



# SURFACE MOUNT LED LAMP POWER PLCC-4

QTLP673C-O Yellow-Orange

QTLP673C-Y Yellow

QTLP673C-E Orange

QTLP673C-R Red

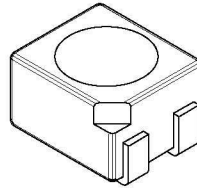
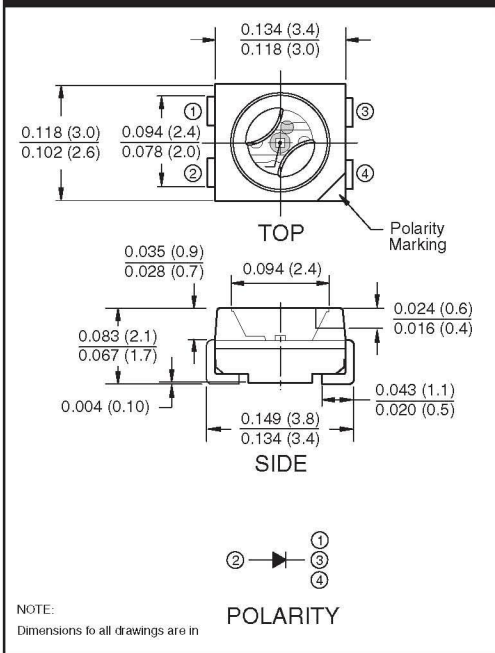
QTLP673C-IB Blue

QTLP673C-IC Cyan

QTLP673C-IG True Green

QTLP673C-IW White

## PACKAGE DIMENSIONS



## APPLICATIONS

- Automotive interior lighting
- Status indication for consumer electronics and office equipment
- Information display lighting

## DESCRIPTION

This ultra bright high current surface mount LED is designed with flat top and sides for the ease of pick-and-place by automatic placement equipment. It is compatible with both IR reflow and TTW (Through-the-Wave) soldering. These LEDs are ideal for back-lighting and optical coupling into light pipes.

## FEATURES

- Small package dimensions of 3.2(L) x 2.8(W) x 1.8(H) mm
- AlInGaP technology for -Y, -O, -R, and -E
- InGaN technology for -IB, -IC, -IG, and -IW
- Wide viewing angle of 120°
- Available in 0.315" (8mm) width tape on 7" (178mm) diameter reel; 2,000 units per reel



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**QTLP673C-O** Yellow-Orange    **QTLP673C-Y** Yellow    **QTLP673C-E** Orange  
**QTLP673C-R** Red    **QTLP673C-IB** Blue    **QTLP673C-IC** Cyan  
**QTLP673C-IG** True Green    **QTLP673C-IW** White

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ Unless otherwise specified)

Parameter	Symbol	QTLP673C-Y/-E/-O/-R	Units
Continuous Forward Current	$I_F$	70	mA
Peak Forward Current ( $f = 100$ KHz, Duty Factor = 1/10)	$I_{FM}$	100	mA
Reverse Voltage	$V_R$	5	V
Power Dissipation	$P_D$	180	mW
Junction Temperature	$T_J$	125	$^\circ\text{C}$
Operating Temperature	$T_{OPR}$	-40 to +100	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 to +100	$^\circ\text{C}$
Lead Soldering Time	$T_{SOL}$	260 for 5 sec	$^\circ\text{C}$

### ELECTRICAL / OPTICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

Part Number	Symbol	QTLP673C				Condition
		-Y	-E	-O	-R	
Luminous Intensity (mcd)	$I_V$	T1: 285-355	T1: 285-355	T1: 285-355	T1: 285-355	$I_F = 50\text{mA}$
		T2: 355-450	T2: 355-450	T2: 355-450	T2: 355-450	
		U1: 450-560	U1: 450-560	U1: 450-560	U1: 450-560	
		U2: 560-715	U2: 560-715	U2: 560-715	U2: 560-715	
Forward Voltage (V)	$V_F$	2.0-2.3	2.0-2.3	2.0-2.3	2.0-2.3	$I_F = 50\text{mA}$
51		2.3-2.6	2.3-2.6	2.3-2.6	2.3-2.6	
Dominant Wavelength (nm)	$\lambda_D$	W: 582-585	W: 610-615	W: 600-603	—	$I_F = 50\text{mA}$
		X: 585-588	X: 615-621	X: 603-606	—	
		Y: 588-591	—	Y: 606-609	—	
		Z: 591-594	—	Z: 609-612	—	
		—	—	—	Full: 620-630	
Viewing Angle ( $^\circ$ )	$2\theta_{1/2}$	120	120	120	120	$I_F = 50\text{mA}$



