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)
### ELECTRICAL CHARACTERISTICS

\( T_A = 25^\circ C \) unless otherwise specified.

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>MIN</th>
<th>TYP</th>
<th>MAX</th>
<th>UNITS</th>
<th>TEST CONDITIONS</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Current</td>
<td>I_L</td>
<td>0.7</td>
<td>1.5</td>
<td>2.0</td>
<td>mA</td>
<td>( V_{CE} = 5.0 \text{V}, H = 5 \text{mW/cm}^2 )</td>
<td>1</td>
</tr>
<tr>
<td>Dark Current</td>
<td>I_D</td>
<td></td>
<td></td>
<td></td>
<td>nA</td>
<td>( V_{CE} = 30 \text{V}, H = 0 )</td>
<td></td>
</tr>
<tr>
<td>Collector-Emitter Breakdown Voltage</td>
<td>BV_{CEO}</td>
<td>50</td>
<td></td>
<td></td>
<td>V</td>
<td>( I_C = 100 \mu \text{A} )</td>
<td>2</td>
</tr>
<tr>
<td>Emitter-Collector Breakdown Voltage</td>
<td>BV_{ECO}</td>
<td>7</td>
<td></td>
<td></td>
<td>V</td>
<td>( I_E = 100 \mu \text{A} )</td>
<td></td>
</tr>
<tr>
<td>Light Current Rise Time</td>
<td>t_r</td>
<td>20</td>
<td></td>
<td></td>
<td>( \mu \text{s} )</td>
<td>( R_L = 1 \text{K}\Omega, V_{CC} = 5 \text{V}, I_L = 1.0 \text{mA} )</td>
<td></td>
</tr>
<tr>
<td>Saturation Voltage</td>
<td>V_{CE (sat)}</td>
<td>0.3</td>
<td></td>
<td></td>
<td>V</td>
<td>( I_C = 0.4 \text{mA}, H = 5 \text{mW/cm}^2 )</td>
<td></td>
</tr>
</tbody>
</table>

**NOTES:**

1. Irradiance (H) in mW/cm² 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.
**PART NUMBER** | **PART DESCRIPTION** | **I_L 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.