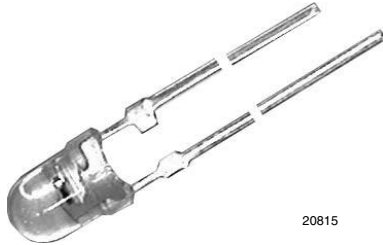


## Ambient Light Sensor, RoHS Compliant



### FEATURES

- Package type: leaded
- Package form: T-1
- Dimensions (in mm):  $\varnothing 3$
- High photo sensitivity
- Adapted to human eye responsivity
- Angle of half sensitivity:  $\varphi = \pm 30^\circ$
- Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### DESCRIPTION

TEPT4400 ambient light sensor is a silicon NPN epitaxial planar phototransistor in a T-1 package. It is sensitive to visible light much like the human eye and has peak sensitivity at 570 nm.

### APPLICATIONS

- Ambient light sensor for control of display backlight dimming in LCD displays and keypad backlighting of mobile devices and in industrial on/off-lighting operation
- Replacement of CdS photoresistors

### PRODUCT SUMMARY

COMPONENT	$I_{PCE}$ ( $\mu A$ )	$\varphi$ (deg)	$\lambda_{0.5}$ (nm)
TEPT4400	200	$\pm 30$	440 to 800

**Note**

Test condition see table "Basic Characteristics"

### ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TEPT4400	Bulk	MOQ: 5000 pcs, 5000 pcs/bulk	T-1

**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	$T_{amb} \leq 55^\circ C$	$P_V$	100	mW
Junction temperature		$T_j$	100	$^\circ C$
Operating temperature range		$T_{amb}$	- 40 to + 85	$^\circ C$
Storage temperature range		$T_{stg}$	- 40 to + 100	$^\circ C$
Soldering temperature	$t \leq 3$ s	$T_{sd}$	260	$^\circ C$
Thermal resistance junction/ambient	J-STD-051, soldered on PCB	$R_{thJA}$	300	K/W

**Note**

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

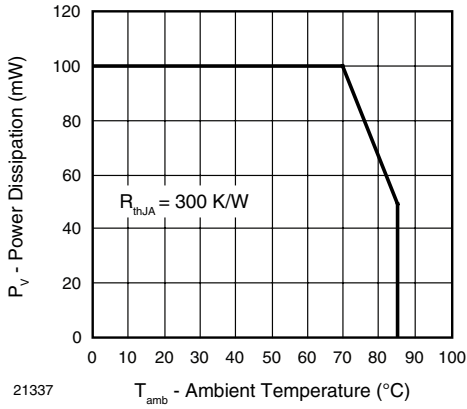


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

BASIC CHARACTERISTICS						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector emitter breakdown voltage	I <sub>C</sub> = 0.1 mA	V <sub>CEO</sub>	6			V
Collector dark current	V <sub>CE</sub> = 5 V, E = 0	I <sub>CEO</sub>		3	50	nA
Collector emitter capacitance	V <sub>CE</sub> = 0 V, f = 1 MHz, E = 0	C <sub>CEO</sub>		16		pF
Collector light current	E <sub>v</sub> = 20 lx, CIE illuminant A, V <sub>CE</sub> = 5 V	I <sub>PCE</sub>	15	40	70	μA
	E <sub>v</sub> = 100 lx, CIE illuminant A, V <sub>CE</sub> = 5 V	I <sub>PCE</sub>		200		μA
Angle of half sensitivity		φ		± 30		deg
Wavelength of peak sensitivity		λ <sub>p</sub>		570		nm
Range of spectral bandwidth		λ <sub>0.5</sub>		440 to 800		nm
Collector emitter saturation voltage	E <sub>v</sub> = 20 lx, CIE illuminant A, I <sub>PCE</sub> = 1.2 μA	V <sub>CEsat</sub>		0.1		V

