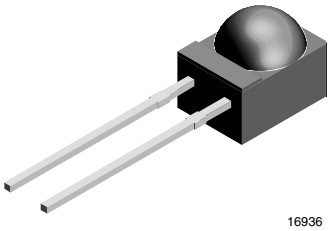
Silicon PIN Photodiode, RoHS Compliant



FEATURES

- Package type: leaded
- Package form: side view
- Dimensions (L x W x H in mm): 4.5 x 5 x 6
- Radiant sensitive area (in mm^2): 2.2
- High radiant sensitivity
- Daylight blocking filter matched with 870 nm to 950 nm emitters
- High cut-off frequency at V_R = 2 V: 35 MHz
- Angle of half sensitivity: $\varphi = \pm 60°$
- Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC

Pb-free

e4

RoHS COMPLIANT

DESCRIPTION

TESP5700 PIN photodiode is applicable to high speed data transmission specifically at low reverse voltage. Black epoxy package include side view lens and daylight blocking filter, matched to high speed IR emitters.

APPLICATIONS

- High speed data transmission specifically using low supply voltage
- High speed detector for infrared radiation
- Infrared remote control and free air data transmissionsystems, e.g. in combination with TSFFxxxx series IR emitters

PRODUCT SUMMARY

COMPONENT	I_{ra} (µA)	φ (deg)	$\lambda_{0.5}$ (nm)
TESP5700	25	± 60	790 to 980

Note

Test condition see table “Basic Characteristics”

ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TESP5700	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	Side view

Note

MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS

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	$t \leq 5$ s	T_{sd}	260	°C
Thermal resistance junction/ambient	Connected with Cu wire, 0.14 mm^2	R_{thJA}	350	K/W

Note

T_{amb} = 25 °C, unless otherwise specified

BASIC CHARACTERISTICS						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Forward voltage	I_F = 50 mA	V_F		0.9	1.3	V
Breakdown voltage	I_R = 100 µA, E = 0	$V_{(BR)}$	60			V
Reverse dark current	V_R = 10 V, E = 0	I_{ro}		1	10	nA
Diode capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_D		17		pF
Serial resistance	V_R = 2 V, f = 1 MHz	R_S		40		Ω
Open circuit voltage	E_e = 1 mW/cm², λ = 870 nm	V_o		430		mV
Temperature coefficient of V_o	E_e = 1 mW/cm², λ = 870 nm	TK_{Vo}		- 2.6		mV/K
Short circuit current	E_e = 1 mW/cm², λ = 870 nm	I_k		23		µA
Reverse light current	E_e = 1 mW/cm², λ = 870 nm, V_R = 2 V	I_{ra}	16	25		µA
Temperature coefficient of I_{ra}	E_e = 1 mW/cm², λ = 870 nm, V_R = 2 V	TK_{Ira}		0.13		%/K
Absolute spectral sensitivity	V_R = 2 V, λ = 870 nm	s(λ)		0.57		A/W
	V_R = 5 V, λ = 950 nm	s(λ)		0.37		A/W
Angle of half sensitivity		φ		± 60		deg
Wavelength of peak sensitivity		λ_p		870		nm
Range of spectral bandwidth		$\lambda_{0.5}$		790 to 980		nm
Rise time	V_R = 2 V, R_L = 50 Ω, λ = 870 nm	t_r		10		ns
Fall time	V_R = 2 V, R_L = 50 Ω, λ = 870 nm	t_f		10		ns
Cut-off frequency	V_R = 2 V, R_L = 50 Ω, λ = 870 nm	f_c		4		MHz

