FAIRCHILD
SEMICONDUCTOR®

# SURFACE MOUNT LED LAMP
## STANDARD BRIGHT PLCC-4

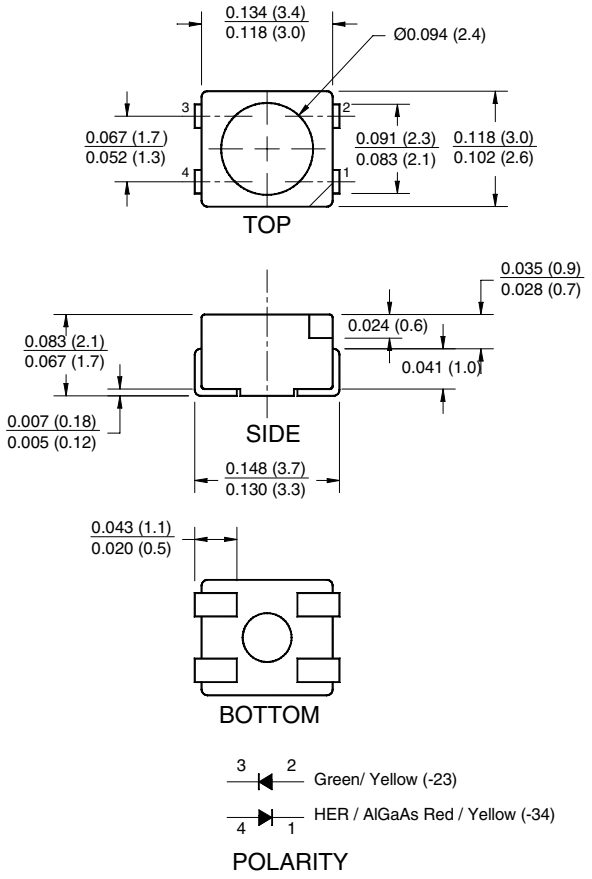
**QTLP670C-23** HER/Yellow

**QTLP670C-24** HER/Green

**QTLP670C-34** Yellow/Green

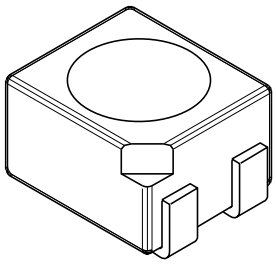
**QTLP670C-74** AlGaAs Red/Green

## 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

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## ABSOLUTE MAXIMUM RATINGS ($T_A$ =25°C Unless otherwise specified)

| Parameter | Symbol | QTLP670C | | | | Units |
|---|---|---|---|---|---|---|
| | | -23 | -24 | -34 | -74 | |
| Continuous Forward Current | $I_F$ | 30 / 30 | 30 / 30 | 30 / 30 | 30 / 30 | mA |
| Peak Forward Current (f = 1.0 KHz, Duty Factor = 1/10) | $I_{FM}$ | 160 / 160 | 160 / 160 | 160 / 160 | 180 / 160 | mA |
| Reverse Voltage | $V_R$ | 5 | 5 | 5 | 5 | V |
| Power Dissipation | $P_D$ | 84 / 84 | 84 / 84 | 84 / 84 | 72 / 84 | 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)

| Parameter | Symbol | QTLP670C | | | | Units |
|---|---|---|---|---|---|---|
| | | -23 | -24 | -34 | -74 | |
| Luminous Intensity (mcd) | | | | | | |
| Minimum | $I_V$ | 5 / 2.5 | 5 / 15 | 2.5 / 15 | 10 / 15 | $I_F$ = 20mA |
| Typical | | 10 / 5 | 10 / 25 | 5 / 25 | 20 / 25 | |
| Forward Voltage (V) | | | | | | |
| Maximum | $V_F$ | 2.8 / 2.8 | 2.8 / 2.8 | 2.8 / 2.8 | 2.4 / 2.8 | $I_F$ = 20mA |
| Typical | | 2.0 / 2.0 | 2.0 / 2.1 | 2.0 / 2.1 | 1.9 / 2.1 | |
| Wavelength (nm) | | | | | | |
| Peak | $\lambda_P$ | 635 / 585 | 635 / 565 | 585 / 565 | 660 / 565 | $I_F$ = 20mA |
| Dominant | $\lambda_D$ | 630 / 590 | 630 / 570 | 590 / 570 | 645 / 570 | |
| Spectral Line Half Width (nm) | $\Delta\lambda$ | 45 / 35 | 45 / 30 | 35 / 30 | 20 / 30 | $I_F$ = 20mA |
| Viewing Angle (°) | $2\Theta_{1/2}$ | 120 | 120 | 120 | 120 | $I_F$ = 20mA |

