

SURFACE MOUNT LED LAMP

STANDARD BRIGHT 0603 (0.8 mm Height)

QTLP600C

QTLP600C-2 HER

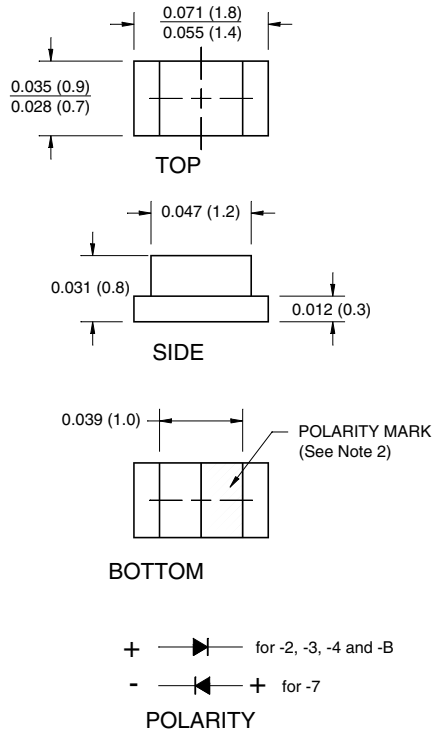
QTLP600C-3 Yellow

QTLP600C-4 Green

QTLP600C-7 AlGaAs Red

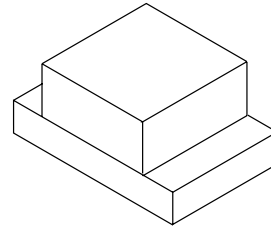
QTLP600C-B Blue

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

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

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ 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 ($f = 1.0 \text{ KHz}$, 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	QTLP600C					Condition
		-2	-3	-4	-7	-B	
Luminous Intensity (mcd)	I_V	5	5	9	10	15	$I_F = 20\text{mA}$
Minimum		5	5	9	10	15	
Typical	I_V	9	9	18	20	20	
Forward Voltage (V)	V_F	2.8	2.8	2.8	2.4	4.5	$I_F = 20\text{mA}$
Maximum		2.8	2.8	2.8	2.4	4.5	
Typical	V_F	2.0	2.0	2.1	1.9	3.8	
Wavelength (nm)	λ_P	635	585	565	660	430	$I_F = 20\text{mA}$
Peak		635	585	565	660	430	
Dominant	λ_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 ($^\circ$)	$2\Theta_{1/2}$	100	100	100	100	100	$I_F = 20\text{mA}$

