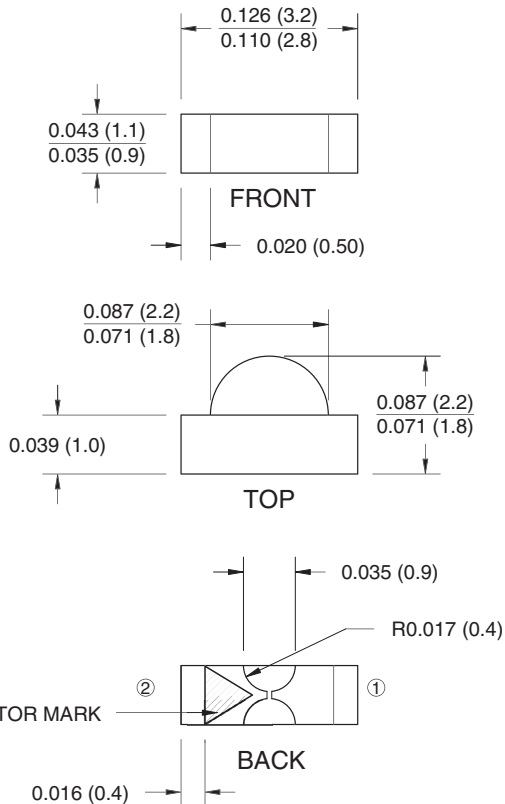
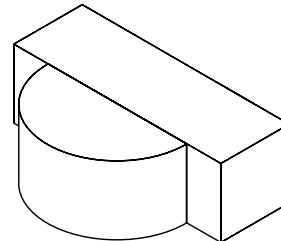


### PACKAGE DIMENSIONS

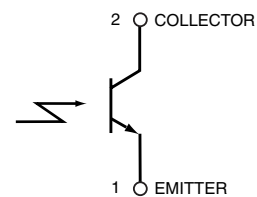


**NOTE:**

1. Emitter
2. Collector
3. Tolerance of  $\pm .010$  (.25) on all non nominal dimensions unless otherwise specified.
4. Dimensions for all drawings are in inches (mm).



### SCHEMATIC



### DESCRIPTION

QTLP610CPD is a phototransistor in miniature SMD package molded in a water clear plastic with right angle lens.

### FEATURES

- NPN Silicon Phototransistor
- Right Angle Surface Mount Package
- Matched Emitters: QTLP610CIR
- Available in 0.315" (8mm) width tape on 7" (178mm) diameter reel; 2,000 units per reel
- High Photo Sensitivity
- Low Junction Capacitance
- Fast Response Time
- Water Clear Lens

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

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

Notes:

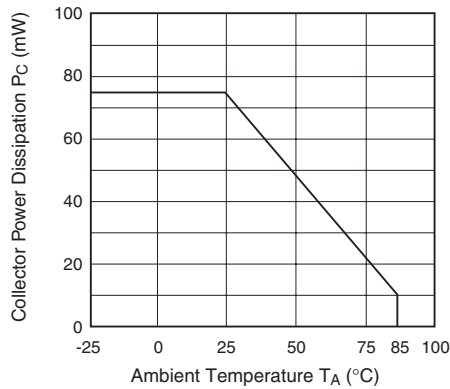
1. At  $25^\circ\text{C}$  or below.
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Pulse conditions:  $t_p = 100\mu\text{s}$ ,  $T = 10\text{ ms}$ .

