

SURFACE MOUNT LED LAMP

SUPER BRIGHT PLCC-2

QTLP670C-T Red

QTLP670C-E Orange

QTLP670C-AG Yellow-Green

QTLP670C-IW White

QTLP670C-S Red

QTLP670C-O Yellow-Orange

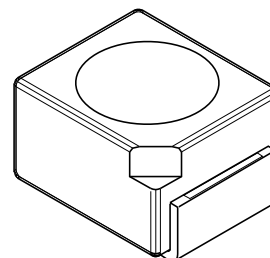
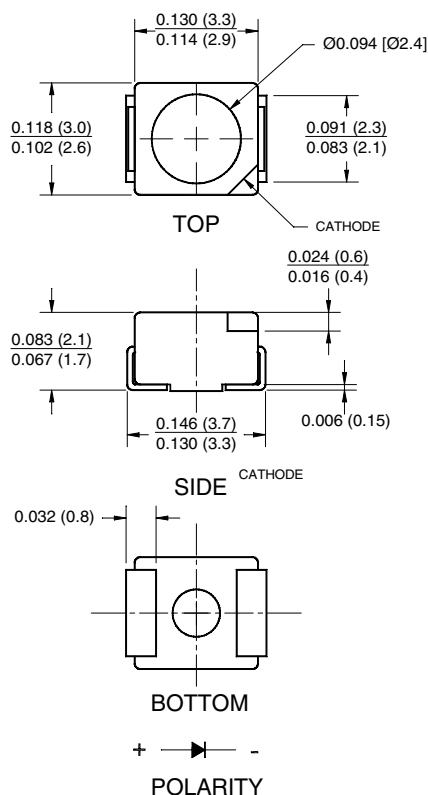
QTLP670C-IG True Green

QTLP670C-R Red

QTLP670C-Y Yellow

QTLP670C-IB Blue

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

- AllInGaP technology for -T, -S, -R, -E, -O, -Y and -AG
- InGaN/SiC technology for -IG, -IB and -IW
- Wide viewing angle of 120°
- Water clear optics
- 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
		-T	-S	-R	-E	-O	-Y	-AG	
Continuous Forward Current	I _F	30	30	30	30	30	25	30	mA
Peak Forward Current (f = 1.0 KHz, Duty Factor = 1/10)	I _{FM}	160	160	160	160	160	120	160	mA
Reverse Voltage (I _R = 10 µA)	V _R	5	5	5	5	5	5	5	V
Power Dissipation	P _D	72	72	72	72	72	60	72	mW
Junction Temperature	T _J	100	100	100	100	100	100	100	°C
Thermal Resistance (Junction-Air)	R _{th JA}	500	500	500	500	500	500	500	K/W
Operating Temperature	T _{OPR}	-40 to +95							°C
Storage Temperature	T _{STG}	-40 to +100							°C
Lead Soldering Time	T _{SOL}	260 for 5 sec							°C

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

Parameter	Symbol	QTLP670C			Units
		-IB	-IG	-IW	
Continuous Forward Current	I _F	30	30	20	mA
Peak Forward Current (f = 1.0 KHz, Duty Factor = 1/10)	I _{FM}	100	100	70	mA
Reverse Voltage (I _R = 10 µA)	V _R	5	5	5	V
Power Dissipation	P _D	120	120	80	mW
Junction Temperature	T _J	125	125	125	°C
Thermal Resistance Junction-Air	R _{th JA}	400	400	400	K/W
Operating Temperature	T _{OPR}	-40 to +95			°C
Storage Temperature	T _{STG}	-40 to +100			°C
Lead Soldering Time	T _{SOL}	260 for 5 sec			°C

