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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

QTLP610CPD

Right Angle Surface Mount Infrared Phototransistor

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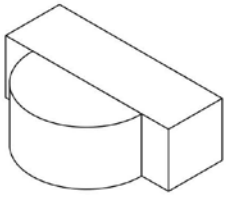
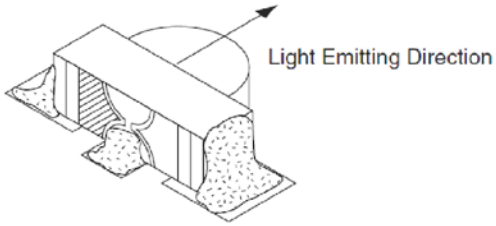
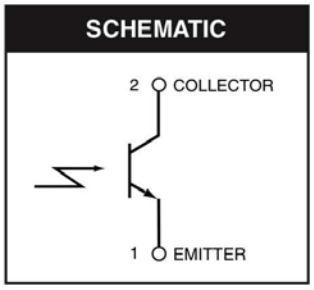
QTLP61 OCPD is a phototransistor in miniature SMD package molded in a water clear plastic with right angle lens.

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°C unless otherwise specified)

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

Notes:
1. At 25°C or below.
2. RMA flux is recommended.
3. Methanol or isopropyl alcohols are recommended as cleaning agents.
4. Pulse conditions: tp = 100μs, T = 10 ms.

ELECTRICAL / OPTICAL CHARACTERISTICS (T_A =25°C)						
PARAMETER	**TEST CONDITIONS (λ_P = 940nm)**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNITS**
Peak Sensitivity Wavelength		λPS	—	860	—	nm
Reception Angle		Θ	—	±80	—	Deg.
Dark Current	V_{CE} = 20 V, Ee = 0	I_D	—	—	100	nA
Collector-Emitter Breakdown	I_C = 100μA, Ee = 0	BV_{CEO}	30	—	—	V
Emitter-Collector Breakdown	I_E = 100μA, Ee = 0	BV_{ECO}	5	—	—	V
On-State Collector Current	Ee = 1 mW/cm^2 V_{CE} = 5V	$I_{C(ON)}$	0.1	0.5	—	mA
Saturation Voltage	Ee = 1 mW/cm^2 I_C = 2mA	$V_{CE(SAT)}$	—	—	0.4	V
Rise Time	V_{CE} = 5V, RL = 1000Ω	t_r	—	15	—	μs
Fall Time	I_C = 1mA	t_f	—	15	—	μs

