

**QTLP670C-2** HER

**QTLP670C-3** Yellow

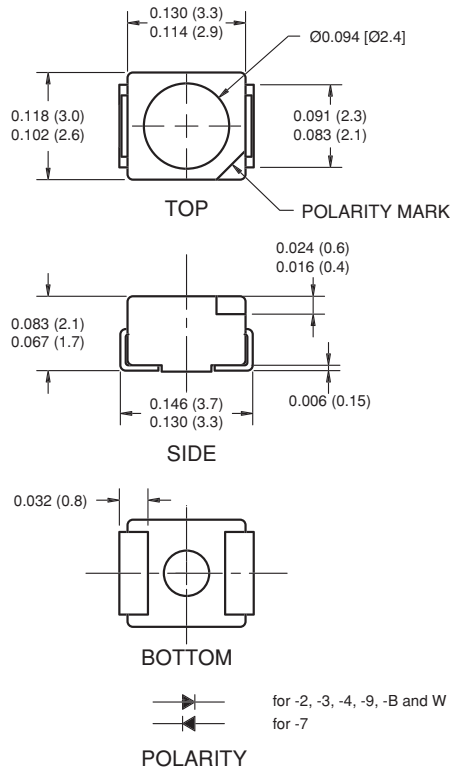
**QTLP670C-4** Green

**QTLP670C-7** AlGaAs Red

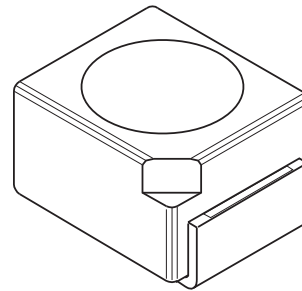
**QTLP670C-B** Blue

**QTLP670C-W** White

## PACKAGE DIMENSIONS



NOTE:  
Dimensions for all drawings are in inches (mm).



## APPLICATIONS

- Automotive interior lighting
- Status indication for consumer electronics and office equipment

## DESCRIPTION

These surface mount LEDs are designed with flat top and sides for the ease of pick-and-place by automatic placement equipment. They are compatible with convective IR and vapor phase reflow soldering. The package size and configuration conform to EIA-535 BAAC standard specification for case size 3528 tantalum capacitor. These LEDs are ideal for backlighting and optical coupling into light pipes.

## FEATURES

- GaN/SIC technology for -B and -W
- Wide viewing angle of 120°
- Water clear optics
- Moisture-proof packaging
- Available in 0.315" (8mm) width tape on 7" (178mm) diameter reel; 2,000 units per reel

# SURFACE MOUNT LED LAMP

## STANDARD BRIGHT PLCC-2

**QTLP670C-2** HER

**QTLP670C-3** Yellow

**QTLP670C-4** Green

**QTLP670C-7** AlGaAs Red

**QTLP670C-B** Blue

**QTLP670C-W** White

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

| Parameter   | Symbol    | QTLP670C      |     |     |     |     |     | Units            |
|---|-----------|---------------|-----|-----|-----|-----|-----|------------------|
|   |           | -2            | -3  | -4  | -7  | -B  | -W  |                  |
| Continuous Forward Current  | $I_F$     | 30            | 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 | 100 | mA               |
| Reverse Voltage ( $I_R = 10 \mu\text{A}$ )                            | $V_R$     | 5             | 5   | 5   | 5   | 5   | 5   | V                |
| Power Dissipation   | $P_D$     | 84            | 84  | 84  | 72  | 135 | 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          | QTLP670C |     |     |     |     |                          | Condition           |
|-------------------------------|-----------------|----------|-----|-----|-----|-----|--------------------------|---------------------|
|                               |                 | -2       | -3  | -4  | -7  | -B  | -W                       |                     |
| Luminous Intensity (mcd)      | $I_V$           | 5        | 5   | 15  | 25  | 20  | 20                       | $I_F = 20\text{mA}$ |
| Minimum                       |                 | 10       | 10  | 25  | 40  | 30  | 30                       |                     |
| Forward Voltage (V)           | $V_F$           | 2.8      | 2.8 | 2.8 | 2.4 | 4.5 | 4.5                      | $I_F = 20\text{mA}$ |
| Maximum                       |                 | 2.0      | 2.0 | 2.1 | 1.9 | 3.8 | 3.8                      |                     |
| Wavelength (nm)               | $\lambda_P$     | 635      | 585 | 565 | 660 | 430 | —                        | $I_F = 20\text{mA}$ |
| Peak                          |                 | 630      | 590 | 570 | 645 | 465 | —                        |                     |
| Dominant                      | $\lambda_D$     | 630      | 590 | 570 | 645 | 465 | —                        | $I_F = 20\text{mA}$ |
| Chromatic Coordinate          | $x,y$           | —        | —   | —   | —   | —   | $x = 0.26$<br>$y = 0.28$ | $I_F = 20\text{mA}$ |
| Spectral Line Half Width (nm) | $\Delta\lambda$ | 45       | 35  | 30  | 20  | 65  | —                        | $I_F = 20\text{mA}$ |
| Viewing Angle ( $^\circ$ )    | $2\theta_{1/2}$ | 120      | 120 | 120 | 120 | 120 | 120                      | $I_F = 20\text{mA}$ |

