

FAIRCHILD
SEMICONDUCTOR®

SURFACE MOUNT LED LAMP

SUPER BRIGHT 0603 (0.8 mm Height)

QTLP600C-R Red

QTLP600C-E Orange

QTLP600C-O Yellow-Orange

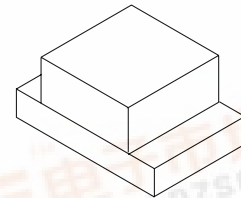
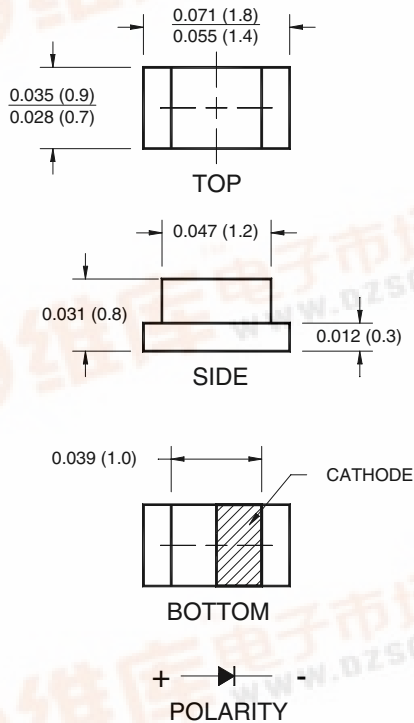
QTLP600C-Y Yellow

QTLP600C-AG Yellow-Green

QTLP600C-IG True Green

QTLP600C-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. Small size, low profile and wide viewing angle make these LEDs ideal choices for backlighting applications and panel illumination.

FEATURES

- Small footprint - 1.6(L) X 0.8(W) X 0.8(H) mm
- AllnGaP technology for -R, -E, -O, -Y and -AG
- InGaN/SiC technology for -IG and -IB
- Wide viewing angle of 100°
- 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 | QTLP600C | | | | | 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 | QTLP600C | | 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 | QTLP600C | | | | | Condition |
| | | -R | -E | -O | -Y | -AG | |
| Luminous Intensity (mcd) | I _v | 15 | 15 | 15 | 15 | 10 | I _F = 20mA |
| Minimum | | 35 | 35 | 35 | 35 | 15 | |
| 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} | 100 | 100 | 100 | 100 | 100 | I _F = 20mA |

| ELECTRICAL / OPTICAL CHARACTERISTICS (T _A =25°C) | | | | |
|---|-------------------|----------|-----|-----------------------|
| Part Number | Symbol | QTLP600C | | Condition |
| | | -IB | -IG | |
| Luminous Intensity (mcd) | I _v | 15 | 70 | I _F = 20mA |
| Minimum | | 25 | 110 | |
| 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} | 100 | 100 | I _F = 20mA |

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TYPICAL PERFORMANCE CURVES (QTLP600C-R, -E, -O, -Y and -AG)

