GREEN (5-2008)**



Vishay Semiconductors

Silicon PIN Photodiode



TEFD4300F is a silicon PIN photodiode with high radiant

sensitivity in black, T-1 plastic package with daylight blocking filter. Filter bandwitdth is matched with 850 nm to

FEATURES

Package type: leadedPackage form: T-1

• Dimensions (in mm): Ø 3

High radiant sensitivity

 Daylight blocking filter matched with 850 nm to 950 nm emitters

· Fast response times

Angle of half sensitivity: φ = ± 20°

 Package matched with IR emitter series VSLB3940, TSUS4300, and TSAL4400

 Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Note

** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

APPLICATIONS

- High speed photo detector for data transmission
- · Optical switches
- · Counters and sorters
- Interrupters
- Encoders
- Position sensors

PRODUCT SUMMARY				
COMPONENT	I _{ra} (μΑ)	φ (deg)	λ _{0.5} (nm)	
TEFD4300F	17	± 20	770 to 1070	

Note

DESCRIPTION

950 nm IR emitters.

• Test condition see table "Basic Characteristics"

ORDERING INFORMATION				
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM	
TEFD4300F	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	
Reverse voltage		V _R	60	V	
Power dissipation	T _{amb} ≤ 25 °C	P _V	215	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	



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BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 50 mA	V _F		1		V
Breakdown voltage	I _R = 100 μA, E = 0	V _(BR)	60			V
Reverse dark current	V _R = 10 V, E = 0	I _{ro}		0.15	3	nA
Diode capacitance	$V_R = 0 \text{ V, } f = 1 \text{ MHz, } E = 0$	C _D		3.3		pF
	V _R = 5 V, f = 1 MHz, E = 0	C _D		1.2		pF
Open circuit voltage	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	V _{OC}		350		mV
Temperature coefficient of V _O	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	TK _{Vo}		- 2.6		mV/K
Short circuit current	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	l _k		15		μΑ
Temperature coefficient of I _k	$E_e = 1 \text{ mW/cm}^2, \lambda = 950 \text{ nm}$	TK _{lk}		0.1		%/K
Reverse light current	$E_e = 1 \text{ mW/cm}^2$, $\lambda = 950 \text{ nm}$, $V_R = 5 \text{ V}$	I _{ra}	9	17	27	μA
Angle of half sensitivity		φ		± 20		deg
Wavelength of peak sensitivity		λ_{p}		950		nm
Range of spectral bandwidth		λ _{0.5}	770		1070	nm
Rise time	$V_R = 10 \text{ V}, R_L = 1 \text{ k}\Omega, \lambda = 820 \text{ nm}$	t _r		100		ns
Fall time	$V_R = 10 \text{ V}, R_L = 1 \text{ k}\Omega, \lambda = 820 \text{ nm}$	t _f		100		ns

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

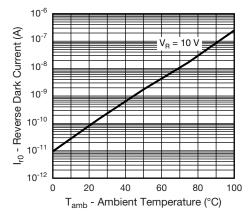


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

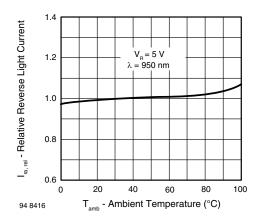


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature



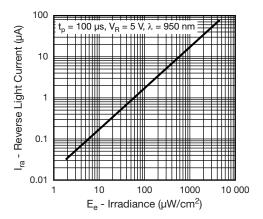


Fig. 3 - Reverse Light Current vs. Irradiance

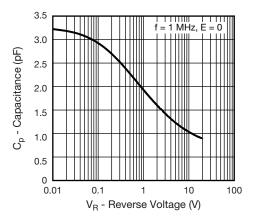


Fig. 4 - Diode Capacitance vs. Reverse Voltage

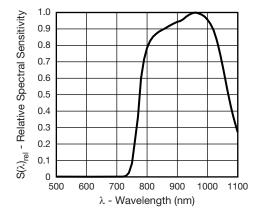


Fig. 5 - Relative Spectral Sensitivity vs. Wavelength

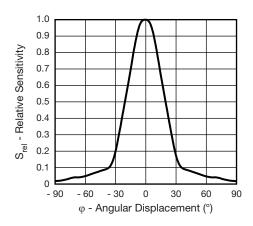


Fig. 6 - Relative Radiant Intensity vs. Angular Displacement

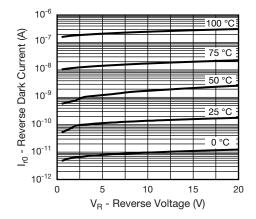
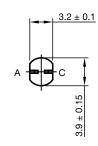
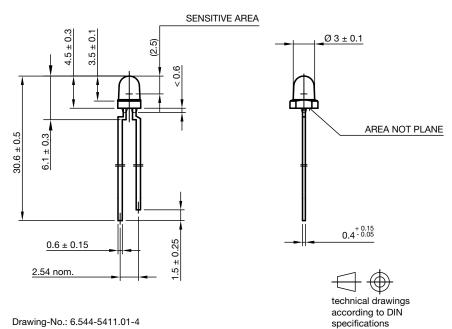


Fig. 7 - Dark Current vs. Reverse Voltage

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PACKAGE DIMENSIONS in millimeters





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