

Technical Data Sheet

0603 Package Top Phototransistor

PT19-315B/TR8

Features

- Fast response time
- High photo sensitivity
- Small junction capacitance
- Package in 8mm tape on 7" diameter reels.
- Pb free
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br <900 ppm ,Cl <900 ppm , Br+Cl < 1500 ppm).

Description

• PT19-315B/TR8 is a high speed and high sensitive PIN photodiode in miniature flat top view lens SMD package and it is molded in a black epoxy. The device is Spectrally matched to infrared emitting diode.

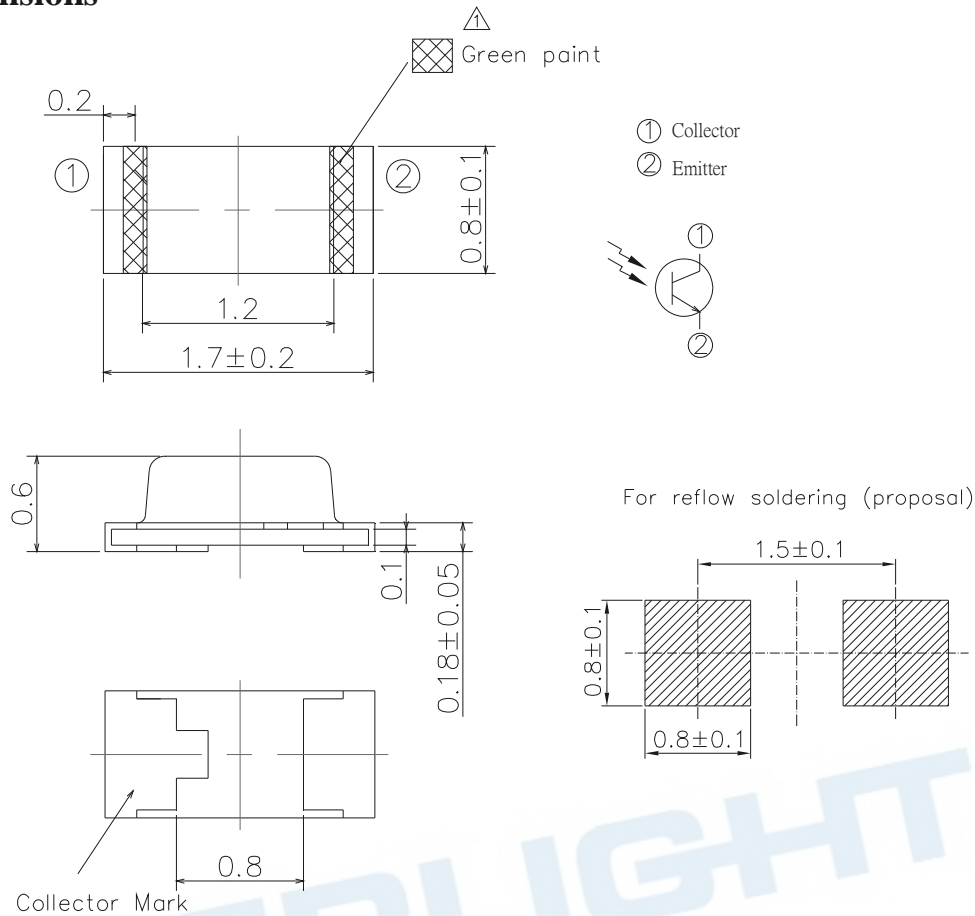
Applications

- Miniature switch
- Counters and sorter
- Position sensor
- Infrared applied system

Device Selection Guide

Device No.	Chip Material	Lens Color
PT19-315B/TR8	Silicon	Black

Package Dimensions



- Notes:** 1.All dimensions are in millimeters
2.Tolerances unless dimensions $\pm 0.1\text{mm}$

