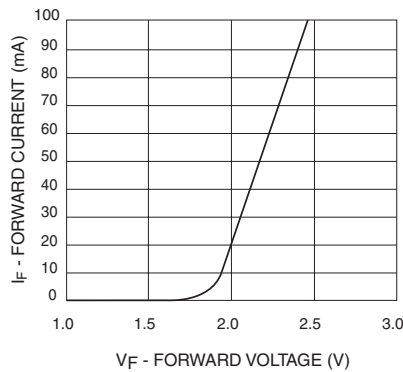


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

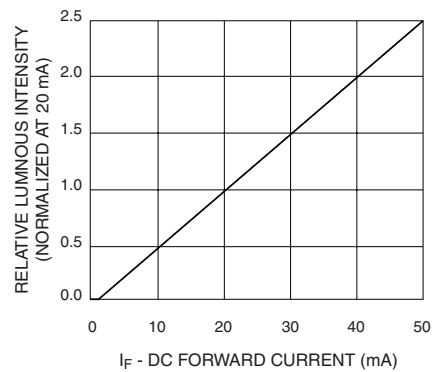


Fig. 3 Relative Intensity vs. Peak Wavelength

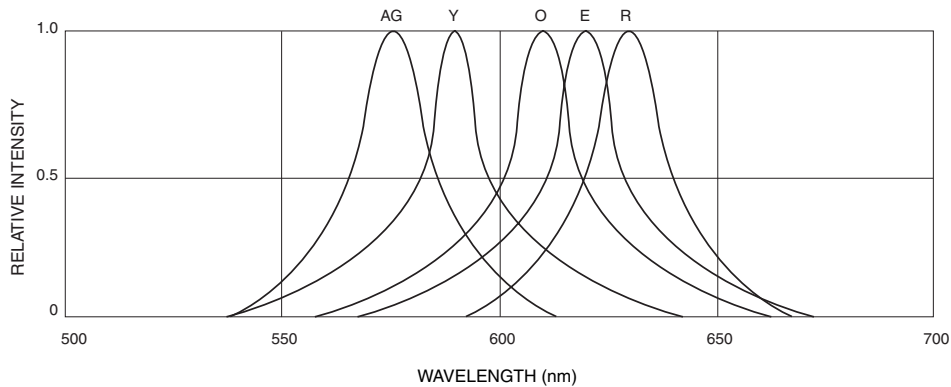


Fig.4 Radiation Diagram

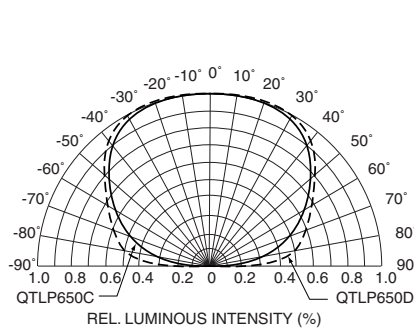
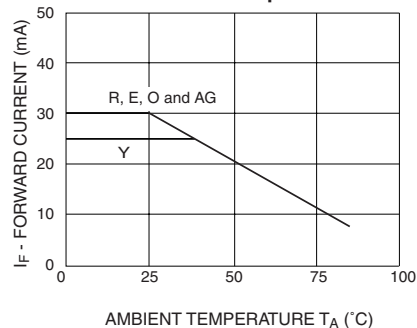


Fig.5 Maximum Forward Current vs. Ambient Temperature



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TYPICAL PERFORMANCE CURVES (QTLP650C-IG and IB)