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QTLP673C-IG True Green	QTLP673C-IW White	

### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ Unless otherwise specified)

Parameter	Symbol	QTLP673C-IG/IC/IB/IW	Units
Continuous Forward Current	$I_F$	30	mA
Peak Forward Current ( $f = 100$ KHz, Duty Factor = 1/10)	$I_{FM}$	200	mA
Reverse Voltage	$V_R$	5	V
Power Dissipation	$P_D$	135	mW
Junction Temperature	$T_J$	125	$^\circ\text{C}$
Operating Temperature	$T_{OPR}$	-40 to +100	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-40 to +100	$^\circ\text{C}$
Lead Soldering Time	$T_{SOL}$	260 for 5 sec	$^\circ\text{C}$

### ELECTRICAL / OPTICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ )

Part Number	Symbol	QTLP673C				Condition
		-IW	-IG	-IB	-IC	
Luminous Intensity (mcd)	$I_V$	T1: 285-355	T1: 285-355	Q2: 90-112.5	T1: 285-355	$I_F = 30\text{mA}$
		T2: 355-450	T2: 355-450	R1: 112.5-140	T2: 355-450	
		U1: 450-560	U1: 450-560	R2: 140-180	U1: 450-560	
		U2: 560-715	U2: 560-715	S1: 180-224	U2: 560-715	
		V1: 715-900	V1: 715-900	S2: 280-355	V1: 715-900	
		V2: 900-1125	V2: 900-1125		V2: 900-1125	
Forward Voltage (V)	$V_F$	Typ	3.9	3.9	3.9	$I_F = 30\text{mA}$
		Max	4.55	4.55	4.55	
Dominant Wavelength (nm)	$\lambda_D$	—	W: 520-524	W: 464-468	W: 499-503	$I_F = 30\text{mA}$
		—	X: 524-528	X: 468-472	X: 503-507	
		—	Y: 528-532	Y: 472-476	Y: 507-511	
		—	Z: 532-536	Z: 476-480	—	
		—	—	—	—	
XY Chromaticity	Typ: X, Y	X = 0.31, Y = 0.31	—	—	—	$I_F = 30\text{mA}$
Viewing Angle ( $^\circ$ )	$2\theta_{1/2}$		120	120	120	$I_F = 30\text{mA}$

Tolerance for Luminous Intensity ( $I_V$ ):  $\pm 11\%$

Tolerance for  $V_F$ :  $\pm 0.1\text{V}$

Tolerance for  $\lambda_D$ :  $\pm 1\text{nm}$



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QTLP673C-R Red	QTLP673C-IB Blue	QTLP673C-IC Cyan
QTLP673C-IG True Green	QTLP673C-IW White	

## TYPICAL PERFORMANCE CURVES QTLP673C-O/-R/-Y/-E

Fig. 1 Forward Current (mA) vs. Forward Voltage

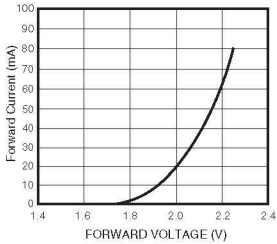


Fig. 2 Relative Luminous Intensity vs. Forward Current

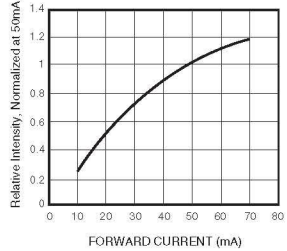


Fig. 3 Relative Intensity vs. Peak Wavelength

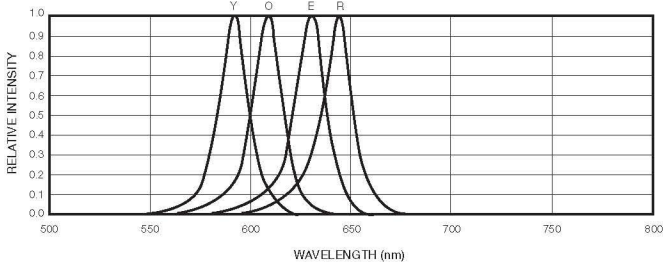


Fig. 4 Radiation Diagram

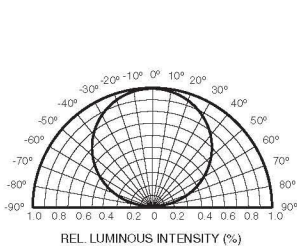
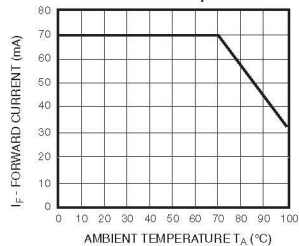


