

Silicon NPN Phototransistor



16733

DESCRIPTION

TEKT5400S is a silicon NPN phototransistor with high radiant sensitivity, molded in a plastic package with side view lens and daylight blocking filter. Filter bandwidth is matched with 950 nm IR emitters.

FEATURES

- Package type: leaded
- Package form: side view lens
- Dimensions (L x W x H in mm): 5 x 2.65 x 5
- High radiant sensitivity
- Daylight blocking filter matched with 940 nm emitters
- Fast response times
- Angle of half sensitivity: $\phi = \pm 37^\circ$
- Package matched with IR emitter series TSKS5400S
- 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

- Detector in electronic control and drive circuits

PRODUCT SUMMARY

COMPONENT	I_{ca} (mA)	ϕ (deg)	$\lambda_{0.5}$ (nm)
TEKT5400S	4	± 37	850 to 980

Note

- Test condition see table "Basic Characteristics"

ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TEKT5400S	Bulk	MOQ: 2000 pcs, 2000 pcs/bulk	Side view lens

Note

- MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Collector emitter voltage		V_{CEO}	70	V
Emitter collector voltage		V_{ECO}	7	V
Collector current		I_C	100	mA
Collector peak current	$t_p/T \leq 0.5$, $t_p \leq 10$ ms	I_{CM}	200	mA
Power dissipation	$T_{amb} \leq 40^\circ\text{C}$	P_V	150	mW
Junction temperature		T_j	100	$^\circ\text{C}$
Operating temperature range		T_{amb}	- 40 to + 85	$^\circ\text{C}$
Storage temperature range		T_{stg}	- 40 to + 100	$^\circ\text{C}$
Soldering temperature	$t \leq 5$ s	T_{sd}	260	$^\circ\text{C}$
Thermal resistance junction/ambient	J-STD-051, soldered on PCB	R_{thJA}	270	K/W

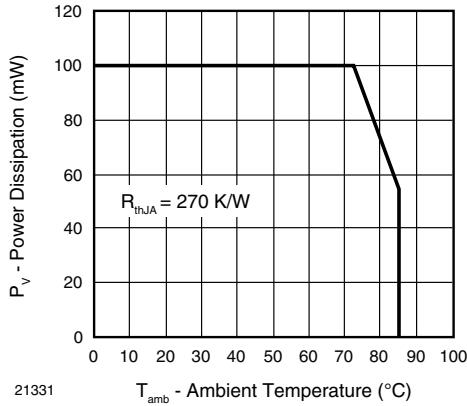


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

BASIC CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector emitter voltage	$I_C = 1\text{ mA}$	V_{CEO}	70			V
Emitter collector voltage	$I_E = 100\text{ }\mu\text{A}$	V_{ECO}	7			V
Collector dark current	$V_{CE} = 20\text{ V}, E = 0$	I_{CEO}		1	100	nA
Collector emitter capacitance	$V_{CE} = 5\text{ V}, f = 1\text{ MHz}, E = 0$	C_{CEO}		6		pF
Collector lighth current	$E_e = 1\text{ mW/cm}^2, \lambda = 950\text{ nm}, V_{CE} = 5\text{ V}$	I_{ca}	2	4		mA
Angle of half sensitivity		ϕ		± 37		deg
Wavelength of peak sensitivity		λ_p		920		nm
Range of spectral bandwidth		$\lambda_{0.5}$		850 to 980		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	$V_S = 5\text{ V}, I_C = 5\text{ mA}, R_L = 100\text{ }\Omega$	t_{on}		6		μs
Turn-off time	$V_S = 5\text{ V}, I_C = 5\text{ mA}, R_L = 100\text{ }\Omega$	t_{off}		5		μs
Cut-off frequency	$V_S = 5\text{ V}, I_C = 5\text{ mA}, R_L = 100\text{ }\Omega$	f_c		110		kHz

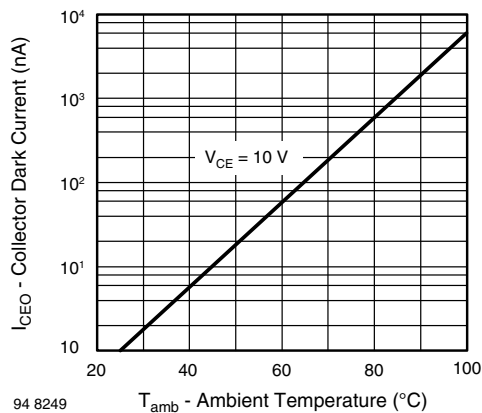
BASIC CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Collector Dark Current vs. Ambient Temperature