Fig. 1 Forward Current vs. Forward Voltage

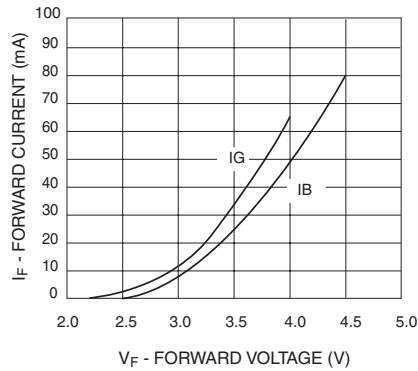


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

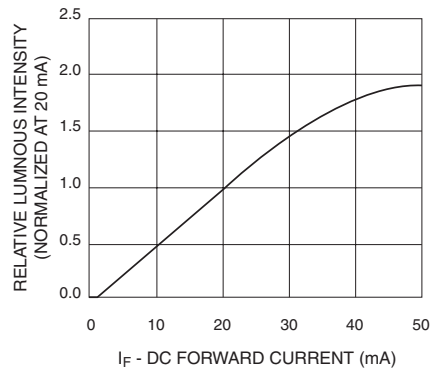


Fig. 3 Relative Intensity vs. Peak Wavelength

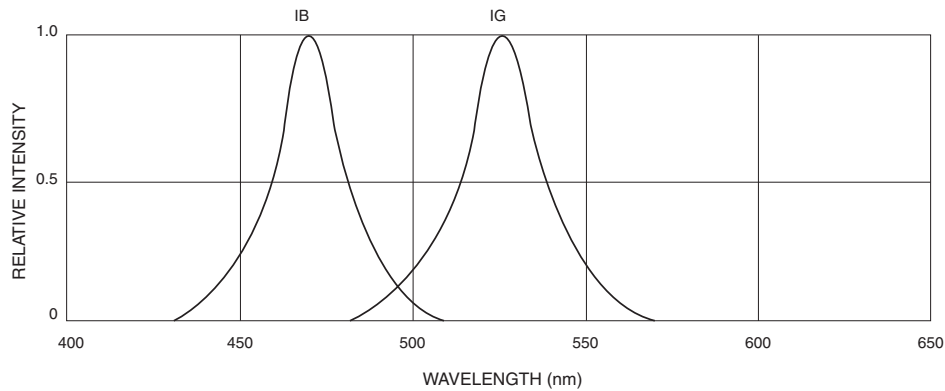


Fig. 4 Radiation Diagram

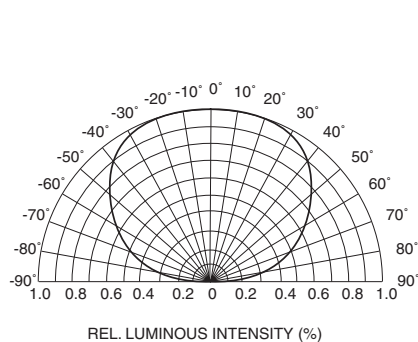
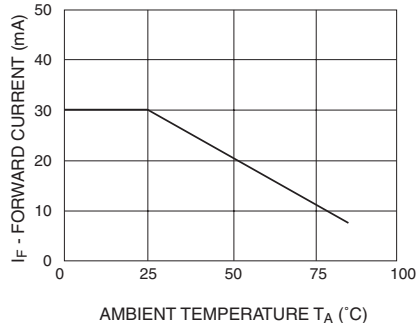


Fig. 5 Maximum Forward Current vs. Ambient Temperature



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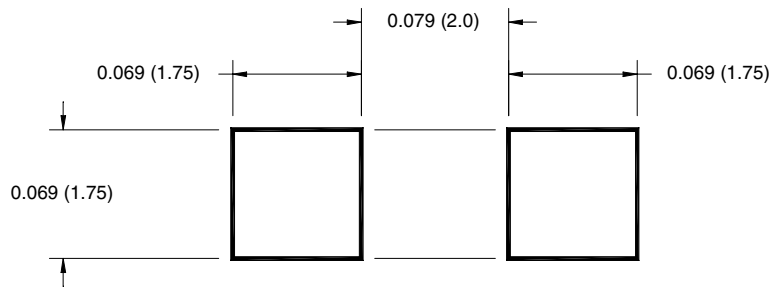
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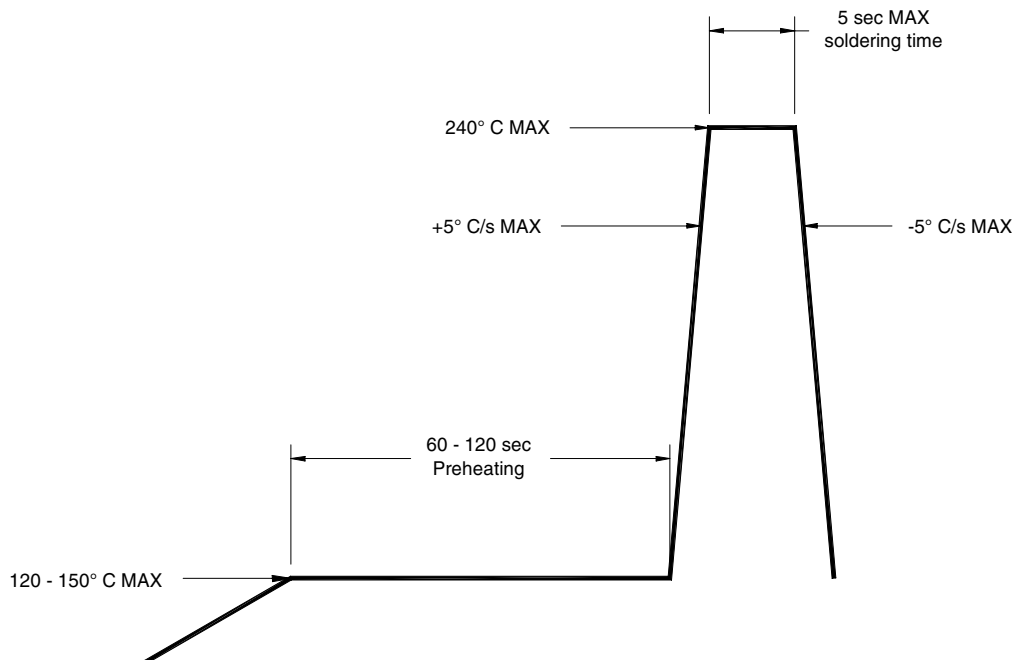
QTLP650C-IG True Green

