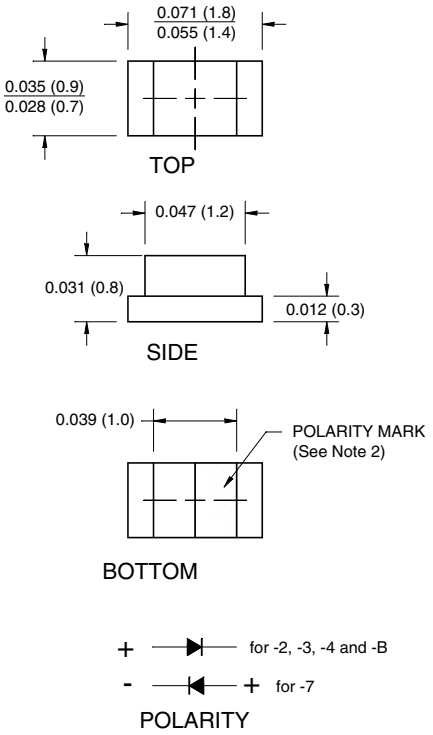
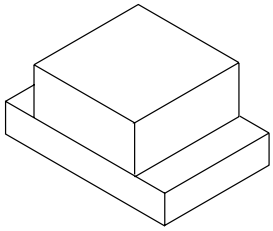
# SURFACE MOUNT LED LAMP
## STANDARD BRIGHT 0603 (0.8 mm Height)
## QTLP600C

**QTLP600C-2** HER
**QTLP600C-3** Yellow
**QTLP600C-4** Green
**QTLP600C-7** AlGaAs Red
**QTLP600C-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. Small size, low profile and wide viewing angle make these LEDs ideal choices for backlighting applications and panel illumination.

### FEATURES

- Miniature footprint - 1.6(L) X 0.8(W) X 0.8(H) mm
- 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 |
|---|---|---|---|---|---|---|---|
| | | -2 | -3 | -4 | -7 | -B | |
| Continuous Forward Current | $I_F$ | 30 | 30 | 30 | 30 | 30 | mA |
| Peak Forward Current (f = 1.0 KHz, Duty Factor = 1/10) | $I_{FM}$ | 160 | 160 | 160 | 180 | 100 | mA |
| Reverse Voltage ($I_R$ = 10 µA) | $V_R$ | 5 | 5 | 5 | 5 | 5 | V |
| Power Dissipation | $P_D$ | 84 | 84 | 84 | 72 | 135 | 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 |

**ELECTRICAL / OPTICAL CHARACTERISTICS** ($T_A$ =25°C)

| Part Number | Symbol | QTLP600C | | | | | Condition |
|---|---|---|---|---|---|---|---|
| | | -2 | -3 | -4 | -7 | -B | |
| Luminous Intensity (mcd) | | | | | | | |
| Minimum | $I_V$ | 5 | 5 | 9 | 10 | 15 | $I_F$ = 20mA |
| Typical | | 9 | 9 | 18 | 20 | 20 | |
| Forward Voltage (V) | | | | | | | |
| Maximum | $V_F$ | 2.8 | 2.8 | 2.8 | 2.4 | 4.5 | $I_F$ = 20mA |
| Typical | | 2.0 | 2.0 | 2.1 | 1.9 | 3.8 | |
| Wavelength (nm) | | | | | | | |
| Peak | $\lambda_P$ | 635 | 585 | 565 | 660 | 430 | $I_F$ = 20mA |
| Dominant | $\lambda_D$ | 630 | 590 | 570 | 645 | 465 | |
| Spectral Line Half Width (nm) | $\Delta\lambda$ | 45 | 35 | 30 | 20 | 65 | $I_F$ = 20mA |
| Viewing Angle (°) | $2\Theta_{1/2}$ | 100 | 100 | 100 | 100 | 100 | $I_F$ = 20mA |

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## TYPICAL PERFORMANCE CURVES

