

61048

# SILICON PHOTOTRANSISTOR (TYPE GS4123)

**Mii**OPTOELECTRONIC PRODUCTS  
DIVISION**Features:**

- Hermetically sealed
- High Sensitivity
- Base lead provided for conventional transistor biasing
- Wide receiving angle for easy alignment
- Spectrally Matched to the 62030 Series LED.

**Applications:**

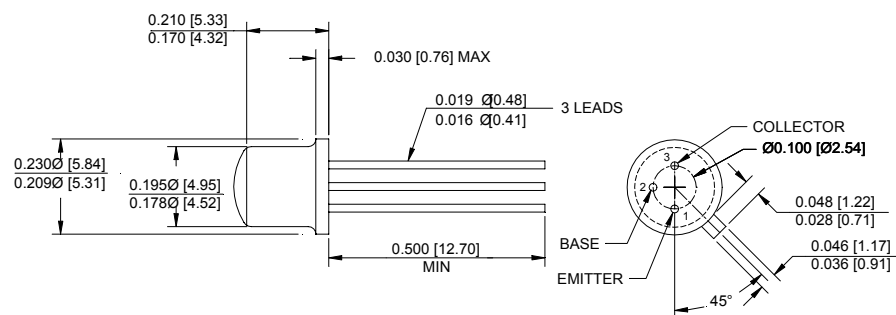
- Incremental Encoding
- Reflective Sensors
- Position Sensors
- Level Sensors

**DESCRIPTION**

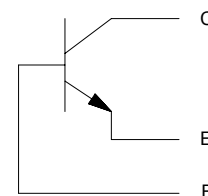
This is a N-P-N Planar Silicon phototransistor in a flat window TO-46 three-lead package featuring a large (0.06" X 0.06") sensitive area. It is available in a range of sensitivities and is ideal for use wherever system considerations dictate the use of external optics to focus radiation on the sensor. Available custom binned to customer specifications and/or screened to MIL-PRF-19500.

**ABSOLUTE MAXIMUM RATINGS**

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

**Package Dimensions****Schematic Diagram**

ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

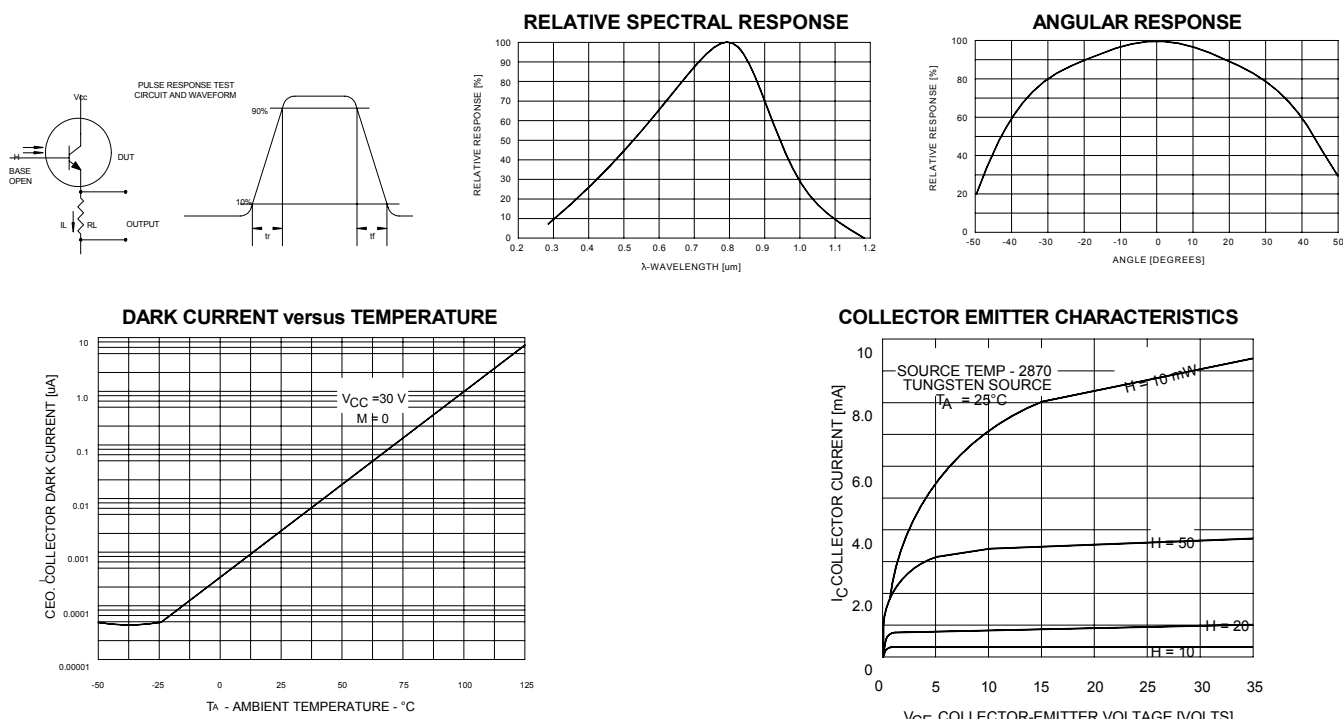
THE COLLECTOR IS IN ELECTRICAL  
CONTACT WITH THE CASE

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Light Current	$I_L$	5 20 30 50		20 30 50 —	mA	$V_{CE} = 5.0\text{V}$ , $H = 20\text{ mW/cm}^2$	1
Dark Current	$I_D$			50	nA	$V_{CE} = 5\text{V}$ , $H = 0$	
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	30			V	$I_C = 100\mu\text{A}$	
Emitter-Collector Breakdown Voltage	$BV_{ECO}$	7			V	$I_E = 100\mu\text{A}$	
Light Current Rise Time	$t_r$		8 10 15 20		$\mu\text{s}$	$R_L = 100\Omega$ , $V_{CC} = 5\text{V}$ , $I_L = 1.0\text{mA}$	
Saturation Voltage	$V_{CE}(\text{sat})$		0.2		V	$I_C = 0.4\text{mA}$ , $H = 20\text{ mW/cm}^2$	
Angular Response	$\theta$		10		degrees		2

**NOTES:**

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

**RECOMMENDED OPERATING CONDITIONS:**

PARAMETER	SYMBOL	MIN	MAX	UNITS
Bias Voltage-Collector/Emitter	$I_F$	5	10	mA
Irradiance (H)	H	15	25	$\text{mW/cm}^2$

**SELECTION GUIDE**

PART NUMBER	PART DESCRIPTION	$I_L$ Range
61048-001	Silicon Phototransistor in TO-46 package, commercial version	5 to 20mA
61048-101	Silicon Phototransistor in TO-46 package (-55° to +100°C) with 100% screening	5 to 20mA
61048-002	Silicon Phototransistor in TO-46 package, commercial version	20 to 30mA
61048-102	Silicon Phototransistor in TO-46 package (-55° to +100°C) with 100% screening	20 to 30mA
61048-003	Silicon Phototransistor in TO-46 package, commercial version	30 to 50mA
61048-103	Silicon Phototransistor in TO-46 package (-55° to +100°C) with 100% screening	30 to 50mA
61048-004	Silicon Phototransistor in TO-46 package, commercial version	+50mA
61048-104	Silicon Phototransistor in TO-46 package (-55° to +100°C) with 100% screening	+50mA