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QTLP670C-IB Blue

QTLP670C-IW White

ELECTRICAL / OPTICAL CHARACTERISTICS (T _A =25°C)									
Part Number	Symbol	QTLP670C							Condition
		-T	-S	-R	-E	-O	-Y	-AG	
Luminous Intensity (mcd)	I _V	20	25	25	25	25	25	15	I _F = 20mA
Minimum		45	65	65	65	65	65	30	
Typical									
Forward Voltage (V)	V _F	2.4	2.4	2.4	2.4	2.4	2.4	2.4	I _F = 20mA
Maximum		2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Typical									
Wavelength (nm)	λ _P	650	640	630	620	610	590	575	I _F = 20mA
Peak		640	632	624	615	605	589	573	
Dominant	λ _D								
Spectral Line Half Width (nm)	Δλ	20	20	20	18	18	15	20	I _F = 20mA
Viewing Angle (°)	2Θ _{1/2}	120	120	120	120	120	120	120	I _F = 20mA

ELECTRICAL / OPTICAL CHARACTERISTICS (T _A =25°C)					
Part Number	Symbol	QTLP670C			Condition
		-IB	-IG	-IW	
Luminous Intensity (mcd)	I _V	30	75	100	I _F = 20mA
Minimum		60	115	250	
Typical					
Forward Voltage (V)	V _F	4.0	4.0	4.0	I _F = 20mA
Maximum		3.5	3.5	3.5	
Typical					
Wavelength (nm)	λ _P	465	520	—	I _F = 20mA
Peak		470	525	—	
Dominant	λ _D				
Chromaticity Coordinate	x,y	—	—	x = 0.30, y = 0.31	I _F = 20mA
Spectral Line Half Width (nm)	Δλ	25	35	—	I _F = 20mA
Viewing Angle (°)	2Θ _{1/2}	120	120	120	I _F = 20mA

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QTLP670C-E Orange

QTLP670C-O Yellow-Orange

QTLP670C-Y Yellow

QTLP670C-AG Yellow-Green

QTLP670C-IG True Green

QTLP670C-IB Blue

QTLP670C-IW White

TYPICAL PERFORMANCE CURVES (QTLP670C-T, -S, -R, -E, -O, -Y and -AG)

