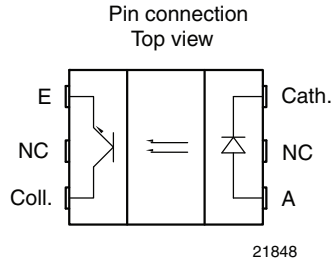


# Subminiature Transmissive Optical Sensor with Transistor Output



19601



21848

## DESCRIPTION

The TCPT1300X01 is a compact transmissive sensor that includes an infrared emitter and a phototransistor detector, located face-to-face in a surface mount package.

## FEATURES

- Package type: surface mount
- Detector type: phototransistor
- Dimensions (L x W x H in mm): 5.5 x 4 x 4
- AEC-Q101 qualified
- Gap (in mm): 3
- Aperture (in mm): 0.3
- Typical output current under test:  $I_C = 0.6 \text{ mA}$
- Emitter wavelength: 950 nm
- Moisture sensitivity level (MSL): 1
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

### Note

\*\* Please see document "Vishay Material Category Policy":  
[www.vishay.com/doc?99902](http://www.vishay.com/doc?99902)

 AUTOMOTIVE  
GRADE

**RoHS**  
COMPLIANT  
**GREEN**  
(5-2009)\*\*

## APPLICATIONS

- Automotive optical sensors
- Accurate position sensor for encoder
- Detection of motion speed

PRODUCT SUMMARY				
PART NUMBER	GAP WIDTH (mm)	APERTURE WIDTH (mm)	TYPICAL OUTPUT CURRENT UNDER TEST <sup>(1)</sup> (mA)	DAYLIGHT BLOCKING FILTER INTEGRATED
TCPT1300X01	3	0.3	0.6	No

### Note

- Conditions like in table basic characteristics/coupler

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	VOLUME <sup>(1)</sup>	REMARKS
TCPT1300X01	Tape and reel	MOQ: 2000 pcs, 2000 pcs/reel	Drypack, MSL 1

### Note

- MOQ: minimum order quantity



ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
<b>COUPLER</b>				
Total power dissipation	T <sub>amb</sub> ≤ 95 °C	P <sub>tot</sub>	37.5	mW
Junction temperature		T <sub>j</sub>	110	°C
Ambient temperature range		T <sub>amb</sub>	- 40 to + 105	°C
Storage temperature range		T <sub>stg</sub>	- 40 to + 125	°C
Soldering temperature	In accordance with fig. 16	T <sub>sd</sub>	260	°C
<b>INPUT (EMITTER)</b>				
Reverse voltage		V <sub>R</sub>	5	V
Forward current	T <sub>amb</sub> ≤ 95 °C	I <sub>F</sub>	25	mA
Forward surge current	t <sub>p</sub> ≤ 10 μs	I <sub>FSM</sub>	200	mA
Power dissipation	T <sub>amb</sub> ≤ 95 °C	P <sub>V</sub>	37.5	mW
<b>OUTPUT (DETECTOR)</b>				
Collector emitter voltage		V <sub>CEO</sub>	20	V
Emitter collector voltage		V <sub>ECO</sub>	7	V
Collector current		I <sub>C</sub>	20	mA
Collector dark current	T <sub>amb</sub> = 85 °C, V <sub>CE</sub> = 5 V	I <sub>CEO</sub>	3.3	μA

ABSOLUTE MAXIMUM RATINGS



Fig. 1 - Power Dissipation Limit vs. Ambient Temperature



Fig. 2 - Forward Current Limit vs. Ambient Temperature