

Vishay Semiconductors

Ambient Light Sensor



FEATURES

Package type: leadedPackage form: T-1¾

• Dimensions (in mm): Ø 5

High photo sensitivity

Adapted to human eye responsivity

• Angle of half sensitivity: $\varphi = \pm 20^{\circ}$

 Material categorization: for definitions of compliance please see www.vishay.com/doc?99912





RoHS COMPLIANT

FREE GREEN (5-2008)

DESCRIPTION

TEPT5600 ambient light sensor is a silicon NPN epitaxial planar phototransistor in a T-1¾ package. It is sensitive to visible light much like the human eye and has peak sensitivity at 570 nm.

APPLICATIONS

- Replacement of cadmium sulfide (CdS) photoresistors
- Ambient light sensor

PRODUCT SUMMARY						
COMPONENT	I _{PCE} (μΑ)	φ (deg)	λ _{0.5} (nm)			
TEPT5600	630	± 20	440 to 800			

Note

· Test condition see table "Basic Characteristics"

ORDERING INFORMATION					
ORDERING CODE	RING CODE PACKAGING REMARKS				
TEPT5600	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk. Label with I _{PCE} group on each bulk. Specifications of group A/B/C/D see table "Type Dedicated Characteristics"	T-1¾		

Note

• MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	SYMBOL VALUE			
Collector emitter voltage		V _{CEO}	6	V		
Emitter collector voltage		V _{ECO}	1.5	V		
Collector current		I _C	20	mA		
Power dissipation	T _{amb} ≤ 55 °C	P _V	100	mW		
Junction temperature		T _j	100	°C		
Operating temperature range		T _{amb}	-40 to +85	°C		
Storage temperature range		T _{stg}	-40 to +100	°C		
Soldering temperature	t ≤ 3 s, 2 mm distance to package	T _{sd}	260	°C		
Thermal resistance junction/ambient	J-STD-051, soldered on PCB	R _{thJA}	230	K/W		



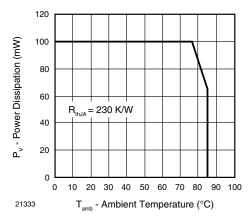


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector emitter breakdown voltage	I _C = 0.1 mA	V_{CEO}	6			V
Collector dark current	$V_{CE} = 5 \text{ V}, E = 0$	I _{CEO}		3	50	nA
Collector emitter capacitance	$V_{CE} = 0 \text{ V, } f = 1 \text{ MHz, } E = 0$	C _{CEO}		16		pF
Photo current	$E_v = 20 Ix$, CIE illuminant A, $V_{CE} = 5 V$	I _{PCE}	25		226.8	μΑ
	$E_v = 100 \text{ Ix}$, CIE illuminant A, $V_{CE} = 5 \text{ V}$	I _{PCE}		630		μΑ
Angle of half sensitivity		φ		± 20		deg
Wavelength of peak sensitivity		λ_{p}		570		nm
Range of spectral bandwidth		λ _{0.5}		440 to 800		nm

TYPE DEDICATED CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	BINNED GROUP	SYMBOL	MIN.	MAX.	UNIT
Photo current	$E_V = 20 \text{ lx},$ CIE illuminant A, $V_{CE} = 5 \text{ V}, T_{amb} = 25 \text{ °C}$	Α	I _{PCE}	25	50.4	μA
		В	I _{PCE}	41.7	84	μΑ
		С	I _{PCE}	69.4	140	μΑ
		D	I _{PCE}	113.4	226.8	μΑ

Note

 Each 4000 piece bag will contain a single group. The label on the bag will indicate which binned group is in the bag. A specific group cannot be ordered. Production shipments containing multiple bags will likely include multiple groups. Please design accordingly.



BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

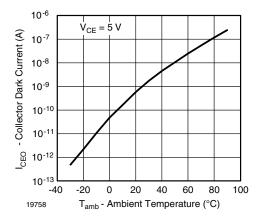


Fig. 2 - Collector Dark Current vs. Ambient Temperature

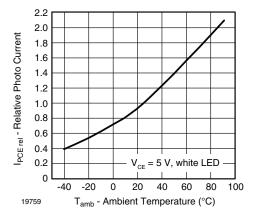


Fig. 3 - Relative Photo Current vs. Ambient Temperature

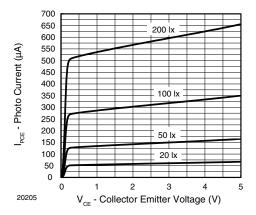


Fig. 4 - Photo Current vs. Collector Emitter Voltage

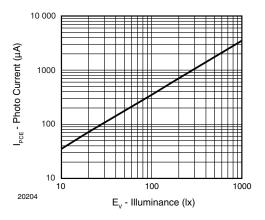


Fig. 5 - Photo Current vs. Illuminance

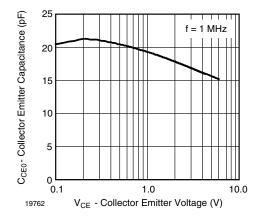


Fig. 6 - Collector Emitter Capacitance vs. Collector Emitter Voltage

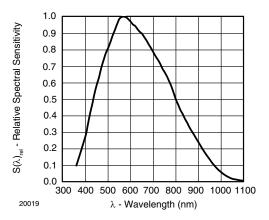


Fig. 7 - Relative Spectral Sensitivity vs. Wavelength



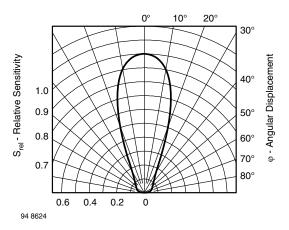
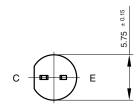
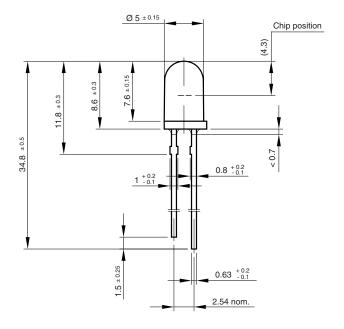
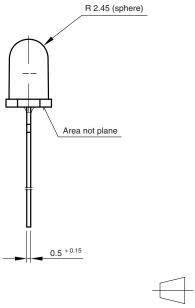


Fig. 8 - Relative Radiant Sensitivity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters







technical drawings according to DIN specifications

Drawing-No.: 6.544-5185.03-4

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