Fig. 1 Forward Current vs. Forward Voltage

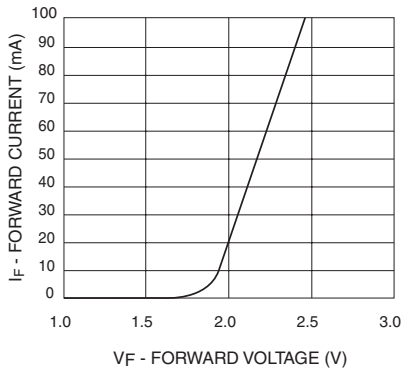


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

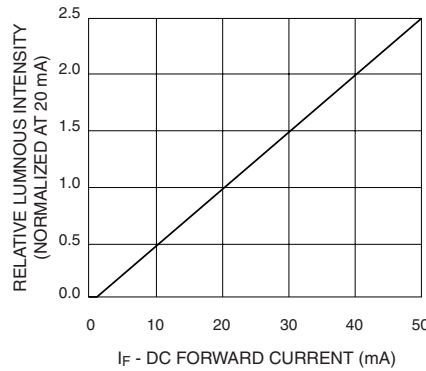


Fig. 3 Relative Intensity vs. Peak Wavelength

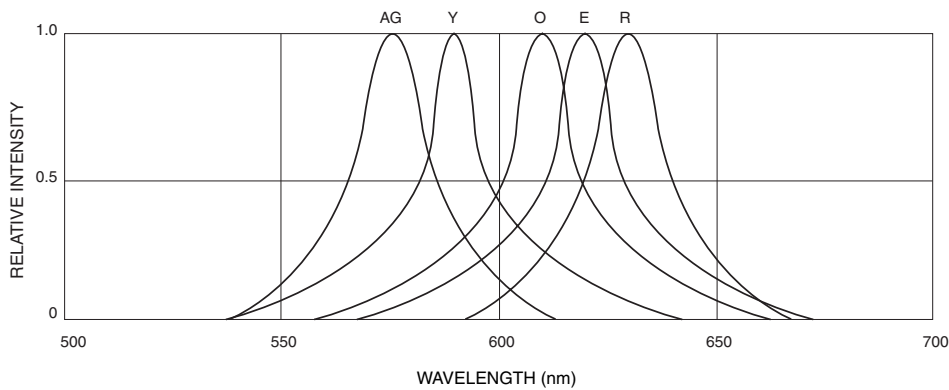


Fig.4 Radiation Diagram

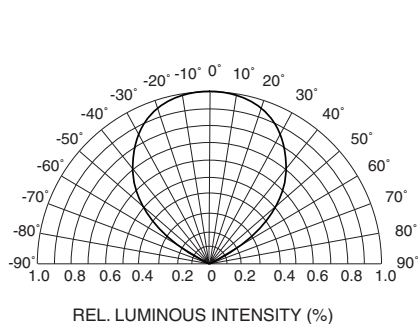
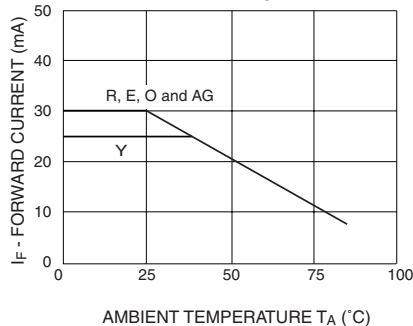


Fig.5 Maximum Forward Current vs. Ambient Temperature



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QTLP600C-IB Blue

TYPICAL PERFORMANCE CURVES (QTLP600C-IG and IB)