**QTLP670C-2 HER**

**QTLP670C-3 Yellow**

**QTLP670C-4 Green**

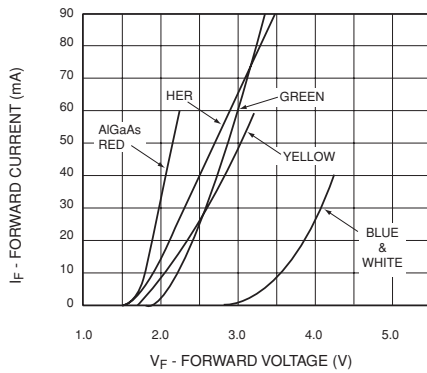
**QTLP670C-7 AlGaAs Red**

**QTLP670C-B Blue**

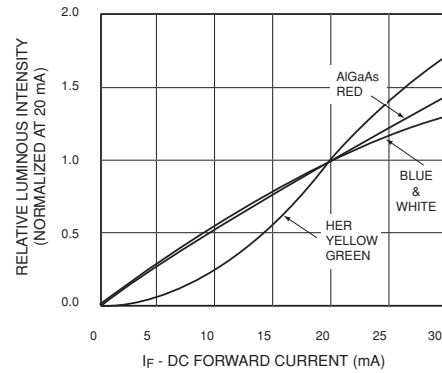
**QTLP670C-W White**

## TYPICAL PERFORMANCE CURVES

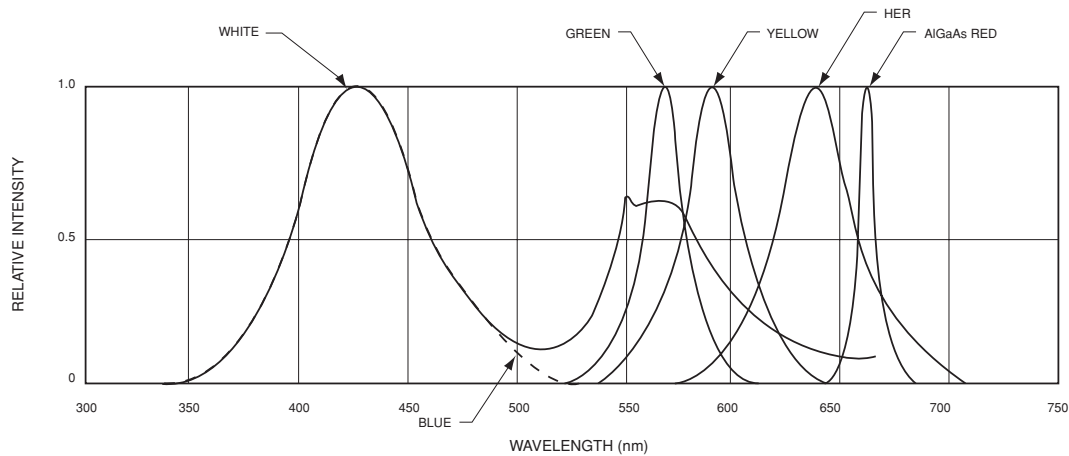
**Fig. 1 Forward Current vs. Forward Voltage**



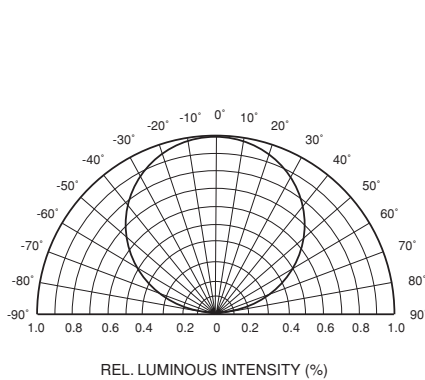
**Fig. 2 Relative Luminous Intensity vs. DC Forward Current**



