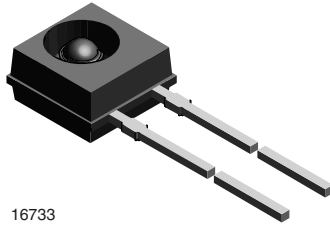


## Silicon NPN Phototransistor



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](http://www.vishay.com/doc?99902)

### APPLICATIONS

- Detector in electronic control and drive circuits

### PRODUCT SUMMARY

COMPONENT	$I_{ca}$ (mA)	$\phi$ (deg)	$\lambda_{0.5}$ (nm)
TEKT5400S	4	$\pm 37$	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

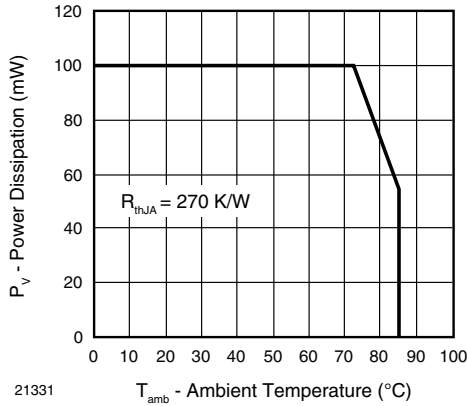


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

BASIC CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Collector emitter voltage	I <sub>C</sub> = 1 mA	V <sub>CEO</sub>	70			V
Emitter collector voltage	I <sub>E</sub> = 100 μA	V <sub>ECO</sub>	7			V
Collector dark current	V <sub>CE</sub> = 20 V, E = 0	I <sub>CEO</sub>		1	100	nA
Collector emitter capacitance	V <sub>CE</sub> = 5 V, f = 1 MHz, E = 0	C <sub>CEO</sub>		6		pF
Collector lighth current	E <sub>e</sub> = 1 mW/cm <sup>2</sup> , λ = 950 nm, V <sub>CE</sub> = 5 V	I <sub>ca</sub>	2	4		mA
Angle of half sensitivity		φ		± 37		deg
Wavelength of peak sensitivity		λ <sub>p</sub>		920		nm
Range of spectral bandwidth		λ <sub>0.5</sub>		850 to 980		nm
Collector emitter saturation voltage	E <sub>e</sub> = 1 mW/cm <sup>2</sup> , λ = 950 nm, I <sub>C</sub> = 0.1 mA	V <sub>CEsat</sub>			0.3	V
Turn-on time	V <sub>S</sub> = 5 V, I <sub>C</sub> = 5 mA, R <sub>L</sub> = 100 Ω	t <sub>on</sub>		6		μs
Turn-off time	V <sub>S</sub> = 5 V, I <sub>C</sub> = 5 mA, R <sub>L</sub> = 100 Ω	t <sub>off</sub>		5		μs
Cut-off frequency	V <sub>S</sub> = 5 V, I <sub>C</sub> = 5 mA, R <sub>L</sub> = 100 Ω	f <sub>c</sub>		110		kHz