TYPICAL PERFORMANCE CURVES

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

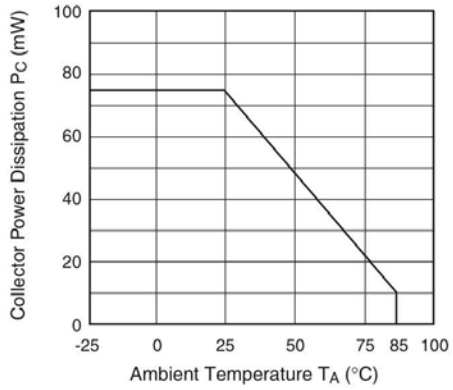


Fig. 2 Collector Dark Current vs. Ambient Temperature

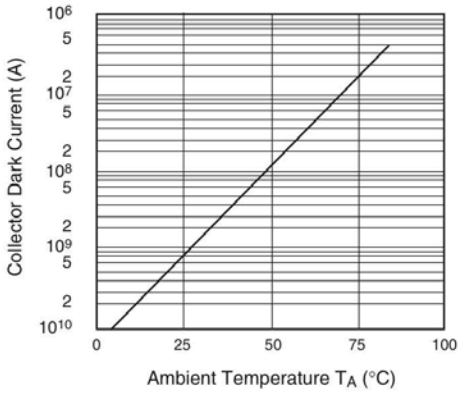


Fig. 3 Relative Collector Current vs. Ambient Temperature

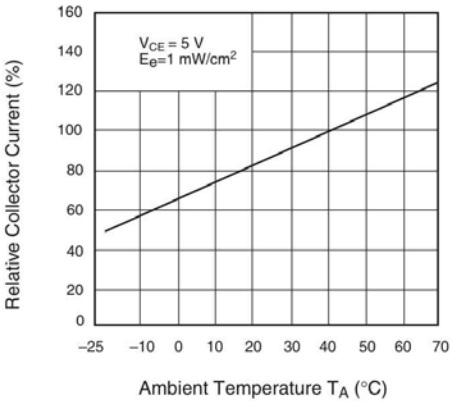


Fig. 4 Collector Current vs. Irradiance

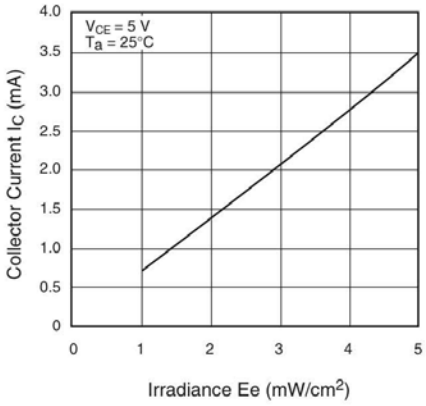


Fig. 5 Spectral Sensitivity

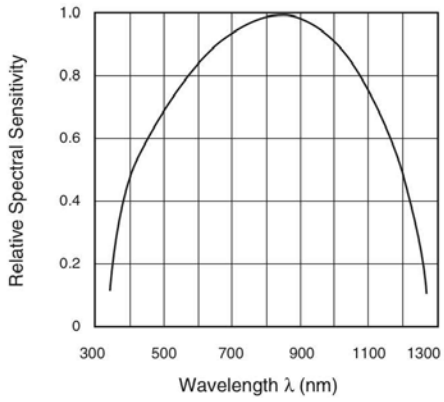
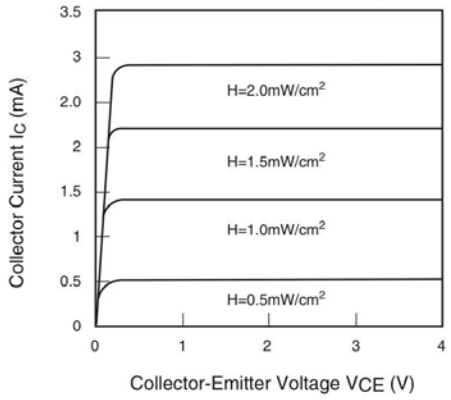
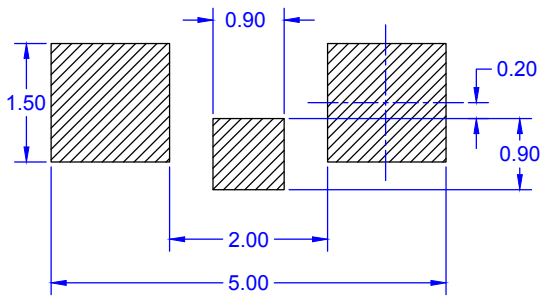
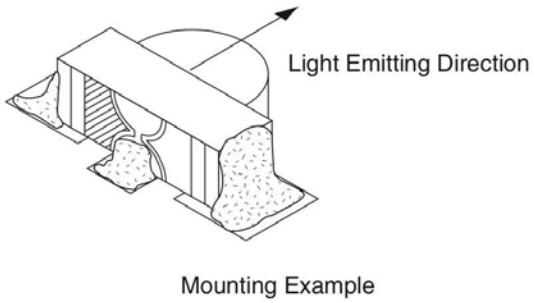


