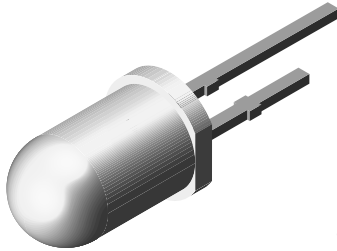


## Ambient Light Sensor



94 8390

### DESCRIPTION

TEPT5600 ambient light sensor is a silicon NPN epitaxial planar phototransistor in a T-1 $\frac{3}{4}$  package. It is sensitive to visible light much like the human eye and has peak sensitivity at 570 nm.

### FEATURES

- Package type: leaded
- Package form: T-1 $\frac{3}{4}$
- Dimensions (in mm):  $\varnothing$  5
- High photo sensitivity
- Adapted to human eye responsivity
- Angle of half sensitivity:  $\varphi = \pm 20^\circ$
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### APPLICATIONS

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

### PRODUCT SUMMARY

COMPONENT	$I_{PCE}$ ( $\mu$ A)	$\varphi$ (deg)	$\lambda_{0.5}$ (nm)
TEPT5600	350	$\pm 20$	440 to 800

#### Note

Test condition see table "Basic Characteristics"

### ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
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-1 $\frac{3}{4}$

#### Note

MOQ: minimum order quantity

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Collector emitter voltage		$V_{CEO}$	6	V
Emitter collector voltage		$V_{ECO}$	1.5	V
Collector current		$I_C$	20	mA
Power dissipation	$T_{amb} \leq 55^\circ\text{C}$	$P_V$	100	mW
Junction temperature		$T_j$	100	$^\circ\text{C}$
Operating temperature range		$T_{amb}$	- 40 to + 85	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	- 40 to + 100	$^\circ\text{C}$
Soldering temperature	$t \leq 3$ s, 2 mm distance to package	$T_{sd}$	260	$^\circ\text{C}$
Thermal resistance junction/ambient	J-STD-051, soldered on PCB	$R_{thJA}$	230	K/W

#### Note

$T_{amb} = 25^\circ\text{C}$ , unless otherwise specified

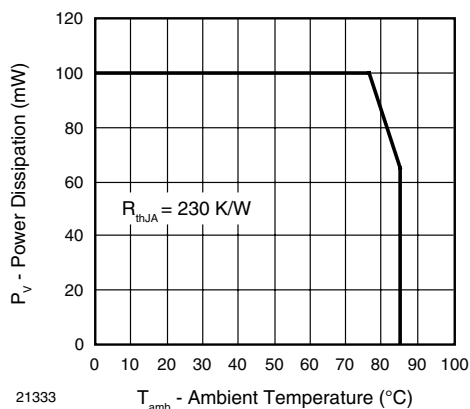


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

BASIC CHARACTERISTICS						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector emitter breakdown voltage	$I_C = 0.1 \text{ mA}$	$V_{CEO}$	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	$E_V = 20 \text{ lx}, \text{ CIE illuminant A}, V_{CE} = 5 \text{ V}$	$I_{PCE}$	25		226.8	$\mu\text{A}$
	$E_V = 100 \text{ lx}, \text{ CIE illuminant A}, V_{CE} = 5 \text{ V}$	$I_{PCE}$		350		$\mu\text{A}$
Angle of half sensitivity		$\phi$		$\pm 20$		deg
Wavelength of peak sensitivity		$\lambda_p$		570		nm
Range of spectral bandwidth		$\lambda_{0.5}$		440 to 800		nm

**Note**

$T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

TYPE DEDICATED CHARACTERISTICS						
PARAMETER	TEST CONDITION	SELECTION TYPE	SYMBOL	MIN.	MAX.	UNIT
Photo current	$E_V = 20 \text{ lx}, \text{ CIE illuminant A}, V_{CE} = 5 \text{ V}$	TEPT5600A	$I_{PCE}$	25	50.4	$\mu\text{A}$
		TEPT5600B	$I_{PCE}$	41.7	84	$\mu\text{A}$
		TEPT5600C	$I_{PCE}$	69.4	140	$\mu\text{A}$
		TEPT5600D	$I_{PCE}$	113.4	226.8	$\mu\text{A}$

