

# SURFACE MOUNT LED LAMP STANDARD BRIGHT 1206 (Inner Lens)

QTLP651C-2 HER

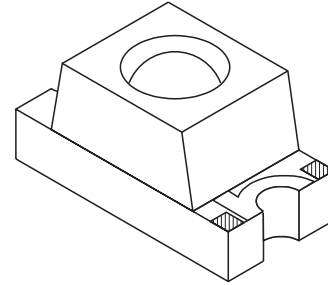
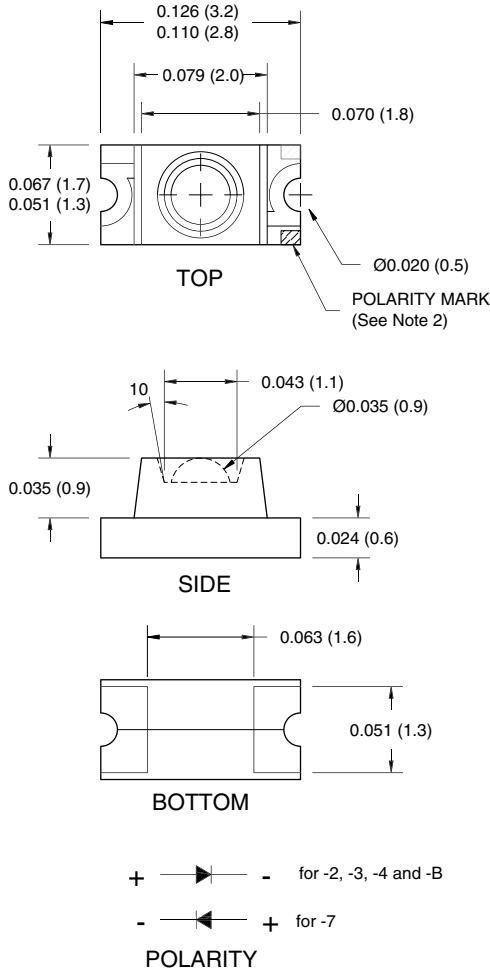
QTLP651C-3 Yellow

QTLP651C-4 Green

QTLP651C-7 AlGaAs Red

QTLP651C-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. The package features a recessed, inner lens that focuses light output, offering greater luminous intensity for direct viewing.

## FEATURES

- Small footprint - 3.0(L) X 1.5(W) X 1.5(H) mm
- Narrow viewing angle of 20°
- 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 ( $T_A = 25^\circ\text{C}$ Unless otherwise specified)

Parameter	Symbol	QTLP651C					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	QTLP651C					Condition
		-2	-3	-4	-7	-B	
Luminous Intensity (mcd)	$I_V$	9	10	20	30	25	$I_F = 20\text{mA}$
Minimum							
Typical		15	18	35	50	35	
Forward Voltage (V)	$V_F$	2.8	2.8	2.8	2.4	4.5	$I_F = 20\text{mA}$
Maximum							
Typical		2.0	2.0	2.1	1.9	3.8	
Wavelength (nm)	$I_P$	635	585	565	660	430	$I_F = 20\text{mA}$
Peak							
Dominant	$I_D$	630	590	570	645	465	
Spectral Line Half Width (nm)	DI	45	35	30	20	65	$I_F = 20\text{mA}$
Viewing Angle ( $^\circ$ )	2U1/2	20	20	20	20	20	$I_F = 20\text{mA}$

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## TYPICAL PERFORMANCE CURVES

