

# SURFACE MOUNT LED LAMP

## STANDARD BRIGHT 1206 (Reverse Mount)

**QTLP652C-2** HER

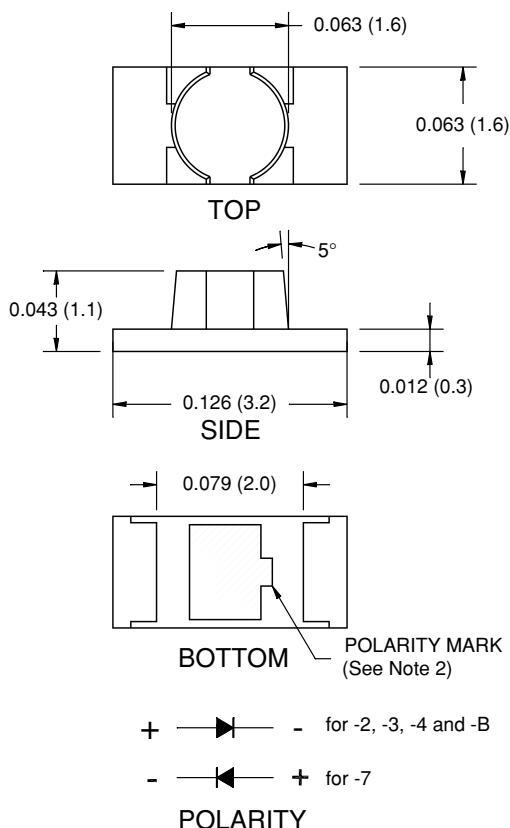
**QTLP652C-3** Yellow

**QTLP652C-4** Green

**QTLP652C-7** AlGaAs Red

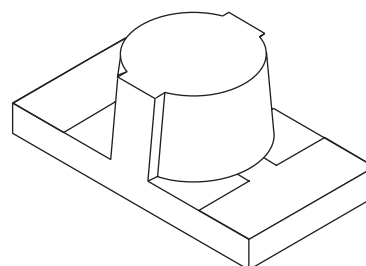
**QTLP652C-B** Blue

### 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. They are reverse mountable and designed to emit light through a small cut-out hole in the PC board.

### FEATURES

- Small footprint - 3.2(L) X 1.6(W) X 1.1(H) mm
- Wide viewing angle of 130°
- 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    | QTLP652C      |     |     |     |     | Units            |
|-----------------------------------------------------------------------|-----------|---------------|-----|-----|-----|-----|------------------|
|                                                                       |           | -2            | -3  | -4  | -7  | -B  |                  |
| Continuous Forward Current                                            | $I_F$     | 30            | 30  | 30  | 30  | 30  | mA               |
| Peak Forward Current<br>( $f = 1.0 \text{ KHz}$ , Duty Factor = 1/10) | $I_{FM}$  | 160           | 160 | 160 | 180 | 100 | mA               |
| Reverse Voltage ( $I_R = 10 \mu\text{A}$ )                            | $V_R$     | 5             | 5   | 5   | 5   | 5   | V                |
| Power Dissipation                                                     | $P_D$     | 84            | 84  | 84  | 72  | 135 | mW               |
| Operating Temperature                                                 | $T_{OPR}$ | -40 to +85    |     |     |     |     | $^\circ\text{C}$ |
| 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 ( $T_A = 25^\circ\text{C}$ )

| Part Number                   | Symbol          | QTLP652C |     |     |     |     | Condition           |
|-------------------------------|-----------------|----------|-----|-----|-----|-----|---------------------|
|                               |                 | -2       | -3  | -4  | -7  | -B  |                     |
| Luminous Intensity (mcd)      | $I_V$           |          |     |     |     |     | $I_F = 20\text{mA}$ |
| Minimum                       |                 | 5        | 3   | 7   | 10  | 15  |                     |
| Typical                       |                 | 9        | 5   | 13  | 20  | 20  |                     |
| Forward Voltage (V)           | $V_F$           |          |     |     |     |     | $I_F = 20\text{mA}$ |
| Maximum                       |                 | 2.8      | 2.8 | 2.8 | 2.4 | 4.5 |                     |
| Typical                       |                 | 2.0      | 2.0 | 2.1 | 1.9 | 3.8 |                     |
| Wavelength (nm)               | $\lambda_P$     |          |     |     |     |     | $I_F = 20\text{mA}$ |
| Peak                          |                 | 635      | 585 | 565 | 660 | 430 |                     |
| Dominant                      | $\lambda_D$     | 630      | 590 | 570 | 645 | 465 |                     |
| Spectral Line Half Width (nm) | $\Delta\lambda$ | 45       | 35  | 30  | 20  | 65  | $I_F = 20\text{mA}$ |
| Viewing Angle ( $^\circ$ )    | $2\theta_{1/2}$ | 130      | 130 | 130 | 130 | 130 | $I_F = 20\text{mA}$ |