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

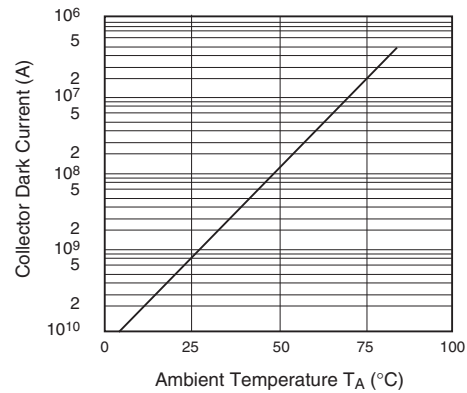
PARAMETER	TEST CONDITIONS ( $\lambda_p = 940\text{nm}$ )	SYMBOL	MIN.	TYP.	MAX.	UNITS
Peak Sensitivity Wavelength		$\lambda_{PS}$	—	860	—	nm
Reception Angle		$\theta$	—	$\pm 80$	—	Deg.
Dark Current	$V_{CE} = 20\text{ V}$ , $E_e = 0$	$I_D$	—	—	100	nA
Collector-Emitter Breakdown	$I_C = 100\mu\text{A}$ , $E_e = 0$	$BV_{CEO}$	30	—	—	V
Emitter-Collector Breakdown	$I_E = 100\mu\text{A}$ , $E_e = 0$	$BV_{ECO}$	5	—	—	V
On-State Collector Current	$E_e = 1\text{ mW/cm}^2$ $V_{CE} = 5\text{ V}$	$I_{C(ON)}$	0.1	0.5	—	mA
Saturation Voltage	$E_e = 1\text{ mW/cm}^2$ $I_C = 2\text{ mA}$	$V_{CE(SAT)}$	—	—	0.4	V
Rise Time	$V_{CE} = 5\text{ V}$ , $R_L = 1000\Omega$	$t_r$	—	15	—	$\mu\text{s}$
Fall Time	$I_C = 1\text{ mA}$	$t_f$	—	15	—	$\mu\text{s}$

### TYPICAL PERFORMANCE CURVES

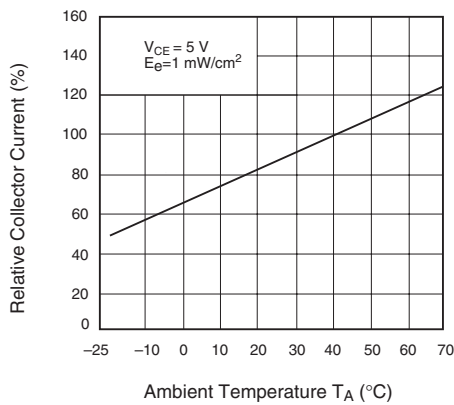
**Fig. 1 Collector Power Dissipation vs. Ambient Temperature**



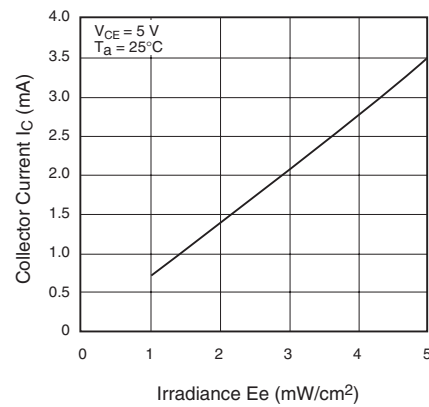
**Fig. 2 Collector Dark Current vs. Ambient Temperature**



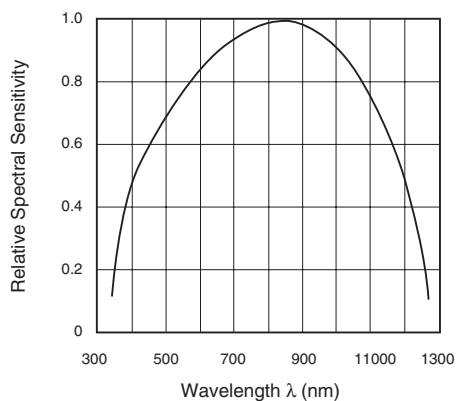
**Fig. 3 Relative Collector Current vs. Ambient Temperature**



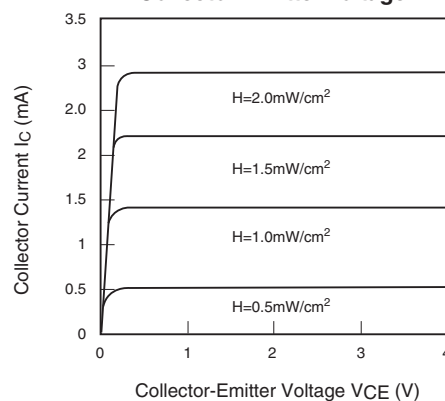
**Fig. 4 Collector Current vs. Irradiance**



