FAIRCHILD
SEMICONDUCTOR®

SURFACE MOUNT LED LAMP
SUPER BRIGHT 0603 (0.8 mm Height)

QTLP600C-R Red

QTLP600C-E Orange

QTLP600C-O Yellow-Orange

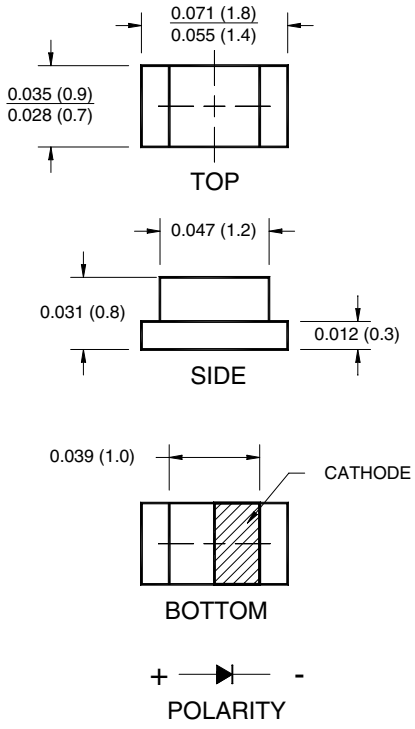
QTLP600C-Y Yellow

QTLP600C-AG Yellow-Green

QTLP600C-IG True Green

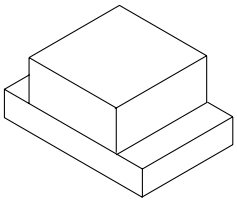
QTLP600C-IB Blue

PACKAGE DIMENSIONS



NOTE:

Dimensions for all drawings are in inches (mm).



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

- Small footprint - 1.6(L) X 0.8(W) X 0.8(H) mm
- AlInGaP technology for -R, -E, -O, -Y and -AG
- InGaN/SiC technology for -IG and -IB
- 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

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

Parameter	Symbol	QTLP600C					Units
		-R	-E	-O	-Y	-AG	
Continuous Forward Current	I_F	30	30	30	25	30	mA
Peak Forward Current (f = 1.0 KHz, Duty Factor = 1/10)	I_{FM}	160	160	160	120	160	mA
Reverse Voltage	V_R	5	5	5	5	5	V
Power Dissipation	P_D	72	72	72	60	72	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

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

Parameter	Symbol	QTLP600C		Units
		-IB	-IG	
Continuous Forward Current	I_F	30	30	mA
Peak Forward Current (f = 1.0 KHz, Duty Factor = 1/10)	I_{FM}	100	100	mA
Reverse Voltage	V_R	5	5	V
Power Dissipation	P_D	120	120	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

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ELECTRICAL / OPTICAL CHARACTERISTICS (T_A =25°C)

Part Number	Symbol	QTLP600C					Condition
		-R	-E	-O	-Y	-AG	
Luminous Intensity (mcd)							
Minimum	I_V	15	15	15	15	10	I_F = 20mA
Typical		35	35	35	35	15	
Forward Voltage (V)							
Maximum	V_F	2.4	2.4	2.4	2.4	2.4	I_F = 20mA
Typical		2.0	2.0	2.0	2.0	2.0	
Wavelength (nm)							
Peak	λ_P	630	620	610	590	575	I_F = 20mA
Dominant	λ_D	624	615	605	589	573	
Spectral Line Half Width (nm)	$\Delta\lambda$	20	18	18	15	20	I_F = 20mA
Viewing Angle (°)	$2\Theta_{1/2}$	100	100	100	100	100	I_F = 20mA

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A =25°C)

Part Number	Symbol	QTLP600C		Condition
		-IB	-IG	
Luminous Intensity (mcd)				
Minimum	I_V	15	70	I_F = 20mA
Typical		25	110	
Forward Voltage (V)				
Maximum	V_F	4.0	4.0	I_F = 20mA
Typical		3.5	3.5	
Wavelength (nm)				
Peak	λ_P	465	520	I_F = 20mA
Dominant	λ_D	470	525	
Spectral Line Half Width (nm)	$\Delta\lambda$	25	35	I_F = 20mA
Viewing Angle (°)	$2\Theta_{1/2}$	100	100	I_F = 20mA

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TYPICAL PERFORMANCE CURVES (QTLP600C-R, -E, -O, -Y and -AG)