**Fig. 1 Forward Current vs. Forward Voltage**

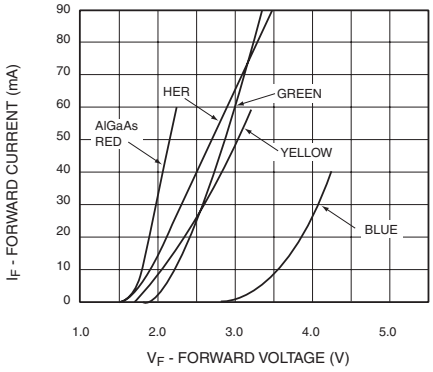



**Fig. 2 Relative Luminous Intensity vs. DC Forward Current**

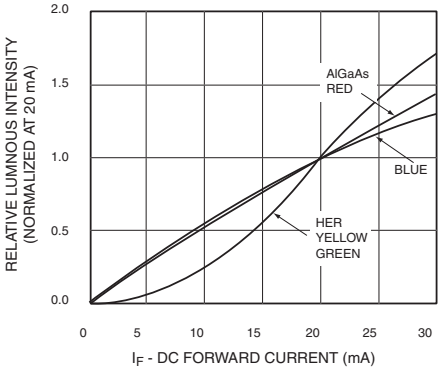



**Fig. 3 Relative Intensity vs. Peak Wavelength**

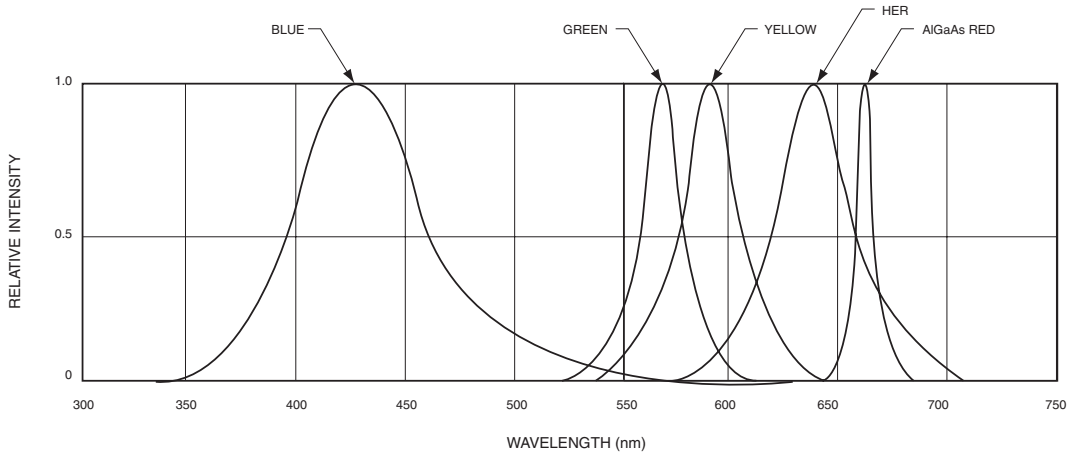



**Fig.4 Radiation Diagram**

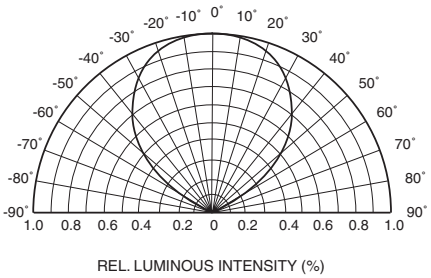
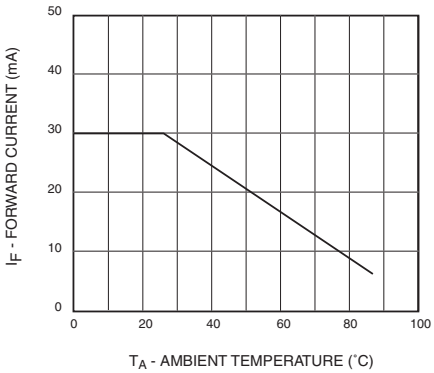



**Fig.5 Maximum Forward Current vs. Ambient Temperature**

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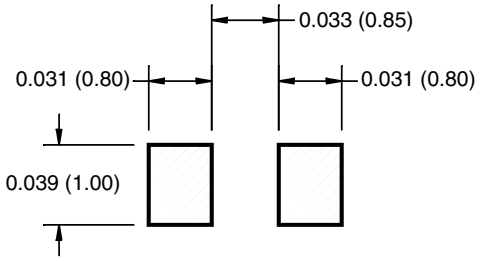
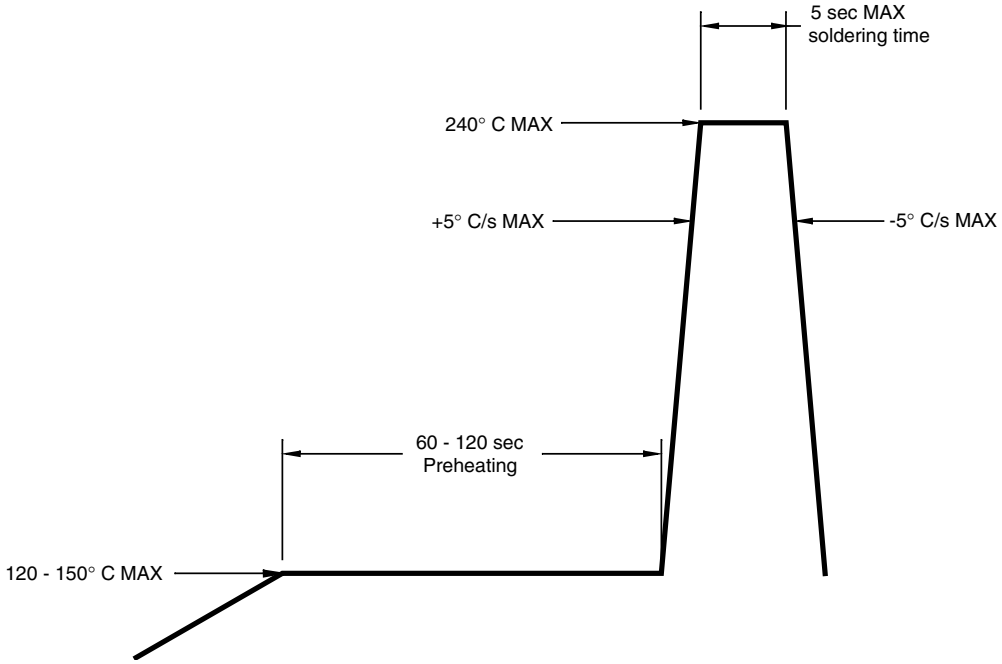
### RECOMMENDED PRINTED CIRCUIT BOARD PATTERN