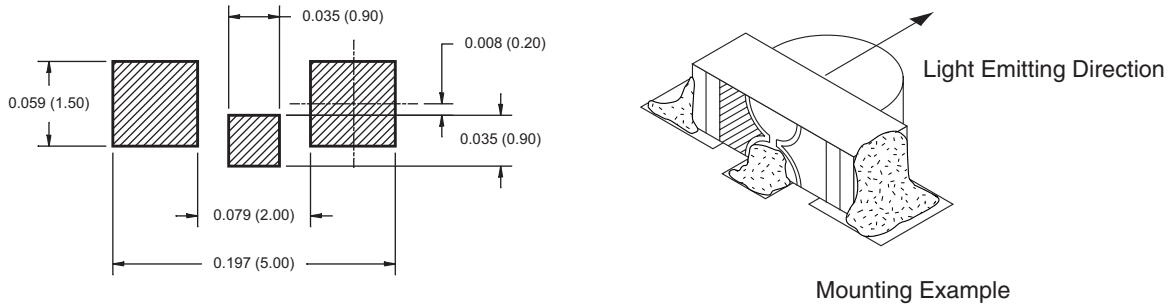
**Fig. 5 Spectral Sensitivity**



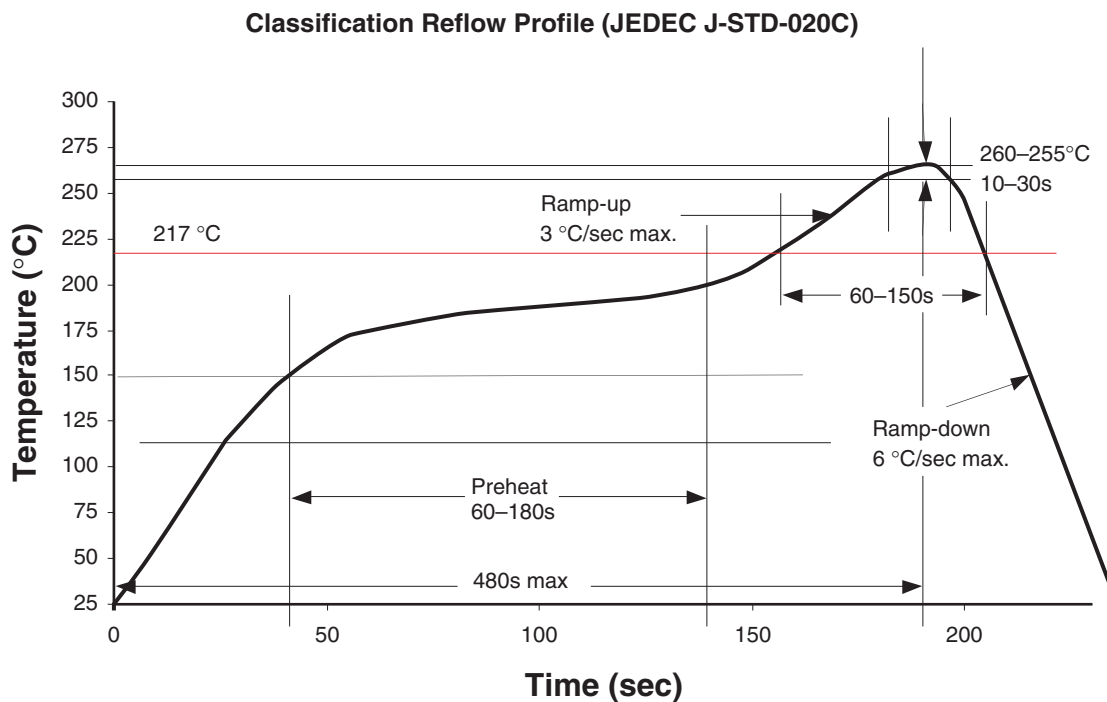
**Fig. 6 Collector Current vs. Collector-Emitter Voltage**