Fig. 1 Forward Current vs. Forward Voltage

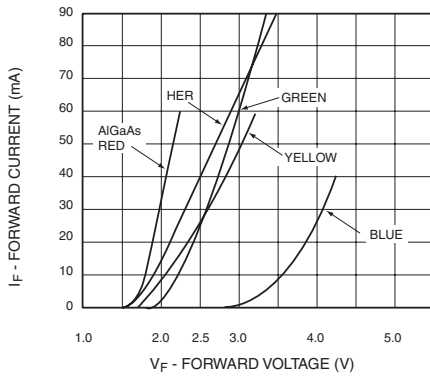


Fig. 2 Relative Luminous Intensity vs. DC Forward Current

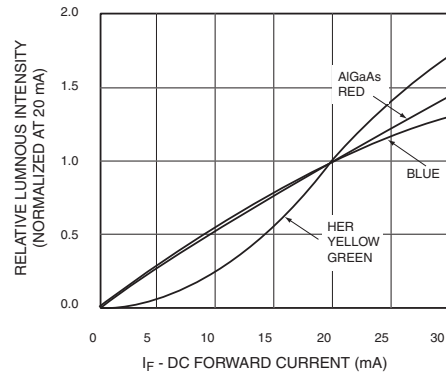


Fig. 3 Relative Intensity vs. Peak Wavelength

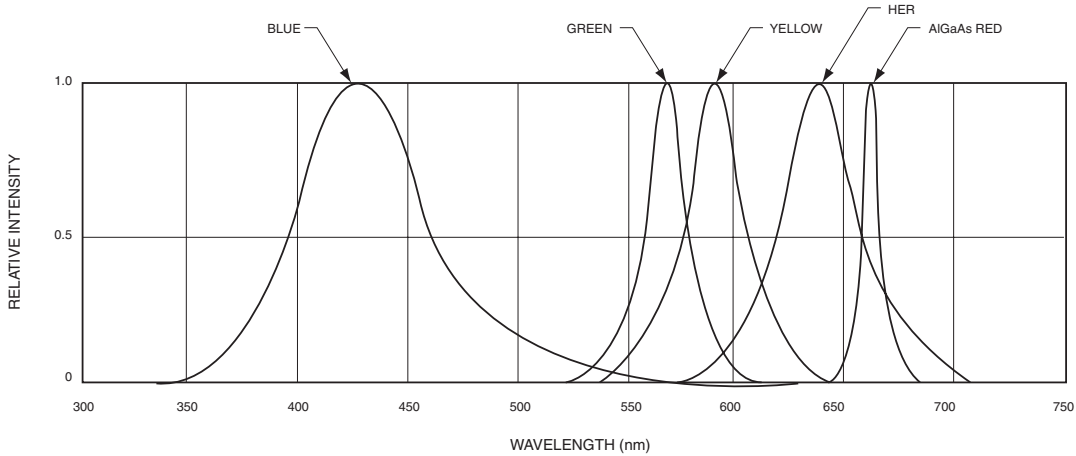


Fig. 4 Radiation Diagram

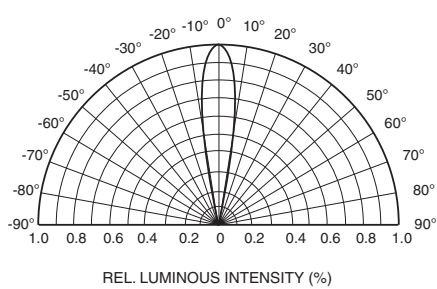
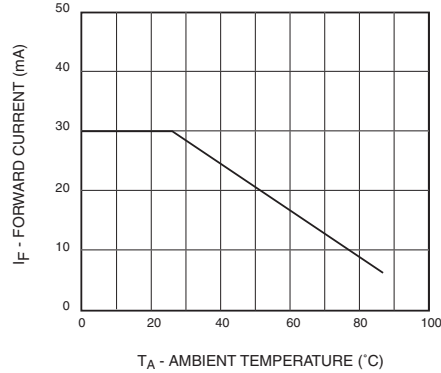