**BASIC CHARACTERISTICS** (T<sub>amb</sub> = 25 °C, unless otherwise specified)

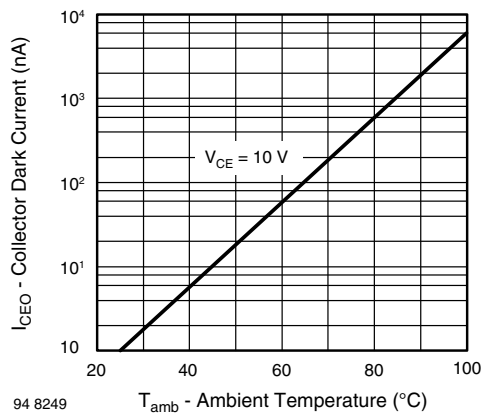


Fig. 1 - Collector Dark Current vs. Ambient Temperature

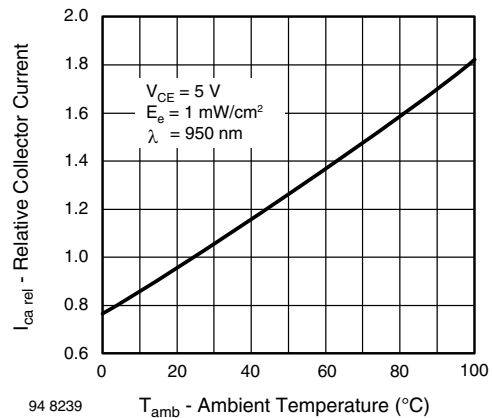
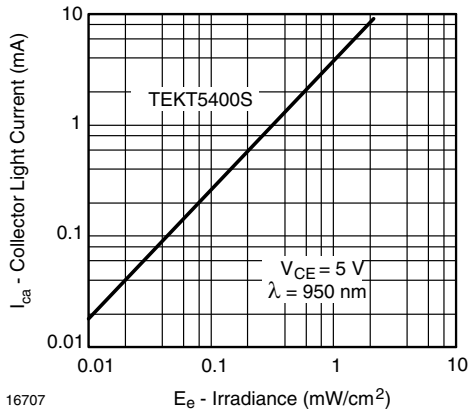
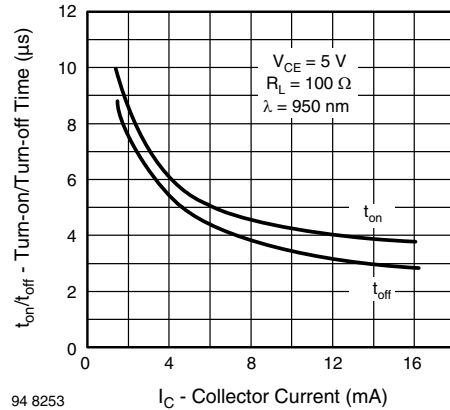


Fig. 2 - Relative Collector Current vs. Ambient Temperature



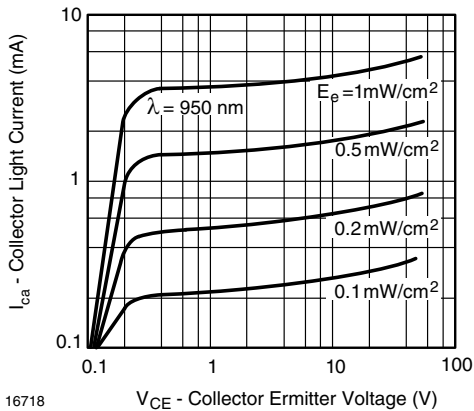
16707

Fig. 3 - Collector Light Current vs. Irradiance



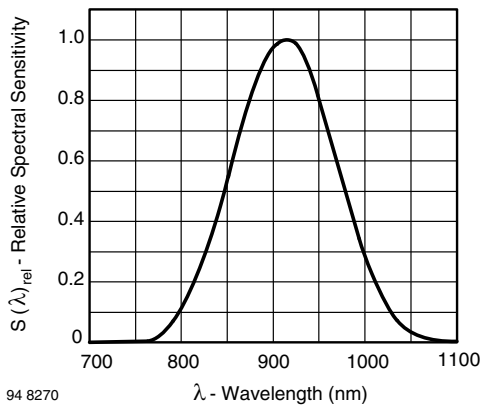
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Fig. 6 - Turn-on/Turn-off Time vs. Collector Current



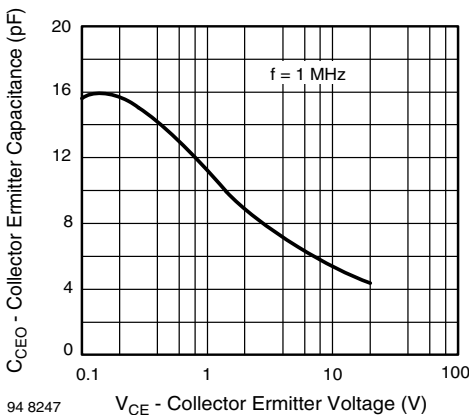
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Fig. 4 - Collector Light Current vs. Collector Emitter Voltage