Fig. 1 Forward Current vs. Forward Voltage

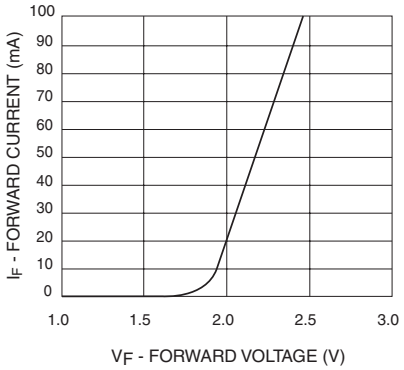


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

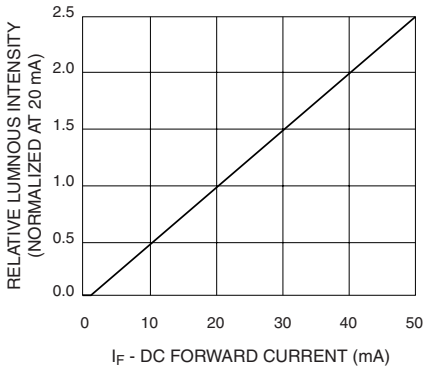


Fig. 3 Relative Intensity vs. Peak Wavelength

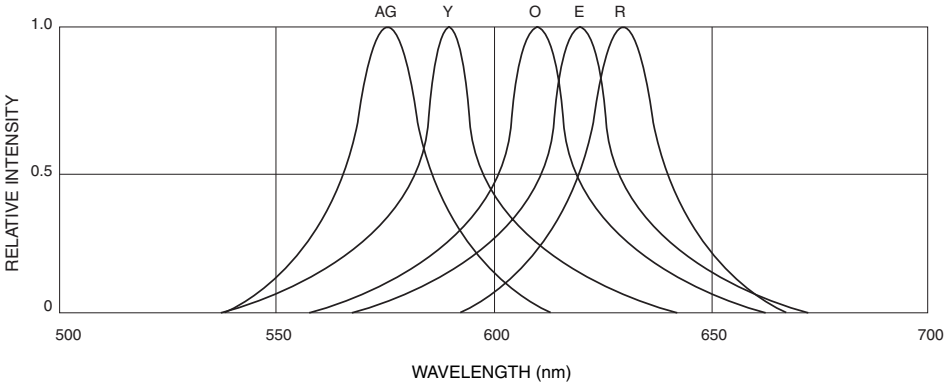


Fig.4 Radiation Diagram

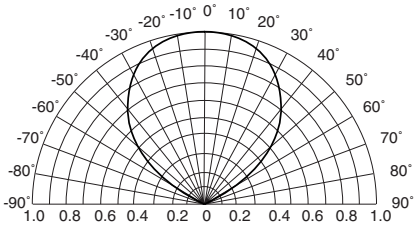
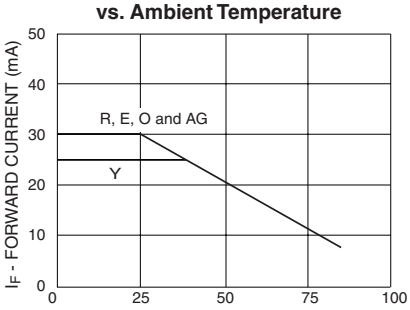


Fig.5 Maximum Forward Current vs. Ambient Temperature



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QTLP600C-IB Blue

TYPICAL PERFORMANCE CURVES (QTLP600C-IG and IB)