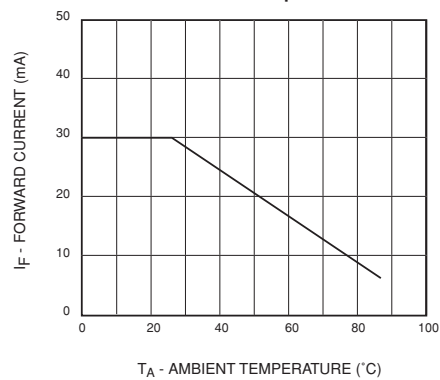
**Fig. 3 Relative Intensity vs. Peak Wavelength**



**Fig. 4 Radiation Diagram**



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



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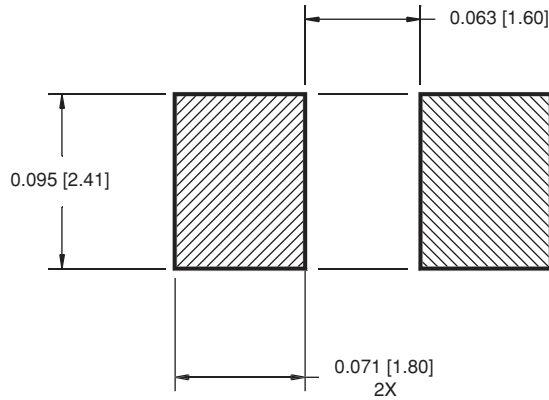
QTLP670C-4 Green

