

Reflective Transducer

STRT 3050

"Arrow Head" (Phototransistor)

Description

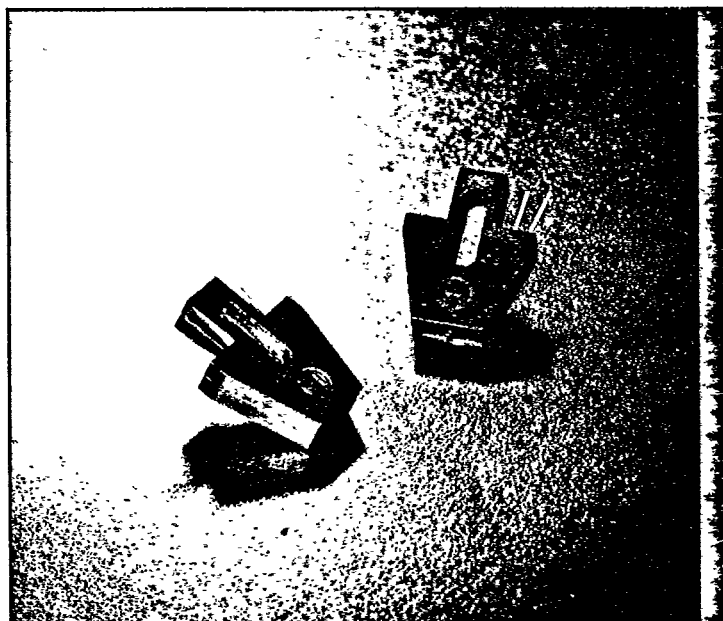
The STRT 3050 consists of a gallium arsenide infrared emitting diode and a silicon NPN phototransistor sensor mounted side by side on converging optical axes. An optical filter in the face of the housing reduces ambient light noise and seals the device from dust. The phototransistor responds to radiation from the LED only when a reflective object passes within its field of view.

Features

- Phototransistor output
- Low-cost plastic housing
- Optical filter

Applications

- Object sensing
- End-of-tape/beginning-of-tape



Electrical (25°C) Specifications

Absolute Maximum Ratings	
Package	
Operating Temperature ..	-0°C to +70°C
Storage Temperature	-20°C to +80°C
Lead Soldering	
Temperature (5 sec) ...	260°C
LED	
Forward Current, I_F	60 mA
Reverse Voltage, V_R	4 V
Power Dissipation	50 mW (derate @ 0.91 mW/°C above 25°C)
Sensor	
Collector-Emitter Voltage,	
V_{CEO}	20 V
Emitter-Collector Voltage,	
V_{ECO}	5 V
Power Dissipation	50 mW (derate @ 0.91 mW/°C above 25°C)

Individual Electrical Characteristics (25°C)	
LED	
Forward Voltage, V_F @ $I_F = 40$ mA	1.5 V Max.
Reverse Current, I_R @ $V_R = 4$ V	10 μ A Max.
Sensor	
Collector Breakdown Voltage,	
BV_{CEO} @ $I_C = 1.0$ mA	20 V Min.
Emitter Breakdown Voltage,	
BV_{ECO} @ $I_E = 100$ μ A	5 V Min.
Collector Dark Current,	
I_D @ $V_{CE} = 10$ V,	
$I_F = 0, H \leq 0.1 \mu$ W/cm ²	100 nA Max.

Coupled Electrical Characteristics (25°C)	
Output Current, I_L @ $V_{CE} = 5$ V,	
$I_F = 40$ mA*	200 μ A Min.
Cross Talk (I_{CX}) @ $V_{CE} = 5$ V,	
$I_F = 40$ mA**	20 μ A Max.
Switching Speeds	
On Time (t_{on}) @ $V_{CC} = 5$ V,	
$I_F = 40$ mA, $R_L = 100 \Omega$,	
$d = 0.2$ in.	10 μ sec TYP.
Off Time (t_{off}) @ $V_{CC} = 5$ V,	
$I_F = 40$ mA, $R_L = 100 \Omega$,	
$d = 0.2$ in.	10 μ sec TYP.

NOTE:

*1. Reflective surface is Eastman Kodak neutral white card with 90% diffuse reflectance or 3M Tape #267, placed at a distance of .200 inch from the sensing face of the device.
 **2. Cross talk is measured using an opaque reflective surface (3M Tape #476, a very black dull surface with optical reflectance qualities comparable to a surface coated with carbon black printing ink) placed at a distance of .200 inch from the sensing face of the device.

STRT 3050 Typical Characteristics

