

**61055**

**SILICON PHOTOTRANSISTOR "PILL PACK"  
(TYPE GS1020)**

**Mii**

**OPTOELECTRONIC PRODUCTS  
DIVISION**

REVISION B 02/22/01

**Features:**

- Hermetically sealed
- High sensitivity
- Small package
- Suitable for high-density pc board mounting
- Spectrally matched to the 62000 Series LED.

**Applications:**

- Incremental Encoding
- Reflective Sensors
- Position Sensors
- Level Sensors

**DESCRIPTION**

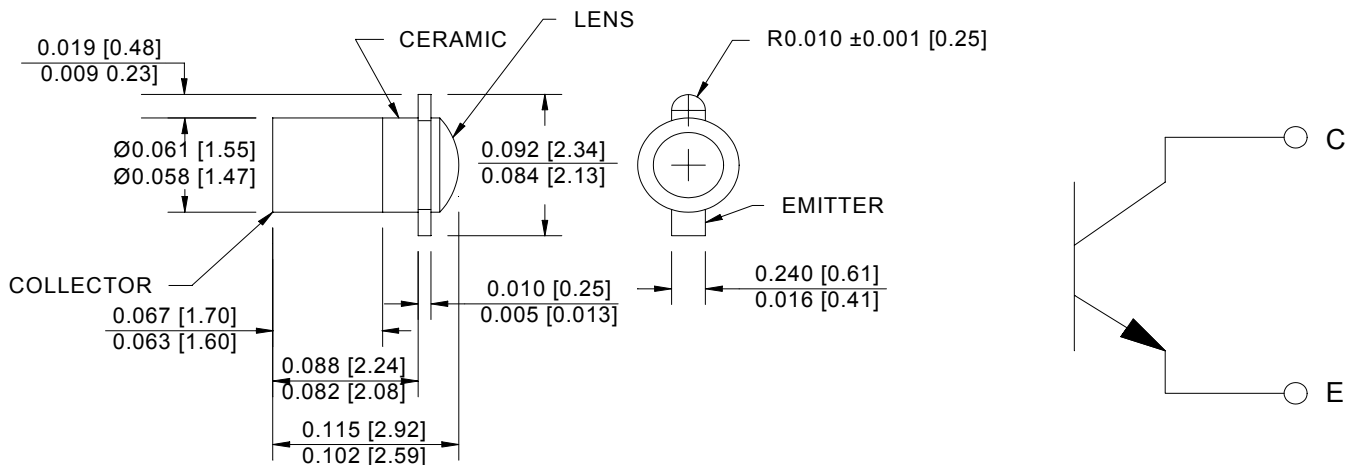
The **61055** is an N-P-N Planar Silicon Transistor in a package designed to be mounted in a double-clad printed circuit board. It is available in a range of sensitivities and is lensed for minimum response to stray light. High sensitivity, low dark current leakage, and low saturation voltage make this device ideal for interfacing with TTL circuits. Available custom binned to customer specifications or screened to MIL-PRF-19500.

**ABSOLUTE MAXIMUM RATINGS**

Storage Temperature.....	-65°C to +150°C
Operating Temperature .....	-55°C to +125°C
Collector-Emitter Voltage.....	50V
Emitter-Collector Voltage.....	6V
Power Dissipation (Derate at the rate of 0.5 mW/°C above 25°C).....	50mW
Lead Soldering Temperature (10 seconds) .....	240°C