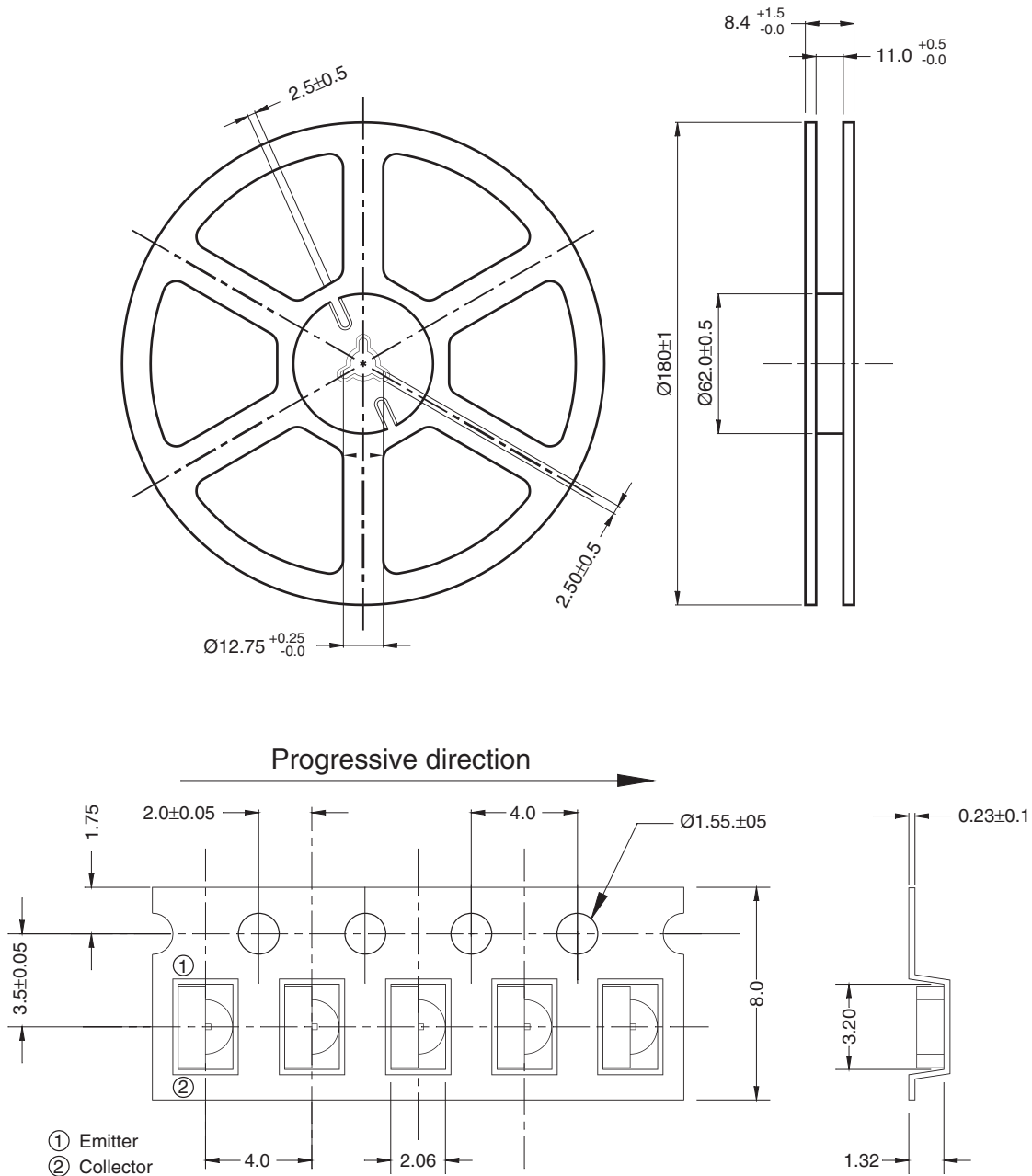
### RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



### RECOMMENDED IR REFLOW SOLDERING PROFILE



**TAPE AND REEL DIMENSIONS**



Dimensional tolerance is  $\pm 0.1\text{mm}$  unless otherwise specified

Angle:  $\pm 0.5$

Unit: mm

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