



Light in Motion

QTLP660CPD Surface Mount Miniature Phototransistor

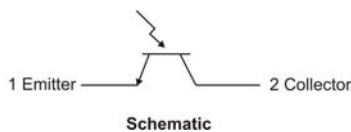
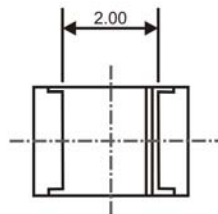
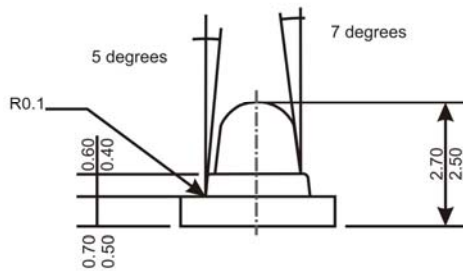
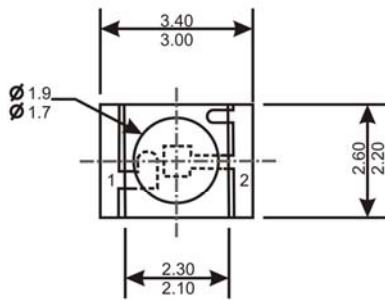
Features

- 1.8mm Dome Lens
- 2000 units per reel
- 30° reception angle
- Surface Mount Package
- High Photo Sensitivity
- Low Junction Capacitance

Description

The QTLP660CIR is a Phototransistor in a SMD package with a dome shaped lens improving the focus of the received electromagnetic waves onto the light sensitive surface resulting in improved sensitivity and high speed responses. Available in standard Tape and Reel packaging for automatic Insertion

Package Dimensions

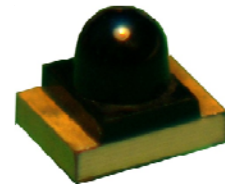


Notes:

1. Dimensions millimeters.
2. Tolerance of +/- 0.25mm on all non-nominal dimensions (unless otherwise stated).

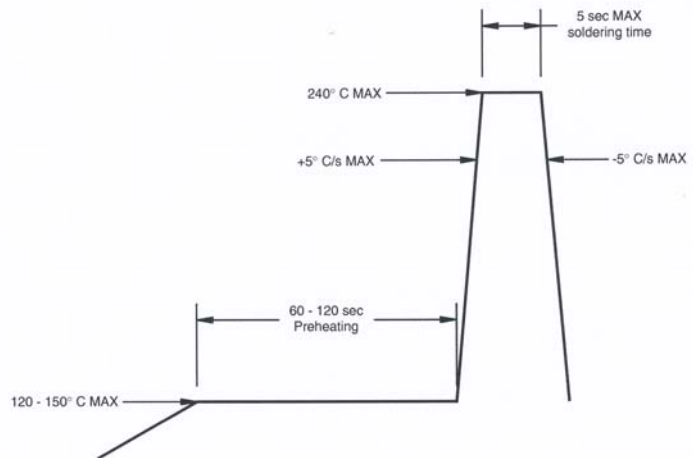


QTLP660CPD
Clear lens
Senses visible and infrared light

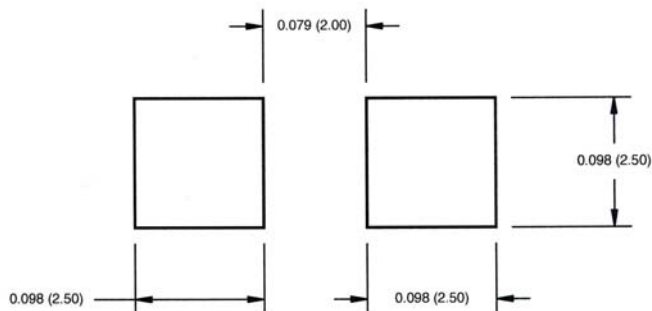


QTLP660CPDF
Daylight filter
Senses Infrared

Recommended IR Reflow Profile



Recommended Solder Screen Pattern



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise specified)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In Addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