Fig. 1 Forward Current vs. Forward Voltage

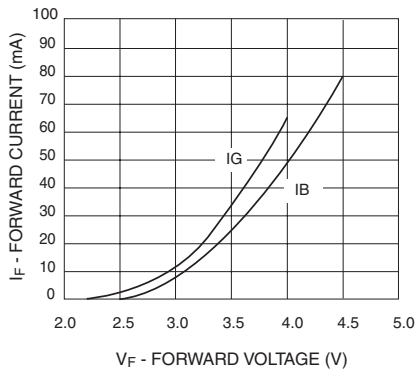


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

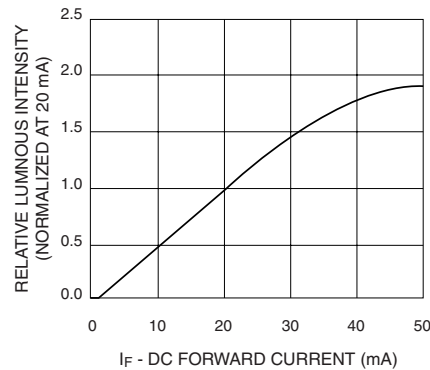


Fig. 3 Relative Intensity vs. Peak Wavelength

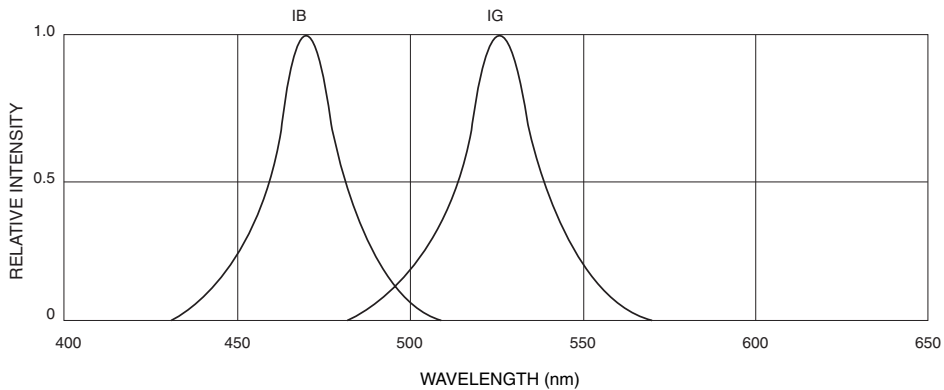


Fig.4 Radiation Diagram

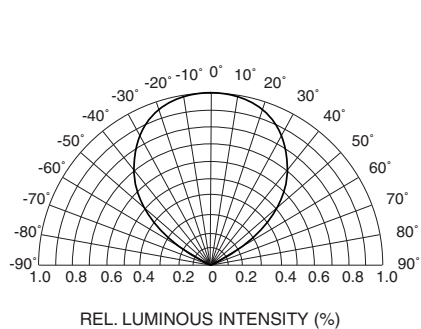
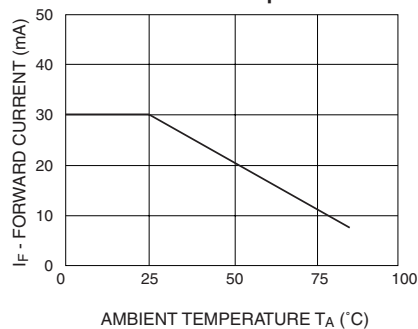


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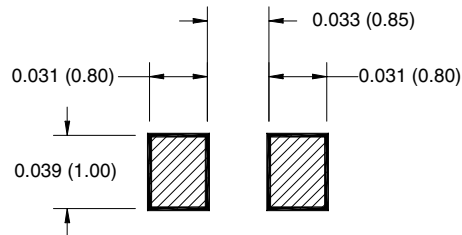
QTLP600C-Y Yellow

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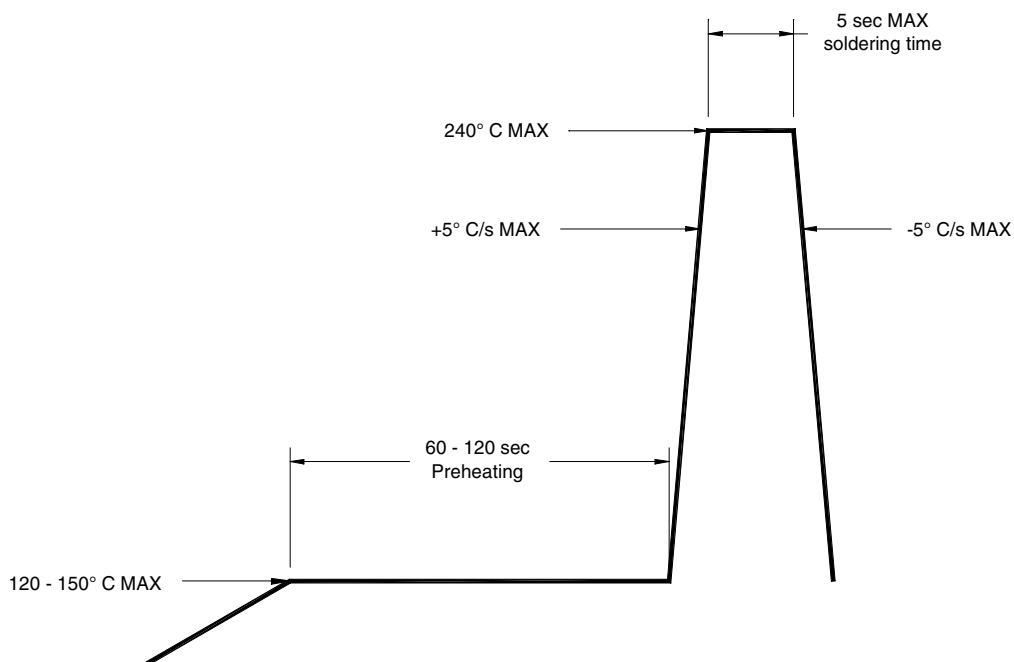
QTLP600C-IG True Green

