Silicon PIN Photodiode

FEATURES

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

Pb-free

e2

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

DESCRIPTION

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 950 nm IR emitters.

APPLICATIONS

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

PRODUCT SUMMARY			
COMPONENT	I_{ra} (µA)	φ (deg)	$\lambda_{0.5}$ (nm)
TEFD4300F	17	± 20	770 to 1070

Note

- Test condition see table “Basic Characteristics”

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TEFD4300F	Bulk	MOQ: 5000 pcs, 5000 pcs/bulk	T-1
TEFD4300F-QS21	Tape and reel	MOQ: 10 000 pcs, 2000 pcs/reel	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	$T_{amb} \leq 25$ °C	P_V	215	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	-40 to +100	°C
Storage temperature range		T_{stg}	-40 to +100	°C
Soldering temperature	t ≤ 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

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 V, f = 1 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 mW/cm², λ = 950 nm	V_{OC}	-	350	-	mV
Temperature coefficient of V_O	E_e = 1 mW/cm², λ = 950 nm	TK_{Vo}	-	-2.6	-	mV/K
Short circuit current	E_e = 1 mW/cm², λ = 950 nm	I_k	-	15	-	µA
Temperature coefficient of I_k	E_e = 1 mW/cm², λ = 950 nm	TK_{Ik}	-	0.1	-	%/K
Reverse light current	E_e = 1 mW/cm², λ = 950 nm, V_R = 5 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		$\lambda_{0.5}$	770	-	1070	nm
Rise time	V_R = 10 V, R_L = 1 kΩ, λ = 820 nm	t_r	-	100	-	ns
Fall time	V_R = 10 V, R_L = 1 kΩ, λ = 820 nm	t_f	-	100	-	ns