Symbol	Parameter	Rating	Units
T_{OPR}	Operating Temperature	-25 to +85	$^\circ\text{C}$
T_{STG}	Storage Temperature	-40 to +90	$^\circ\text{C}$
T_{SOL-I}	Soldering Temperature (Iron) ^(1,2,3)	240 for 5 sec	$^\circ\text{C}$
T_{SOL-F}	Soldering Temperature (Flow) ^(1,2)	260 for 10 sec	$^\circ\text{C}$
V_{CEO}	Collector-Emitter Voltage	30	V
V_{ECO}	Emitter-Collector Voltage	5	V
P_D	Power Dissipation ⁽⁴⁾	75	mW

Notes:

1. RMA Flux is recommended.
2. Methanol or isopropyl alcohols are recommended as cleaning agents.
3. Soldering iron tip at 1.6mm minimum from housing.
4. At 25°C or below. See Fig. 1 for derating curve above 25°C .

Electrical/Optical Characteristics ($T_A = 25^\circ\text{C}$)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
λ_{PS}	Peak Sensitivity Wavelength			860		nm
$\lambda^{1/2}$	Spectral Sensitivity Range	$S = 0.5\text{PS}$		400-1200		nm
Θ	Reception Angle			± 15		deg
I_D	Dark Current	$V_{CE} = 20\text{V}; E_e = 0$			100	nA
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_E = 100\mu\text{A}; E_e = 0$	30			V
BV_{ECO}	Emitter-Collector Breakdown Voltage	$I_E = 100\mu\text{A}; E_e = 0$	5			V
$I_{C(ON)}$	On-State Collector Current	$E_e = 1\text{mW}/\text{cm}^2;$ $V_{CE} = 5\text{V}$	1.5	1.8		mA
$V_{CE(SAT)}$	Saturation Voltage	$E_e = 1\text{mW}/\text{cm}^2;$ $I_C = 1\text{mA}$			0.4	V
t_r	Rise Time	$V_{CE} = 5\text{V};$ $R_L = 1000\Omega;$		15		μs
t_f	Fall Time	$I_C = 1\text{mA}$		15		μs