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

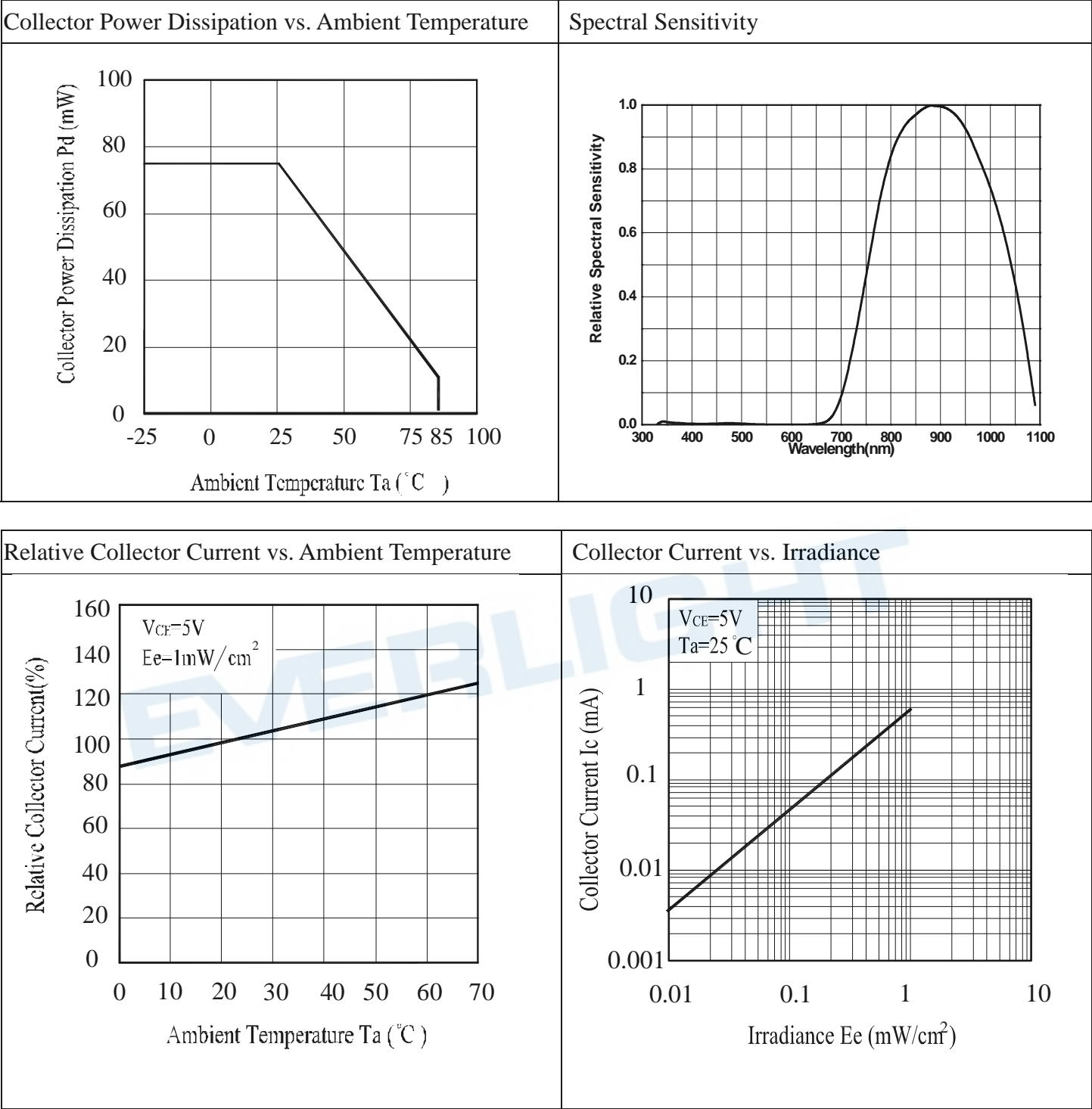
Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	30	V
Emitter-Collector-Voltage	V_{ECO}	5	V
Collector Current	I_C	20	mA
Operating Temperature	T_{opr}	$-25 \sim +85$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-40 \sim +100$	$^\circ\text{C}$
Soldering Temperature *1	T_{sol}	260	$^\circ\text{C}$
Power Dissipation at(or below) 25 $^\circ\text{C}$ Free Air Temperature	P_C	75	mW

Notes: *1:Soldering time ≤ 5 seconds

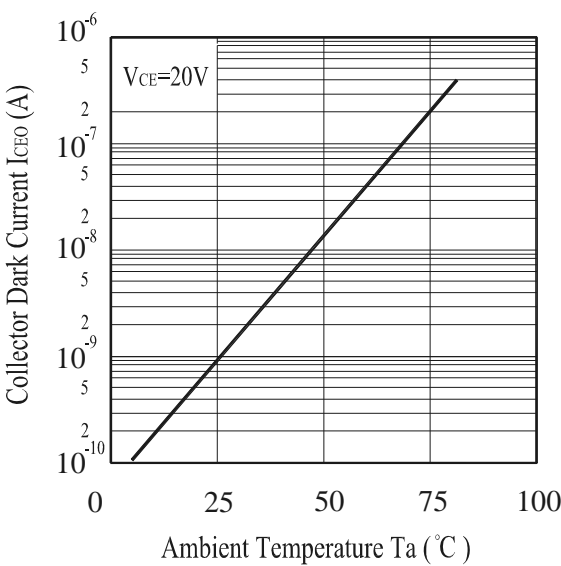
Electro-Optical Characteristics (Ta=25°C unless specified otherwise)