**QTLP652C-2 HER**

**QTLP652C-3 Yellow**

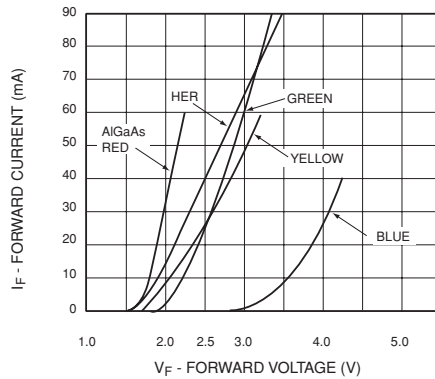
**QTLP652C-4 Green**

**QTLP652C-7 AlGaAs Red**

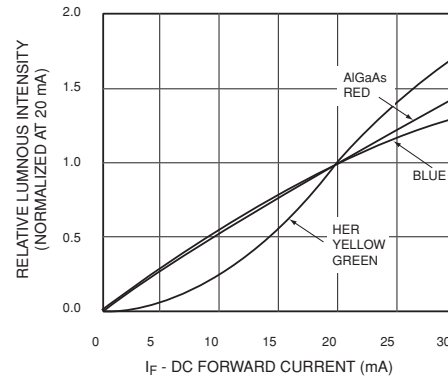
**QTLP652C-B Blue**

### TYPICAL PERFORMANCE CURVES

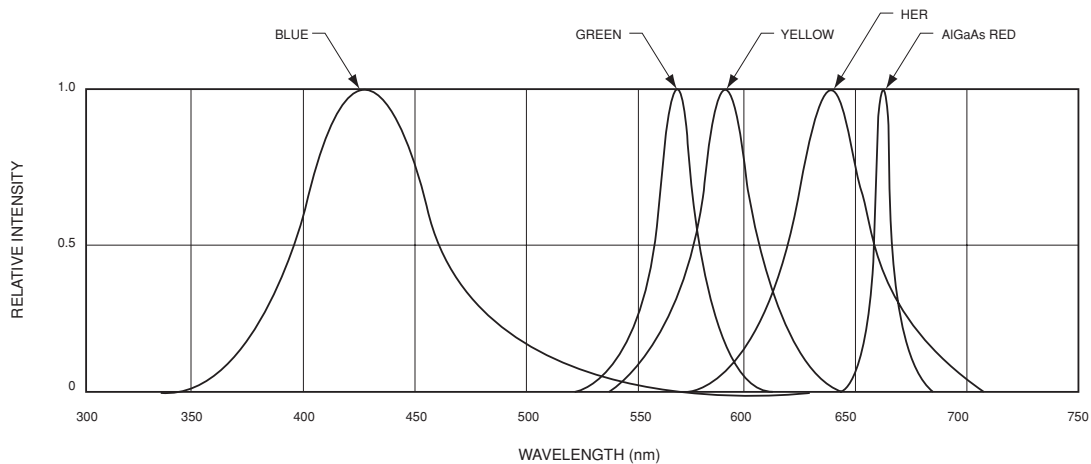
**Fig. 1 Forward Current vs. Forward Voltage**



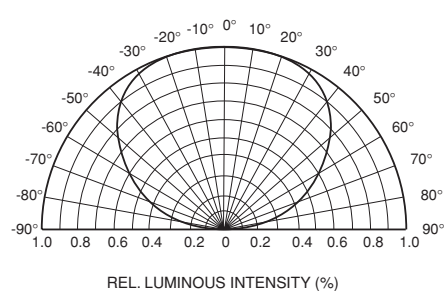
**Fig. 2 Relative Luminous Intensity vs. DC Forward Current**



