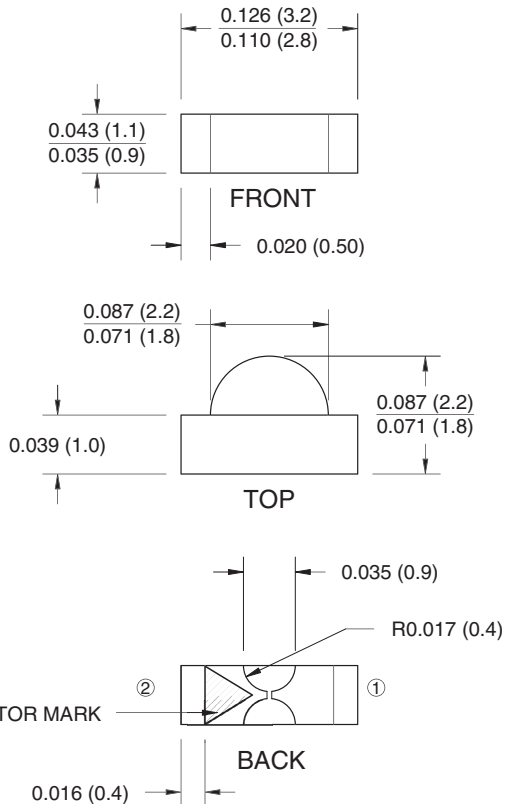
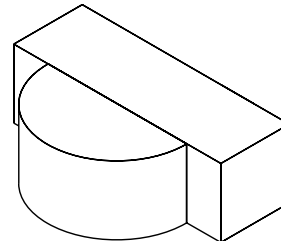


PACKAGE DIMENSIONS

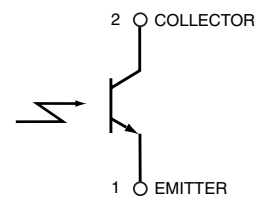


NOTE:

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) ^(2,3,4) | T_{SOL-I} | 240 for 5 sec | $^\circ\text{C}$ |
| Soldering Temperature (Flow) ^(2,3) | 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 ⁽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: $t_p = 100\mu\text{s}$, $T = 10\text{ ms}$.

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 | | λ_{PS} | — | 860 | — | nm |
| Reception Angle | | θ | — | ± 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 | — | μs |
| Fall Time | $I_C = 1\text{ mA}$ | t_f | — | 15 | — | μs |