**Note**

$T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

**BASIC CHARACTERISTICS**

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

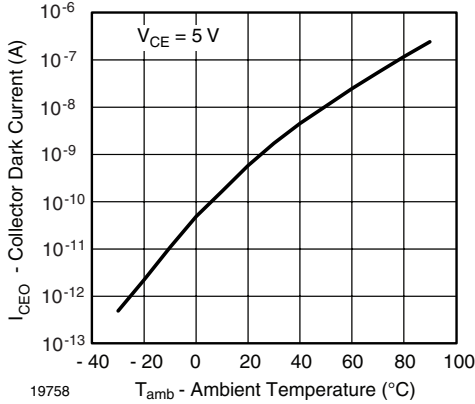


Fig. 2 - Collector Dark Current vs. Ambient Temperature

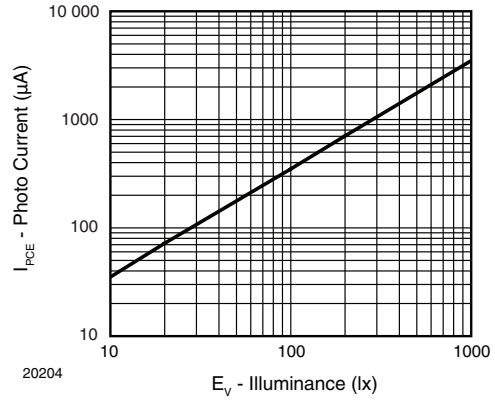


Fig. 5 - Photo Current vs. Illuminance

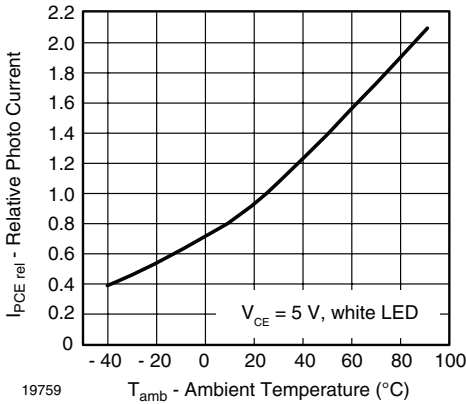


Fig. 3 - Relative Photo Current vs. Ambient Temperature

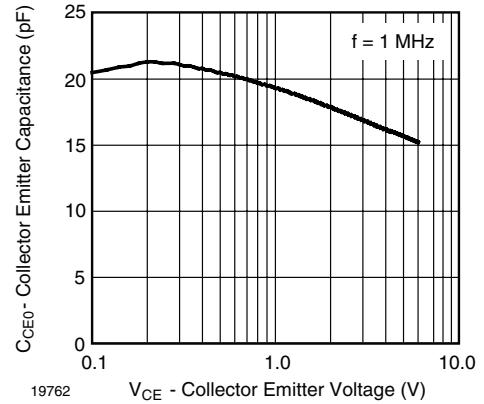


Fig. 6 - Collector Emitter Capacitance vs. Collector Emitter Voltage

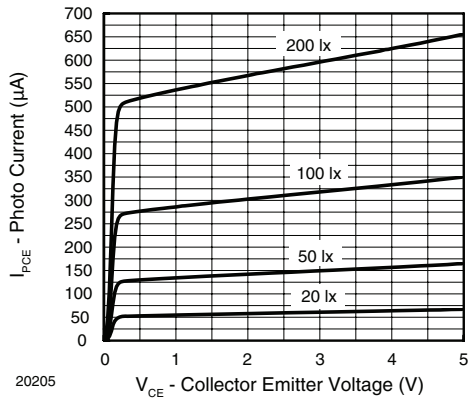