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## TYPICAL PERFORMANCE CURVES

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

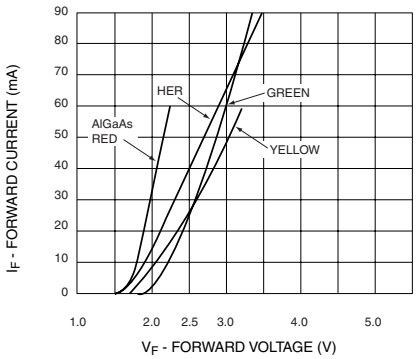



**Fig. 2 Relative Luminous Intensity vs. DC Forward Current**

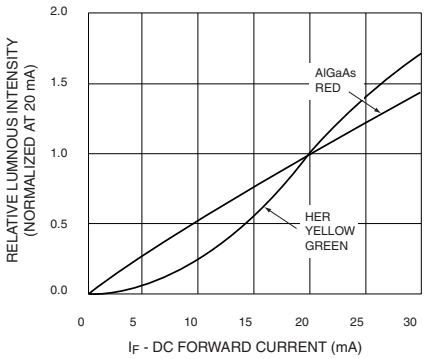



**Fig. 3 Relative Intensity vs. Peak Wavelength**

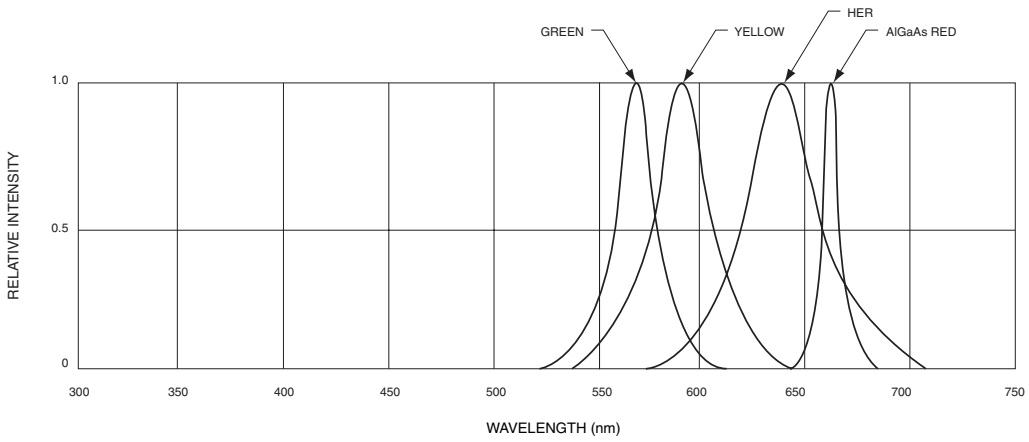



**Fig.4 Radiation Diagram**

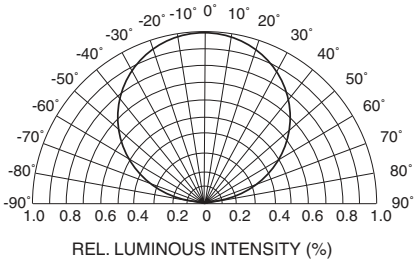
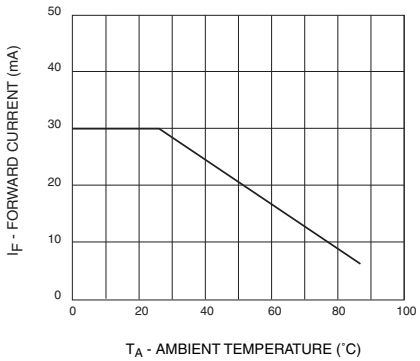