Fig. 5 Maximum Forward Current vs. Ambient Temperature





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## TYPICAL PERFORMANCE CURVES QTLP673C-IC/-IB/-IG/-IW

Fig. 6 Forward Current (mA) vs. Forward Voltage

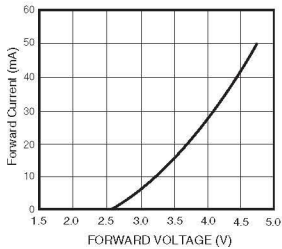


Fig. 7 Relative Luminous Intensity vs. Forward Current

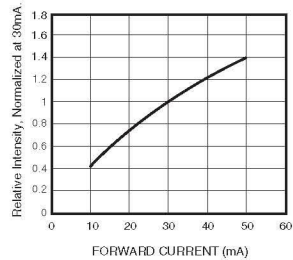


Fig. 8 Relative Intensity vs. Peak Wavelength

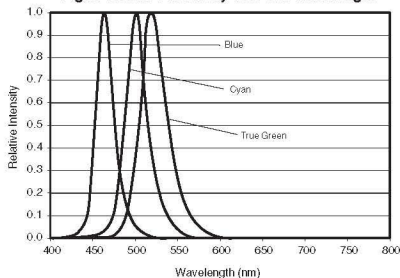


Fig. 9 Radiation Diagram

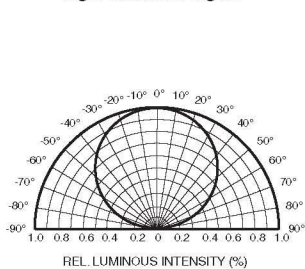
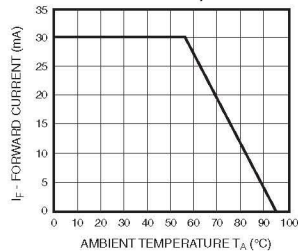


Fig. 10 Maximum Forward Current vs. Ambient Temperature





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QTLP673C-E Orange

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QTLP673C-IB Blue

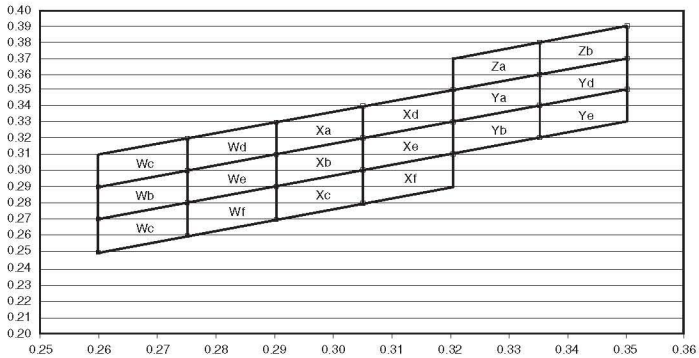
QTLP673C-IC Cyan

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## TYPICAL PERFORMANCE CURVES

Fig. 11 White Bin Structure





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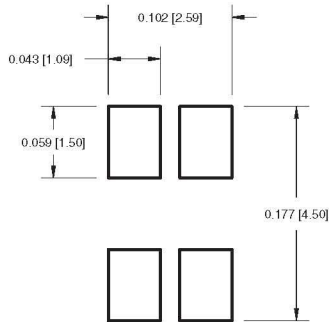
QTLP673C-IB Blue