Fig. 4 - Photo Current vs. Collector Emitter Voltage

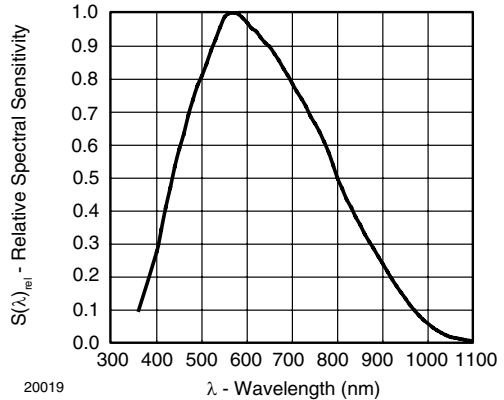


Fig. 7 - Relative Spectral Sensitivity vs. Wavelength

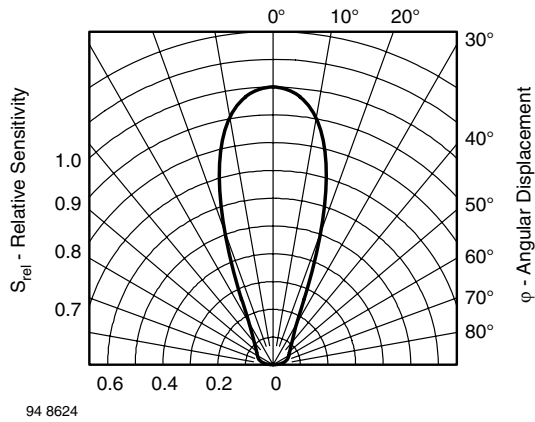
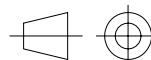
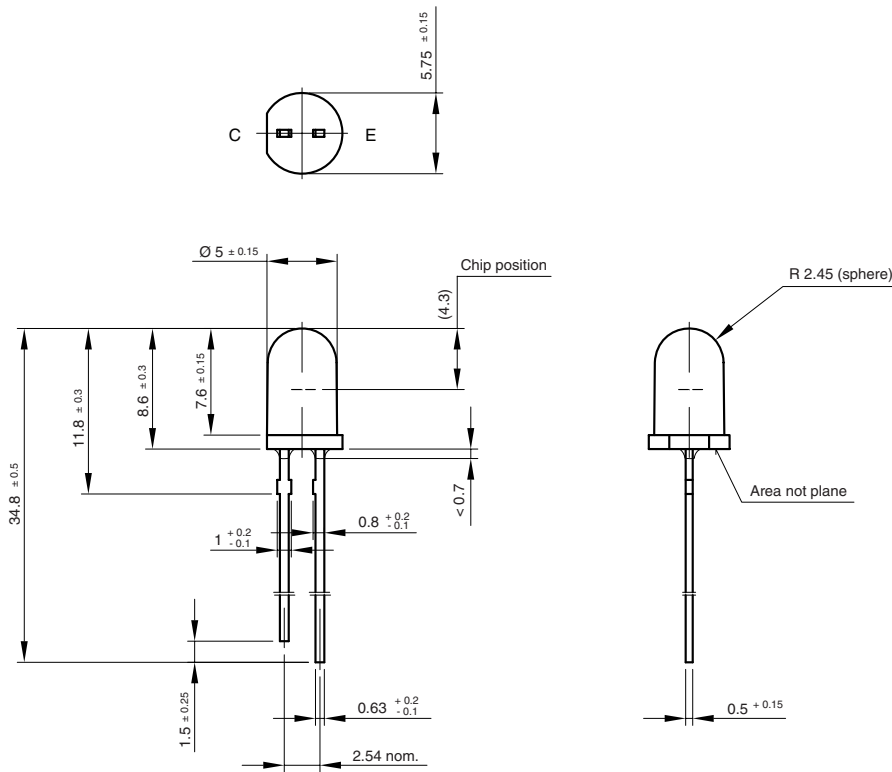


Fig. 8 - Relative Radiant Sensitivity vs. Angular Displacement

**PACKAGE DIMENSIONS** in millimeters



technical drawings according to DIN specifications

Drawing-No.: 6.544-5185.03-4  
 Issue:1; 19.06.06  
 21981



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