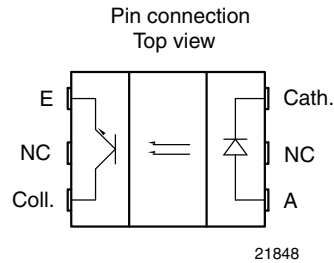


Subminiature Transmissive Optical Sensor with Transistor Output



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: $I_C = 0.6$ 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

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 ⁽¹⁾ (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 ⁽¹⁾	REMARKS
TCPT1300X01	Tape and reel	MOQ: 2000 pcs, 2000 pcs/reel	Drypack, MSL 1

Note

- MOQ: minimum order quantity



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

ABSOLUTE MAXIMUM RATINGS



Fig. 1 - Power Dissipation Limit vs. Ambient Temperature



Fig. 2 - Forward Current Limit vs. Ambient Temperature