TYPICAL PERFORMANCE CURVES

Fig. 1 Collector Power Dissipation vs. Ambient Temperature

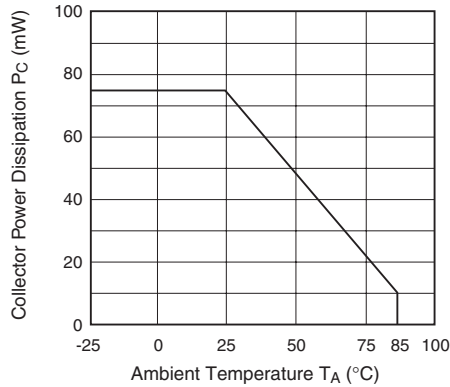


Fig. 2 Collector Dark Current vs. Ambient Temperature

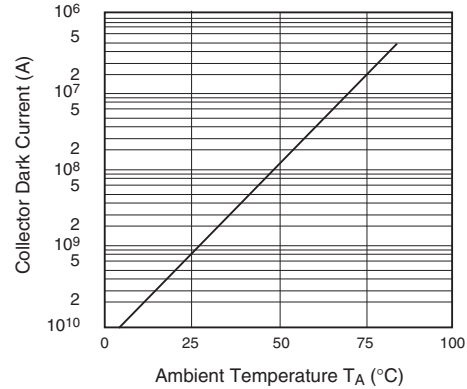


Fig. 3 Relative Collector Current vs. Ambient Temperature

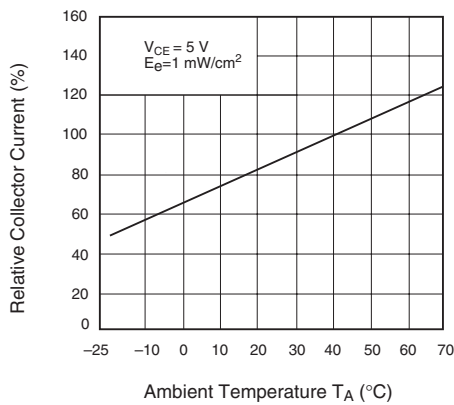


Fig. 4 Collector Current vs. Irradiance

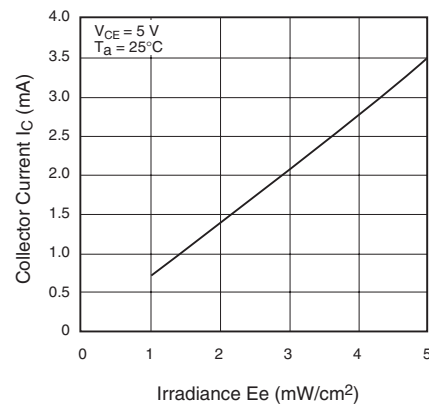


Fig. 5 Spectral Sensitivity

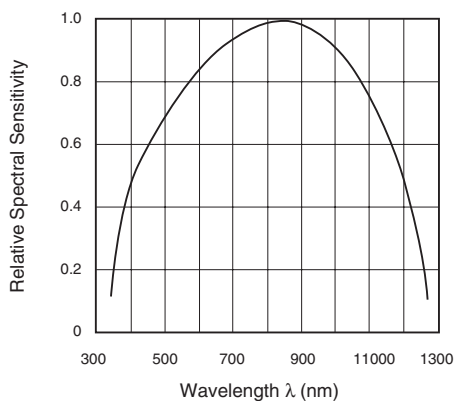
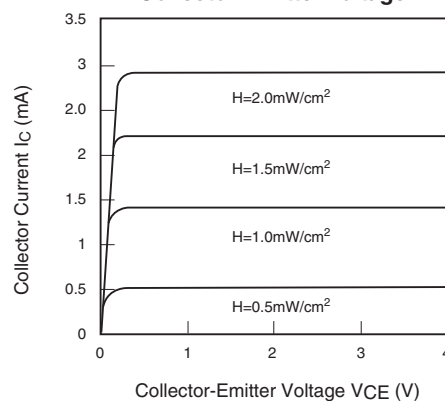
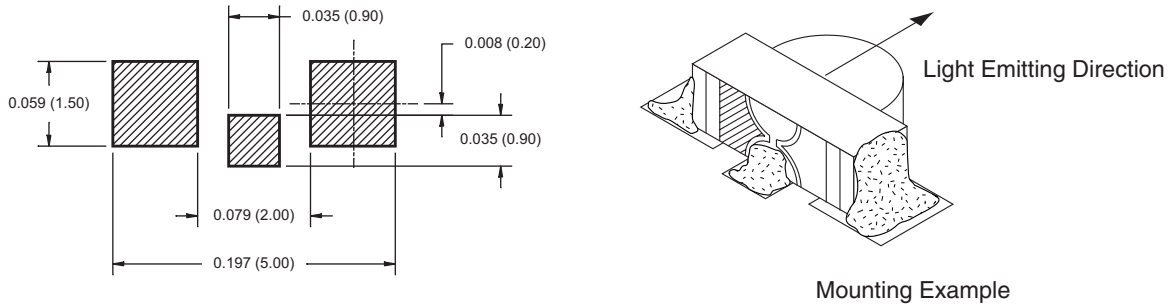


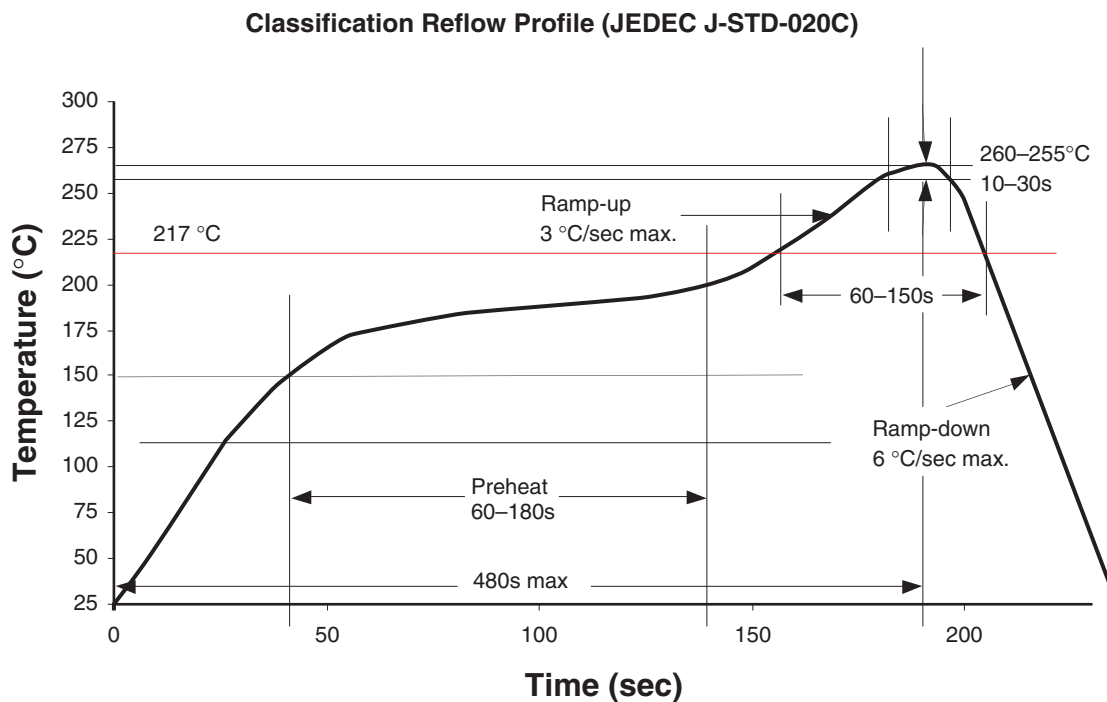
Fig. 6 Collector Current vs. Collector-Emitter Voltage



