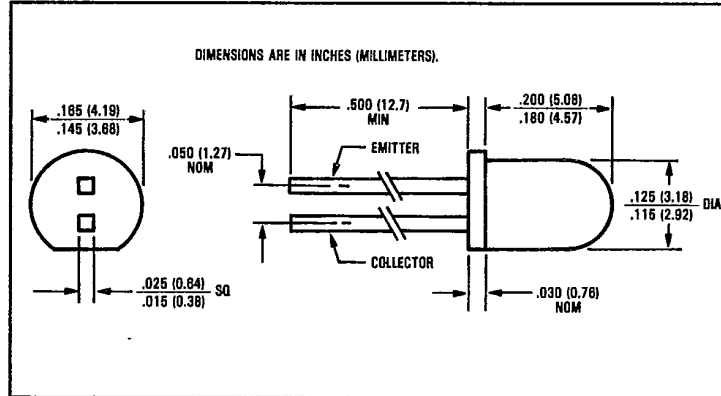
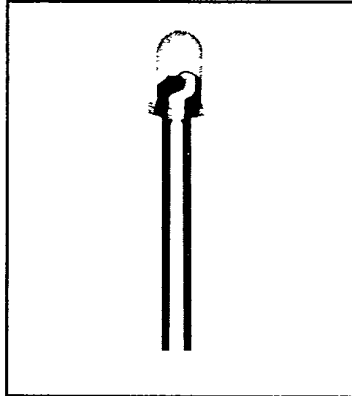


# NPN Silicon Photodarlington Type OP530



**Features**

- Lensed for high sensitivity
- High current gain
- Low cost plastic package

**Description**

The OP530 consists of an NPN silicon photodarlington mounted in a lensed, clear plastic end looking package. The lensing effect allows an acceptance half angle of 8° measured from the optical axis to the half power point. Photodarlington devices are normally used in applications where light signal levels are low and more current gain is needed than is possible with phototransistors. The OP530 is mechanically and spectrally matched to the OP160SL and OP260SL series of infrared emitting diodes.

**Absolute Maximum Ratings** (T<sub>A</sub> = 25°C unless otherwise noted)

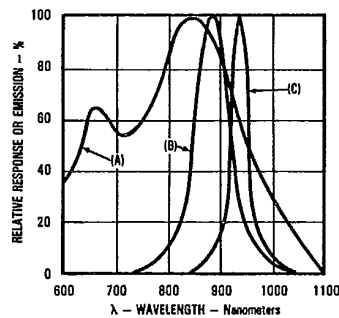
Collector-Emitter Voltage .....	15.0 V
Emitter-Collector Voltage .....	5.0 V
Storage and Operating Temperature Range .....	-40°C to +100°C
Lead Soldering Temperature (1/16 inch [1.6 mm] from case for 5 sec. with soldering iron) <sup>(1)</sup> .....	240°C
Power Dissipation .....	100 mW <sup>(2)</sup>

**Notes:**

- (1) RMA flux is recommended. Duration can be extended to 10 sec. max. when wave soldering.
- (2) Derate linearly 1.33 mW/°C above 25°C.
- (3) Junction temperature maintained at 25°C.
- (4) Light source is an unfiltered tungsten bulb operating at CT = 2870°K or equivalent infrared source.

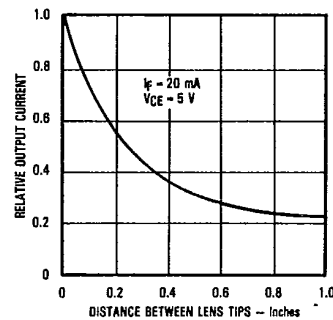
**Typical Performance Curves**

**Spectral Response of OP530 vs. GaAlAs and GaAs**



Test Conditions (LED): T<sub>A</sub> = T<sub>J</sub> = 25°C, I<sub>F</sub> = 100 mA, DC = 0.1%, PW = 100 μs  
Peak Wavelength - λ<sub>p</sub>: (A) XSTR - 850 ± 30 nm, (B) LED GaAlAs - 875 ± 20 nm, (C) LED GaAs - 930 ± 15 nm

**Coupling Characteristics of OP160SL and OP530**



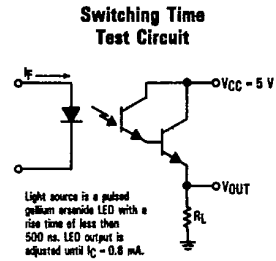
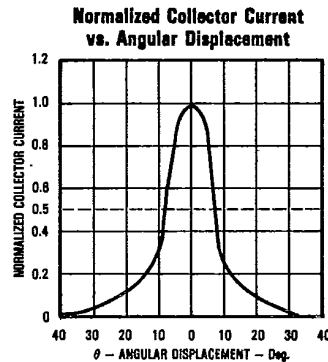
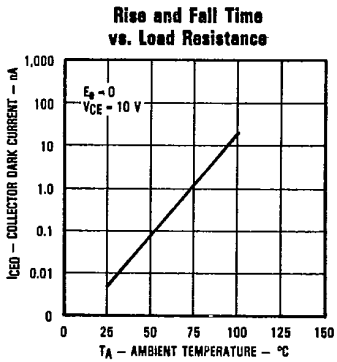
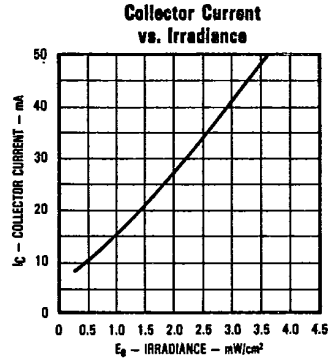
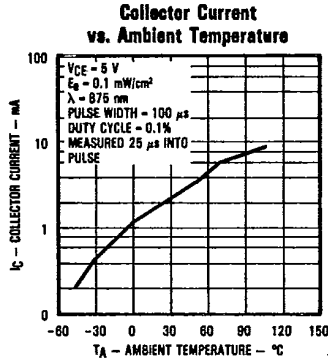
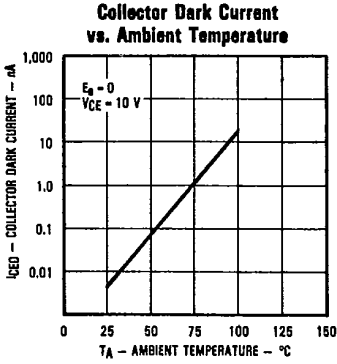
Type OP530

T-41-63

Electrical Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Min.	Max.	Units	Test Conditions
I <sub>C(ON)</sub> <sup>(3)</sup>	On-State Collector Current	5.0		mA	V <sub>CE</sub> = 5.0 V, E <sub>0</sub> = 0.50 mW/cm <sup>2(4)</sup>
I <sub>CEO</sub>	Collector Dark Current		100	nA	V <sub>CE</sub> = 10.0 V, E <sub>0</sub> = 0
V <sub>(BR)CEO</sub>	Collector-Emitter Breakdown Voltage	15.0		V	I <sub>C</sub> = 1.00 mA
V <sub>(BR)ECO</sub>	Emitter-Collector Breakdown Voltage	5.0		V	I <sub>E</sub> = 100 μA
V <sub>CE(SAT)</sub> <sup>(3)</sup>	Collector-Emitter Saturation Voltage		1.10	V	I <sub>C</sub> = 2.5 mA, E <sub>0</sub> = 0.50 mW/cm <sup>2(4)</sup>

Typical Performance Curves



TRW reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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