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

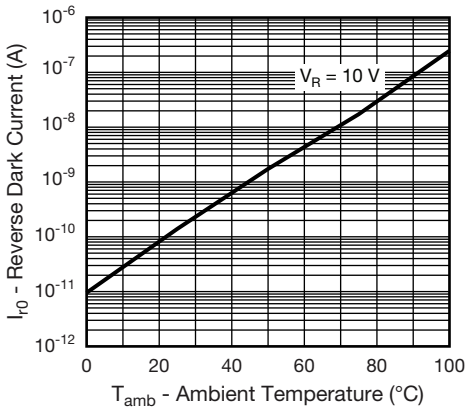


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

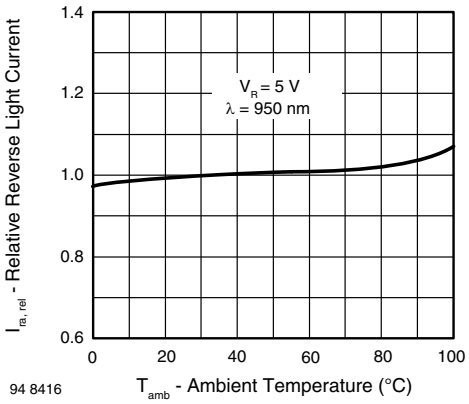


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

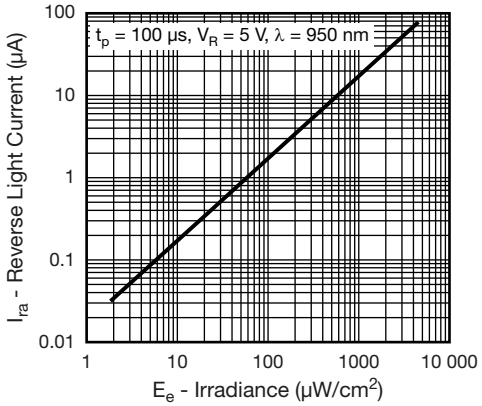


Fig. 3 - Reverse Light Current vs. Irradiance

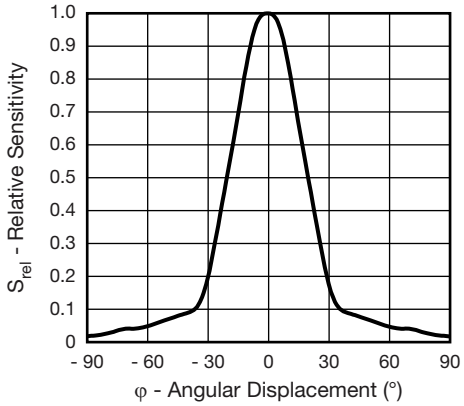


Fig. 6 - Relative Radiant Intensity vs. Angular Displacement

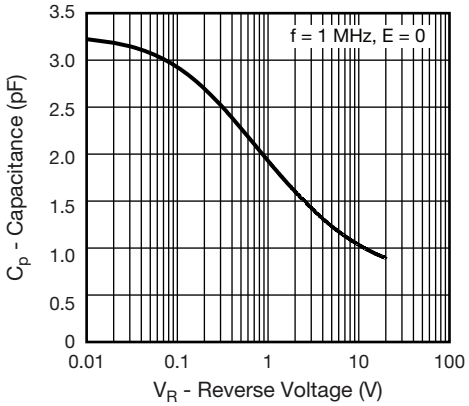


Fig. 4 - Diode Capacitance vs. Reverse Voltage

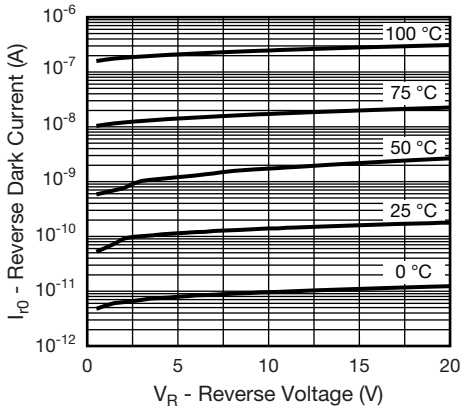


Fig. 7 - Dark Current vs. Reverse Voltage

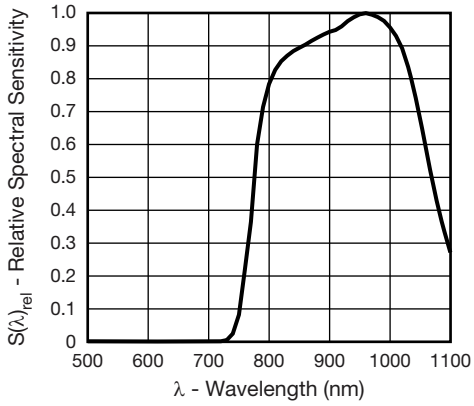
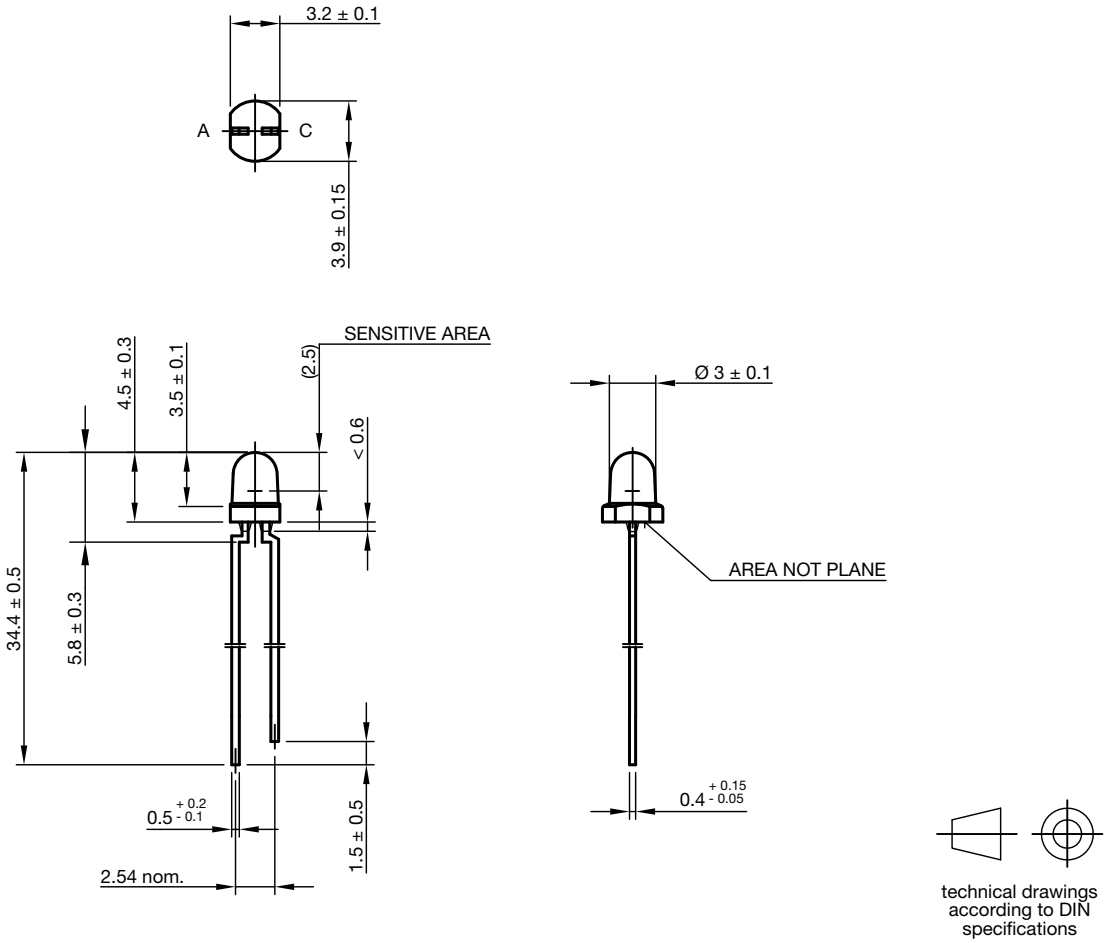


Fig. 5 - Relative Spectral Sensitivity vs. Wavelength

PACKAGE DIMENSIONS in millimeters



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