

Proven Portfolio of Reflective and Transmissive Sensors with Through-Hole Packaging



FEATURES

Transmissive

- Wide gap widths up to 3.1 mm
- Fine apertures from 0.25 mm to 1.0 mm
- Output current (phototransistor) from 0.5 mA to 4.0 mA
- Vertical and horizontal slots

Reflective

- Operating range up to 15 mm
- Peak operating distance up to 2.5 mm
- Output current of 1 mA, typical
- Package designs eliminate cross talk

BENEFITS OF THROUGH-HOLE PACKAGES

- Manual assembly - leaded devices can be hand soldered
- More robust solder area in case of double sided soldering
- Holders allow positioning of the sensor, not confined to the PCB

APPLICATIONS

- Detect the status of a door or panel, inserted coin, credit/ATM card, or paper edge
 - Printers, copier, scanners, computer servers, networking equipment, vending machines, ATM machines
- Interface to encoding wheels and strips
 - Meters, pumps, angular position sensors, linear position sensors
- Industrial - optical switch, liquid level sensing

RESOURCES

- Datasheets: <http://www.vishay.com/optical-sensors/>
- Application Notes: <http://www.vishay.com/doc?81452>, <http://www.vishay.com/doc?81449>
- Optoelectronics Portfolio: <http://www.vishay.com/optoelectronics/>
- For technical questions, contact sensorstechsupport@vishay.com

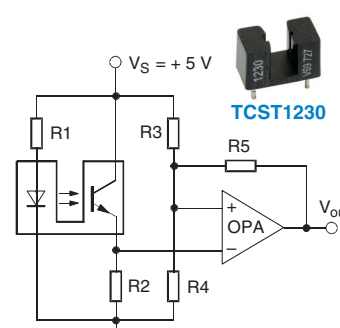
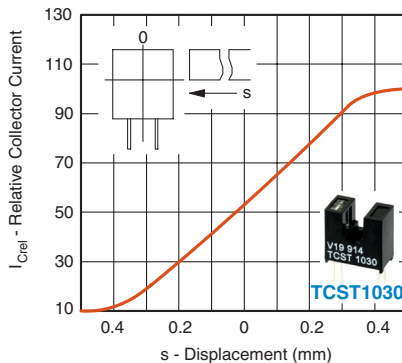
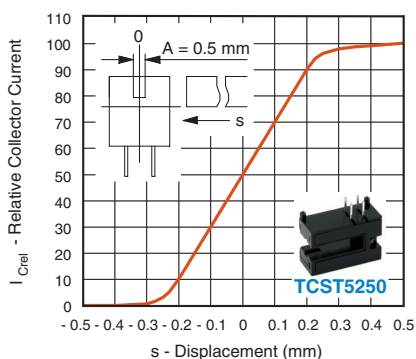


TRANSMISSIVE SENSORS (Photo Interrupters, Slotted Interrupters)

PART NUMBER		GAP (mm)	APERTURE (mm)	OUTPUT CURRENT TYPICAL (mA)	ON/OFF TIME t_{on}/t_{off} (μs)	DIMENSIONS (mm)
TCST1030		3.0	None	2.4	15/10	8.3 x 4.7 x 8.15
TCST1103		3.1	1	4	10/8	11.9 x 6.3 x 10.8
TCST1202			0.5	2		
TCST1300			0.25	0.5		
TCST1230		2.8	0.5	2.0	15/10	9.2 x 4.8 x 5.4
TCST2103		3.1	1.0	4.0	10/8	24.5 x 6.3 x 10.8
TCST2202			0.5	2.0		
TCST2300			0.25	0.5		
TCST5250		2.7	0.5	1.5	15/10	14.3 x 6 x 9.5

Note

- All optical sensors have phototransistor output



REFLECTIVE SENSORS

PART NUMBER	TCRT5000 TCRT5000(L)	CNY70	TCRT1000 TCRT1010
OPERATING RANGE ⁽¹⁾ (mm)	0.2 to 15	0 to 5	0.2 to 4
PEAK OPERATING DISTANCE (mm)	2.5	0 to 0.5	1

Notes

- ⁽¹⁾ Relative collector current > 20 %

A typical optical sensor circuit consists of a sensor and two external components:

- A current limiting resistor, connected in series with the emitter diode to keep forward current within specification
- A load resistor, connected in series with emitter of the phototransistor, to provide a voltage output

The emitter current of the phototransistors will be low (< 1 mA) in many applications. To achieve a high cut-off frequency and high output voltage, a low load resistor followed by an amplifier is recommended.