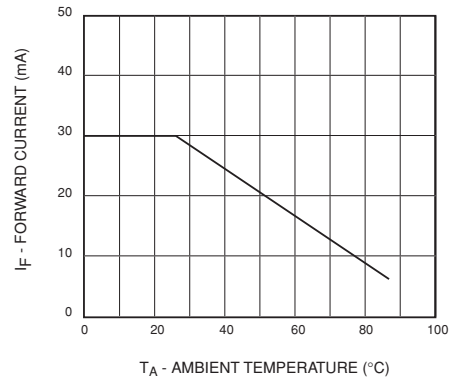
**Fig. 3 Relative Intensity vs. Peak Wavelength**



**Fig.4 Radiation Diagram**



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



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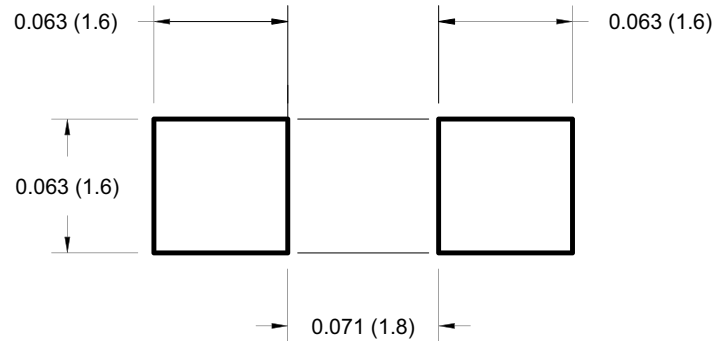
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**QTLP652C-4** Green

