

**61053**

**SILICON PHOTOTRANSISTOR, "PIGTAIL PACKAGE"**



06/23/03

**Features:**

- Hermetically sealed
- Narrow receiving angle
- Suitable for high-density mounting
- Welded loop lead available

**Applications:**

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

**DESCRIPTION**

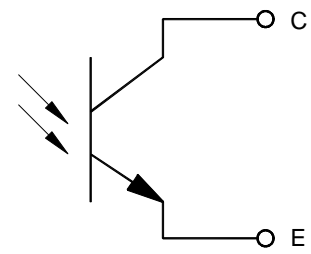
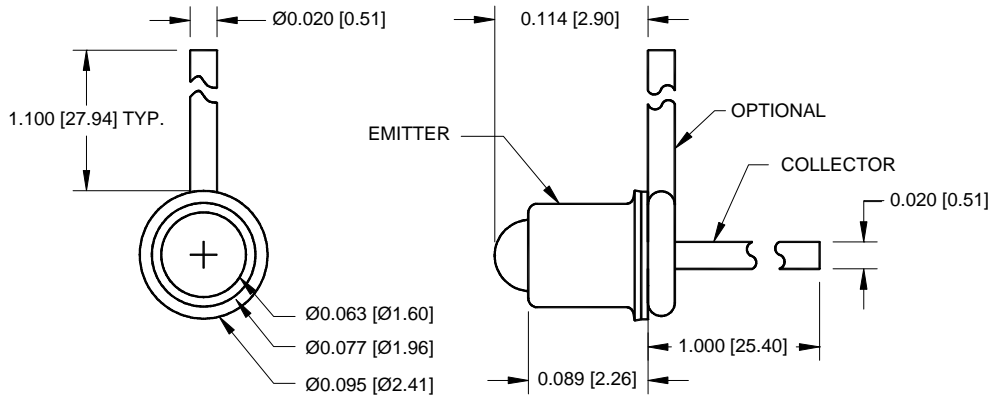
The **61053** is an N-P-N Planar Silicon phototransistor in a small outline package designed to be housing mounted. It is available in a range of sensitivities and is lensed for minimum response to stray light. High sensitivity, low dark current leakage, and low saturation voltage make this device ideal for interfacing with TTL circuits. This sensor is also available with a lead attached to the case so that it may be connected without the use of printed circuit boards. Available custom binned to customer specifications or screened to MIL-PRF-19500.

**ABSOLUTE MAXIMUM RATINGS**

Collector-Emitter Voltage.....	50V
Emitter-Collector Voltage.....	7V
Operating Temperature .....	-55°C to +125°C
Storage Temperature.....	-65°C to +150°C
Power Dissipation (Derate at the rate of 0.5 mW/°C above 25°C) .....	50mW
Lead Soldering Temperature (10 second, 1/16" from case) .....	240°C

**Package Dimensions**

**Schematic Diagram**



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

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## SILICON PHOTOTRANSISTOR, "PIGTAIL PACKAGE"

### ELECTRICAL CHARACTERISTICS

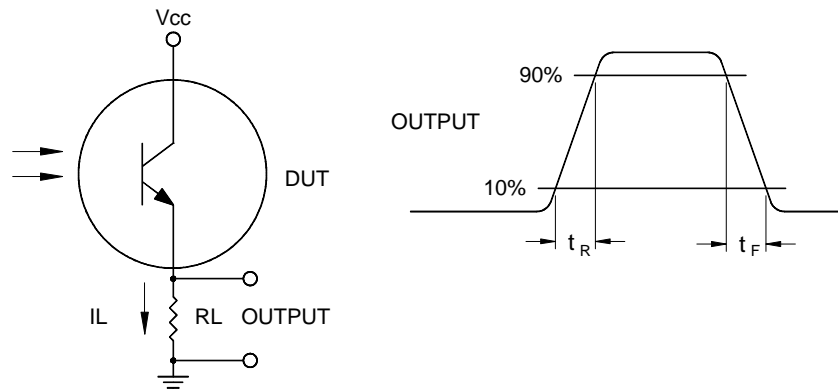
T<sub>A</sub> = 25°C unless otherwise specified.

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Light Current	61053-X01 61053-X02 61053-X03 61053-X04	0.7 1.5 3.0 6.0		2.0 4.0 7.0 --	mA	V <sub>CE</sub> = 5.0V, H = 5 mW/cm <sup>2</sup>	1
Dark Current	61053-X0X			25	nA	V <sub>CE</sub> = 30V, H = 0	
Collector-Emitter Breakdown Voltage	61053-X0X	BV <sub>CEO</sub>	50		V	I <sub>C</sub> = 100μA	
Emitter-Collector Breakdown Voltage	61053-X0X	BV <sub>ECO</sub>	7		V	I <sub>E</sub> = 100μA	
Light Current Rise Time	61053-X0X	t <sub>r</sub>		20	μs	R <sub>L</sub> = 1KΩ, V <sub>CC</sub> = 5V, I <sub>L</sub> = 1.0mA	
Saturation Voltage	61053-X01	V <sub>CE(sat)</sub>		0.3	V	I <sub>C</sub> = 0.4mA, H = 5 mW/cm <sup>2</sup>	
Angular Response	61053-X01	θ	12		degrees		2