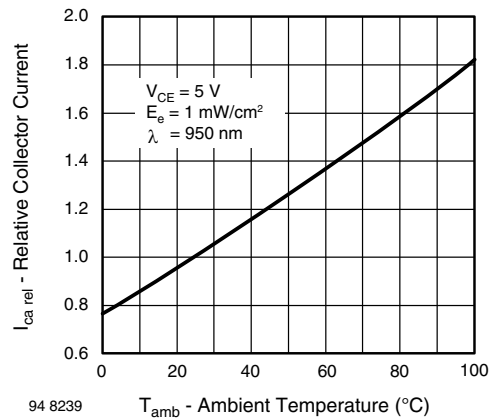
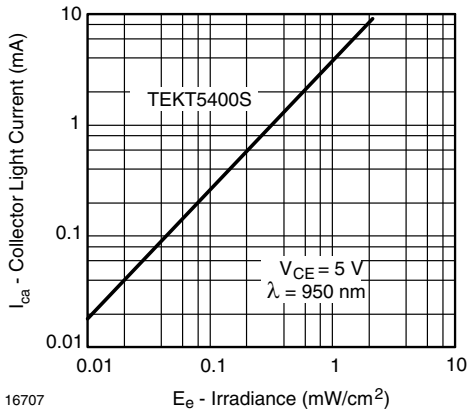
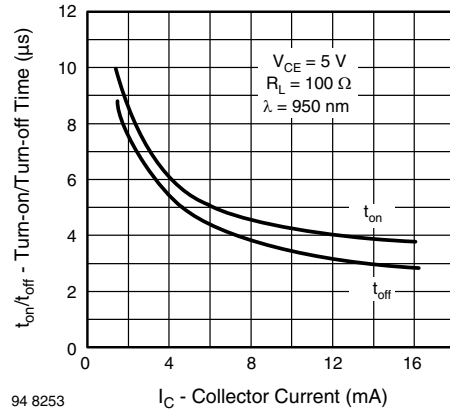


Fig. 2 - Relative Collector Current vs. Ambient Temperature



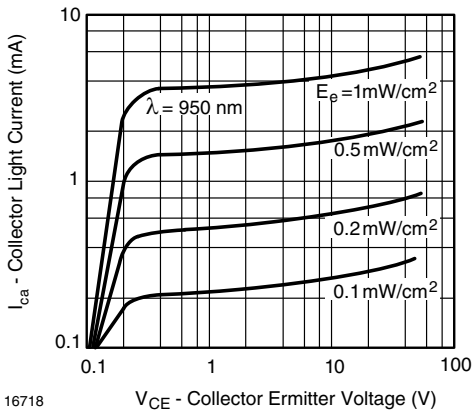
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Fig. 3 - Collector Light Current vs. Irradiance



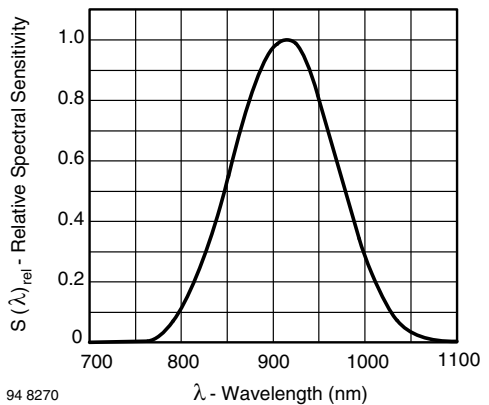
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Fig. 6 - Turn-on/Turn-off Time vs. Collector Current



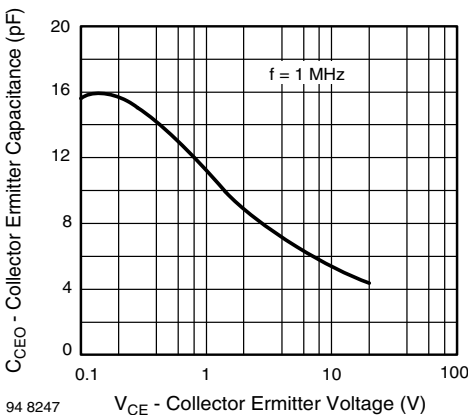
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Fig. 4 - Collector Light Current vs. Collector Emitter Voltage