Fig. 6 Collector Current vs. Collector-Emitter Voltage



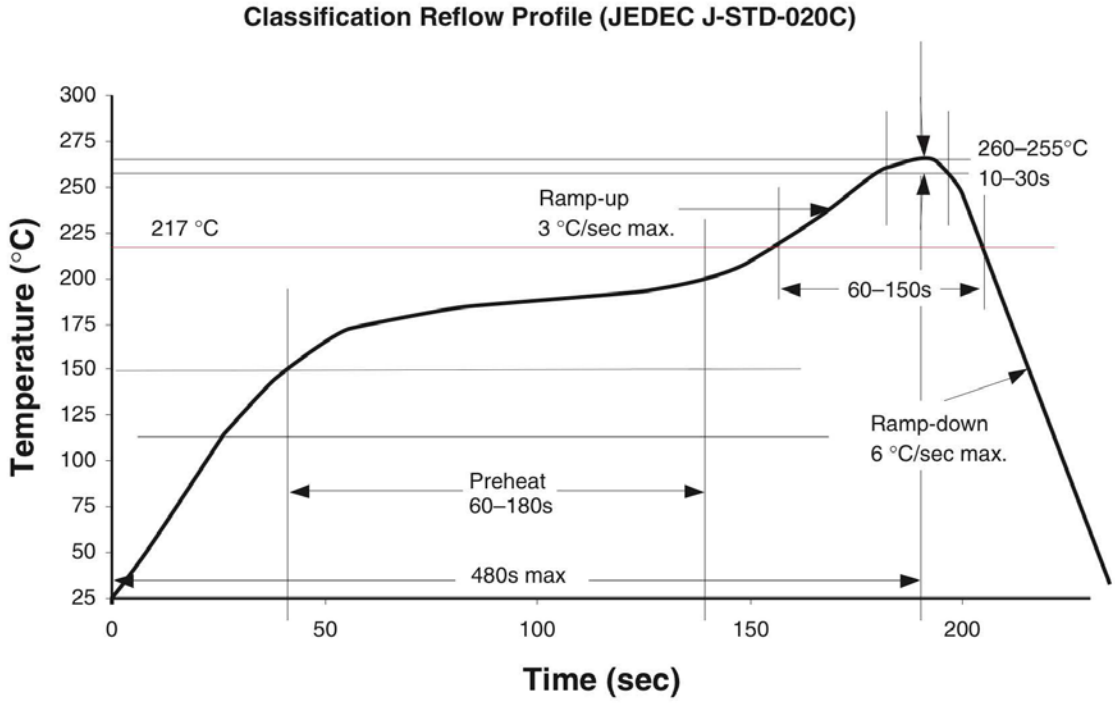
RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