**Package Dimensions**

**Schematic Diagram**



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

**ELECTRICAL CHARACTERISTICS**  $T_A = 25^\circ\text{C}$  unless otherwise specified.

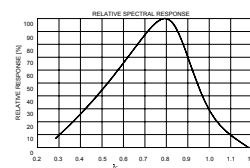
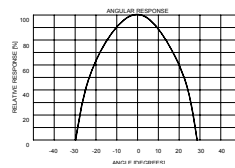
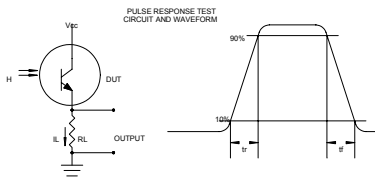
PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Light Current	61055-X01 61055-X02 61055-X03 61055-X04 61055-X05 61055-X06	0.5 2.0 4.0 7.0 12.0 20.0		3.0 5.0 8.0 12.0 20.0 --	mA	$V_{CE} = 5.0\text{V}, H = 20\text{mW/cm}^2$	1
Dark Current	61055-XXX			25	nA	$V_{CE} = 30\text{V}, H = 0$	1
Collector-Emitter Breakdown Voltage	61055-XXX	50			V	$I_C = 100\mu\text{A}$	
Emitter-Collector Breakdown Voltage	61055-XXX	7			V	$I_E = 100\mu\text{A}$	
Light Current Rise Time	61055-X01 61055-X02 61055-X03 61055-X04 61055-X05 61055-X06		2.0 3.0 5.0 7.0 9.0 12.0		$\mu\text{sec}$	$R_L = 1\text{K}\Omega, V_{CC} = 5\text{V}, I_L = 1.0\text{mA}$	
Saturation Voltage	61055-X0X		0.3		V	$I_C = 0.4\text{mA}, H = 20\text{mW/cm}^2$	
Angular Response	61055-X0X		24		degrees	$R_L = 1\text{K}\Omega, V_{CC} = 5\text{V}, I_L = 1.0\text{mA}$	2

**NOTES:**

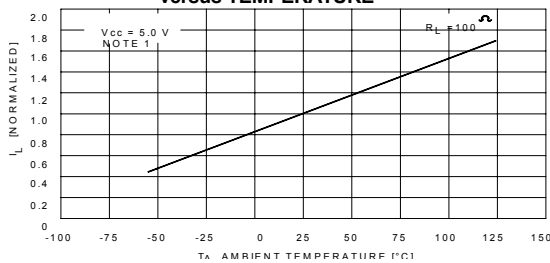
- Irradiance in  $\text{mW/cm}^2$  from a tungsten source at a color temperature of 2870K.
- The angle between incidence for peak response and incidence for 50% of peak response.

**ANGULAR RESPONSE**

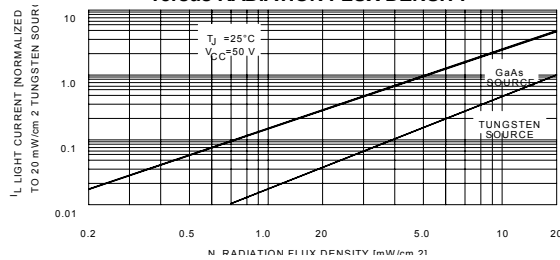
**RELATIVE SPECTRAL RESPONSE**



**NORMALIZED LIGHT CURRENT versus TEMPERATURE**



**NORMALIZED LIGHT CURRENT versus RADIATION FLUX DENSITY**



## SELECTION GUIDE

PART NUMBER	PART DESCRIPTION	I <sub>L</sub> Range
61055-001	Silicon Phototransistor in pill package, commercial version	0.5 to 3mA
66155-101	Silicon Phototransistor in pill package (-55° to +125°C) with 100% screening	0.5 to 3mA
61055-002	Silicon Phototransistor in pill package, commercial version	2 to 5mA
61055-102	Silicon Phototransistor in pill package (-55° to +125°C) with 100% screening	2 to 5mA
61055-003	Silicon Phototransistor in pill package, commercial version	4 to 8mA
61055-103	Silicon Phototransistor in pill package (-55° to +125°C) with 100% screening	4 to 8mA
61055-004	Silicon Phototransistor in pill package, commercial version	7 to 12mA
61055-104	Silicon Phototransistor in pill package, (-55° to +125°C) with 100% screening	7 to 12 mA
61055-005	Silicon Phototransistor in pill package, commercial version	12to 20mA
61055-105	Silicon Phototransistor in pill package, (-55° to +125°C) with 100% screening	12 to 20mA
61055-006	Silicon Phototransistor in pill package, commercial version	20+mA
61055-106	Silicon Phototransistor in pill package, (-55° to +125°C) with 100% screening	20+mA