

Reflective Transducer STRT900

REFLECTIVE EMITTER SENSORS IN 3 RATINGS

- Combines high output L.E.D. and sensitive phototransistor in a single, compact package — interfaces with IC power levels.
- Stable characteristics over a wide temperature range.
- Phototransistor sensitive over wide radiation range of 0.4 to 1.1 microns.
- Ideal for recognition of marks, parts, distance or movement.

Sensor Technology's Series 900 Reflective Transducers combine a high output gallium arsenide infrared emitting diode (L.E.D.) and a sensitive silicon NPN phototransistor in a compact and rugged package.

As both the radiation surface of the L.E.D. and the sensing face of the phototransistor are positioned on the same perpendicular plane, the unit only responds to radiation from the L.E.D. source when a reflective surface comes into the field of view of the phototransistor.

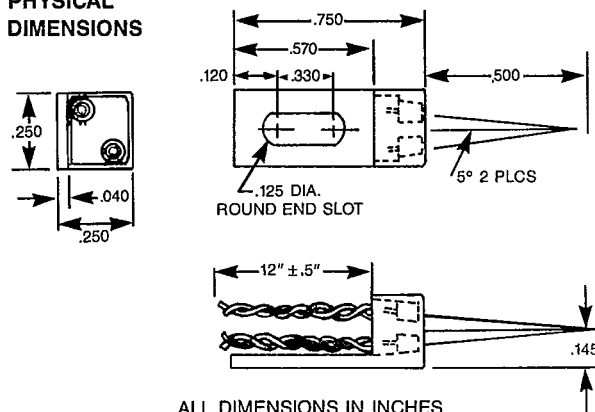
When biased in the forward direction, the L.E.D.'s intense and narrow radiation bandwidth peaks well within the 0.4 to 1.1 micron sensitivity range of the phototransistor.

It is ideal for applications where fast, sensitive response to a reflective impulse is required, such as in end-of-tape beginning-of-tape, character recognition, mark sensing, and optical ignition.

See the reverse side of this sheet for other configurations in Sensor Technology's wide line of Reflective Transducers.



PHYSICAL DIMENSIONS



ELECTRICAL CHARACTERISTICS @ 25°C

PARAMETER	SYMBOL	UNITS	STRT 900 - 1			STRT 910 - 2			STRT 920 - 3*		
			MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
LED Forward Voltage @ $I_F = 50\text{mA}$	V_F	Volts			2.0		1.5	2.0		1.5	2.0
Collector Breakdown @ $I_C = 100\mu\text{A}$	$V_{BR(CEO)}$	Volts	10			50			15		
Emitter Breakdown @ $I_E = 100\mu\text{A}$	$V_{BR(EO)}$	Volts	5			7			7		
Light Current @ $V_{CE} = 5\text{V}$, LED $I_F = 30\text{mA}$	I_L	mA	0.04	0.07		0.125	0.20		2.0	4.0	
Dark Current @ V_{CE} as shown, $I_F = 0$, $H = 0$	I_D	nA	1000 @ $V_{CE} = 10\text{V}$			25 @ $V_{CE} = 30\text{V}$			1000 @ $V_{CE} = 10\text{V}$		
Light Current Rise Time (Typ.) $V_{CC} = 5\text{V}$, $I_C = 1\text{mA}$, $R_L = 1\text{K Ohms}$	t_r	μsec		4			5			25	

*Sensor is a photodarlington

Electrically and mechanically interchangeable with Spectronix SPX-1180.

Lead Identification:

STRT-900-1	Col.	brown,	E,	blk
STRT-910-2	Col.	orange,	E,	blk
STRT-920-3	Col.	yellow,	E,	blk

L.E.D. Red — Anode
BLK — Cathode

Reflective Transducers

Check this listing of Sensor Technology Reflective Transducers . . .

The complete line of the most popular
package configurations and ratings.

REFLECTIVE TRANSDUCERS Optical Electrical Characteristics (25°C)

PARAMETER	LED FORWARD DROP			LED REVERSE BREAKDOWN		SENSOR LIGHT CURRENT				SENSOR DARK CURRENT		COLLECTOR BREAKDOWN		EMITTER BREAKDOWN		SENSOR CURRENT RISE TIME
TEST CONDITION	@ I_F (ma)			$I_R = 10 \mu A$		@ I_F (ma) @ d (in.) $V_{CE} = 5V(E)$				@ $I_F = 0$ @ $H = 0$ $V_{CE} = 5V$		$I_C = 100 \mu A$		$I_E = 100 \mu A$		@ $I_C = 100 \mu A$ $V_{CC} = 5V$ $R_L = 1000 \Omega$
SYMBOL	V_F			BV_R		I_L				I_D		BV_{CEO}		BV_{ECO}		tr
UNIT	Volts			Volts		μA				nA		Volts		Volts		usec
DARLINGTON	Typ	Max	I_F	Min	Typ	Min	Max	I_F	d	Typ	Max	Min	Typ	Min		Typ
STRD-70 F	1.25	1.8	60	3	5.5	50		50	0.40	5	100	30(D)	55(D)	5		600
STRD-70/(B)	1.25	1.8	60	3	5.5	50		50	0.40	5	100	30(D)	55(D)	5		600
STRD-850	1.5	1.8	50	3	5	250		50	0.40	10	200	12	50(D)	5		600
TRANSISTOR																
STRT-850	1.5	1.8	50	3	5	20		50	0.40	10	200	12	50(D)	5		60
STRT-850/F(B)	1.5	1.8	50	3	5	20		50	0.40	10	100	12	50(D)	5		60
STRT-850A	1.8	1.5	50	3	5	60	180	50	0.40	10	100	12	50(D)	5		60
STRT-850A/F(B)	1.5	1.8	50	3	5	60	180	50	0.40	10	100	12	50(D)	5		60
STRT-850B	1.5	1.8	50	3	5	80	160	50	0.40	10	100	12	50(D)	5		60
STRT-850B/F(B)	1.5	1.8	50	3	5	80	160	50	0.40	10	100	12	50(D)	5		60
STRT-900-1		2.0	50	2		40		30	0.50		1000@10V	10		5		4
STRT-910-2		2.0	50	2		125		30	0.50		25@30V	50		7		5
STRT-920-3		2.0	50	2		2000		30	0.50		1000@10V	15		7		25(C)

A Maximum Temperature $-40^\circ C$ to $-100^\circ C$ (Operating and Storage)

B The "F" suffix denotes units with an infrared bandpass filter over the phototransistor to permit operation within specifications in the presence of stray fluorescent or other short wave length lighting

C $R_L = 100 \Omega$

D $I_C = 1mA$ pulsed

E STRD 70 through STRT-850B/F using a reflective surface of Eastman Kodak for equivalent neutral white paper with 90% diffuse reflectance. The STRT-900 series uses a mirror surface