

**61050**

**TO -46 PHOTODARLINGTON**



6/30/03

**Features:**

- Hermetically sealed
- Maximum sensitivity
- Base lead provided for conventional biasing
- Narrow viewing angle

**Applications:**

- Incremental encoding
- Reflective sensors
- Position sensors
- Level sensors

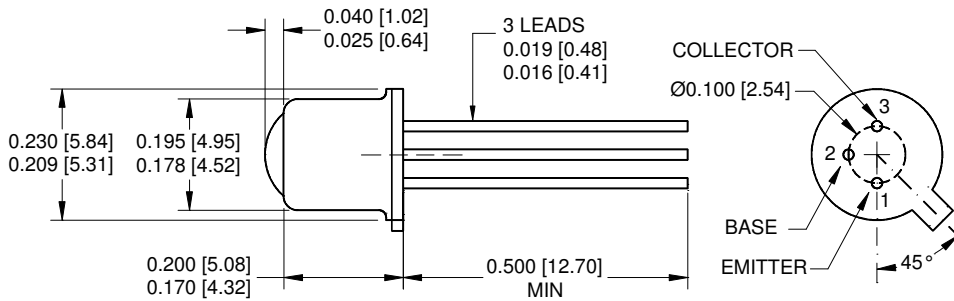
**DESCRIPTION**

The **61050** is an N-P-N Planar Silicon photodarlington in a lensed TO-46 three-lead package. Photodarlington devices are ideal in applications requiring more current gain than is possible using a phototransistor. Available custom binned to customer specifications or screened to MIL-PRF-19500.

**ABSOLUTE MAXIMUM RATINGS**

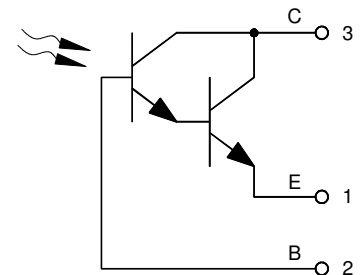
Collector-Emitter Voltage.....	35V
Emitter-Collector Voltage.....	7V
Continuous Collector Current.....	50mA
Power Dissipation (Derate at the rate of 2.5 mW/°C above 25°C).....	250mW
Storage Temperature.....	-65°C to +150°C
Operating Temperature (See part selection guide for actual operating temperature).....	-55°C to +125°C
Lead Soldering Temperature (10 seconds, 1/16" from case).....	240°C

**Package Dimensions**



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

**Schematic Diagram**



THE COLLECTOR IS IN ELECTRICAL CONTACT WITH THE CASE.

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**ELECTRICAL CHARACTERISTICS**

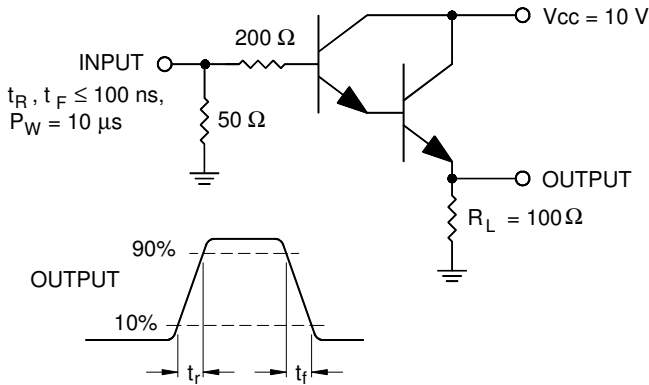
T<sub>A</sub> = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Light Current	-X01	40			mA	V <sub>CE</sub> = 5.0V, H = 1 mW/cm <sup>2</sup>	1
	-X02	60					
	-X03	80					
	-X04	100					
Dark Current	I <sub>D</sub>			1.0	μA	V <sub>CE</sub> = 10V, H = 0	
Collector-Emitter Breakdown Voltage	BV <sub>CEO</sub>	35			V	I <sub>C</sub> = 100μA	
Emitter-Collector Breakdown Voltage	BV <sub>ECO</sub>	7			V	I <sub>E</sub> = 100μA	
Saturation Voltage	V <sub>CE(sat)</sub>			1.2	V	I <sub>C</sub> = 1.0 mA, H = 1 mW/cm <sup>2</sup>	
Angular Response	θ		10		degrees		2
Transistor Rise and Fall Time	t <sub>R</sub> , t <sub>F</sub>			30	μs	V <sub>CC</sub> = 10V, I <sub>C</sub> = 1 mA	