Fig. 5 Maximum Forward Current vs. Ambient Temperature



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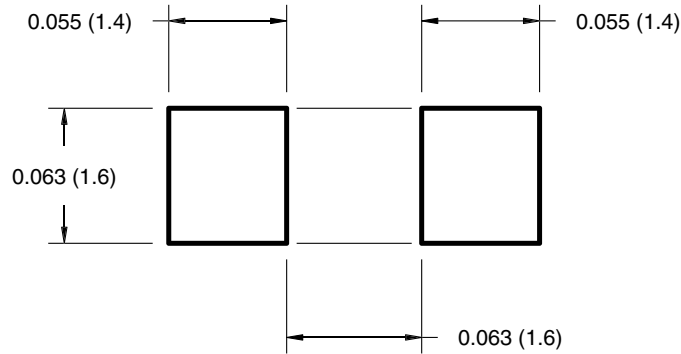
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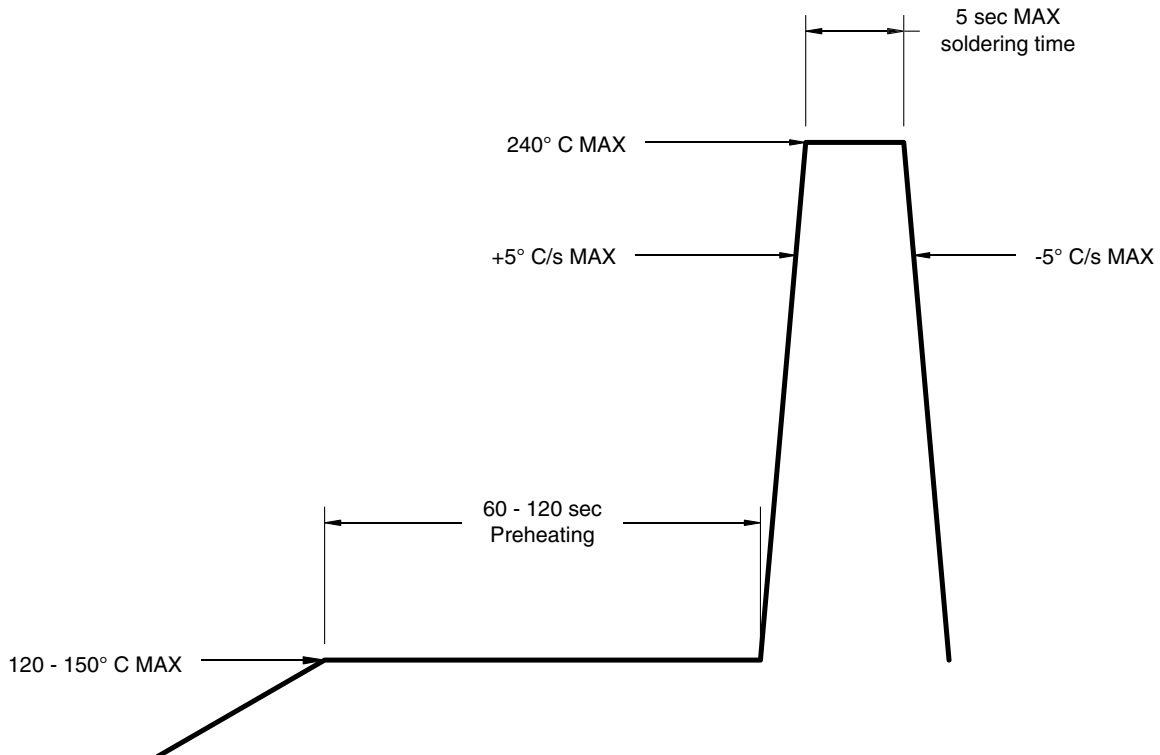
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### RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