Typical Performance Characteristics

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

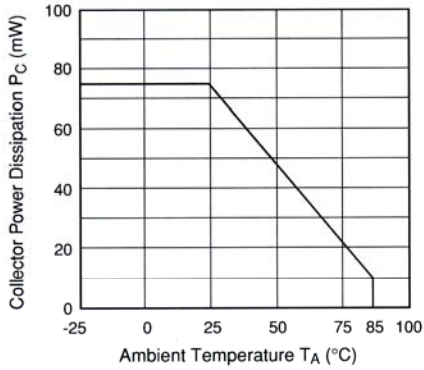


Fig. 2 Collector Dark Current vs. Ambient Temperature

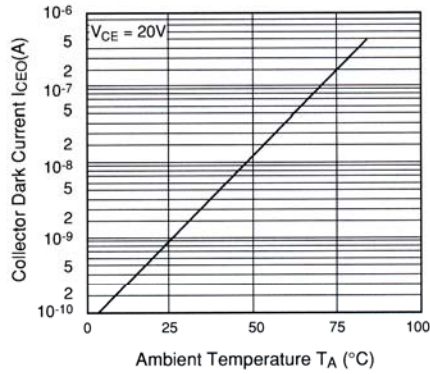


Fig. 3 Relative Collector Current vs. Ambient Temperature

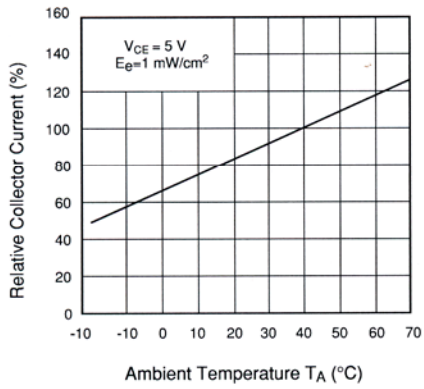


Fig. 4 Collector Current vs. Irradiance

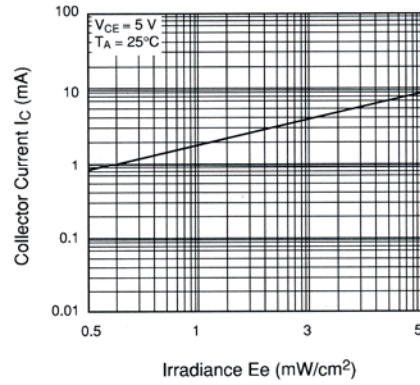


Fig. 5 Collector Current vs. Collector Emitter Voltage

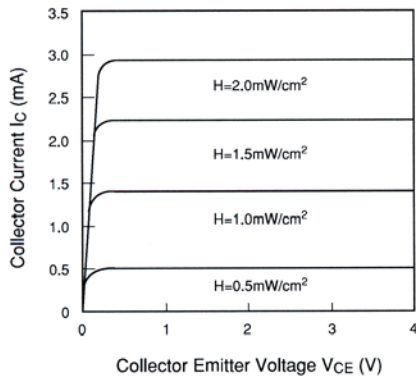
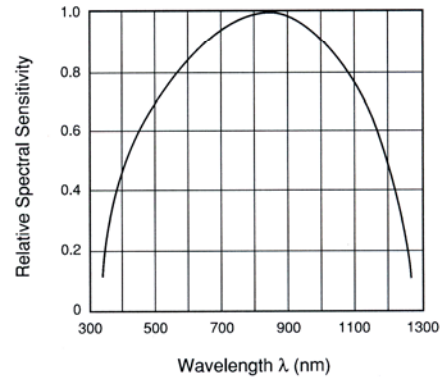
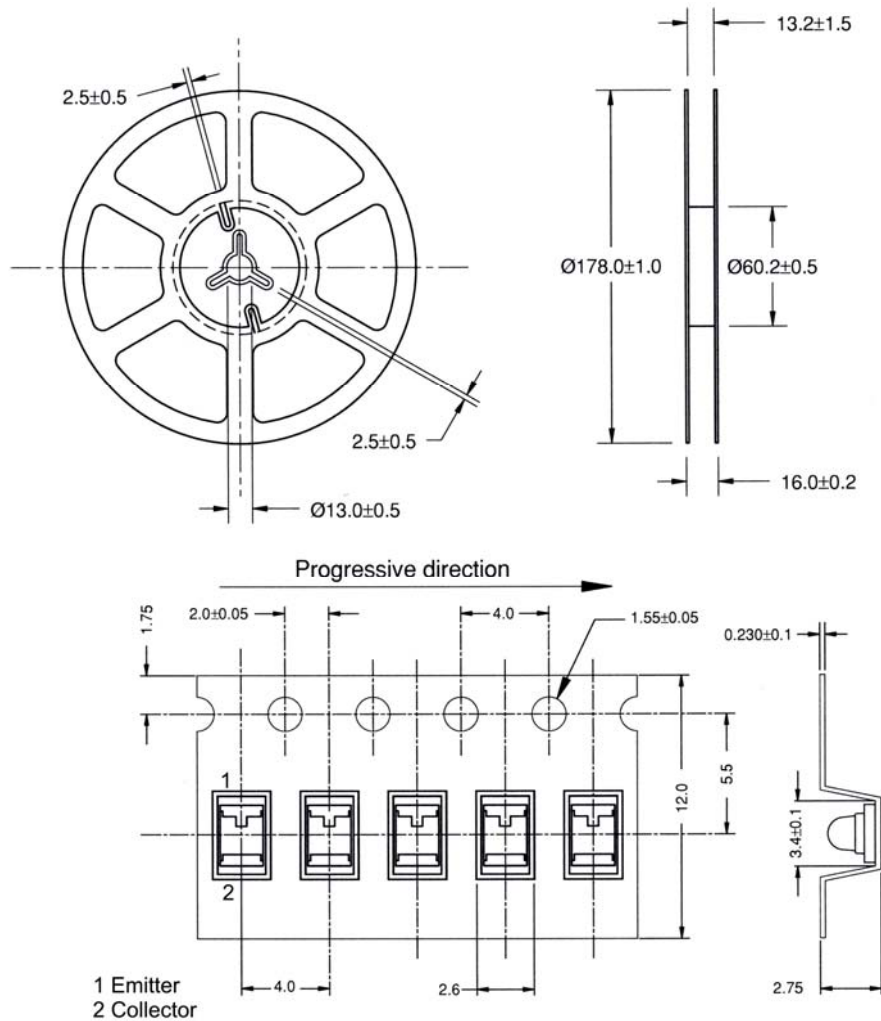


Fig. 6 Spectral Sensitivity



Tape and Reel Dimensions



Dimensional tolerance is ± 0.1 mm unless otherwise specified
 Angle: ± 0.5
 Unit: mm

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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.