Fig. 1 Forward Current vs. Forward Voltage

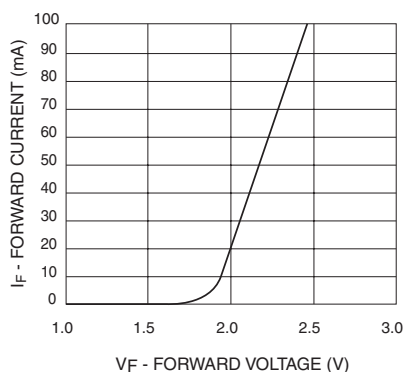


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

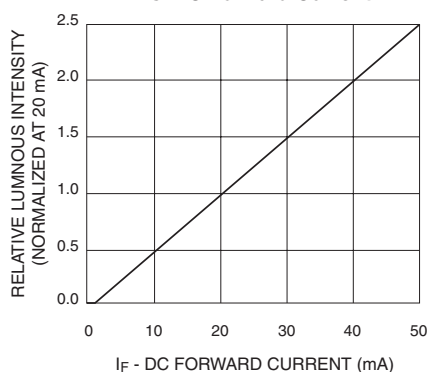


Fig. 3 Relative Intensity vs. Peak Wavelength

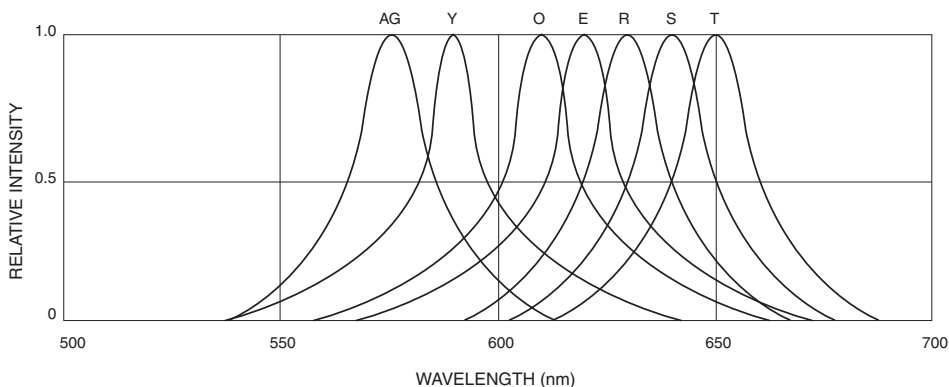


Fig.4 Radiation Diagram

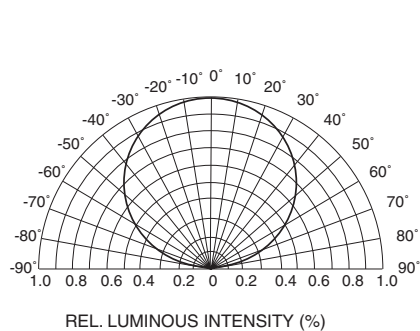
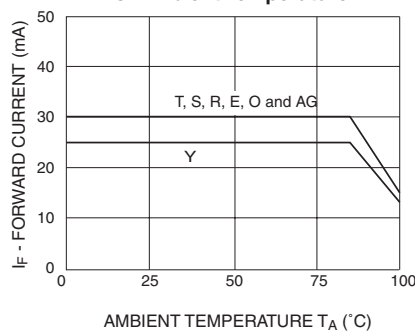


Fig.5 Maximum Forward Current vs. Ambient Temperature



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TYPICAL PERFORMANCE CURVES (QTLP670C-IG, -IB and -IW)

