

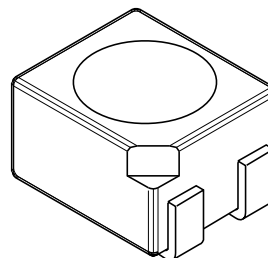
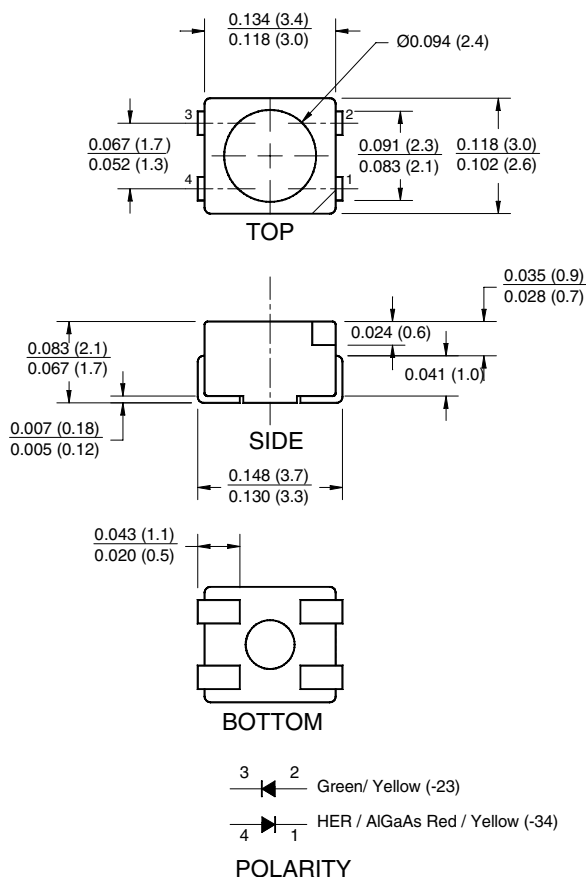
**QTLP670C-23** HER/Yellow

**QTLP670C-24** HER/Green

**QTLP670C-34** Yellow/Green

**QTLP670C-74** AlGaAs Red/Green

### 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 dual color 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

- 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

**QTLP670C-23** HER/Yellow

**QTLP670C-24** HER/Green

**QTLP670C-34** Yellow/Green

**QTLP670C-74** AlGaAs Red/Green

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C Unless otherwise specified)

| Parameter                                                 | Symbol           | QTLP670C      |           |           |           | Units |
|-----------------------------------------------------------|------------------|---------------|-----------|-----------|-----------|-------|
|                                                           |                  | -23           | -24       | -34       | -74       |       |
| Continuous Forward Current                                | I <sub>F</sub>   | 30 / 30       | 30 / 30   | 30 / 30   | 30 / 30   | mA    |
| Peak Forward Current<br>(f = 1.0 KHz, Duty Factor = 1/10) | I <sub>FM</sub>  | 160 / 160     | 160 / 160 | 160 / 160 | 180 / 160 | mA    |
| Reverse Voltage                                           | V <sub>R</sub>   | 5             | 5         | 5         | 5         | V     |
| Power Dissipation                                         | P <sub>D</sub>   | 84 / 84       | 84 / 84   | 84 / 84   | 72 / 84   | mW    |
| Operating Temperature                                     | T <sub>OPR</sub> | -40 to +85    |           |           |           | °C    |
| Storage Temperature                                       | T <sub>STG</sub> | -40 to +90    |           |           |           | °C    |
| Lead Soldering Time                                       | T <sub>SOL</sub> | 260 for 5 sec |           |           |           | °C    |