### RECOMMENDED IR REFLOW SOLDERING PROFILE



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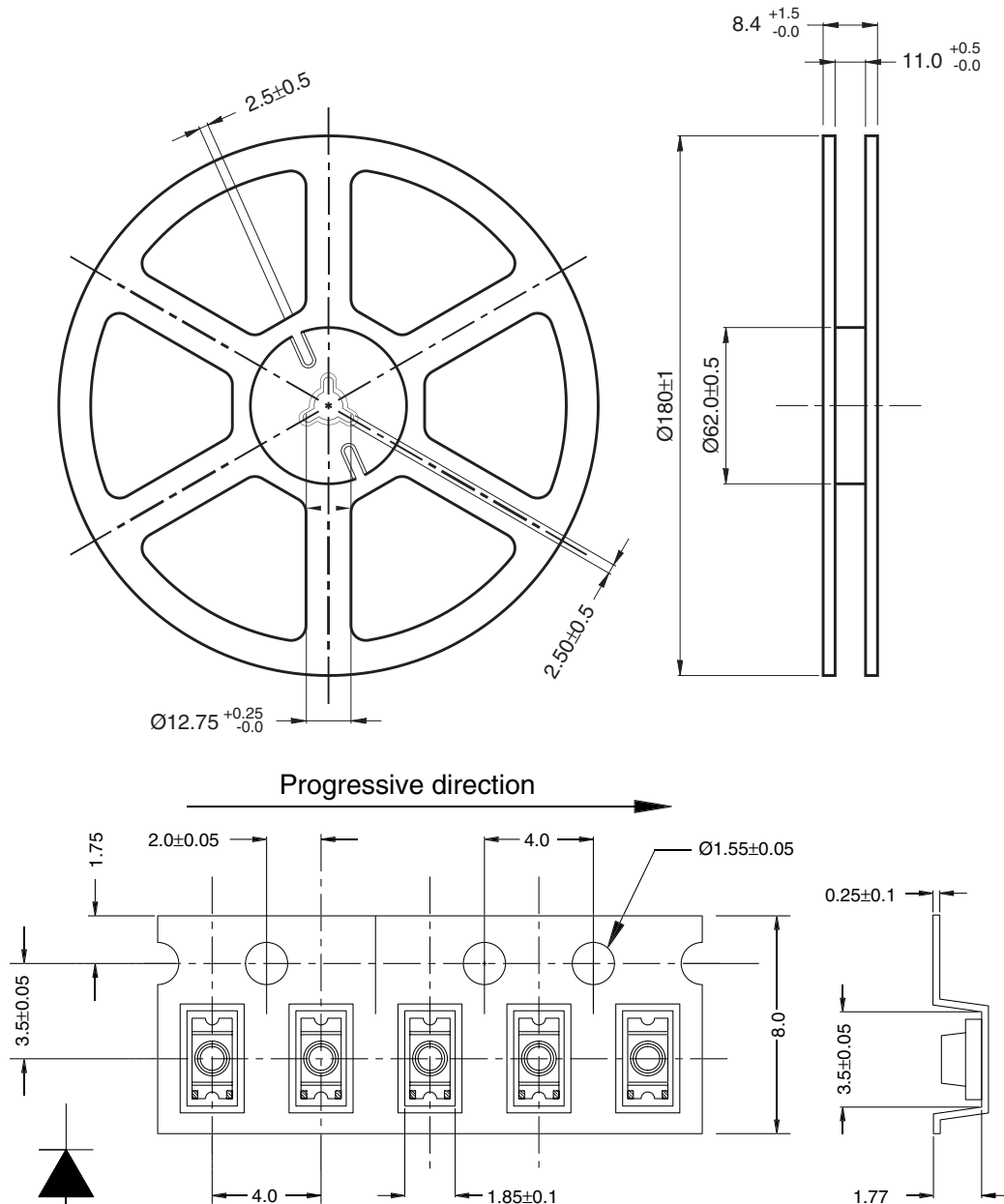
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## TAPE AND REEL DIMENSIONS