QTLP670C-7 AlGaAs Red

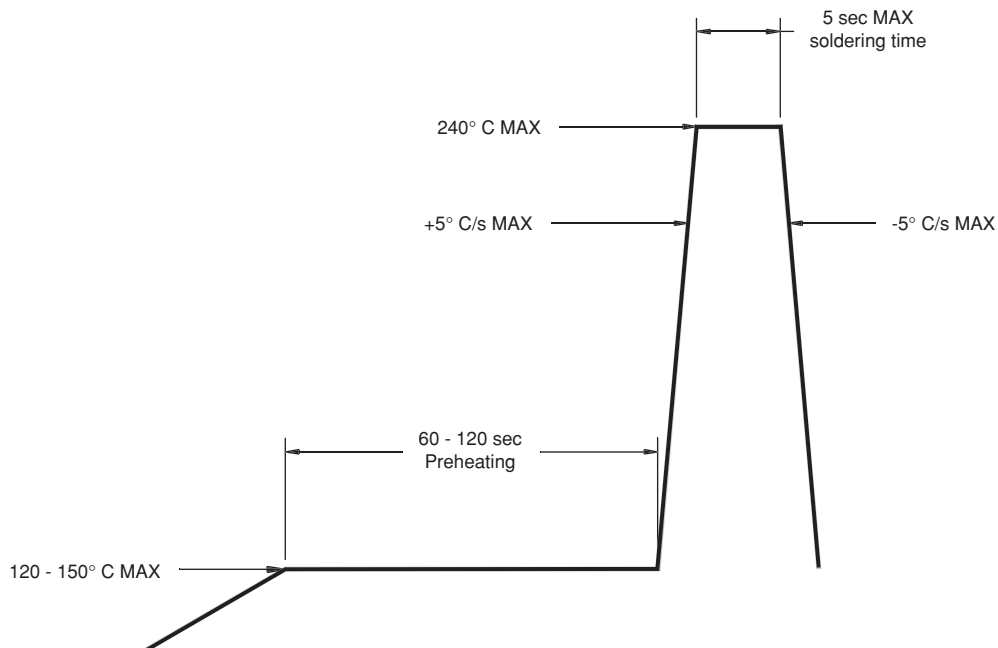
QTLP670C-B Blue

QTLP670C-W White

## RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



## RECOMMENDED IR REFLOW SOLDERING PROFILE



QTLP670C-2 HER

QTLP670C-3 Yellow

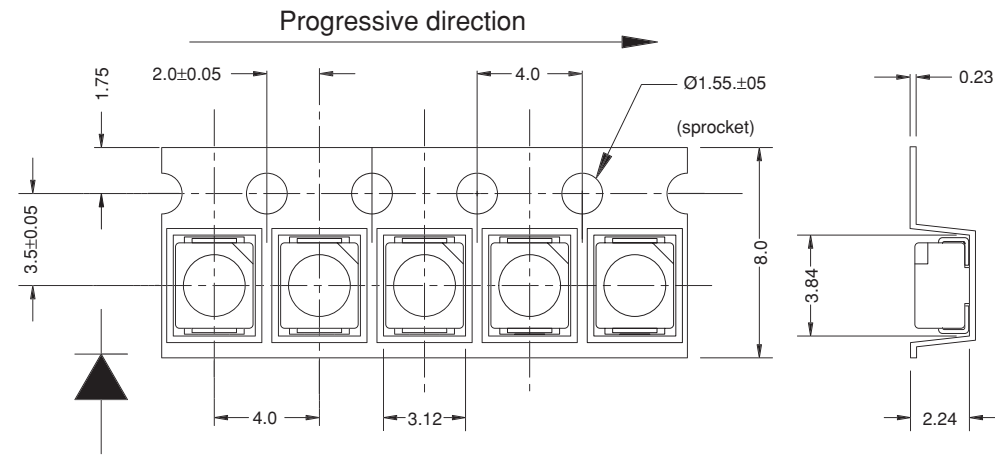
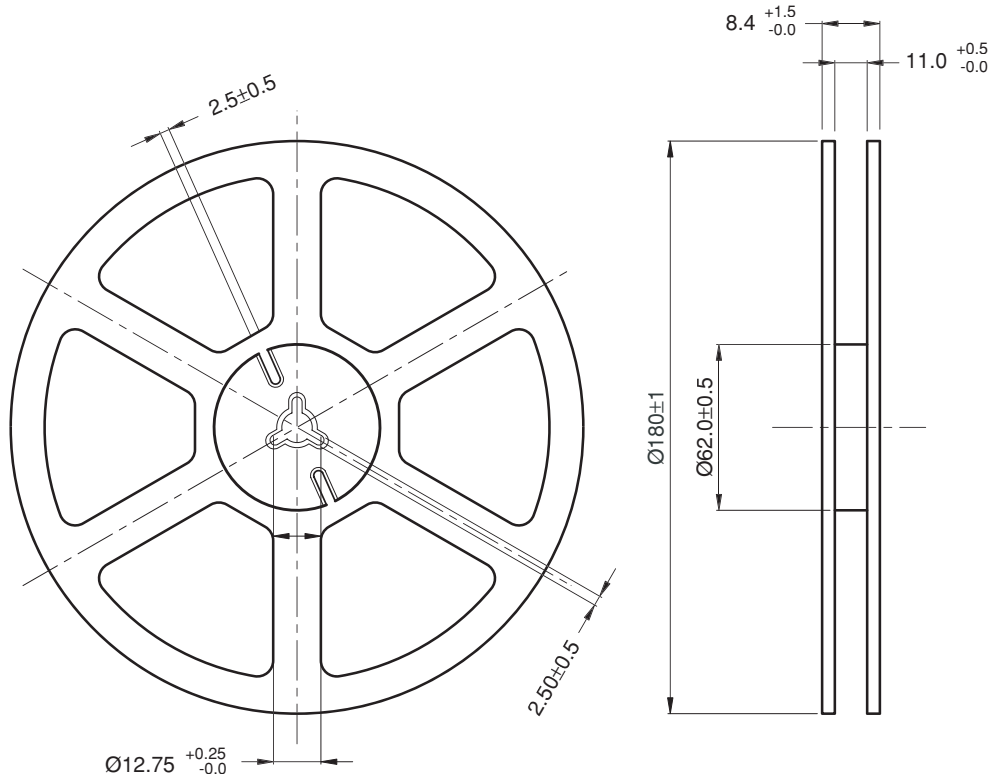
QTLP670C-4 Green

QTLP670C-7 AlGaAs Red

QTLP670C-B Blue

QTLP670C-W White

**TAPE AND REEL DIMENSIONS**



for -2, -3, -4, -9, -B and -W

Polarity

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

Angle:  $\pm 0.5$

Unit: mm

Polarity marks are on the sprocket side.