Parameter	Symbol	Min.	Typ.*	Max.	Unit	Condition
Rang Of Spectral Bandwidth	$\lambda_{0.5}$	760	--	1100	nm	--
Wavelength Of Peak Sensitivity	λ_P	-	940	--	nm	--
Collector-Emitter Breakdown Voltage	BV_{CEO}	30	-	--	V	$I_C=100\mu A$ $E_e=0mW/cm^2$
Emitter-Collector Breakdown Voltage	BV_{ECO}	5	--	--	V	$I_C=100\mu A$ $E_e=0mW/cm^2$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	--	--	0.4	V	$I_C=1mA$ $E_e=1mW/cm^2$
Collector Dark Current	I_{CEO}	--	--	100	nA	$V_{CE}=10V$ $E_e=0mW/cm^2$
On State Collector Current	$I_{C(ON)}$	0.10	0.60	5.07	mA	$V_{CE}=5V$ $E_e=1mW/cm^2$ $\lambda_P=940nm$
Rise time	t_r	--	15	--	μs	$V_{CE}=5V$
Fall time	t_f	--	15	--		$I_C=1mA$ $R_L=1000\Omega$

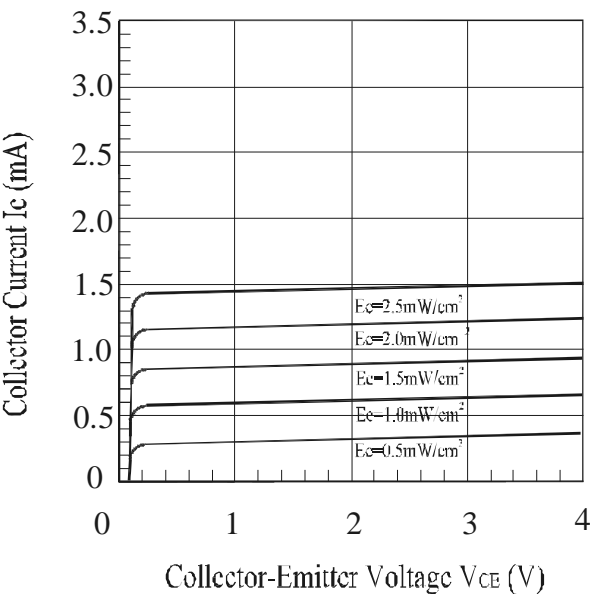
Typical Electrical/Optical/Characteristics Curves



Collector Dark Current vs. Ambient Temperature



Response Time vs. Load Resistance



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Precautions For Use

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

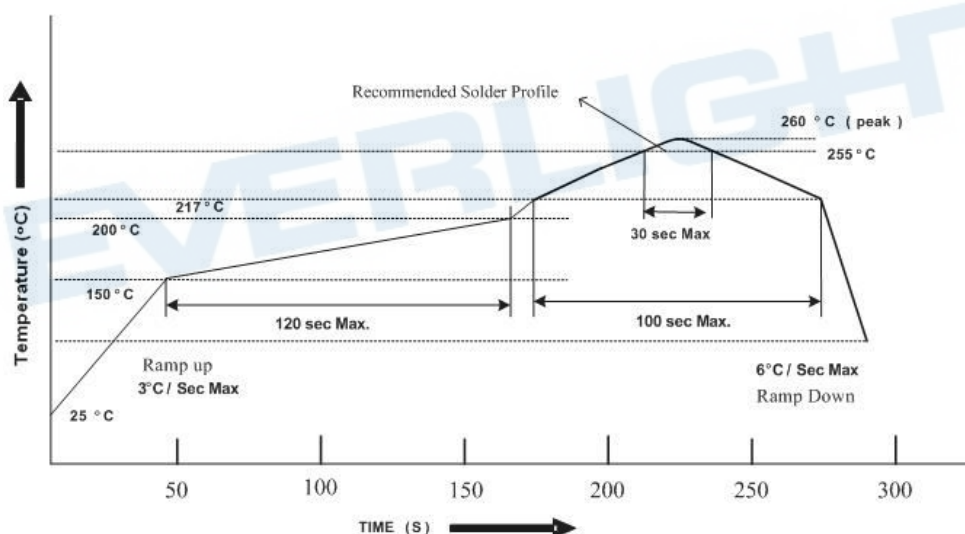
2.2 Shelf life in sealed bag from the bag seal date: 12 months at $< 40^{\circ}\text{C}$ and $< 90\%$ RH.

2.3 After opening the package, the Phototransistor must be kept at $\leq 30^{\circ}\text{C}$ and $\leq 60\%$ RH, and used within a year.

2.4 If the moisture absorbent material (silica gel) has faded away or the Phototransistor have exceeded the storage time. Baking treatment is required, refer to IPC/JEDEC J-STD-033 for bake procedure or recommend the conditions : $60\pm 5^{\circ}\text{C}$ for Min.24hrs.