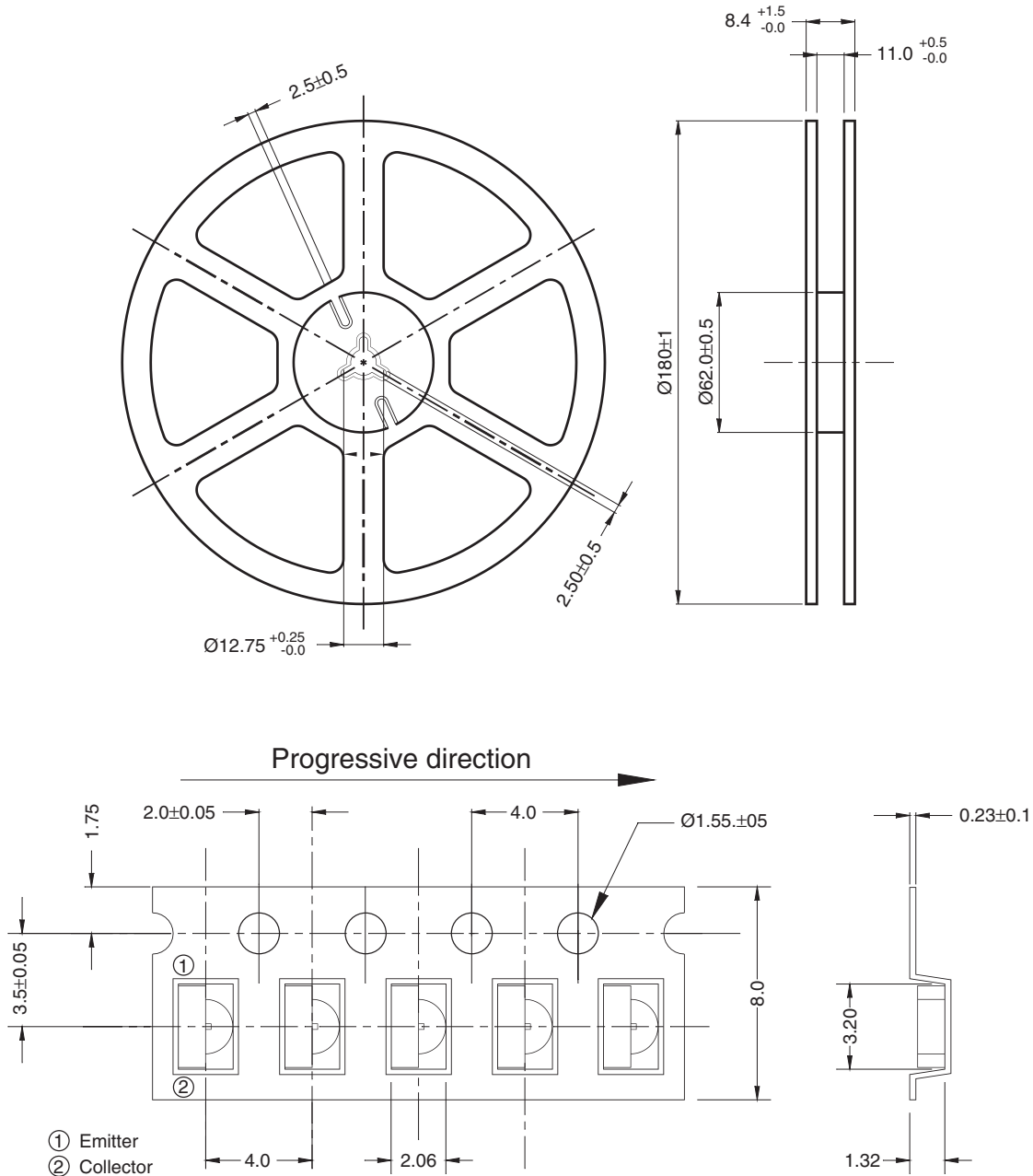
RECOMMENDED PRINTED CIRCUIT BOARD PATTERN



RECOMMENDED IR REFLOW SOLDERING PROFILE



TAPE AND REEL DIMENSIONS



Dimensional tolerance is $\pm 0.1\text{mm}$ 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.