NPN Silicon Phototransistors

OP515A, OP515B, OP515C, OP515D, OP516A, OP516B, OP516C, OP516D

Features:

- Variety of sensitivity ranges
- Coaxial leaded package style
- Small package size for space limited applications

Description:

Each device in the OP515 and OP516 series consists of NPN silicon phototransistors in a small hermetic package with an extended Collector lead. The narrow receiving angle provides excellent on-axis coupling. This device is 100% production tested using infrared light for close correlation with Optek's GaAs and GaAlAs emitters.

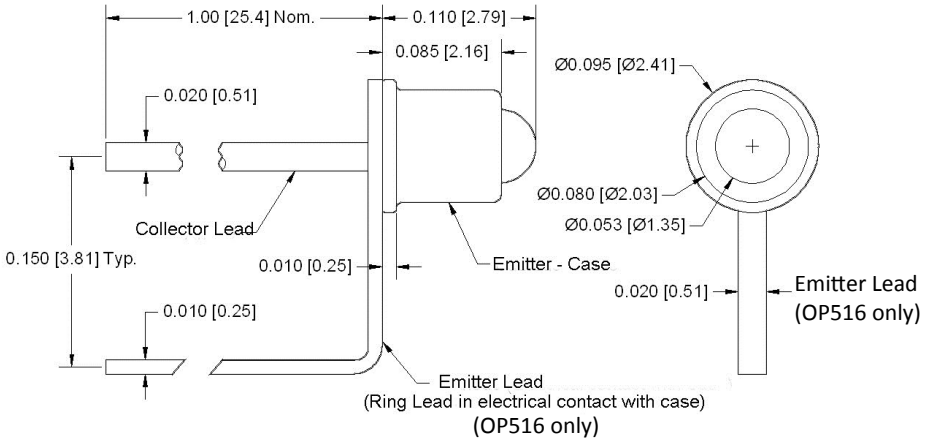
Absolute Maximum Ratings (T_A = 25˚C unless otherwise noted)

Continuous Collector Current	50 mA
Collector-Emitter Voltage	30V
Emitter-Collector Voltage (OP505 and OP506 series only)	5.0 V
Storage & Operating Temperature Range	-55˚C to +125˚C
Lead Soldering Temperature (1/16 inch (1.6 mm) from case for 5 sec. with soldering iron)	260˚C(1)
Power Dissipation	100 mW(2)

Notes:

(1) RMA flux is recommended. Duration can be extended to 10 seconds max. when flow soldering. Maximum 20 grams force may be applied to the leads when soldering.

(2) Derate linearly 0.71 mW/˚C above 25˚C.



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NPN Silicon Phototransistors

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Symbol	Parameter	Min	Typ	Max	Units	Test Conditions
$I_{C(ON)}$	On-State Collector Current OP515D/OP516D OP515C/OP516C OP515B/OP516B OP515A/OP516A	0.40 1.00 3.00 6.00			mA	V_{CE} = 5 V, E_e = 5.0 mW/cm$^{2(3)}$
I_{CEO}	Collector-Dark Current			100	nA	V_{CE} = 10 V, E_e = 0$^{(4)}$
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	30			V	I_C = 100 µA
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5			V	I_E = 100 µA
$V_{CE(SAT)}$	Collector-Emitter Saturation Voltage OP515/OP516			0.40	V	I_C = 400 µA, E_e = 5.0 mW/cm$^{2(3)}$
$\Delta I_C/\Delta T$	Relative I_c Changes with Temperature OP505A-D and OP506A-D series		1.00		%/˚C	V_{CE} = 5 V, E_e = 1.0 mW/cm^2
I_{ECO}	Emitter-Reverse Current			100	µA	V_{EC} = 0.4V

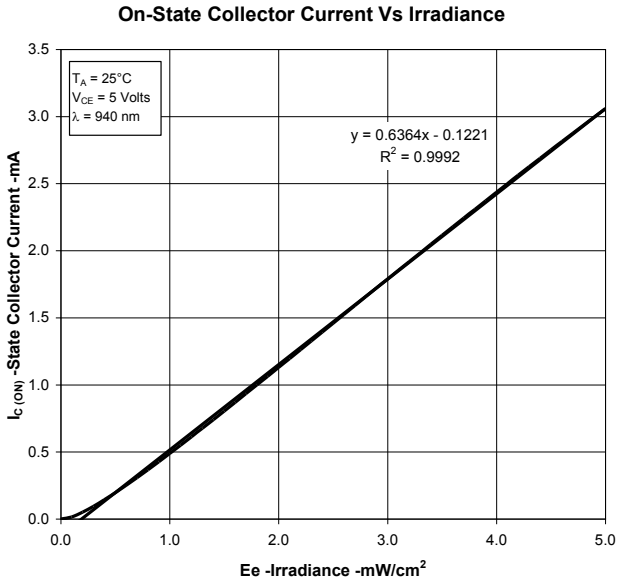
Notes:

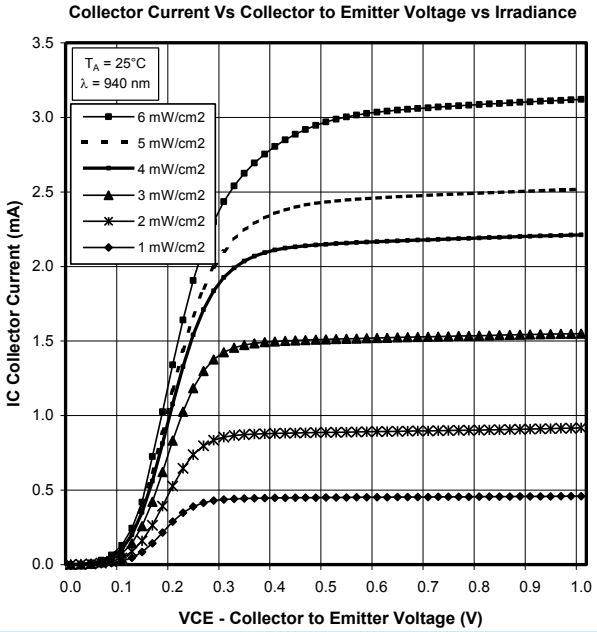
(1) $E_{e(APT)}$ is a measurement of the average apertured radiant energy incident upon a sensing area 0.250" (6.35mm) in diameter and perpendicular to and centered to the mechanical axis of the emitting surface at a distance of 0.466" (11.84mm). $E_{e(APT)}$ is not necessarily uniform within the measured area.

(2) Derating linearly 0.71 mW/˚C above 25˚C

(3) Light source is an unfiltered GaAs LED with a peak emission wavelength of 935 nm and a radiometric intensity level which varies less than 10% over the entire lens surface of the phototransistor being tested.

(4) To calculate typical collector dark current in nA, use the formula $I_{CED} = 10^{(0.040T_A - 3.4)}$ where T_A is ambient temperature in ˚C.





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