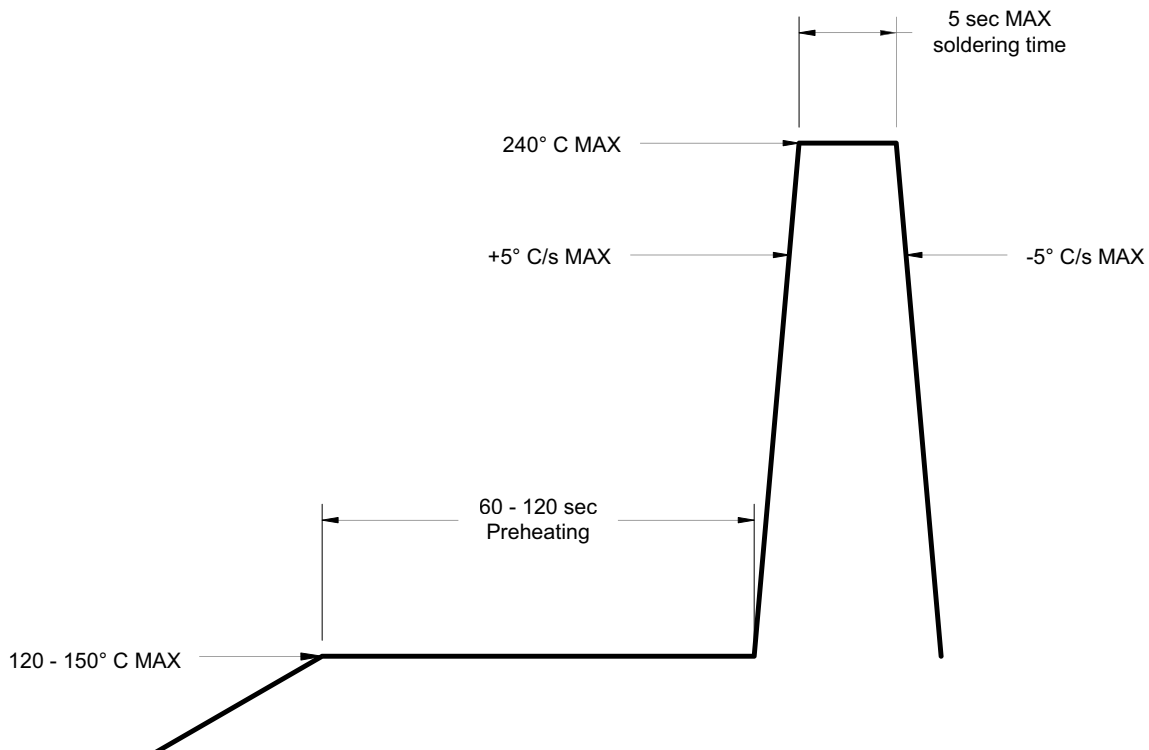
**QTLP652C-7** AlGaAs Red

**QTLP652C-B** Blue

### RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



### RECOMMENDED IR REFLOW SOLDERING PROFILE



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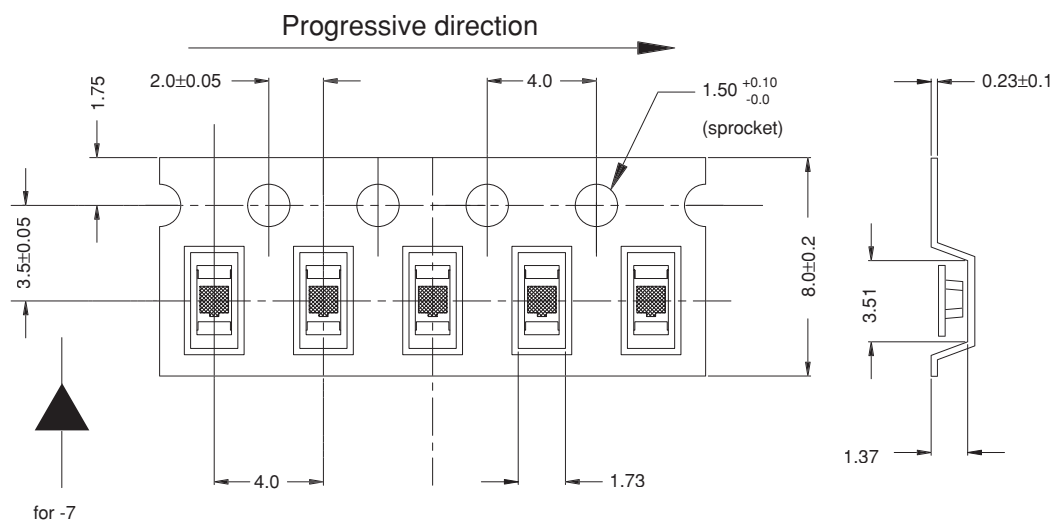
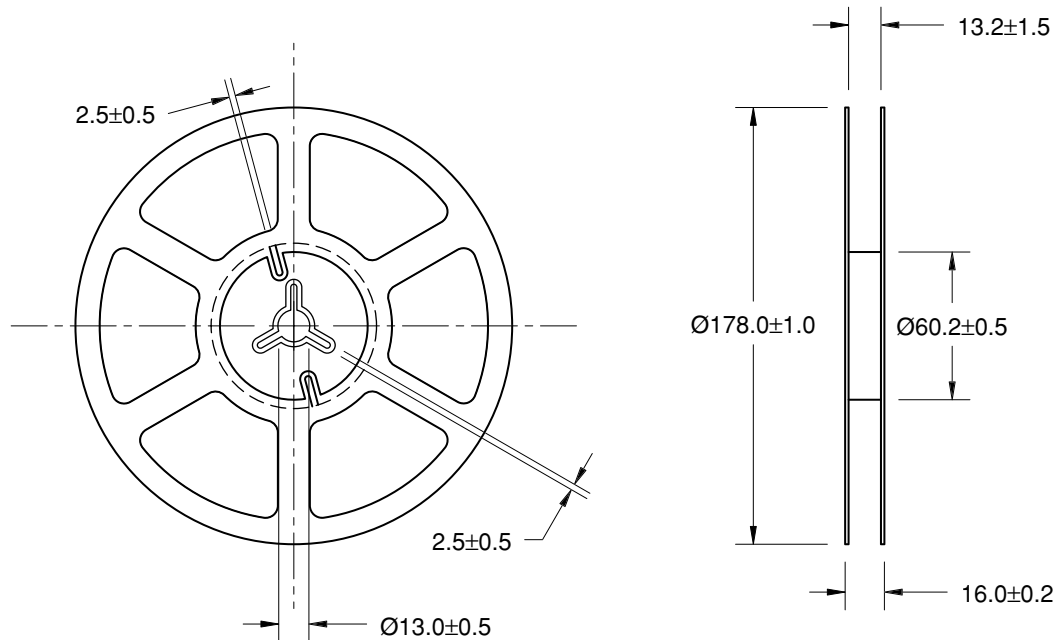
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QTLP652C-7 AlGaAs Red

QTLP652C-B Blue

## TAPE AND REEL DIMENSIONS



Polarity

Dimensional tolerance is  $\pm 0.1\text{mm}$  unless otherwise specified  
 Angle:  $\pm 0.5$   
 Polarity marks on the opposite sprocket side.