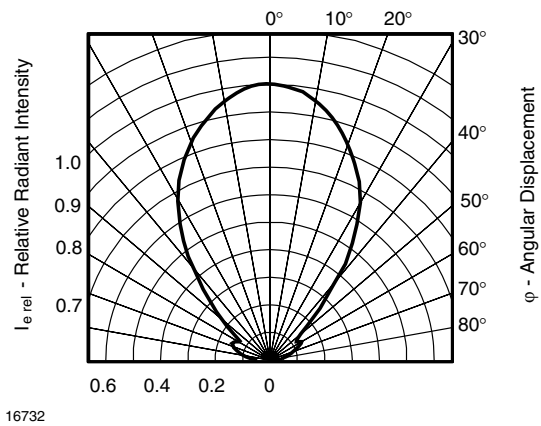
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Fig. 7 - Relative Spectral Sensitivity vs. Wavelength



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Fig. 5 - Collector Emitter Capacitance vs. Collector Emitter Voltage



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Fig. 8 - Relative Radiant Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters



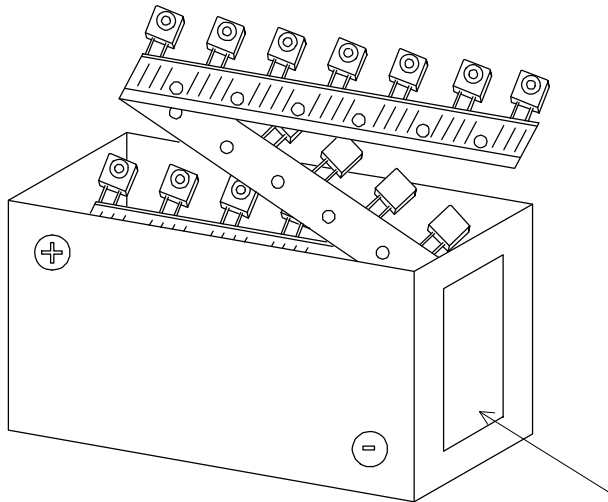
Drawing-No.: 6.544-5347.01-4
Issue: 2; 09.04.03

Protruded resin area where the leads emerged from the package 0.8 max.

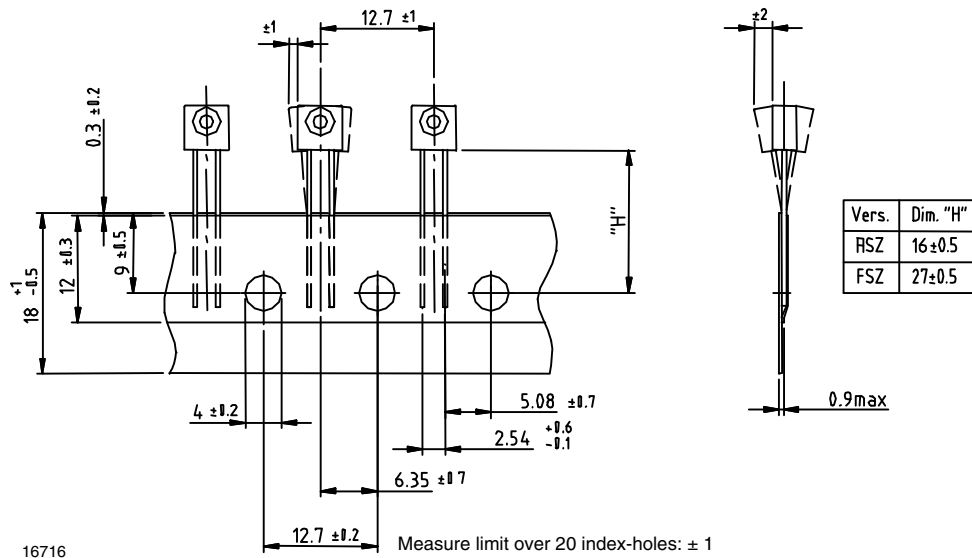
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TAPE AND AMMOPACK STANDARDS Dimensions in millimeters



Labeling: barcode-label see 5.6.4





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