Fig. 1 Forward Current vs. Forward Voltage

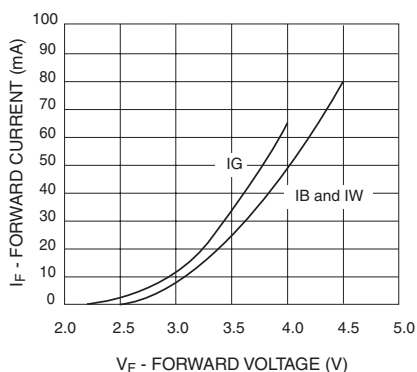


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

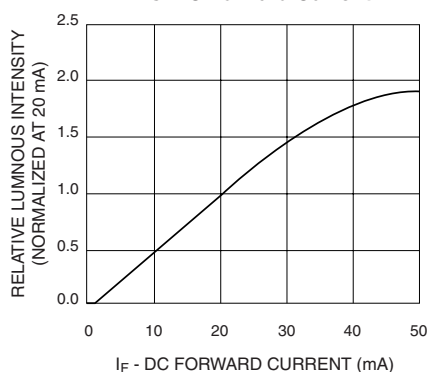


Fig. 3 Relative Intensity vs. Peak Wavelength

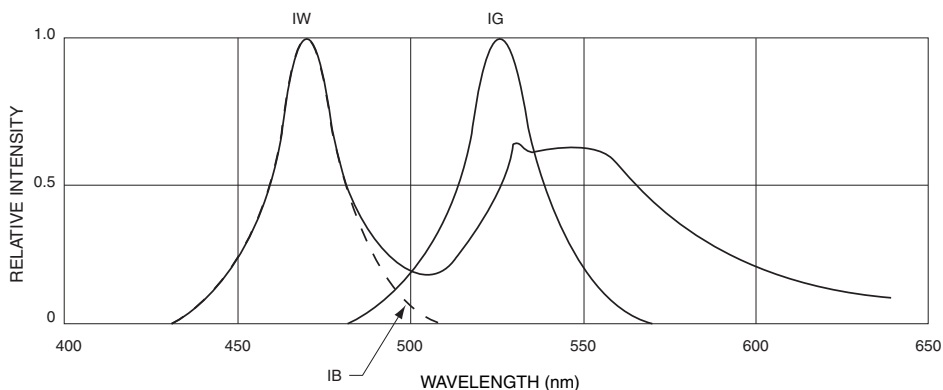


Fig.4 Radiation Diagram

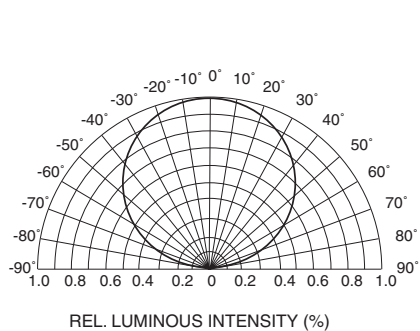
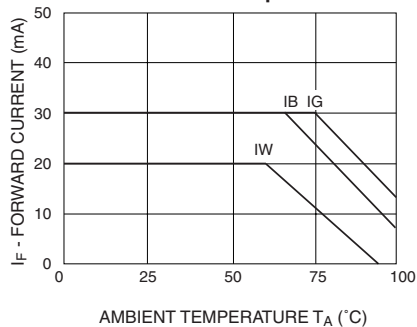


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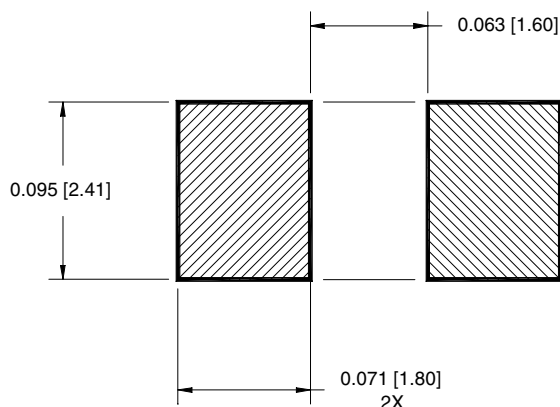
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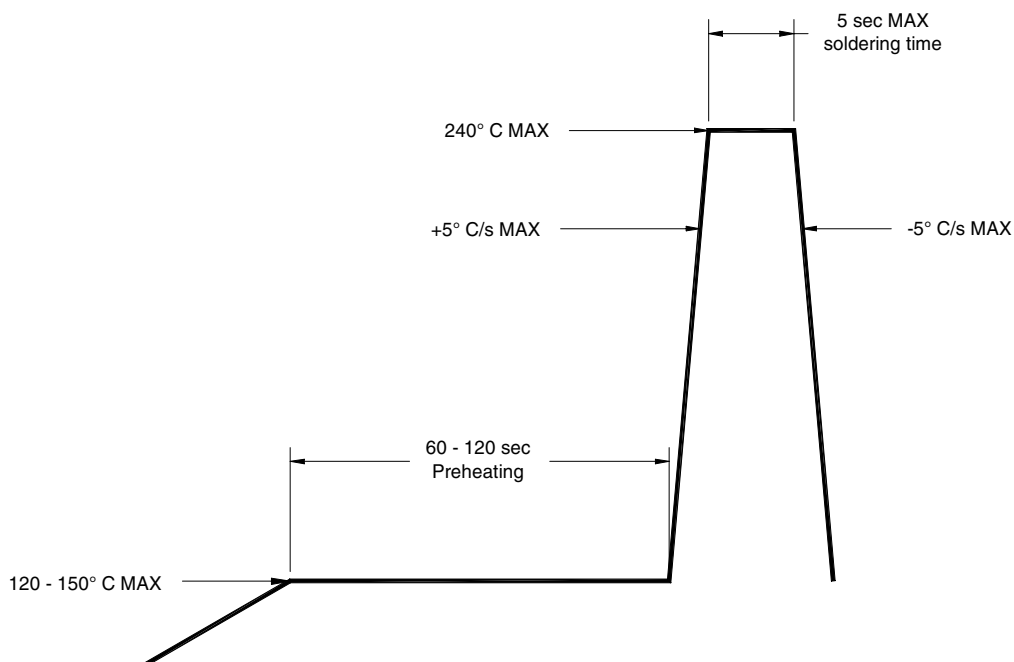
QTLP670C-Y Yellow