### RECOMMENDED IR REFLOW SOLDERING PROFILE

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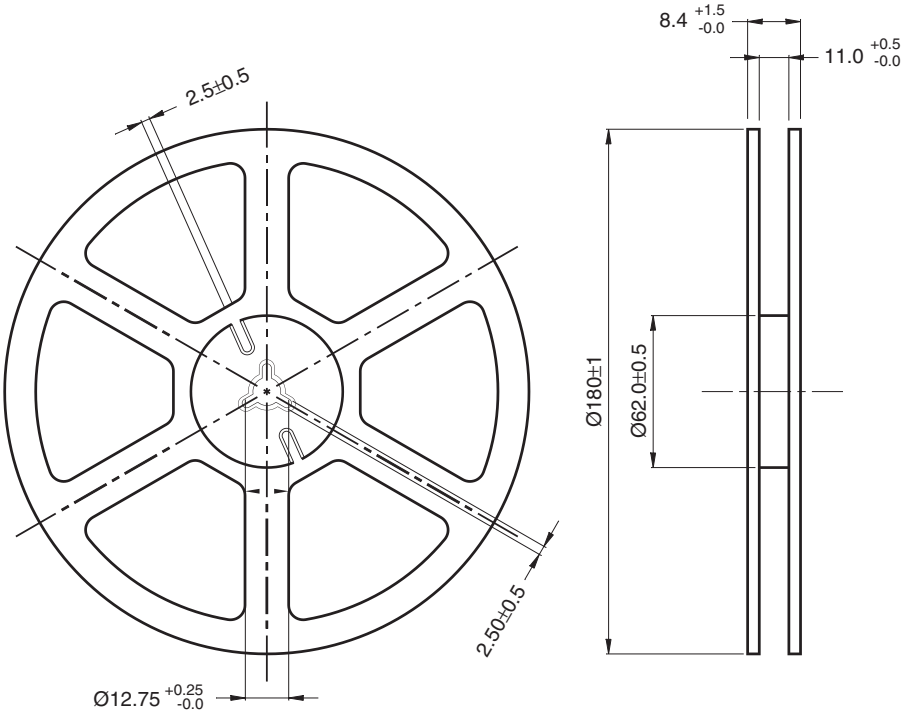
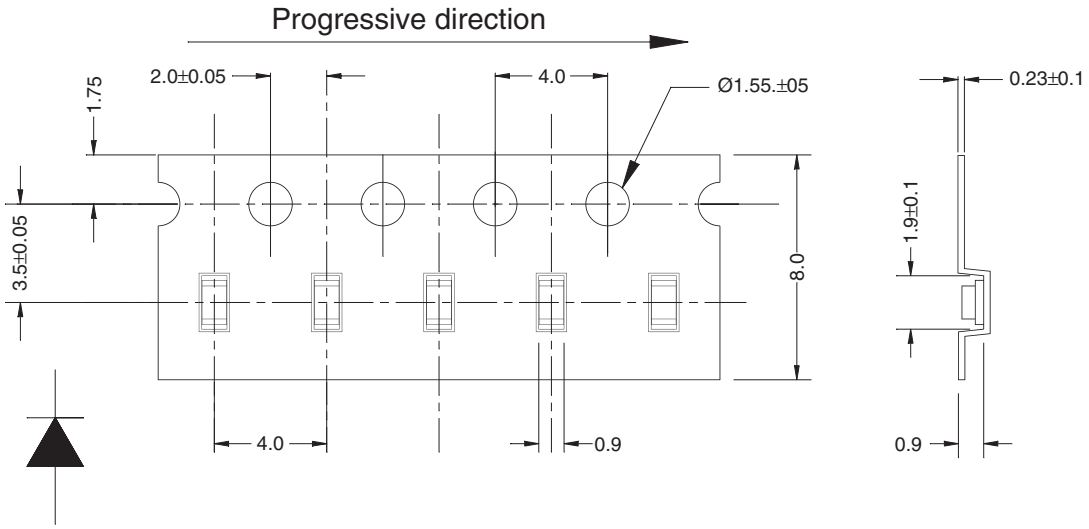
### TAPE AND REEL DIMENSIONS




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

Dimensional tolerance is ± 0.1mm unless otherwise specified

Angle: ± 0.5

Unit: mm

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