

# Reflective Transducer STRT 3020

## Electrical and Optical Specifications

### Absolute Maximum Ratings at Ta = 25°C

<b>Package</b>	
Operating Temperature, T <sub>opr</sub> .....	-20° to +90°C
Storage Temperature, T <sub>stg</sub> .....	-30° to +100°C
*Soldering Temperature, T <sub>solid</sub> .....	260°C
Power Dissipation, P <sub>d</sub> .....	100 mW
(Derate 1.35mW/°C Above 25°C)	
<b>LED</b>	
Forward Current, I <sub>F</sub> .....	50 mA
Reverse Voltage, V <sub>R</sub> .....	6 V
Power Dissipation, P <sub>d</sub> .....	75 mW
(Derate 1.0mW/°C Above 25°C)	
<b>Sensor</b>	
Collector Current, I <sub>C</sub> .....	20 mA
Collector-Emitter Voltage, V <sub>CE</sub> .....	30 V
Emitter-Collector Voltage, V <sub>EC</sub> .....	3 V
Power Dissipation, P <sub>C</sub> .....	75 mW
(Derate 1.0mW/°C Above 25°C)	
*1/16" (.0625") away from case, 3-second duration	

### Electro-Optical Characteristics (Ta = 25°C)

<b>LED</b>	
Forward Voltage, V <sub>F</sub> @ I <sub>F</sub> = 4 mA	1.2 V Max.
Reverse Current, I <sub>R</sub> @ V <sub>R</sub> = 6 V.	10 μA Max.
Peak Wavelength.....	940 nm TYP
<b>Sensor</b>	
Collector Breakdown Voltage, BV <sub>CE</sub>	30 V Min.
@ I <sub>C</sub> = 100 μA	
Emitter Breakdown Voltage, BV <sub>EC</sub>	3 V Min.
@ I <sub>C</sub> = 100 μA	
Dark Current, I <sub>D</sub> .....	100 nA Max.
@ V <sub>CE</sub> = 10 V, I <sub>F</sub> = 0	

### Coupled Characteristics

*Output Current, I <sub>L</sub>	See Chart Below
@ I <sub>F</sub> = 4 mA, V <sub>ce</sub> = 2 V	
*Switching Speed	
@ V <sub>CE</sub> = 2V, R <sub>L</sub> = 1KΩ, I <sub>L</sub> = 100 μA	
Rise Time t <sub>r</sub> .....	30 μs TYP
Fall Time t <sub>f</sub> .....	25 μsec TYP

### STRT 3020 Output Current Ranges (μA)

-1	-2	3	-4	-5
13-30	25-47	38-85	70-138	112 Minimum

\*See Figure 2.

## Description

The STRT 3020 consists of an infrared LED and phototransistor mounted side by side on parallel axis. The phototransistor and LED are optically filtered to reduce visible light noise and protect the device from dust.

## Features

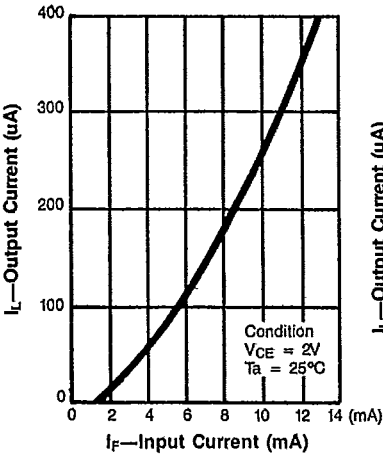
- High Reliability, low cost ceramic housing
- Optical filter
- Unfocused for sensing diffused surfaces
- Miniature package configuration

## Applications

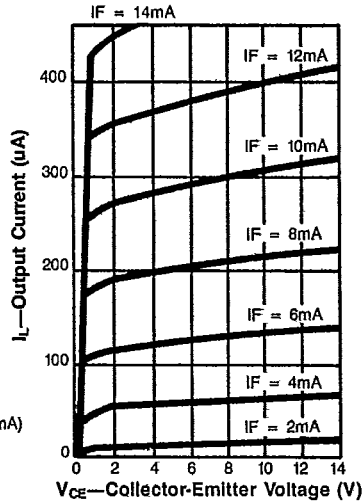
- EOT/BOT sensing
- Liquid level detection
- Spot detection

STRT 3020 Typical Characteristics

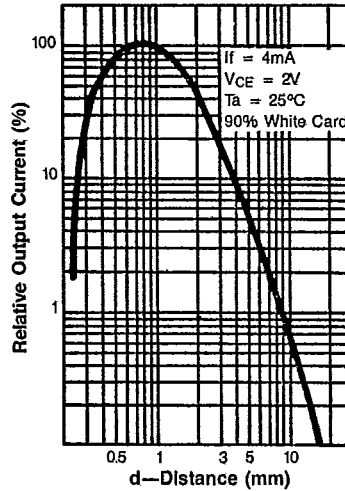
Output Current vs. Input Current



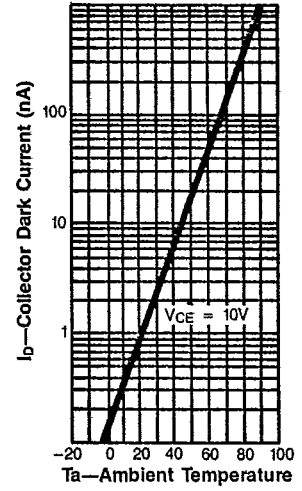
Output Current vs. Collector-Emitter Voltage



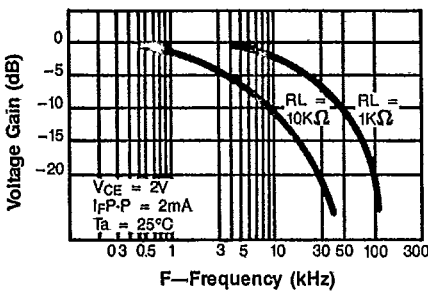
Relative Output Current vs. Distance between STRT 3020 and White Card



Collector Dark Current vs. Ambient Temperature



Frequency Response



Switching Speed vs. Load Resistance