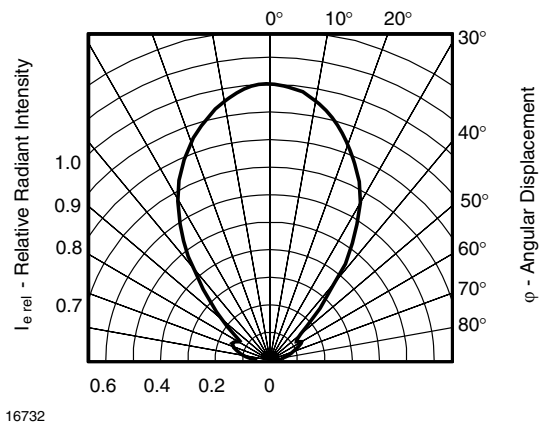
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Fig. 7 - Relative Spectral Sensitivity vs. Wavelength



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

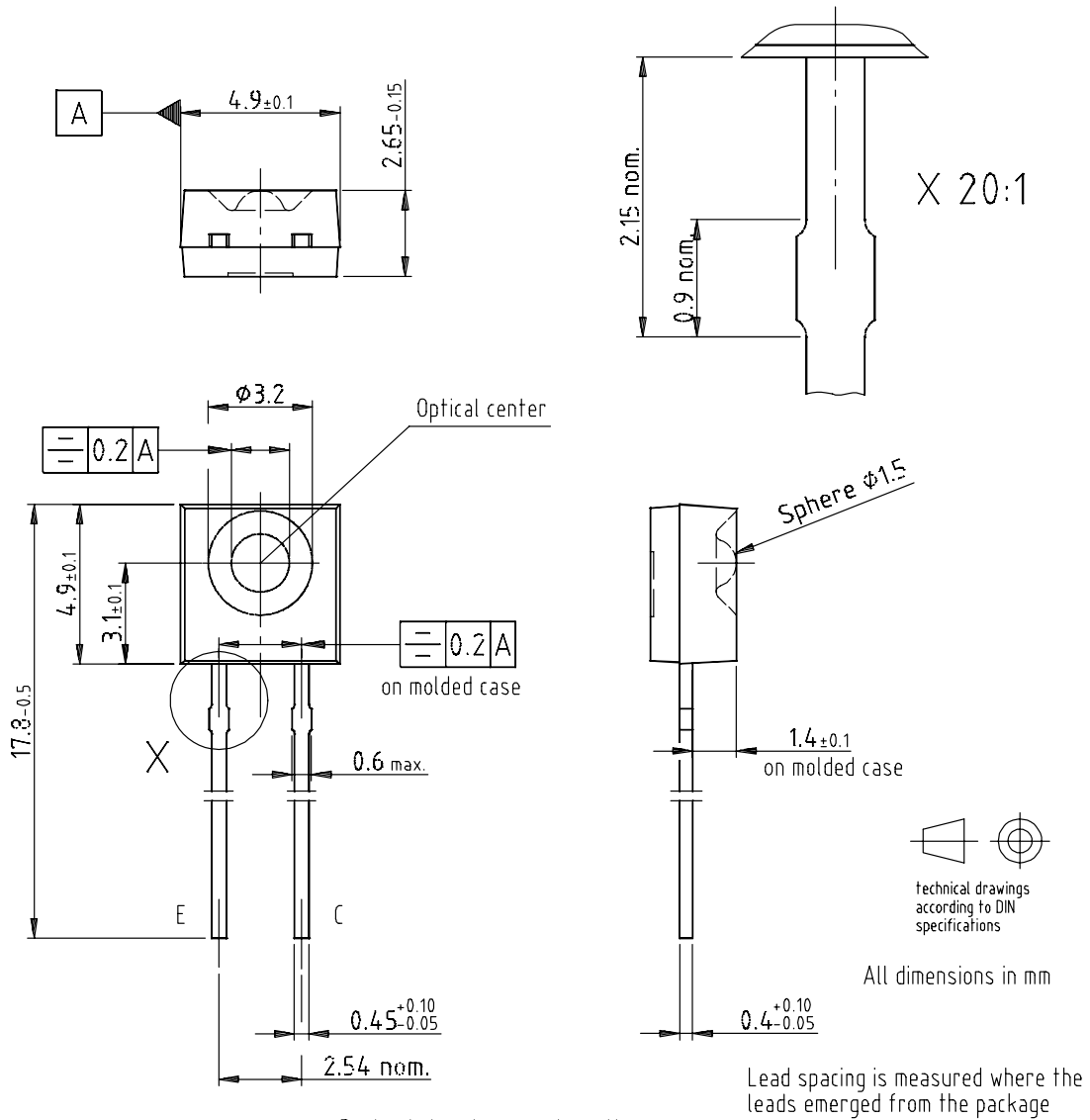


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Fig. 8 - Relative Radiant Intensity vs. Angular Displacement



PACKAGE DIMENSIONS in millimeters