for -7  
Polarity

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

Angle:  $\pm 0.5$

Unit: mm

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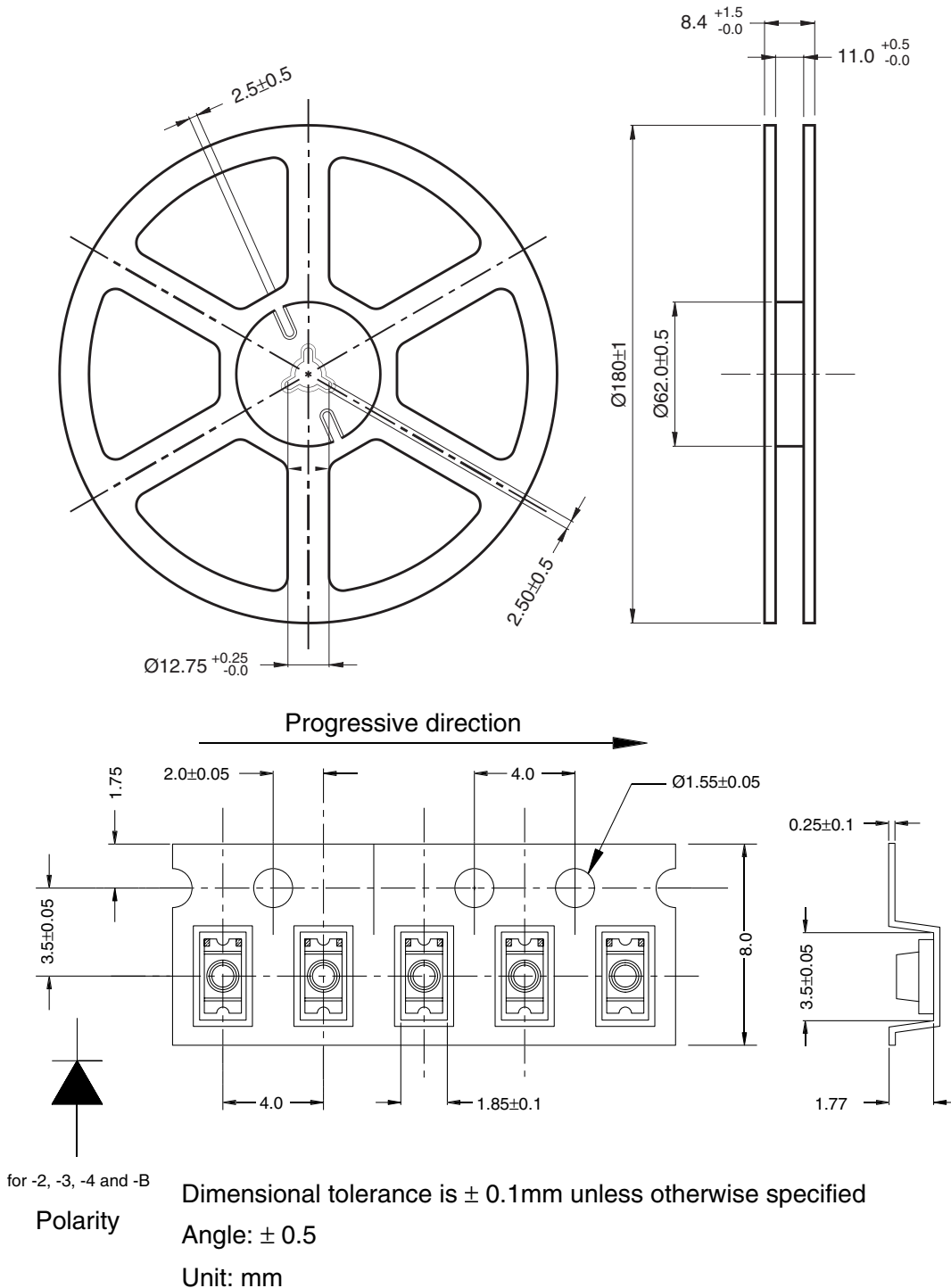
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