Fig. 1 Forward Current vs. Forward Voltage

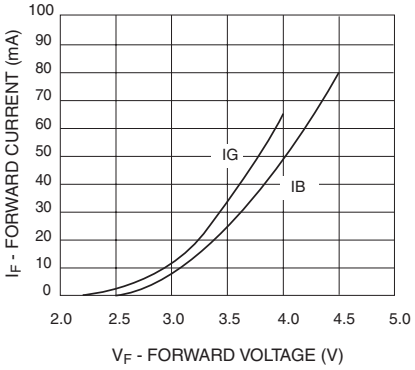


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

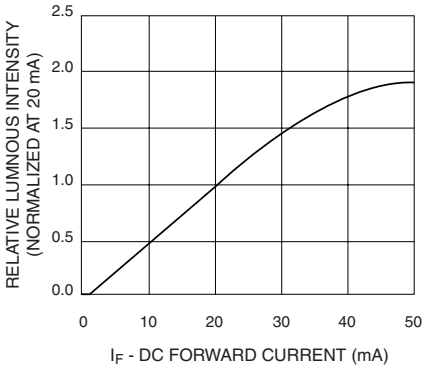


Fig. 3 Relative Intensity vs. Peak Wavelength

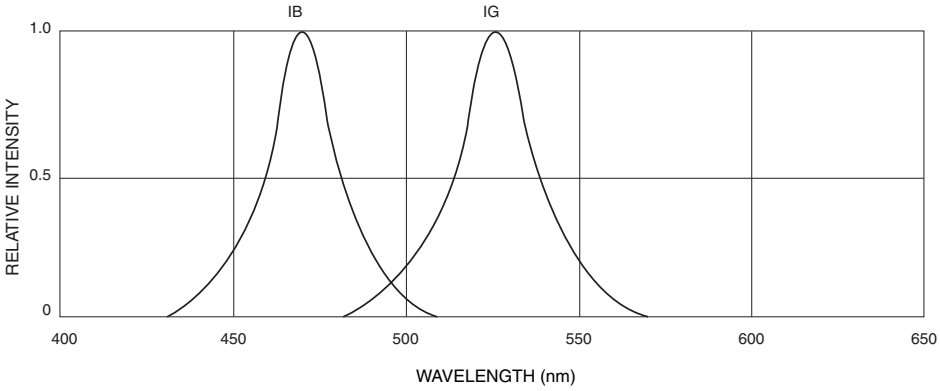


Fig.4 Radiation Diagram

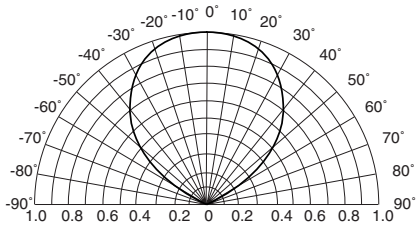
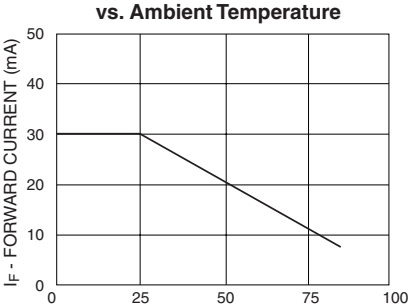


Fig.5 Maximum Forward Current vs. Ambient Temperature



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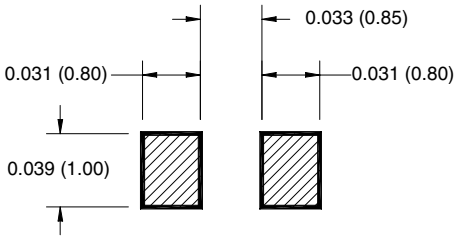
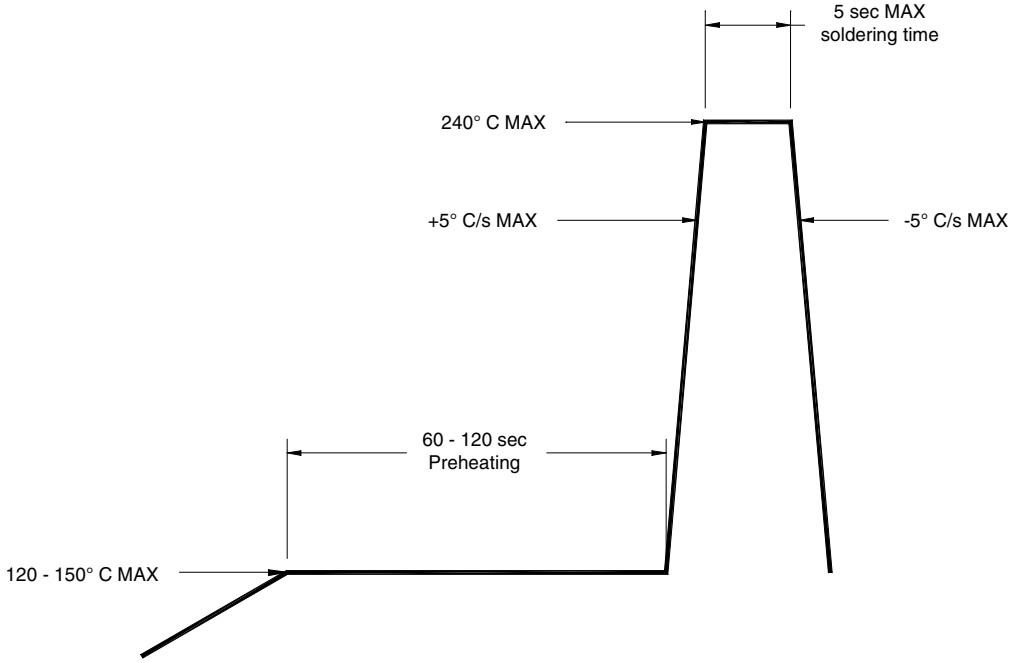
RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



