

Subminiature Transmissive Optical Sensor with Transistor Output



19601



21848

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.

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

RoHS
COMPLIANT
GREEN
(5-2008)

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



| ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) | | | | |
|---|---|------------------|---------------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| COUPLER | | | | |
| Total power dissipation | T _{amb} ≤ 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} ≤ 125 °C | I _F | 25 | mA |
| Forward surge current | t _p ≤ 10 μs | I _{FSM} | 200 | mA |
| Power dissipation | T _{amb} ≤ 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

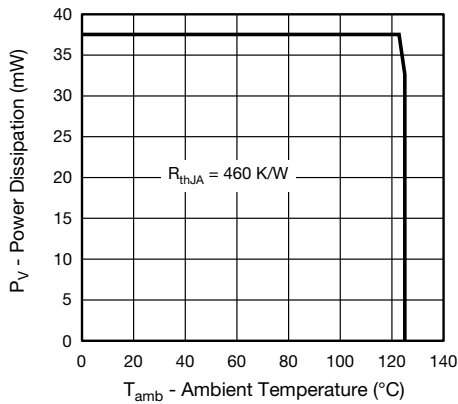


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

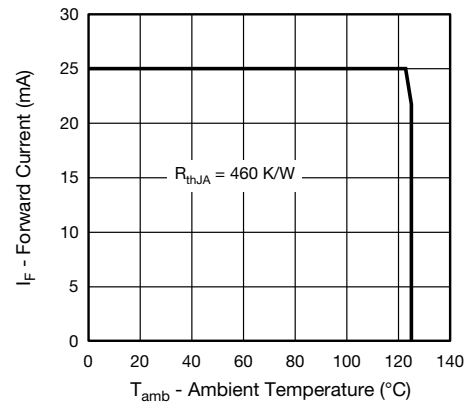


Fig. 2 - Forward Current Limit vs. Ambient Temperature