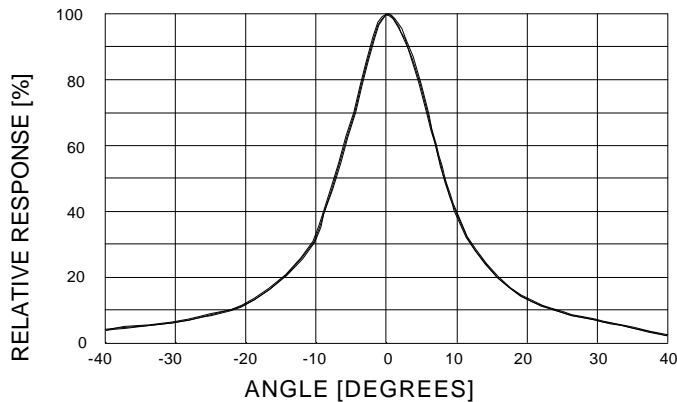
#### NOTES:

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

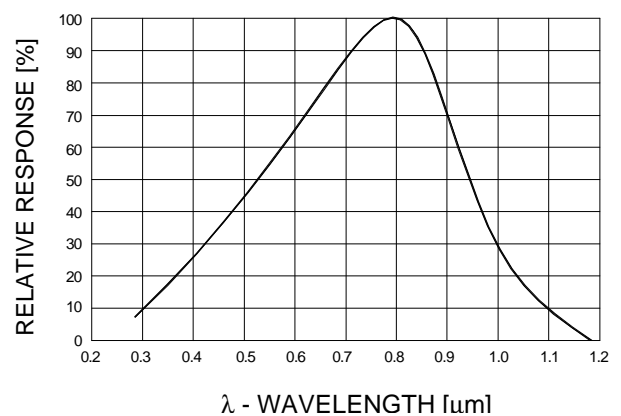
#### PULSE RESPONSE TEST CIRCUIT AND WAVEFORM



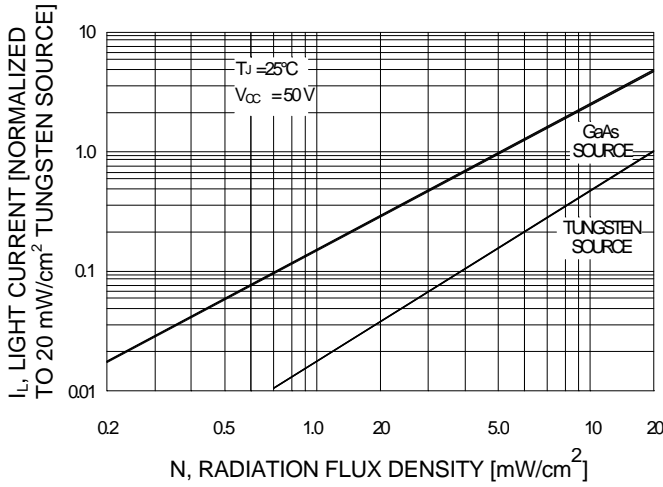
#### ANGULAR RESPONSE



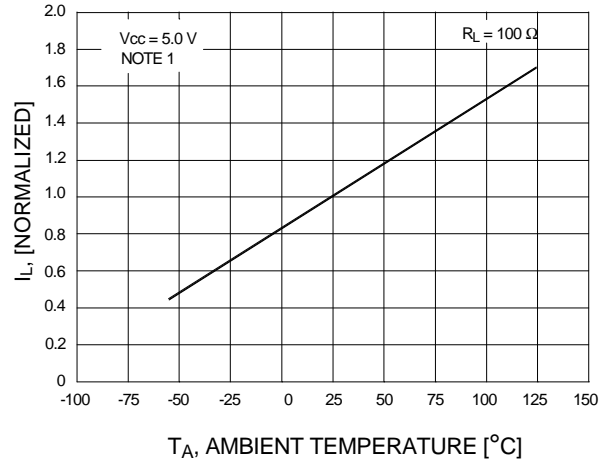
#### RELATIVE SPECTRAL RESPONSE



**NORMALIZED LIGHT CURRENT  
versus RADIATION FLUX DENSITY**



**NORMALIZED LIGHT CURRENT  
versus TEMPERATURE**



**SELECTION GUIDE**

PART NUMBER	PART DESCRIPTION	I <sub>L</sub> Range
61053-001	Commercial	0.7 to 2mA
66153-101	Screened	0.7 to 2mA
61053-002	Commercial	1.5 to 4mA
61053-102	Screened	1.5 to 4mA
61053-003	Commercial	3 to 7mA
61053-103	Screened	3 to 7mA
61053-004	Commercial	6 mA (min)
61053-104	Screened	6 mA (min)

**NOTE:** Add L following dash number ( e.g. -004L ) to indicate loop lead.