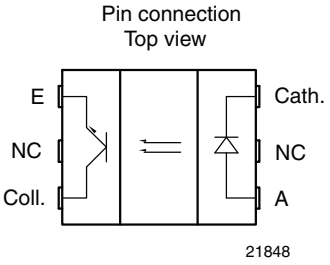
Subminiature Transmissive Optical Sensor with Transistor Output

19601



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 = 1.6 mA
- Emitter wavelength: 950 nm
- Released for high operating temperatures up to 125 °C
- Moisture sensitivity level (MSL): 1
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE

Pb-free

e4

RoHS COMPLIANT

GREEN (5-2008)

DESCRIPTION

The TCPT1350X01 is a compact transmissive sensor that includes an infrared emitter and a phototransistor detector, located face-to-face in a surface mount package. TCPT1350X01 is especially designed to meet high operating temperature requirements and is released for operating temperature ranges from - 40 °C to + 125 °C.

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
TCPT1350X01	3	0.3	1.6	No

Note

- Conditions like in table basic characteristics/coupler

ORDERING INFORMATION

ORDERING CODE	PACKAGING	VOLUME (1)	REMARKS
TCPT1350X01	Tape and reel	MOQ: 2000 pcs, 2000 pcs/reel	Drypack, MSL 1

Note

- MOQ: minimum order quantity

For technical questions, contact: sensorstechsupport@vishay.com

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ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	**TEST CONDITION**	**SYMBOL**	**VALUE**	**UNIT**
COUPLER				
Total power dissipation	$T_{amb} \leq 125$ °C	P_{tot}	37.5	mW
Junction temperature		T_j	140	°C
Ambient temperature range		T_{amb}	- 40 to + 125	°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	$T_{amb} \leq 125$ °C	I_F	25	mA
Forward surge current	$t_p \leq 10$ µs	I_{FSM}	200	mA
Power dissipation	$T_{amb} \leq 125$ °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

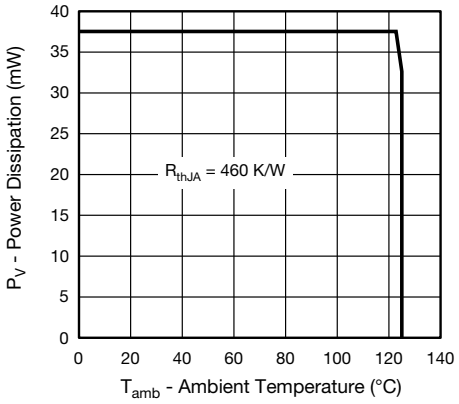

Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

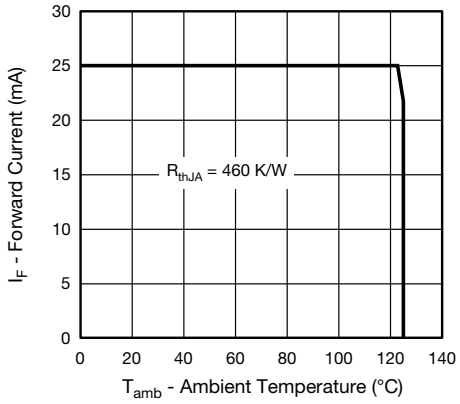

Fig. 2 - Forward Current Limit vs. Ambient Temperature

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