QTLP600C-IB Blue

RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



RECOMMENDED IR REFLOW SOLDERING PROFILE



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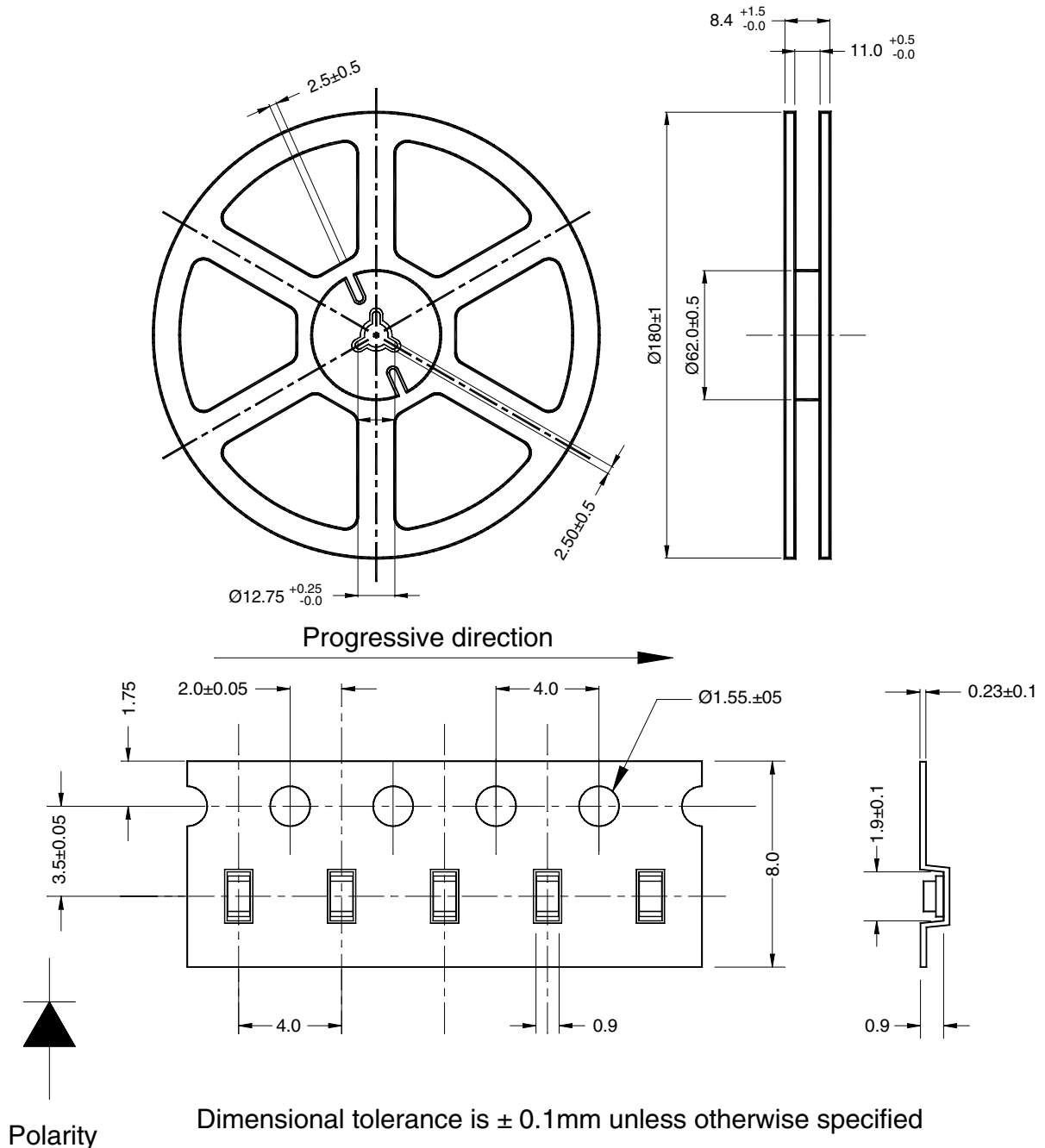
QTLP600C-Y Yellow

QTLP600C-AG Yellow-Green

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TAPE AND REEL DIMENSIONS



Dimensional tolerance is ± 0.1 mm unless otherwise specified

Angle: ± 0.5

Unit: mm



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