QTLP670C-IB Blue

RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



RECOMMENDED IR REFLOW SOLDERING PROFILE



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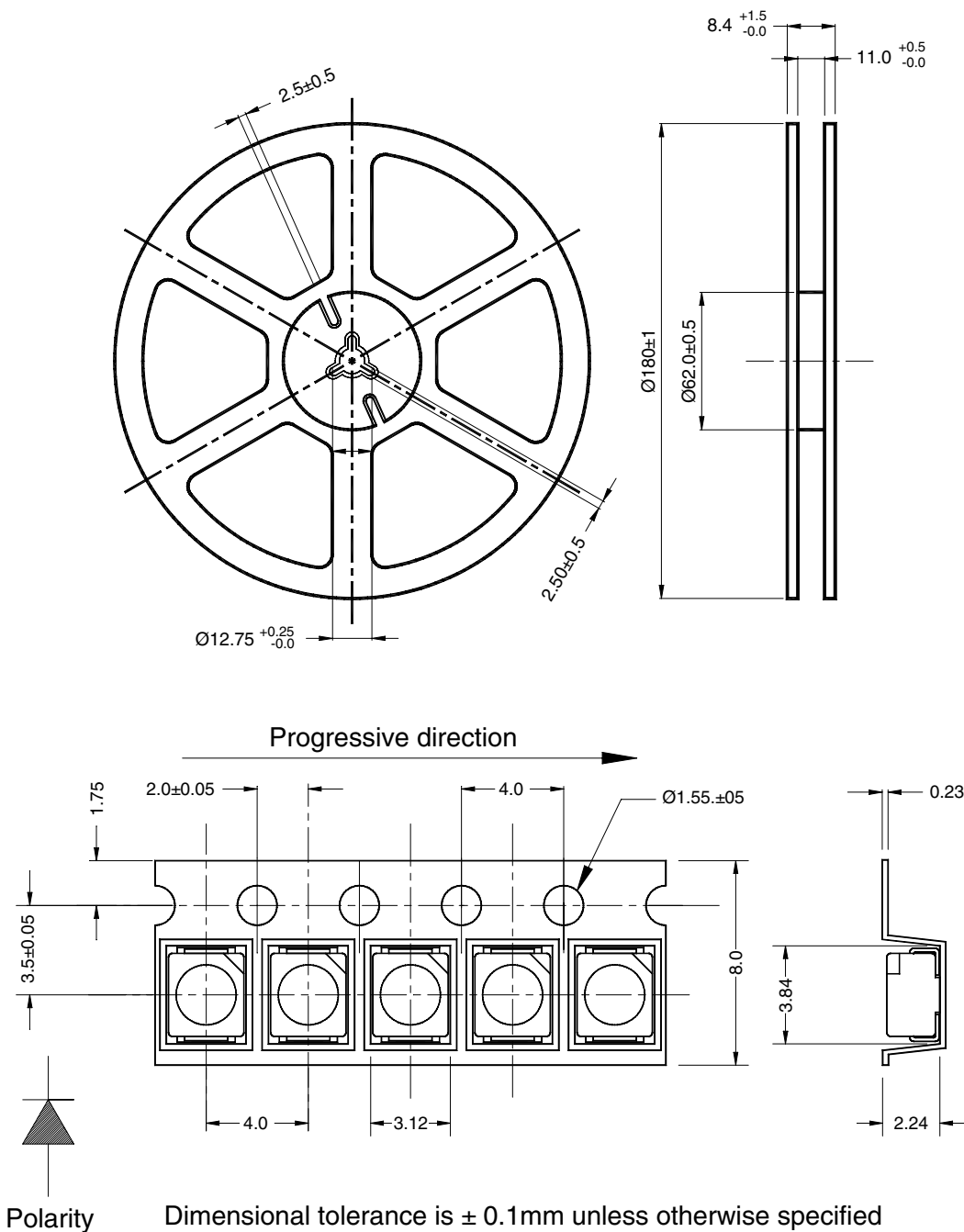
QTLP670C-IG True Green

QTLP670C-R Red

QTLP670C-Y Yellow

QTLP670C-IB Blue

TAPE AND REEL DIMENSIONS



Dimensional tolerance is ± 0.1 mm unless otherwise specified

Angle: ± 0.5

Unit: mm

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