**Fig.5 Maximum Forward Current vs. Ambient Temperature**



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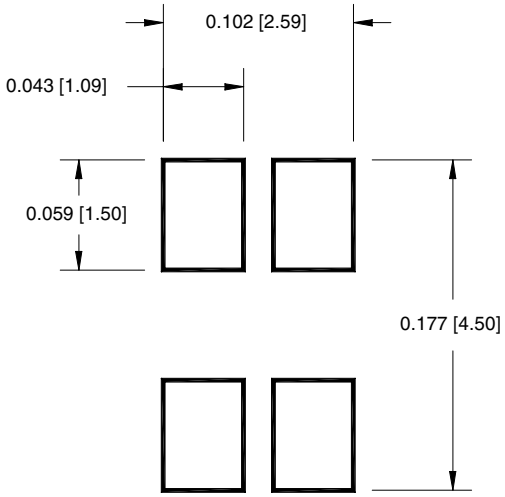
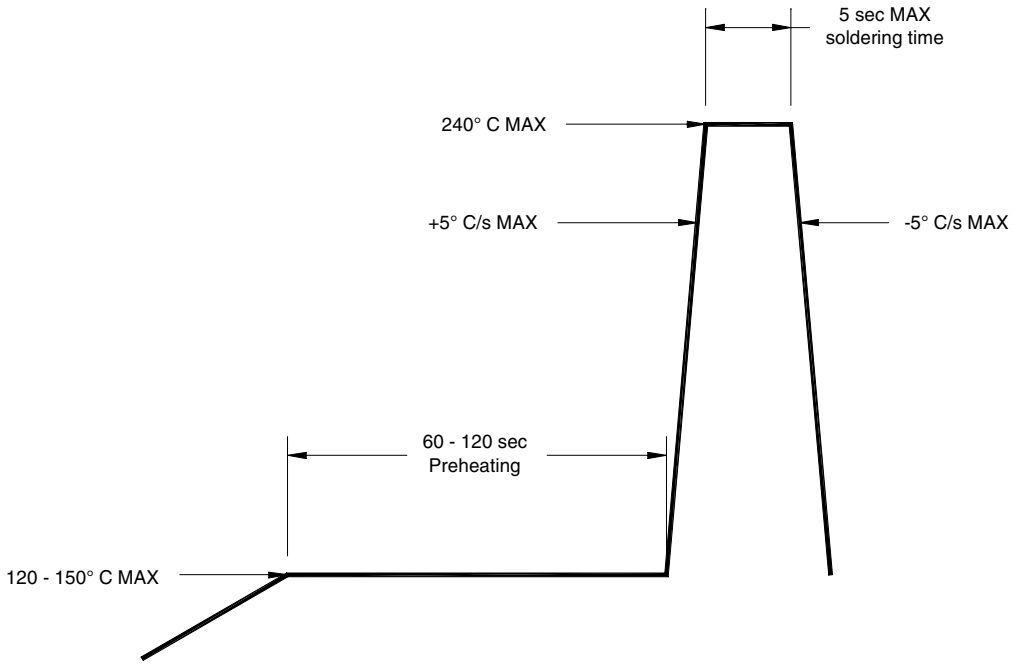
## RECOMMENDED PRINTED CIRCUIT BOARD PATTERN