QTLP650C-IB Blue

RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



RECOMMENDED IR REFLOW SOLDERING PROFILE



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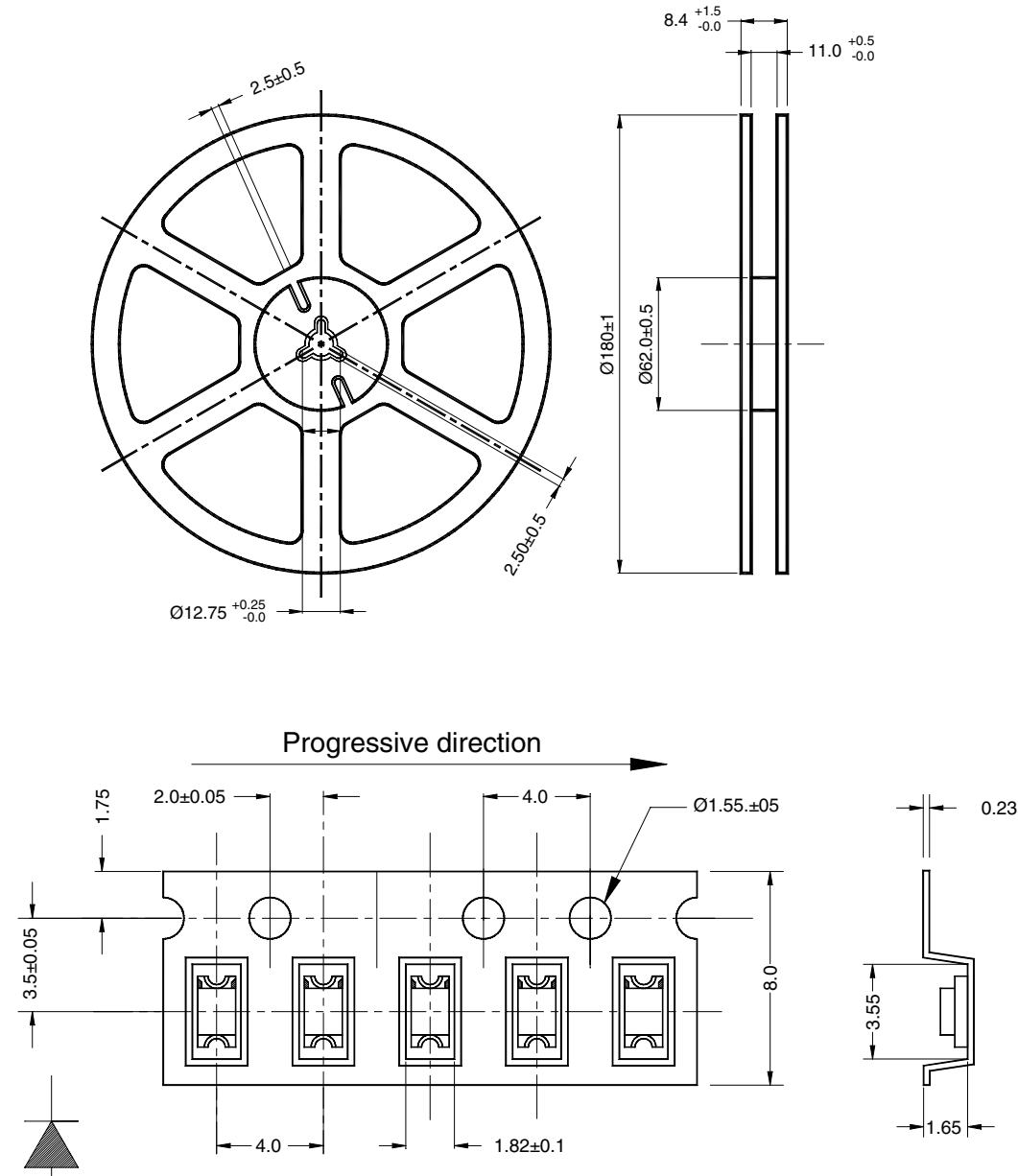
QTLP650C-Y Yellow

QTLP650C-AG Yellow-Green

QTLP650C-IG True Green

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TAPE AND REEL DIMENSIONS



Polarity

Dimensional tolerance is ± 0.1 mm unless otherwise specified
 Angle: ± 0.5
 Unit: mm

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DISCLAIMER

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