**Note**

T<sub>amb</sub> = 25 °C, unless otherwise specified

**BASIC CHARACTERISTICS**

T<sub>amb</sub> = 25 °C, unless otherwise specified

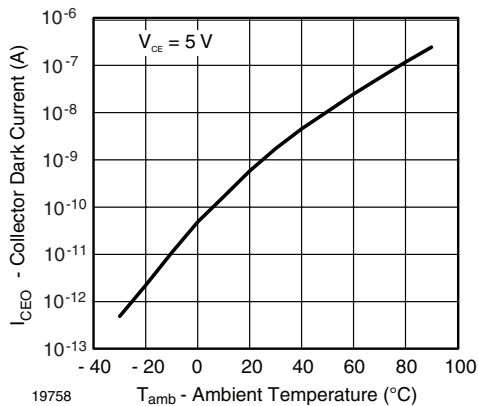


Fig. 2 - Collector Dark Current vs. Ambient Temperature

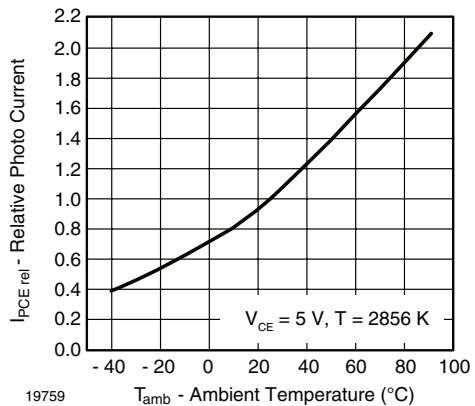


Fig. 3 - Relative Photo Current vs. Ambient Temperature

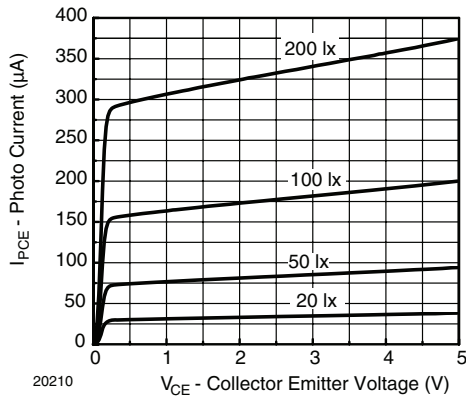


Fig. 4 - Photo Current vs. Collector Emitter Voltage

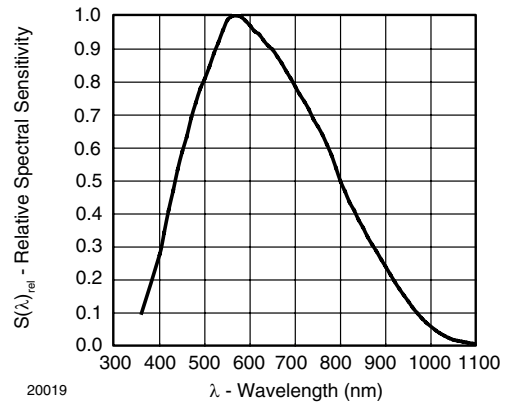


Fig. 7 - Relative Spectral Sensitivity vs. Wavelength