# SURFACE MOUNT LED LAMP STANDARD BRIGHT PLCC-2

QTLP670C-2 HER

QTLP670C-3 Yellow

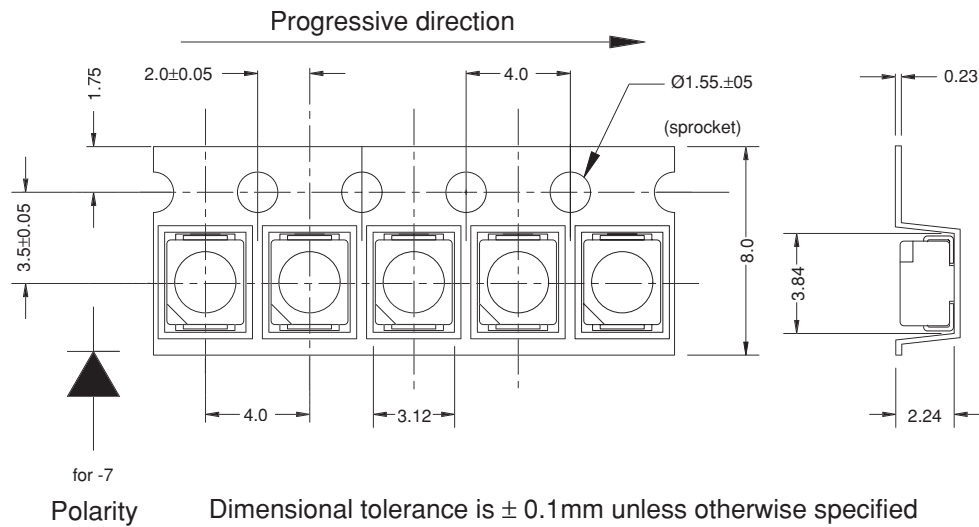
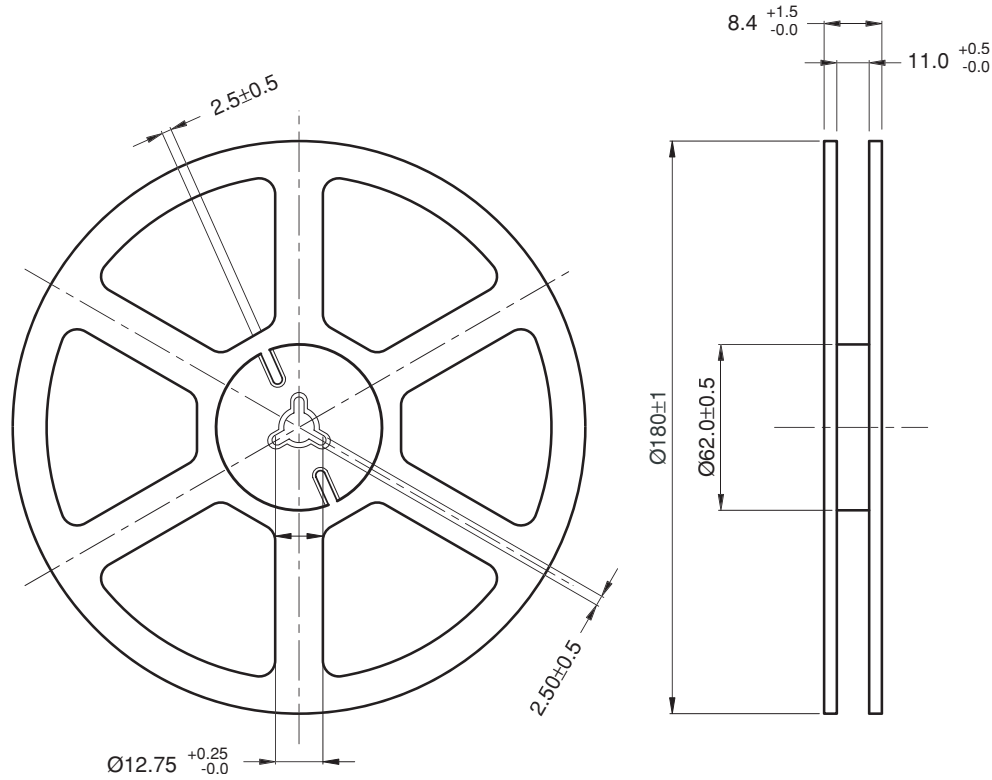
QTLP670C-4 Green

QTLP670C-7 AlGaAs Red

QTLP670C-B Blue

QTLP670C-W White

## TAPE AND REEL DIMENSIONS



for -7  
Polarity

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

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