### ELECTRICAL / OPTICAL CHARACTERISTICS (T<sub>A</sub> = 25°C)

| Parameter                     | Symbol            | QTLP670C  |           |           |           | Units                 |
|-------------------------------|-------------------|-----------|-----------|-----------|-----------|-----------------------|
|                               |                   | -23       | -24       | -34       | -74       |                       |
| Luminous Intensity (mcd)      | I <sub>V</sub>    | 5 / 2.5   | 5 / 15    | 2.5 / 15  | 10 / 15   | I <sub>F</sub> = 20mA |
| Minimum                       |                   | 10 / 5    | 10 / 25   | 5 / 25    | 20 / 25   |                       |
| Typical                       |                   |           |           |           |           |                       |
| Forward Voltage (V)           | V <sub>F</sub>    | 2.8 / 2.8 | 2.8 / 2.8 | 2.8 / 2.8 | 2.4 / 2.8 | I <sub>F</sub> = 20mA |
| Maximum                       |                   | 2.0 / 2.0 | 2.0 / 2.1 | 2.0 / 2.1 | 1.9 / 2.1 |                       |
| Typical                       |                   |           |           |           |           |                       |
| Wavelength (nm)               | λ <sub>P</sub>    | 635 / 585 | 635 / 565 | 585 / 565 | 660 / 565 | I <sub>F</sub> = 20mA |
| Peak                          |                   | 630 / 590 | 630 / 570 | 590 / 570 | 645 / 570 |                       |
| Dominant                      | λ <sub>D</sub>    |           |           |           |           |                       |
| Spectral Line Half Width (nm) | Δλ                | 45 / 35   | 45 / 30   | 35 / 30   | 20 / 30   | I <sub>F</sub> = 20mA |
| Viewing Angle (°)             | 2θ <sub>1/2</sub> | 120       | 120       | 120       | 120       | I <sub>F</sub> = 20mA |

**QTLP670C-23** HER/Yellow

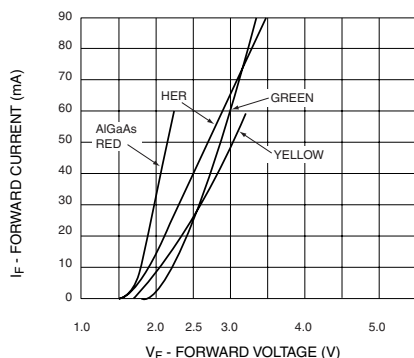
**QTLP670C-24** HER/Green

**QTLP670C-34** Yellow/Green

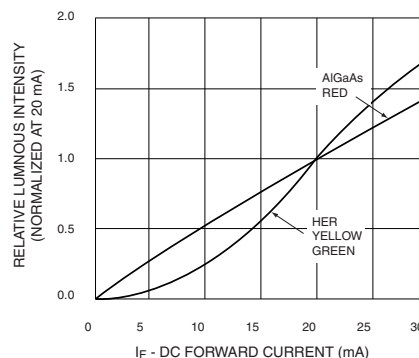
**QTLP670C-74** AlGaAs Red/Green

## TYPICAL PERFORMANCE CURVES

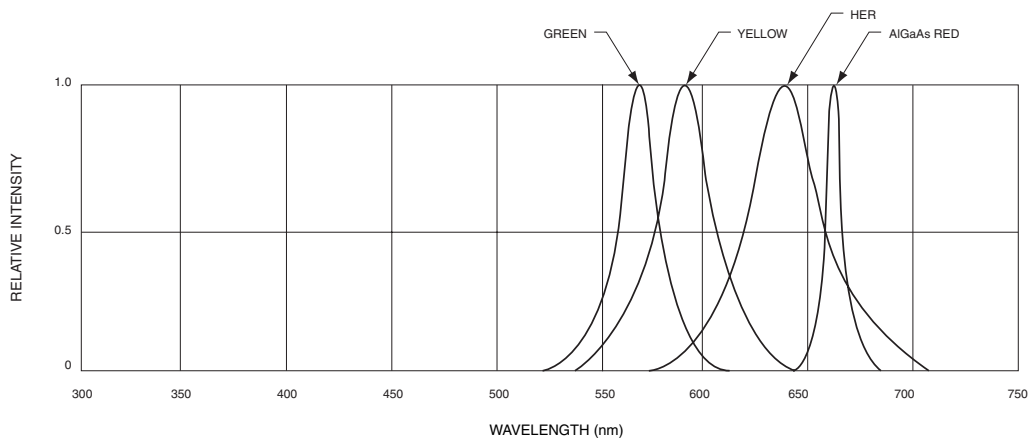
**Fig. 1 Forward Current vs. Forward Voltage**



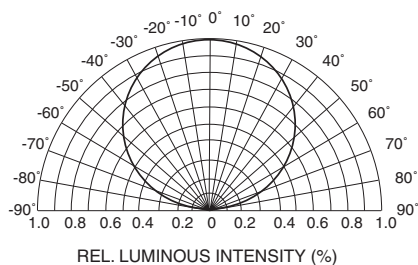
**Fig. 2 Relative Luminous Intensity vs. DC Forward Current**