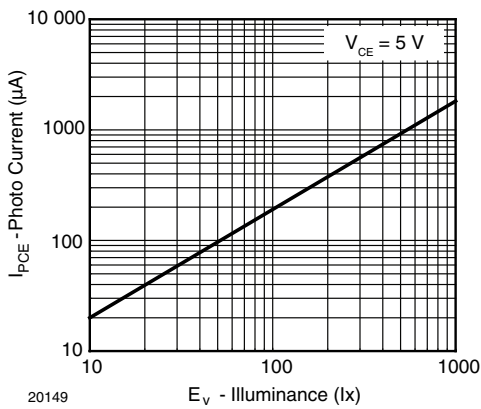


Fig. 5 - Photo Current vs. Illuminance

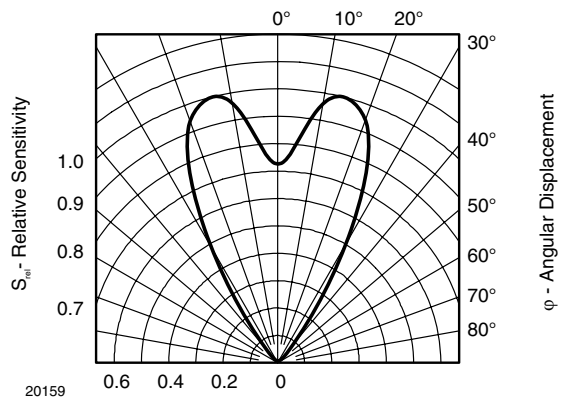


Fig. 8 - Relative Radiant Sensitivity vs. Angular Displacement

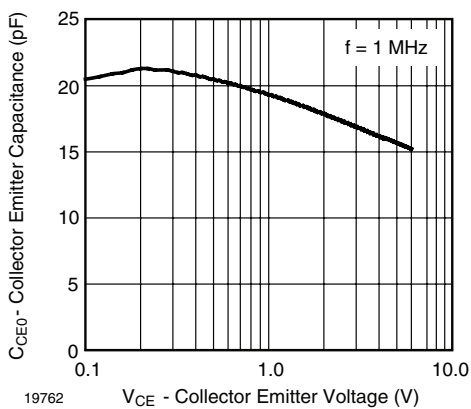
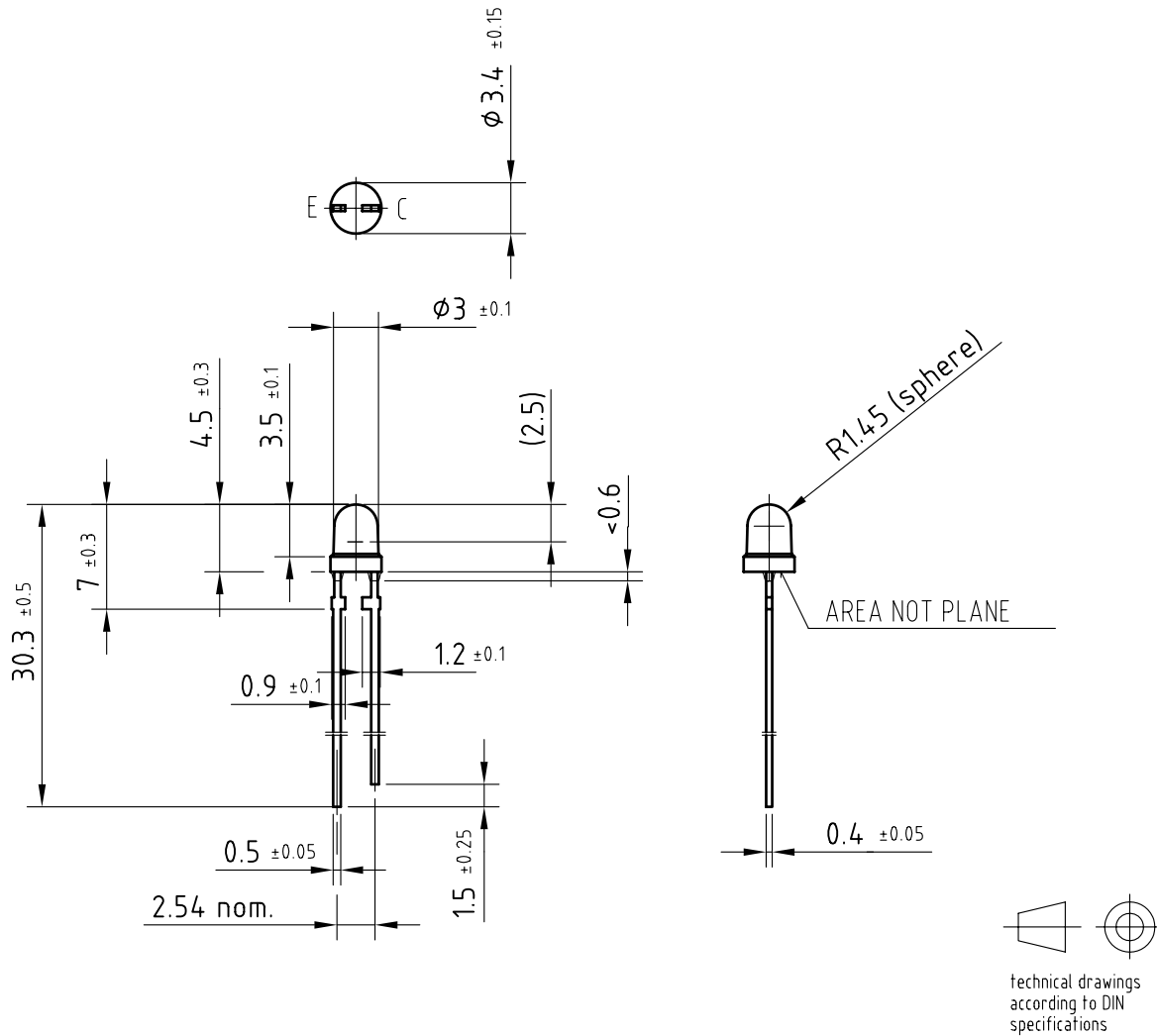


Fig. 6 - Collector Emitter Capacitance vs. Collector Emitter Voltage

## PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5054.01-4

Issue: 2; 12.11.96

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