RECOMMENDED IR REFLOW SOLDERING PROFILE



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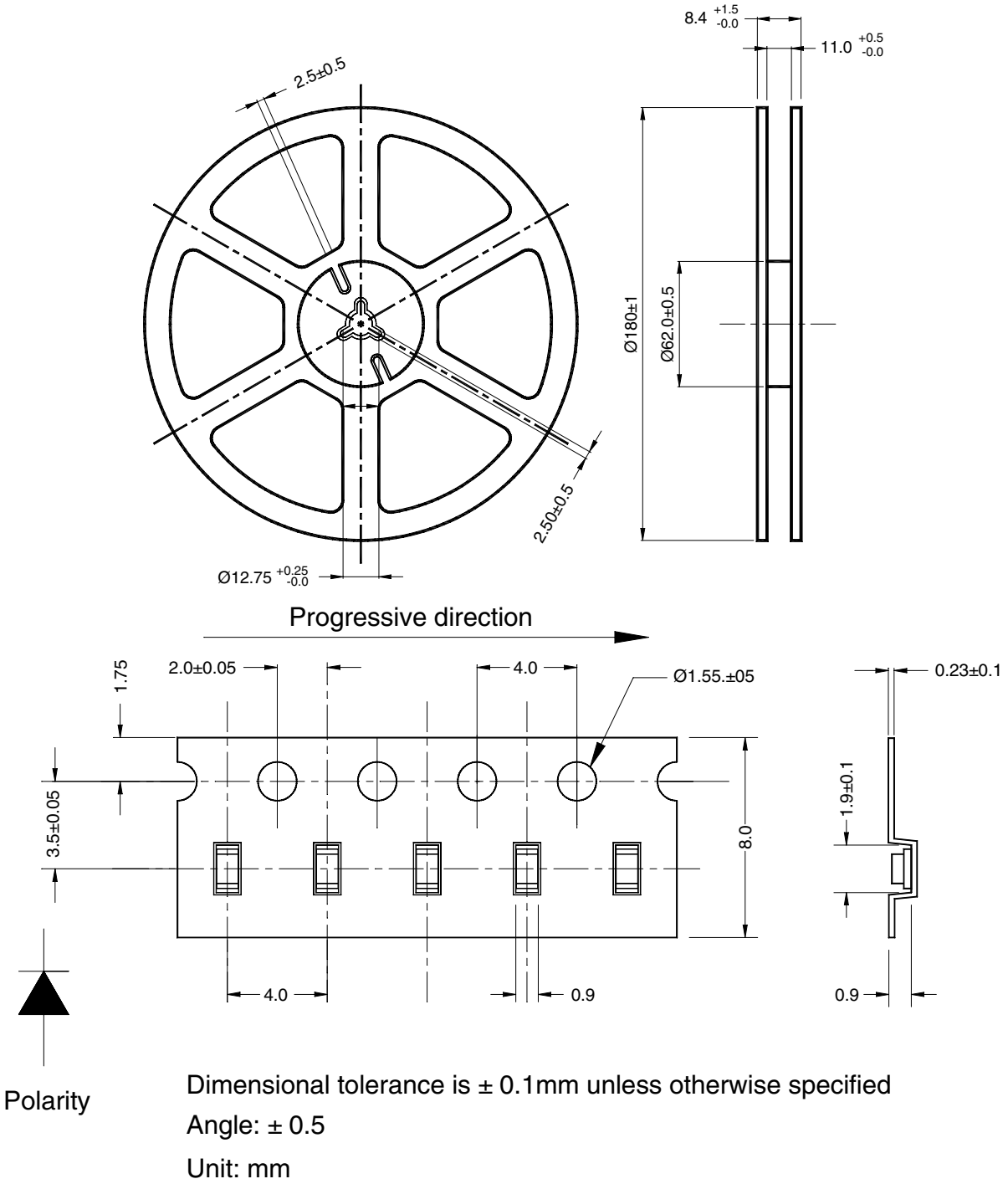
TAPE AND REEL DIMENSIONS



Dimensional tolerance is ± 0.1mm unless otherwise specified

Angle: ± 0.5

Unit: mm

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