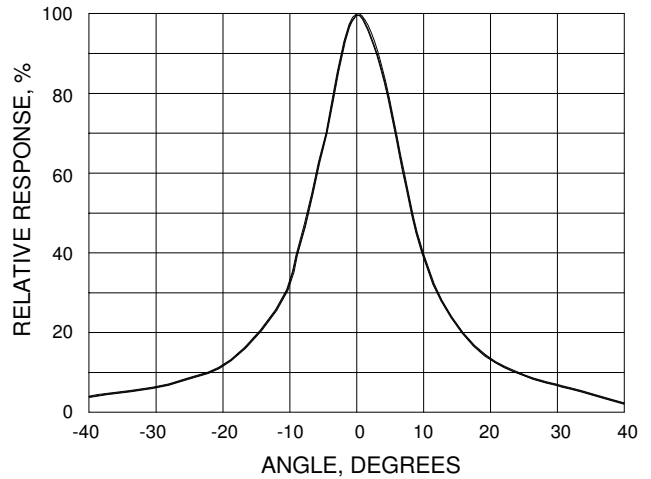
**NOTES:**

1. Irradiance (H) in mW/cm<sup>2</sup> from a tungsten source at a color temperature of 2870K.
2. The angle between incidence for peak response and incidence for 50% of peak response.

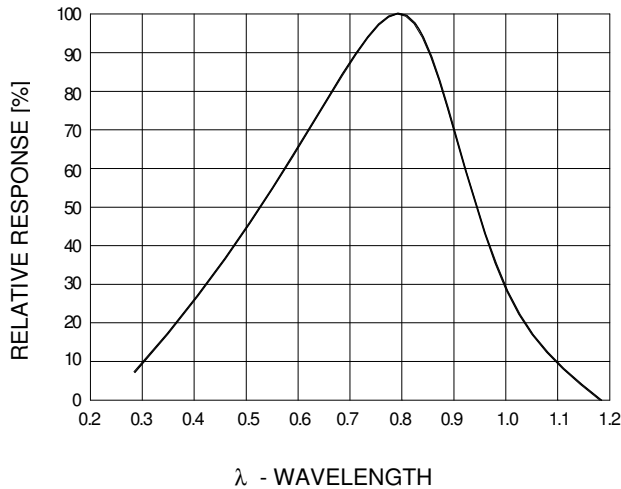
**PULSE RESPONSE TEST CIRCUIT AND SWITCHING TIME**



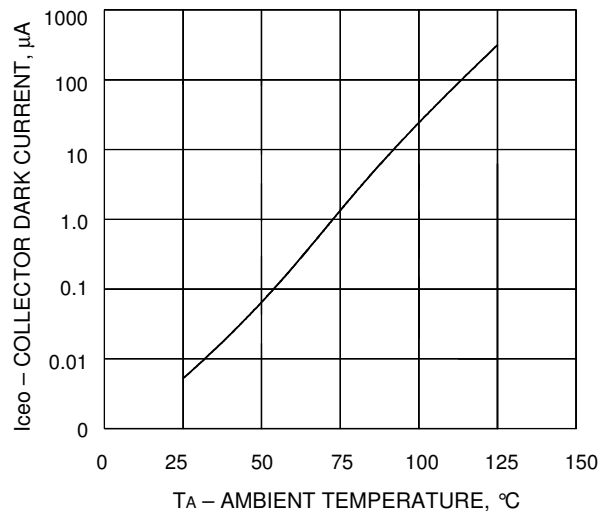
**ANGULAR RESPONSE**



**RELATIVE SPECTRAL RESPONSE**



**COLLECTOR DARK CURRENT vs AMBIENT TEMPERATURE**



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**TO-46 PHOTODARLINGTON****SELECTION GUIDE**

<b>PART NUMBER</b>	<b>PART DESCRIPTION</b>	<b>I<sub>L</sub> Range</b>
61050-001	Commercial	40mA min
61050-101	Screened	40mA min
61050-002	Commercial	60mA min
61050-102	Screened	60mA min
61050-003	Commercial	80mA min
61050-103	Screened	80mA min
61050-004	Commercial	100mA min
61050-104	Screened	100mA min