3. Soldering Condition

3.1 Pb-free solder temperature profile



3.2 Reflow soldering should not be done more than two times.

3.3 When soldering, do not put stress on the Phototransistor during heating.

3.4 After soldering, do not warp the circuit board.

Technical drawing of a circular mechanical part, likely a flange or end plate, showing a top view and a side view.

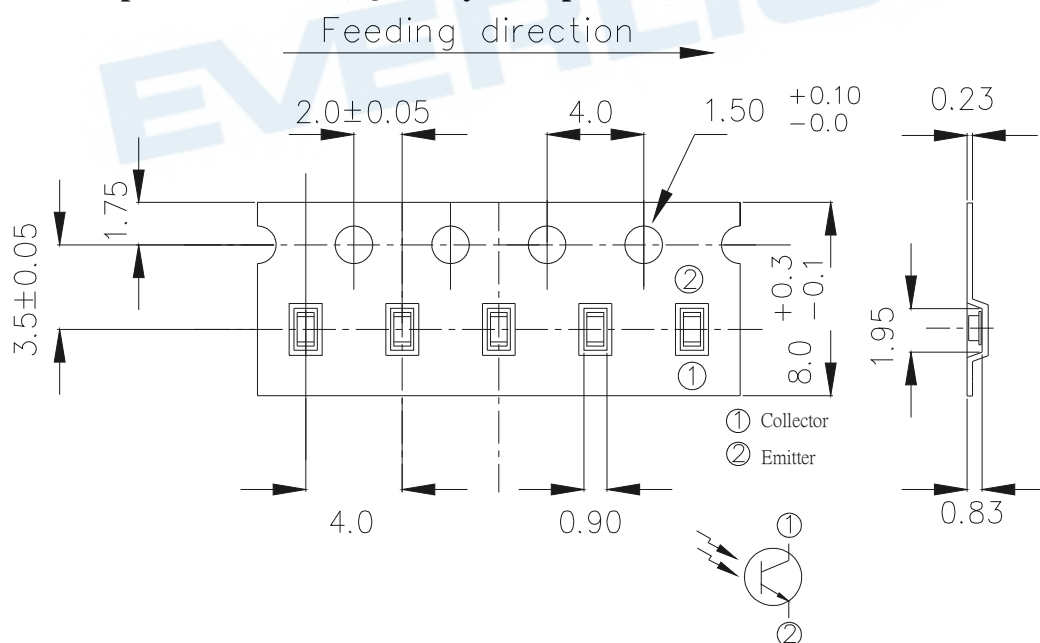
Top View Dimensions:

- Overall diameter: $\phi 178.0 \pm 1.0$
- Inner circular feature diameter: $\phi 60.0 \pm 0.5$
- Distance from center to the inner feature: 2.2 ± 0.5
- Distance from center to the outer edge of the inner feature: $\phi 13.0 \pm 0.5$

Side View Dimensions:

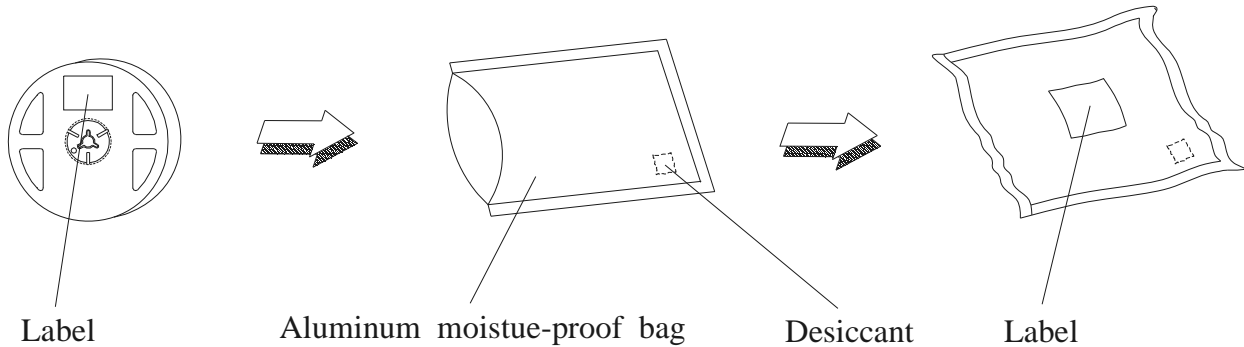
- Overall thickness: 9.0 ± 0.5
- Thickness of the main body: 12.0 ± 0.15

Carrier Tape Dimensions : (Quantity: 4000pcs/reel)



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Packing Procedure



Label Form Specification



CPN: Customer's Production Number
P/N : Production Number
QTY: Packing Quantity
CAT: Ranks
HUE: Peak Wavelength
REF: Reference
LOT No: Lot Number
MADE IN TAIWAN: Production Place

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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