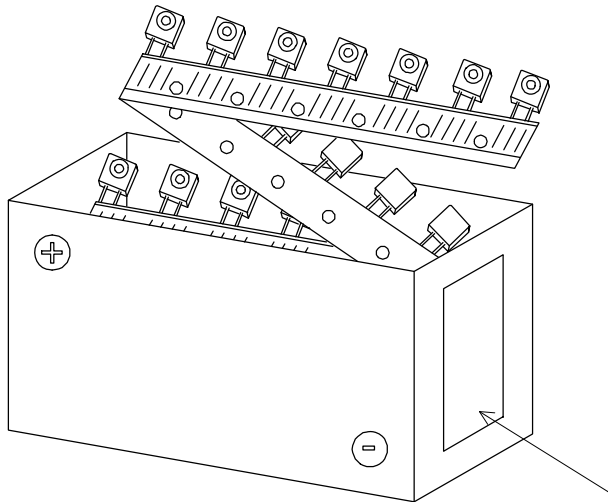
Drawing-No.: 6.544-5347.01-4  
Issue: 2; 09.04.03

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

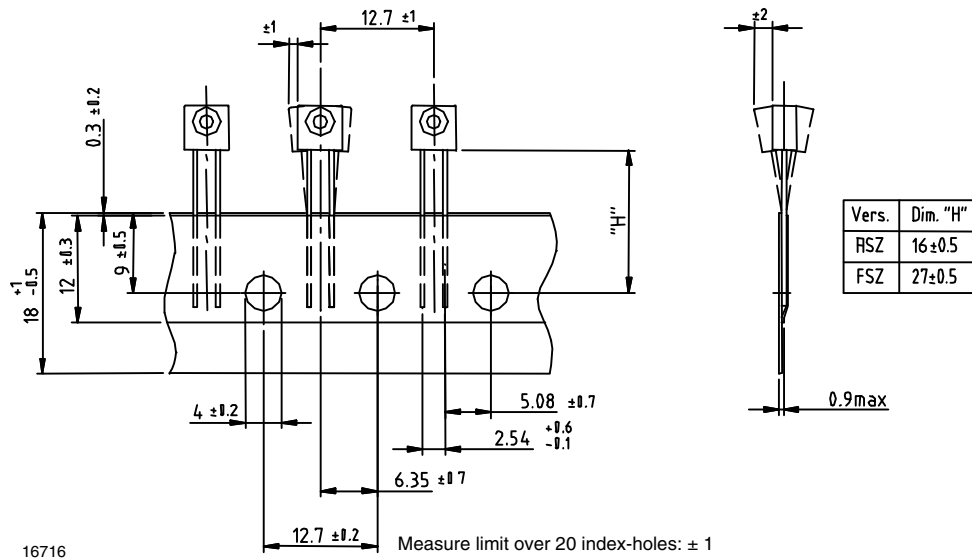
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### TAPE AND AMMOPACK STANDARDS Dimensions in millimeters



Labeling: barcode-label see 5.6.4





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