QTLP600C-2 HER

QTLP600C-3 Yellow

QTLP600C-4 Green

QTLP600C-7 AlGaAs Red

QTLP600C-B Blue

TYPICAL PERFORMANCE CURVES

Fig. 1 Forward Current vs. Forward Voltage

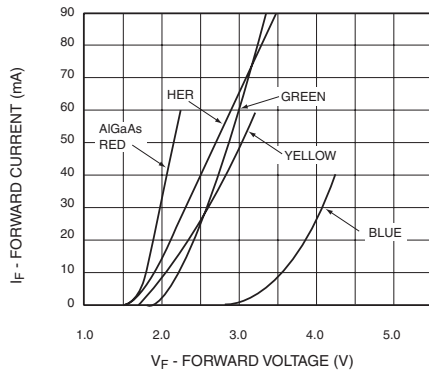


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

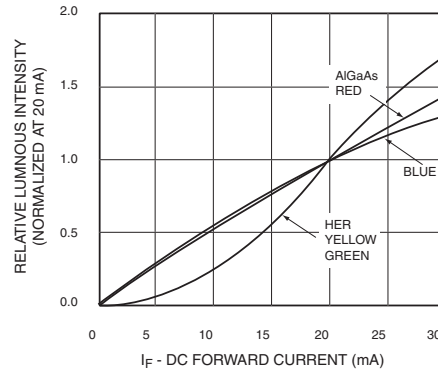


Fig. 3 Relative Intensity vs. Peak Wavelength

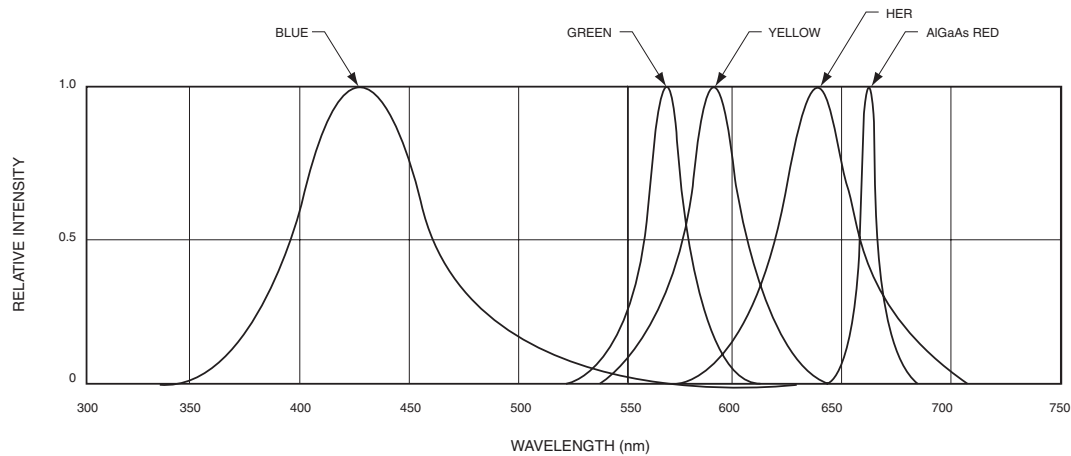


Fig.4 Radiation Diagram

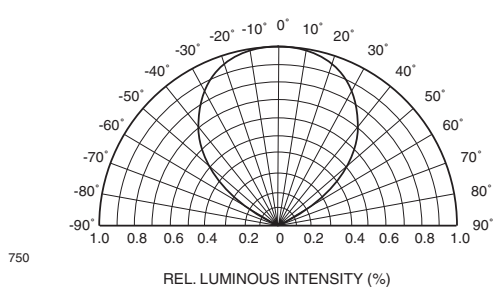
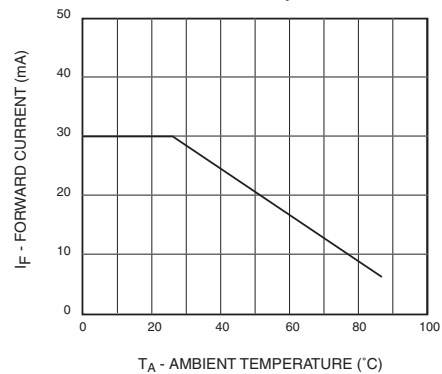


Fig.5 Maximum Forward Current vs. Ambient Temperature



SURFACE MOUNT LED LAMP

STANDARD BRIGHT 0603 (0.8 mm Height)

QTLP600C

QTLP600C-2 HER

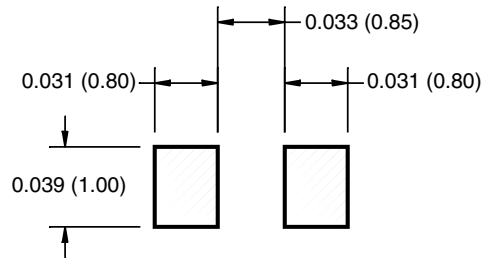
QTLP600C-3 Yellow

QTLP600C-4 Green

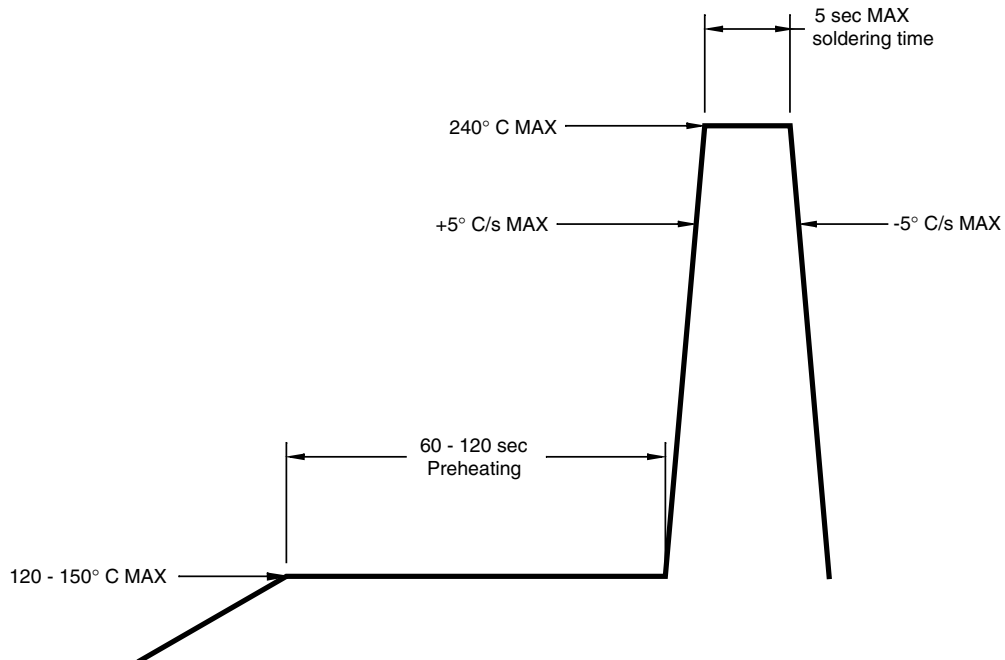
QTLP600C-7 AlGaAs Red

QTLP600C-B Blue

RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



RECOMMENDED IR REFLOW SOLDERING PROFILE



QTLP600C-4 Green

QTL P600C-B Blue

Technical drawing of a progressive die, showing three views: top view, side view, and front view.

Top View:

- Overall diameter: $\varnothing 180 \pm 1$
- Inner circular feature diameter: $\varnothing 12.75^{+0.25}_{-0.0}$
- Radial slot width: 2.5 ± 0.5
- Central feature diameter: $\varnothing 62.0 \pm 0.5$

Side View:

- Overall thickness: $11.0^{+0.5}_{-0.0}$
- Top flange thickness: $8.4^{+1.5}_{-0.0}$
- Inner diameter: $\varnothing 180 \pm 1$

Front View:

- Progressive direction: Indicated by an arrow pointing right.
- Overall width: 8.0
- Overall height: 3.5 ± 0.05
- Top flange thickness: 1.75
- Slot width: 2.0 ± 0.05
- Slot spacing: 4.0
- Slot depth: 0.9
- Slot diameter: $\varnothing 1.55 \pm 0.05$
- Bottom flange thickness: 0.23 ± 0.1

Polarity Angle: ± 0.5
Unit: mm

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

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 the 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.