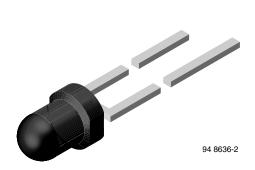
HALOGEN FREE

GREEN



Vishay Semiconductors

Silicon NPN Phototransistor



DESCRIPTION

TEFT4300 is a silicon NPN phototransistor with high radiant sensitivity in black, T-1 plastic package with daylight blocking filter. Filter bandwidth is matched with 900 nm to 950 nm IR emitters.

FEATURES

Package type: leadedPackage form: T-1

• Dimensions (in mm): Ø 3

High radiant sensitivity

Daylight blocking filter matched with 940 nm emitters

• Fast response times

• Angle of half sensitivity: $\varphi = \pm 30^{\circ}$

 Package matched with IR emitter series TSUS4300 and TSAL4400

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

APPLICATIONS

- Optical switches
- · Counters and sorters
- Interrupters
- Encoders
- · Position sensors

PRODUCT SUMMARY				
COMPONENT	I _{ca} (mA)	I _{ca} (mA) φ (deg)		
TEFT4300	3.2	± 30	875 to 1000	

Note

· Test condition see table "Basic Characteristics"

ORDERING INFORMATION					
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM		
TEFT4300	Bulk	MOQ: 5000 pcs, 5000 pcs/bulk	T-1		

Note

MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Collector emitter voltage		V _{CEO}	70	V	
Emitter collector voltage		V _{ECO}	5	V	
Collector current		I _C	50	mA	
Collector peak current	$t_p/T = 0.5, t_p \le 10 \text{ ms}$	I _{CM}	100	mA	
Power dissipation	T _{amb} ≤ 55 °C	P _V	100	mW	
Junction temperature		Tj	100	°C	
Operating temperature range		T _{amb}	-40 to +100	°C	
Storage temperature range		T _{stg}	-40 to +100	°C	
Soldering temperature	$t \le 3$ s, 2 mm from case	T _{sd}	260	°C	
Thermal resistance junction/ambient	Connected with Cu wire, 0.14 mm ²	R _{thJA}	450	K/W	



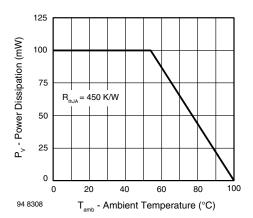
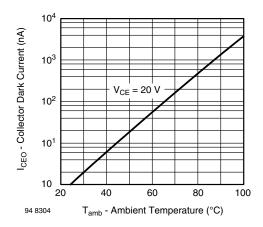


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector emitter breakdown voltage	I _C = 1 mA	V _{(BR)CEO}	70			V
Collector emitter dark current	V _{CE} = 20 V, E = 0	I _{CEO}		1	200	nA
Collector emitter capacitance	$V_{CE} = 5 \text{ V, f} = 1 \text{ MHz, E} = 0$	C _{CEO}		3		pF
Collector light current	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}, V_{CE} = 5 \text{ V}$	I _{ca}	0.8	3.2		mA
Angle of half sensitivity		φ		± 30		deg
Wavelength of peak sensitivity		λ_{p}		925		nm
Range of spectral bandwidth		λ _{0.5}		875 to 1000		nm
Collector emitter saturation voltage	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 950 \text{ nm}$, $I_C = 0.1 \text{ mA}$	V _{CEsat}			0.3	V
Turn-on time	$V_S = 5 \text{ V}, I_C = 5 \text{ mA}, R_L = 100 \Omega$	t _{on}		2		μs
Turn-off time	$V_S = 5 \text{ V}, I_C = 5 \text{ mA}, R_L = 100 \Omega$	t _{off}		2.3	•	μs
Cut-off frequency	$V_S = 5 \text{ V}, I_C = 5 \text{ mA}, R_L = 100 \Omega$	f _c		180		kHz

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





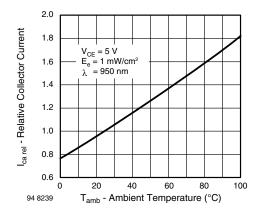


Fig. 3 - Relative Collector Current vs. Ambient Temperature

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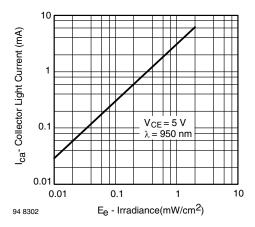


Fig. 4 - Collector Light Current vs. Irradiance

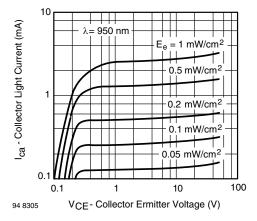


Fig. 5 - Collector Light Current vs. Collector Emitter Voltage

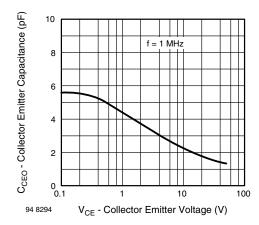


Fig. 6 - Collector Emitter Capacitance vs. Collector Emitter Voltage

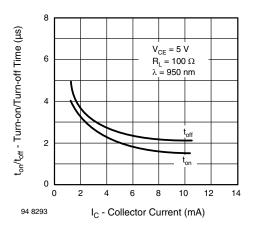


Fig. 7 - Turn-on/Turn-off Time vs. Collector Current

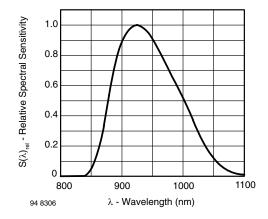


Fig. 8 - Relative Spectral Sensitivity vs. Wavelength

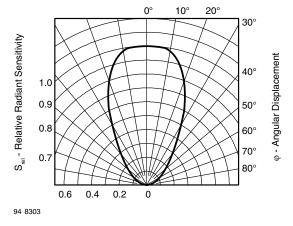
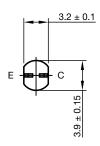
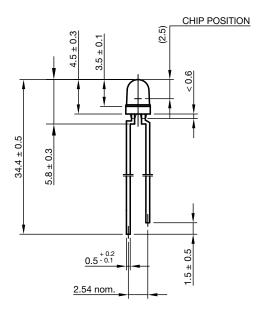


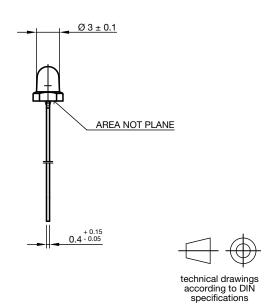
Fig. 9 - Relative Radiant Sensitivity vs. Angular Displacement

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PACKAGE DIMENSIONS in millimeters







Drawing-No.: 6.544-5269.01-4

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