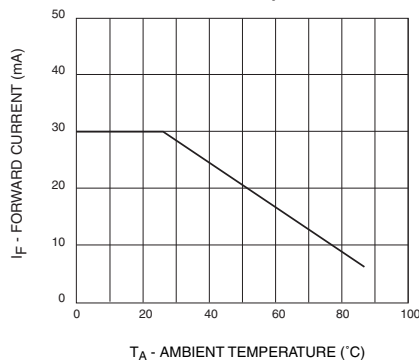
**Fig. 3 Relative Intensity vs. Peak Wavelength**



**Fig.4 Radiation Diagram**



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



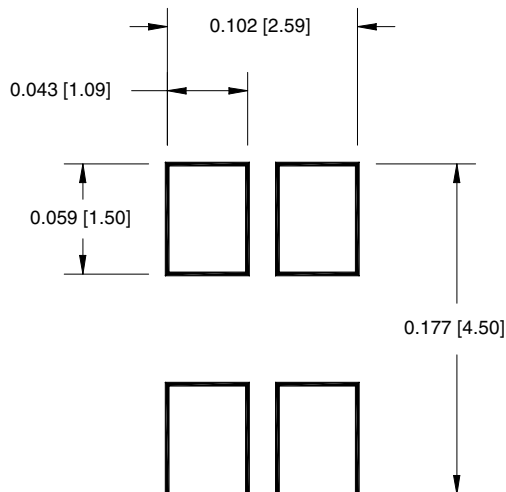
**QTLP670C-23** HER/Yellow

**QTLP670C-24** HER/Green

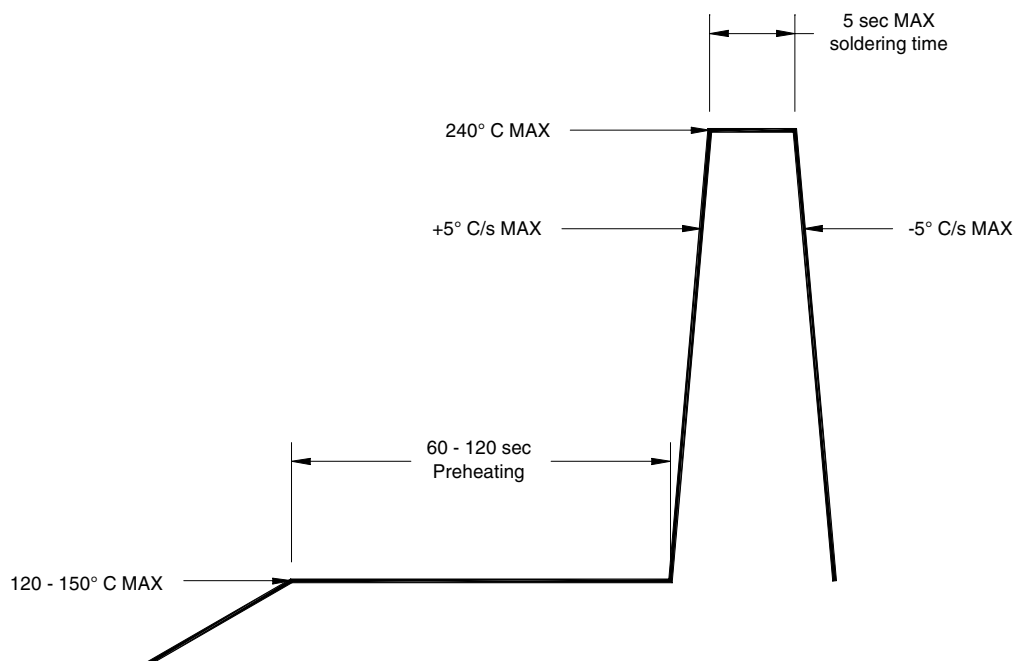
**QTLP670C-34** Yellow/Green

**QTLP670C-74** AlGaAs Red/Green

### RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



### RECOMMENDED IR REFLOW SOLDERING PROFILE



# SURFACE MOUNT LED LAMP

## STANDARD BRIGHT PLCC-4

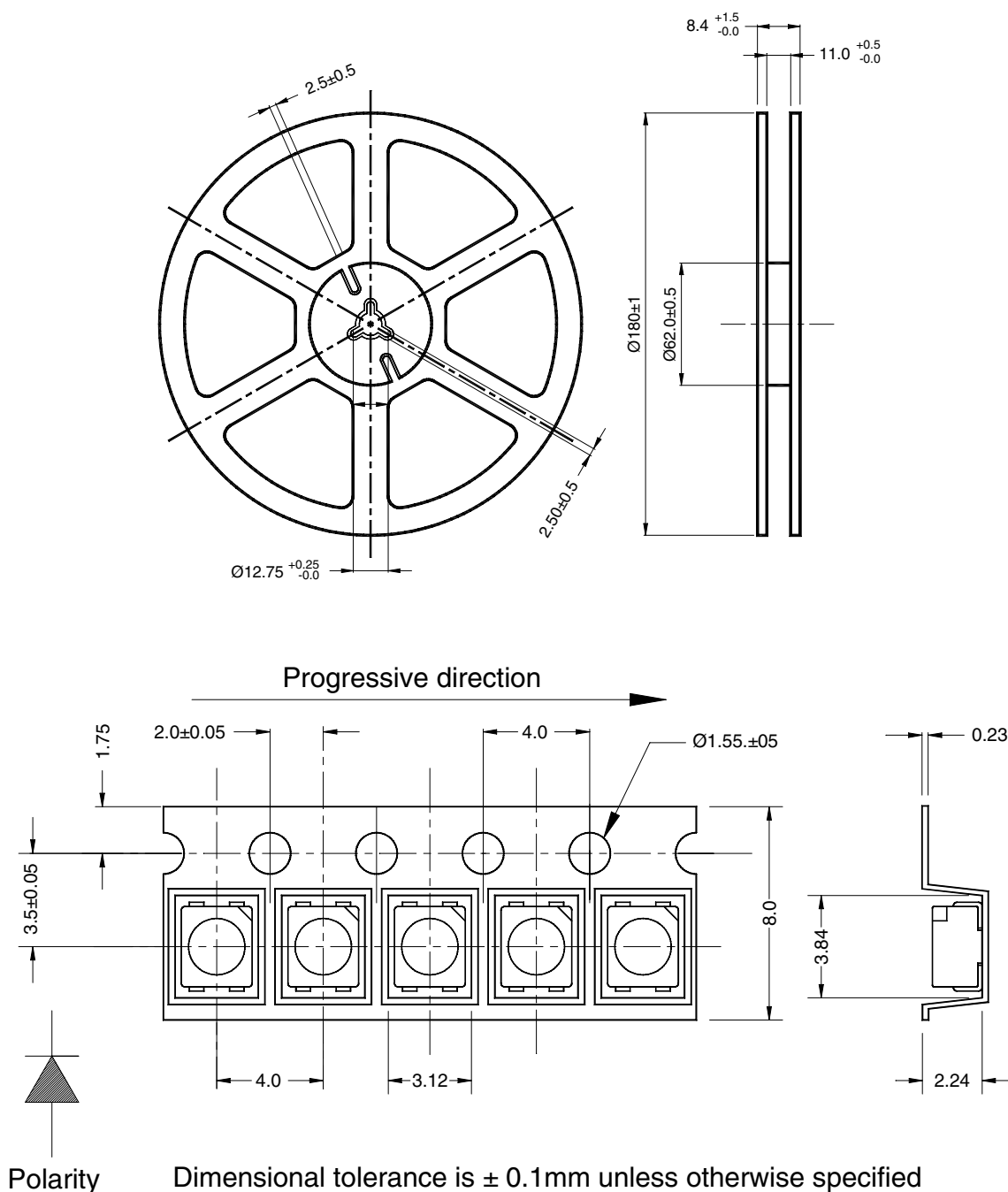
**QTLP670C-23 HER/Yellow**

# QTLP670C-24 HER/Green

## QTL P670C-34 Yellow/Green

## QTLP670C-74 AlGaAs Red/Green

## TAPE AND REEL DIMENSIONS



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

Angle:  $\pm 0.5$

Unit: mm

---

**QTLP670C-23** HER/Yellow

**QTLP670C-24** HER/Green

**QTLP670C-34** Yellow/Green

**QTLP670C-74** AlGaAs Red/Green

---

### DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

### LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF THE PRESIDENT OF FAIRCHILD SEMICONDUCTOR CORPORATION. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in labeling, can be reasonably expected to result in a significant injury of the user.
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.