QTLP673C-IC Cyan

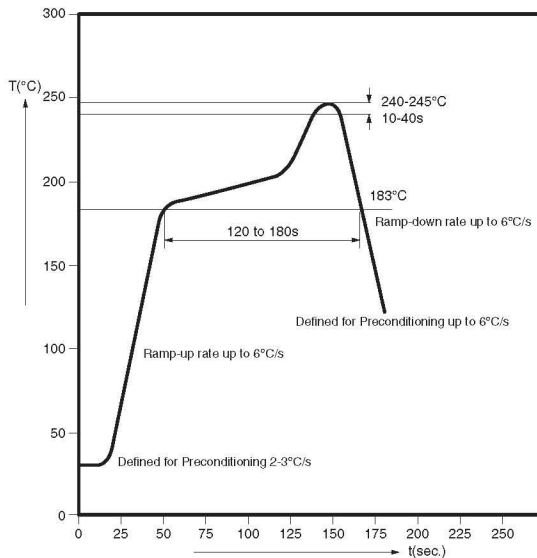
QTLP673C-IG True Green

QTLP673C-IW White

## RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



## RECOMMENDED IR REFLOW SOLDERING PROFILE





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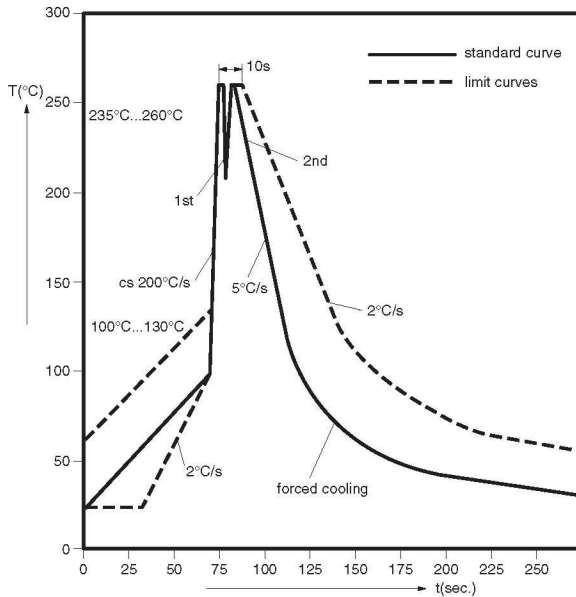
QTLP673C-IB Blue

QTLP673C-IC Cyan

QTLP673C-IG True Green

QTLP673C-IW White

## RECOMMENDED TTW REFLOW SOLDERING PROFILE







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QTLP673C-Y Yellow

QTLP673C-E Orange

QTLP673C-R Red

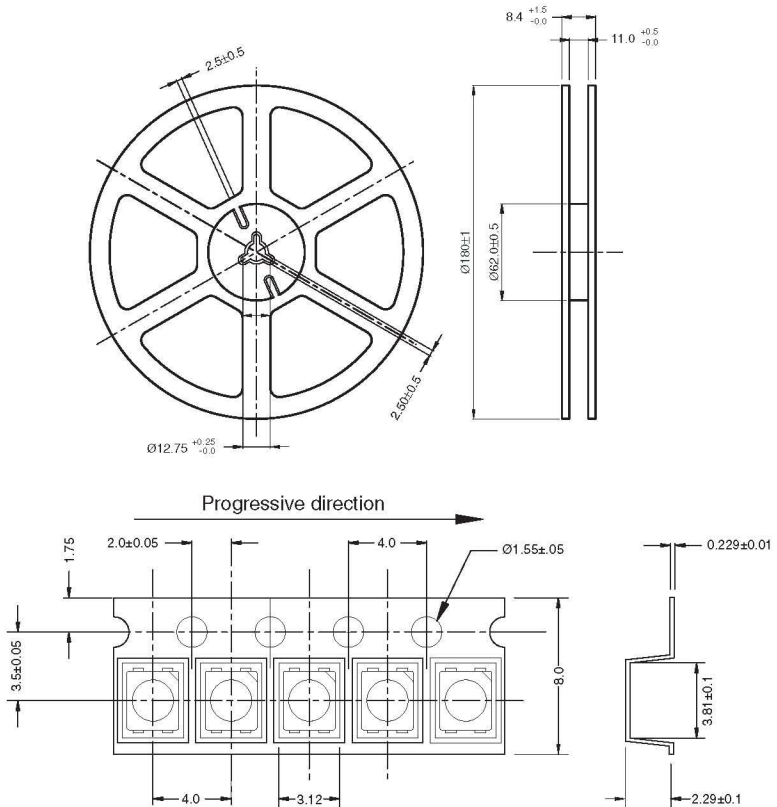
QTLP673C-IB Blue

QTLP673C-IC Cyan

QTLP673C-IG True Green

QTLP673C-IW White

## TAPE AND REEL DIMENSIONS



Dimensional tolerance is  $\pm 0.1$ mm unless otherwise specified

Angle:  $\pm 0.5$

Unit: mm



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<b>QTLP673C-IG</b> True Green	<b>QTLP673C-IW</b> White	

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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.