## RECOMMENDED IR REFLOW SOLDERING PROFILE



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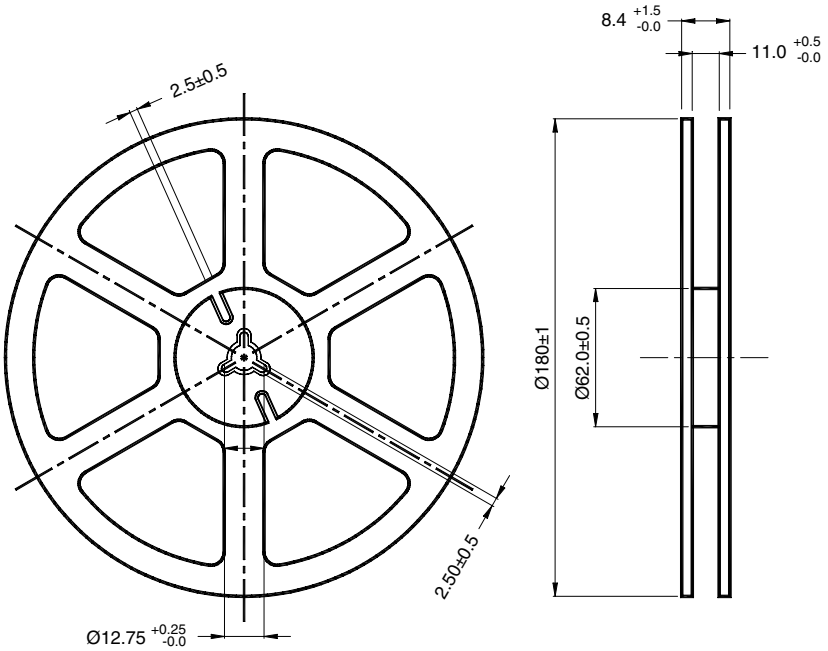
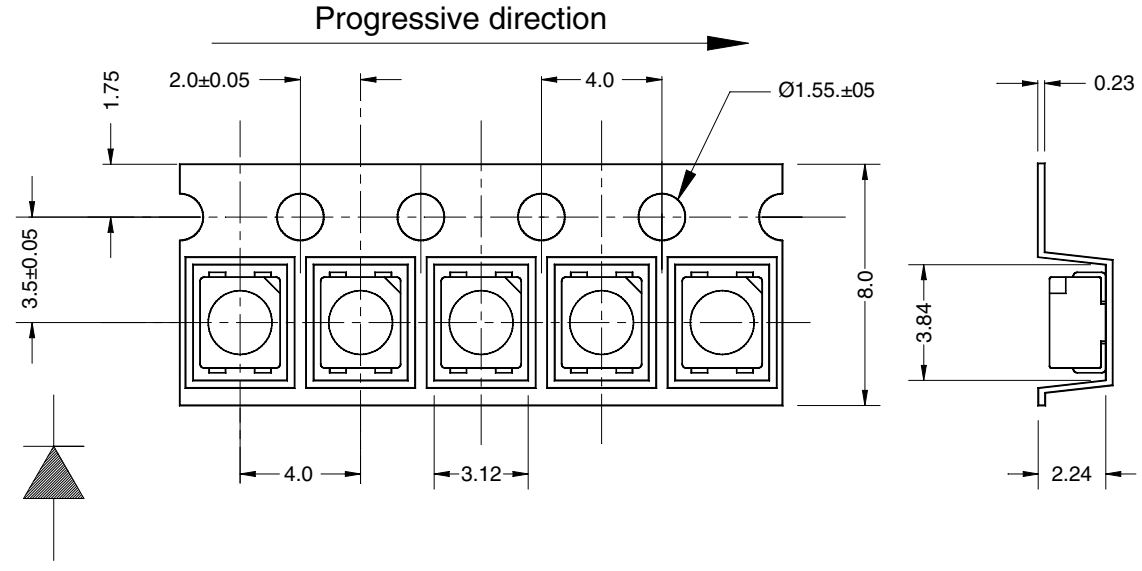
### TAPE AND REEL DIMENSIONS




Dimensional tolerance is ± 0.1mm unless otherwise specified

Angle: ± 0.5

Unit: mm