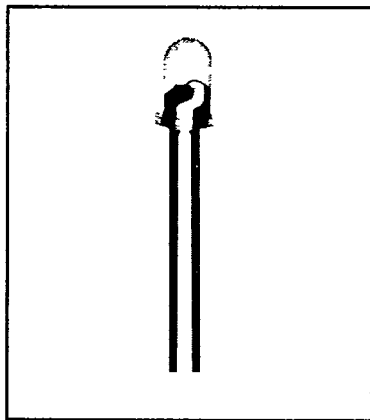


Optoelectronics Division
TRW Electronic Components Group

Product Bulletin 5116
January 1985

NPN Silicon Photodarlington Type OP530

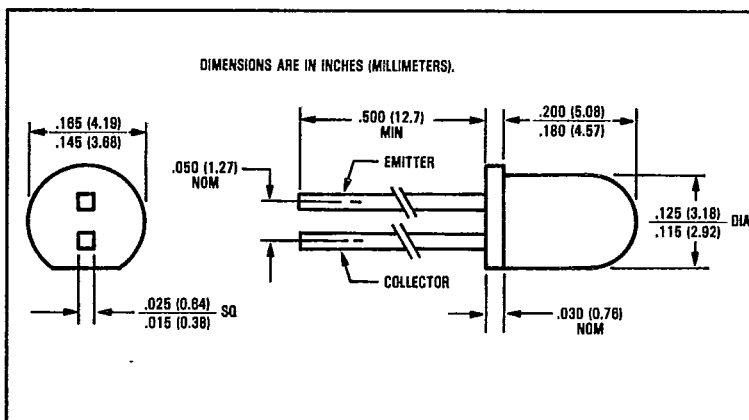


Features

- 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.



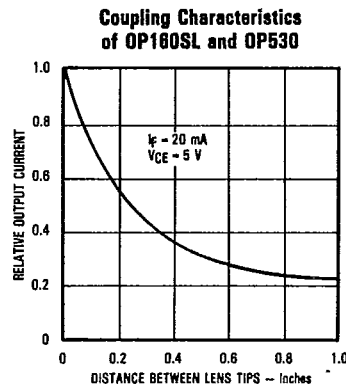
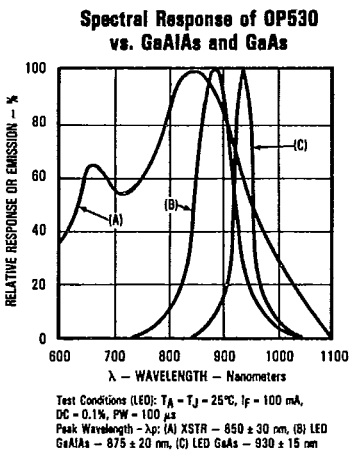
Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Collector-Emitter Voltage	16.0 V
Emitter-Collector Voltage	5.0 V
Storage and Operating Temperature Range	-40°C to $+100^\circ\text{C}$
Lead Soldering Temperature (1/16 inch [1.6 mm] from case for 5 sec. with soldering iron) ⁽¹⁾	240°C
Power Dissipation	100 mW ⁽²⁾

Notes:

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

Typical Performance Curves



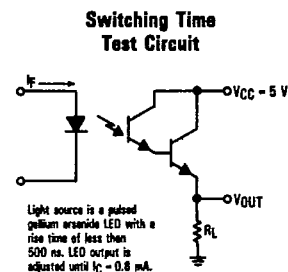
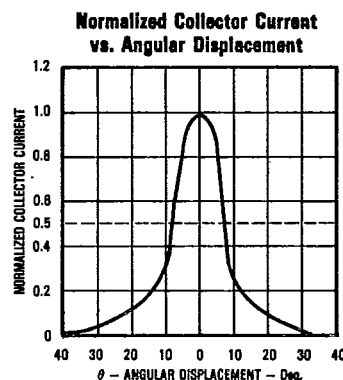
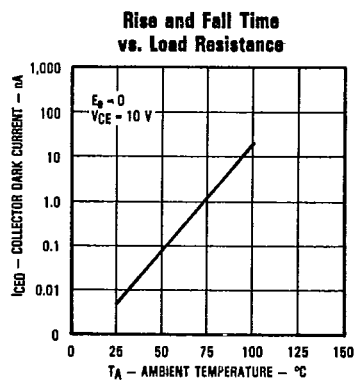
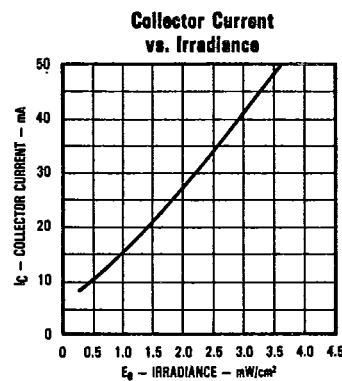
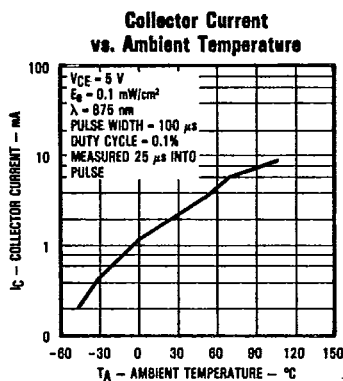
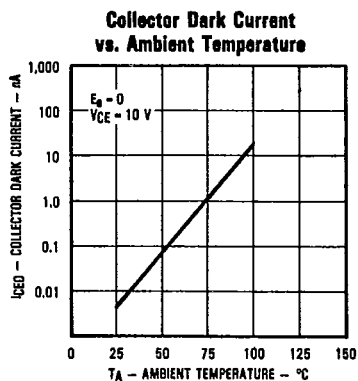
Type OP530

T-41-63

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Min.	Max.	Units	Test Conditions
$I_{C(ON)}^{(3)}$	On-State Collector Current	5.0		mA	$V_{CE} = 5.0\text{ V}$, $E_g = 0.50\text{ mW/cm}^2$
I_{CEO}	Collector Dark Current		100	nA	$V_{CE} = 10.0\text{ V}$, $E_g = 0$
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	15.0		V	$I_C = 1.00\text{ mA}$
$V_{(BR)ECO}$	Emitter-Collector Breakdown Voltage	5.0		V	$I_E = 100\text{ }\mu\text{A}$
$V_{CE(SAT)}^{(3)}$	Collector-Emitter Saturation Voltage		1.10	V	$I_C = 2.5\text{ mA}$, $E_g = 0.50\text{ mW/cm}^2$

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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