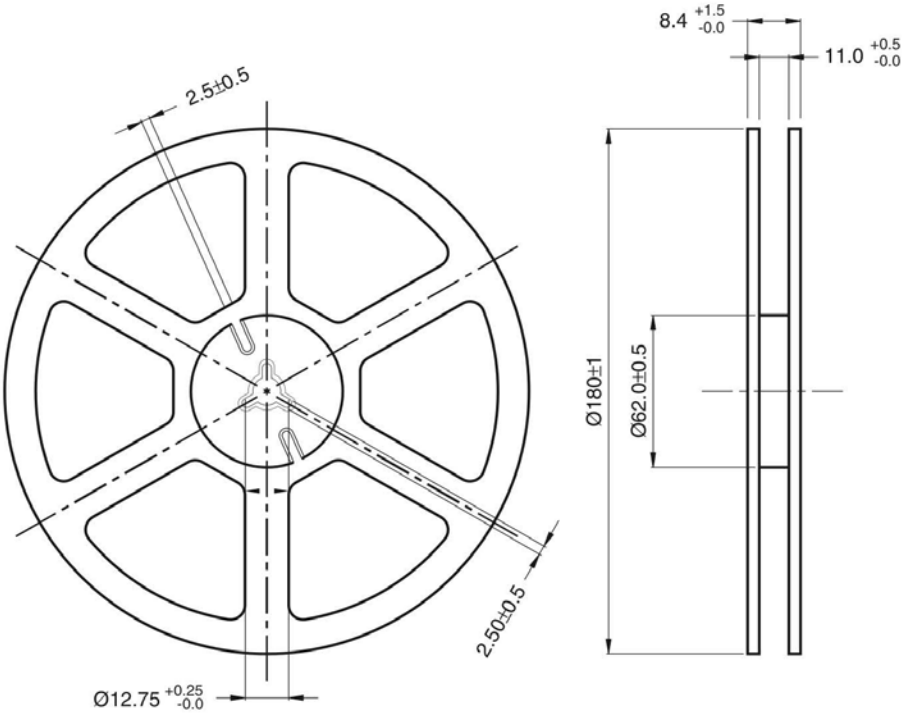


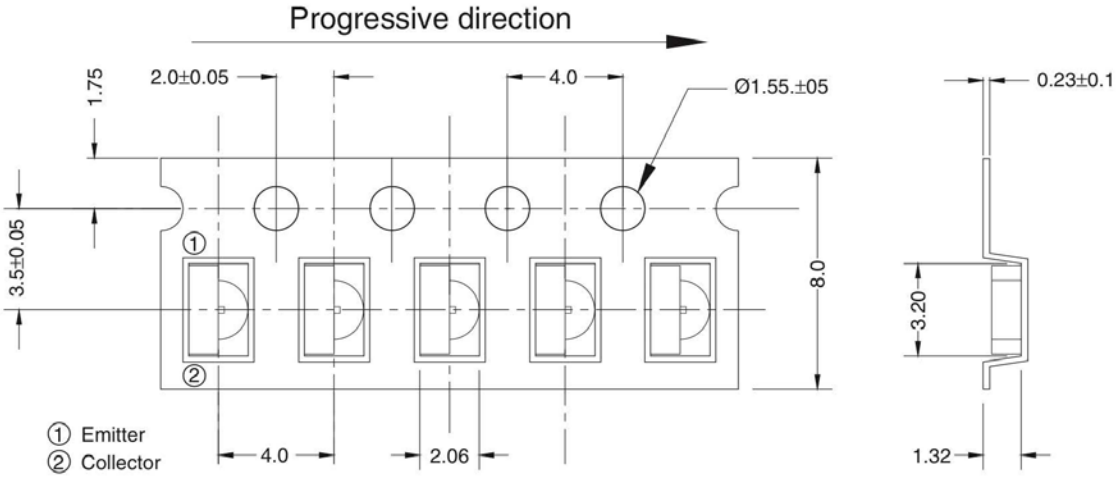
Mounting Example

RECOMMENDED IR REFLOW SOLDERING PROFILE



TAPE AND REEL DIMENSIONS



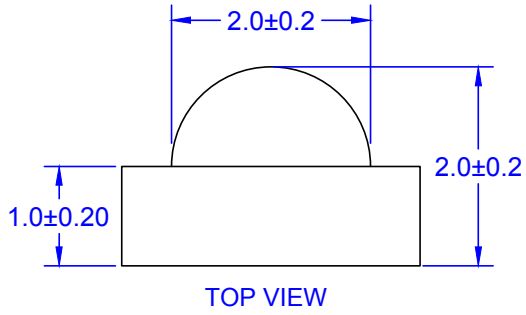


Dimensional tolerance is ± 0.1mm unless otherwise specified

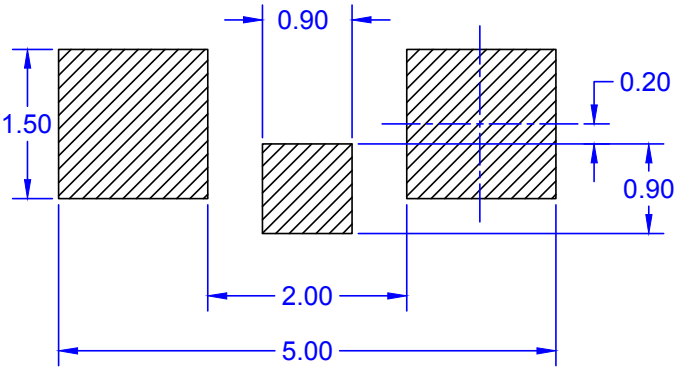
Angle: ± 0.5

Unit: mm

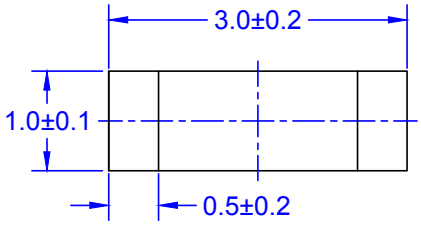
PACKAGE DIMENSIONS



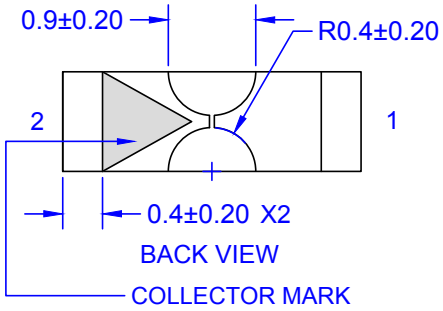
TOP VIEW



LAND PATTERN RECOMMENDATION

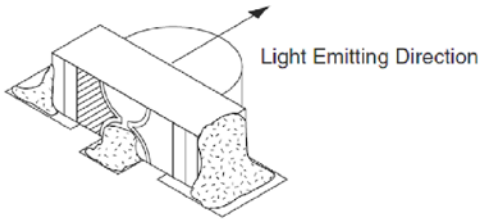


FRONT VIEW



BACK VIEW

COLLECTOR MARK



Mounting Example

NOTES:

A. NO INDUSTRY STANDARD APPLIES TO THIS PACKAGE
B. ALL DIMENSIONS ARE IN MILLIMETERS
C. COLLECTOR: PIN 2 EMITTER: PIN1
D. DRAWING FILENAME: MKT-DCE212ArevO

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