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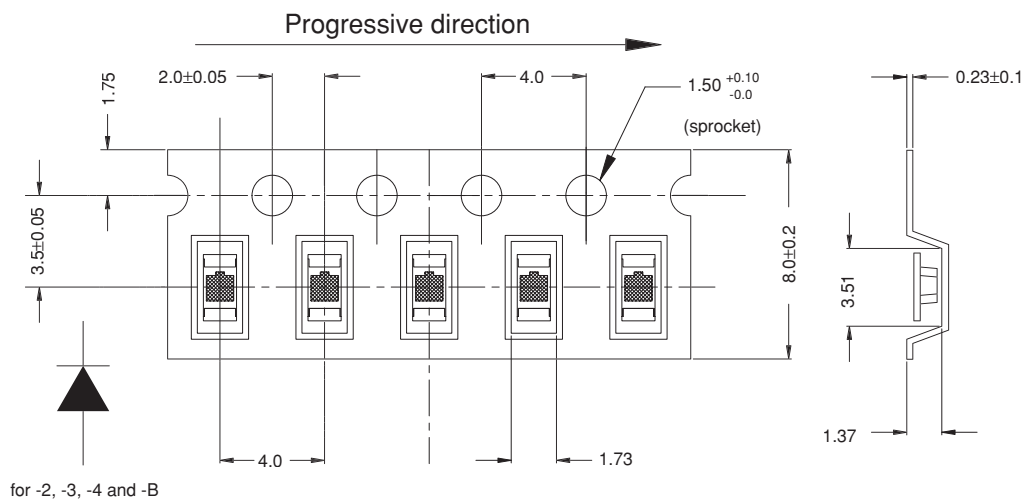
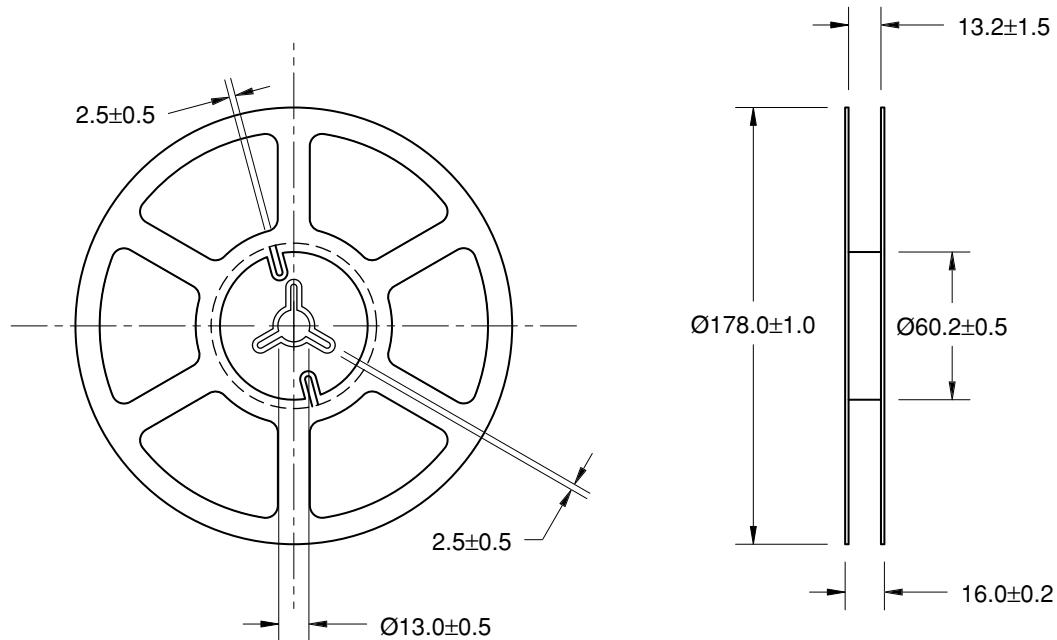
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Angle:  $\pm 0.5$

Unit: mm

Polarity marks on the sprocket side.

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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.

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