

**61010**

**PHOTODARLINGTON "PIGTAIL"**



05/29/03

**Features:**

- Hermetically sealed
- High Sensitivity
- Narrow Receiving Angle
- Small Package
- Suitable for High-Density Mounting
- Welded Loop Lead Available

**Applications:**

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

**DESCRIPTION**

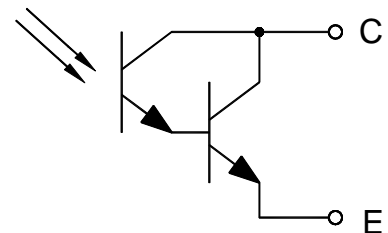
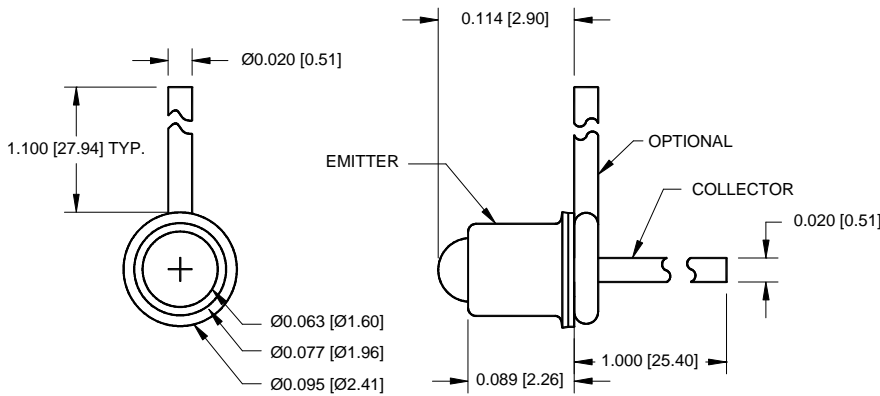
The **61010** is an N-P-N Planar Silicon Photodarlington Transistor in a small outline package designed to be housing mounted. Its large effective aperture and narrow angular response make this a highly sensitive device with minimum response to off-axis or stray light. This sensor is also available with a lead attached to the case so that it may be connected without the use of a printed circuit board. Available custom binned to customer specifications and/or screened to MIL-PRF-19500.

**ABSOLUTE MAXIMUM RATINGS**

Collector-Emitter Voltage.....	15 V
Emitter-Collector Voltage.....	5 V
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) .....	50 mW
Lead Soldering Temperature (10 second max, 1/16" from case) .....	240°C

**Package Dimensions**

**Schematic Diagram**



ALL DIMENSIONS ARE IN INCHES [MILLIMETERS]

# 61010

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## PHOTODARLINGTON "PIGTAIL"

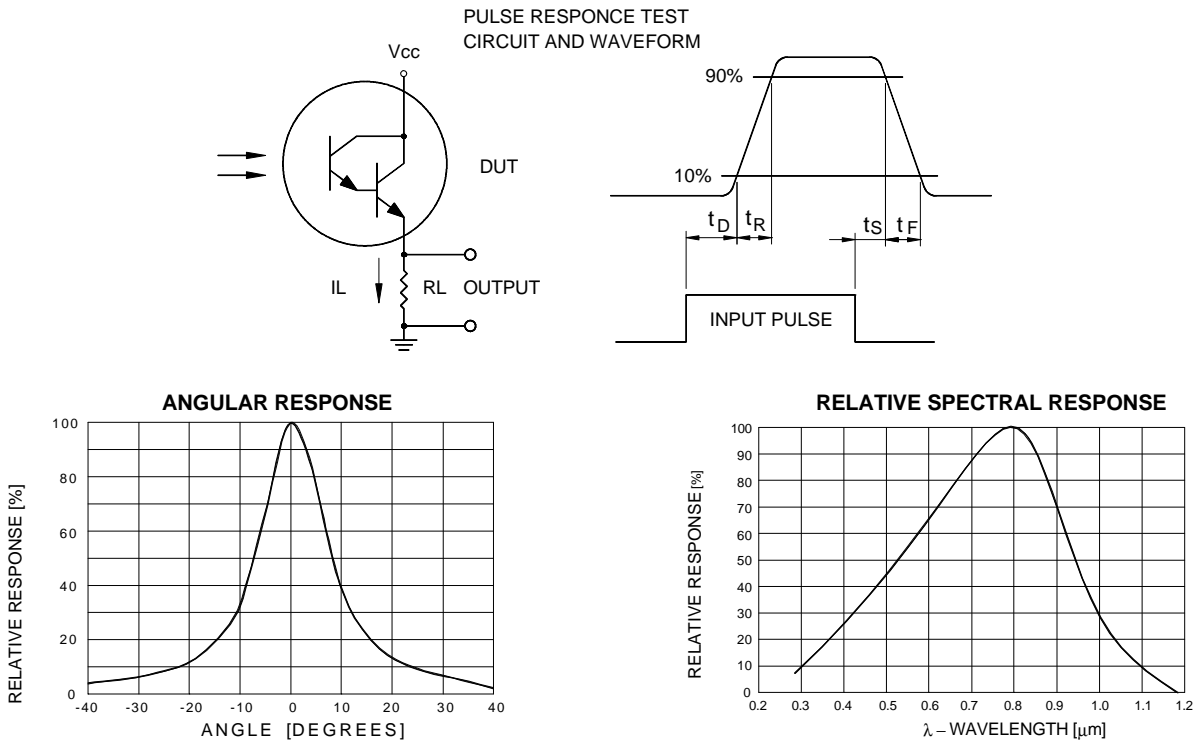
### ELECTRICAL CHARACTERISTICS

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

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	TEST CONDITIONS	NOTE
Light Current	61010-X01	1.0		4.0	mA	V <sub>CE</sub> = 5.0 V, H = 1.0 mW/cm <sup>2</sup>	1
	61010-X02	3.0		7.0			
	61010-X03	6.0		--			
Dark Current	61010-X0X			250	nA	V <sub>CE</sub> = 10 V, H = 0	
Collector-Emitter Breakdown Voltage	61010-X0X	BV <sub>CEO</sub>	15		V	I <sub>C</sub> = 100 μA	
Emitter-Collector Breakdown Voltage	61010-X0X	BV <sub>ECO</sub>	5		V	I <sub>E</sub> = 100 μA	
Light Current Rise Time	61010-X0X	t <sub>r</sub>		50	μs	R <sub>L</sub> = 100 Ω, V <sub>CC</sub> = 5 V, I <sub>L</sub> = 20 mA	
Saturation Voltage	61010-X01	V <sub>CE (sat)</sub>		1.1	V	I <sub>C</sub> = 1 mA, H = 1.0 mW/cm <sup>2</sup>	
	61010-X02					I <sub>C</sub> = 3 mA, H = 1.0 mW/cm <sup>2</sup>	
	61010-X03					I <sub>C</sub> = 6 mA, H = 1.0 mW/cm <sup>2</sup>	
Angular Response	61010-X0X	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.



### SELECTION GUIDE

PART NUMBER	PART DESCRIPTION	I <sub>L</sub> Range
61010-001	Commercial	1 to 4mA
61010-101	Screened	1 to 4mA
61010-002	Commercial	3 to 7mA
61010-102	Screened	3 to 7mA
61010-003	Commercial	6mA (min)
61010-103	Screened	6mA (min)

NOTE: Add "L" following dash number (e.g. -003L) to indicate loop lead.