Note

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BASIC CHARACTERISTICS

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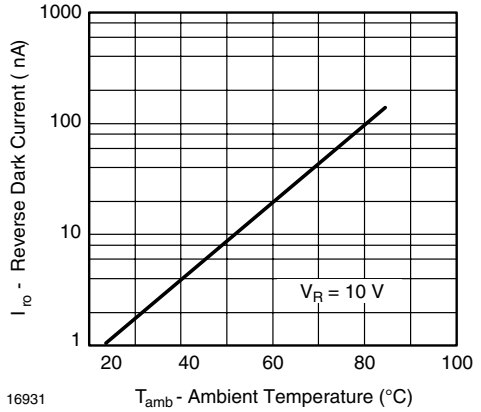


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

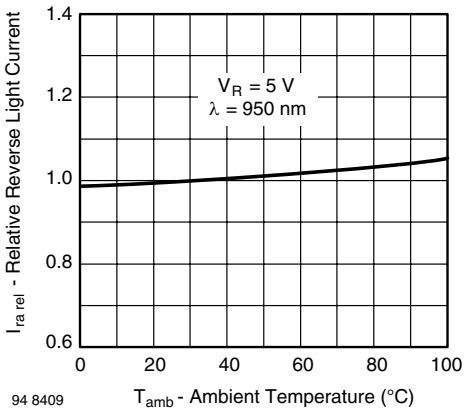


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

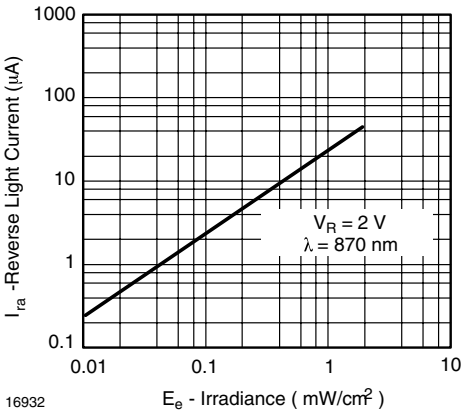


Fig. 3 - Reverse Light Current vs. Irradiance

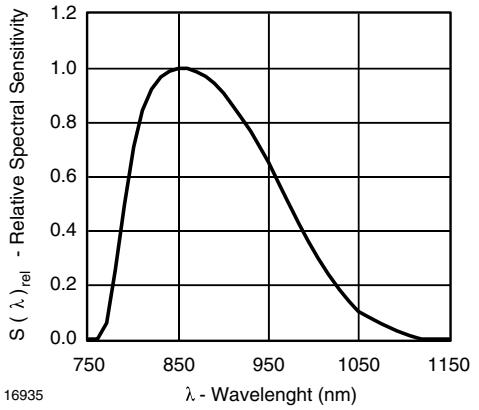


Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

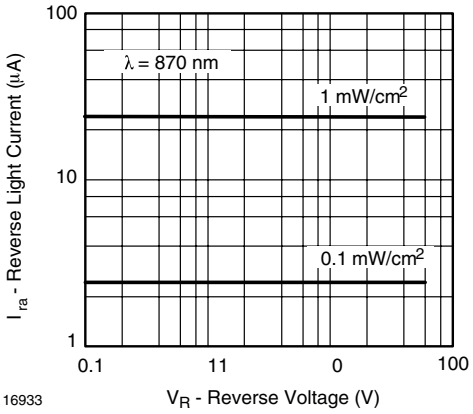


Fig. 4 - Reverse Light Current vs. Reverse Voltage

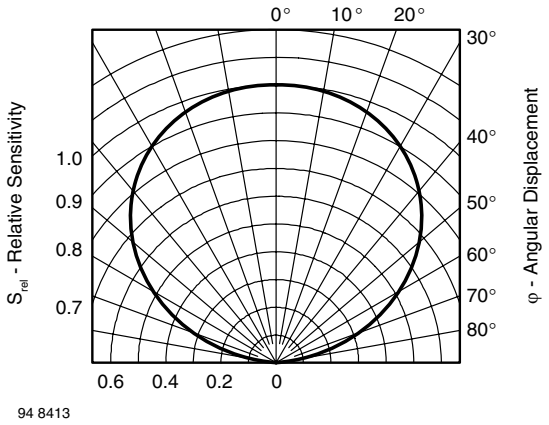


Fig. 7 - Relative Radiant Sensitivity vs. Angular Displacement

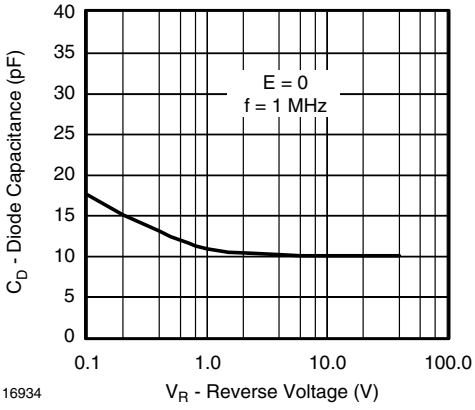
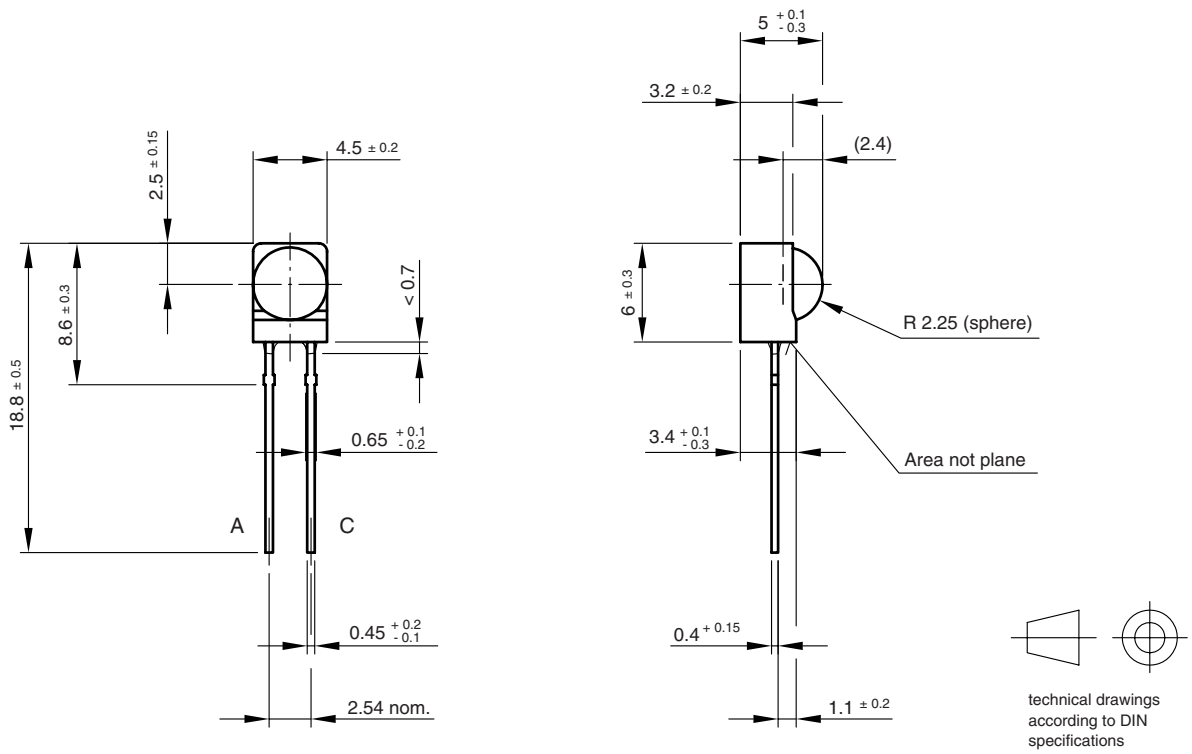


Fig. 5 - Diode Capacitance vs. Reverse Voltage

PACKAGE DIMENSIONS in millimeters



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