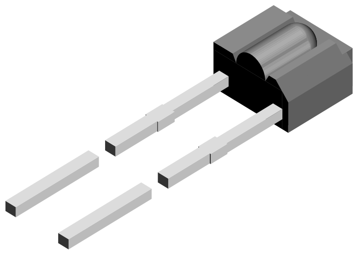
Silicon NPN Phototransistor

Description

TEST2600 is a high sensitive silicon NPN epitaxial planar phototransistor in miniature side view plastic package with cylindrical lens.

The integrated Daylight filter is matched to IR emitters, (λ_p = 950 nm).



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Features

- High radiant sensitivity (2.5 mA)
- Miniature side view package with cylindrical lens
- Horizontal angle 9of half intensity ± 60°
- Suitable for near IR radiation
- Matches with TSSS2600 IR emitter
- Lead-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

Applications

Optical switches
Counters and sorters
Interrupters
Tape and card readers
Encoders
Position sensors

Absolute Maximum Ratings

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

Parameter	Test condition	Symbol	Value	Unit
Collector Emitter Voltage		V_{CEO}	70	V
Emitter Collector Voltage		V_{ECO}	5	V
Collector current		I_C	50	mA
Collector peak current	$t_p/T = 0.5$, $t_p \le 10$ ms	I_{CM}	100	mA
Total Power Dissipation	$T_{amb} \le 55$ °C	P_{tot}	100	mW
Junction Temperature		T_j	100	°C
Operating Temperature Range		T_{amb}	- 40 to + 85	°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		R_{thJA}	450	K/W

Basic Characteristics

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

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Collector Emitter Breakdown Voltage	I_C = 1 mA	$V_{(BR)CEO}$	70			V
Collector-emitter dark current	V_{CE} = 20 V, E = 0	I_{CEO}		1	100	nA
Collector-emitter capacitance	V_{CE} = 5 V, f = 1 MHz, E = 0	C_{CEO}		6		pF

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Collector Light Current	E_e = 1 mW/cm^2, λ = 950 nm, V_{CE} = 5 V	I_{ca}	1	2.5		mA
Angle of Half Sensitivity	horizontal	φ_1		±30		deg
	vertical	φ_2		±60		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 mW/cm^2, λ = 950 nm, I_C = 0.1 mA	V_{CEsat}			0.3	V
Turn-On Time	V_S = 5 V, I_C = 5 mA, R_L = 100 Ω	t_{on}		6		μs
Turn-Off Time	V_S = 5 V, I_C = 5 mA, R_L = 100 Ω	t_{off}		5		μs
Cut-Off Frequency	V_S = 5 V, I_C = 5 mA, R_L = 100 Ω	f_c		110		kHz

Typical Characteristics (Tamb = 25 °C unless otherwise specified)

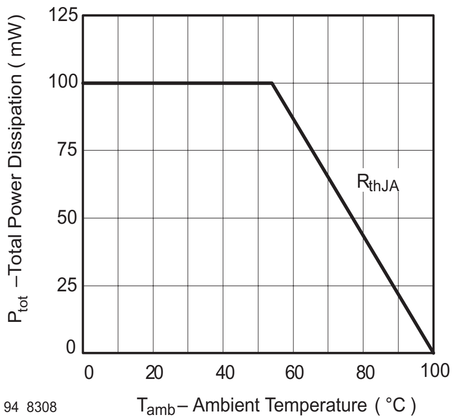


Figure 1. Total Power Dissipation vs. Ambient Temperature

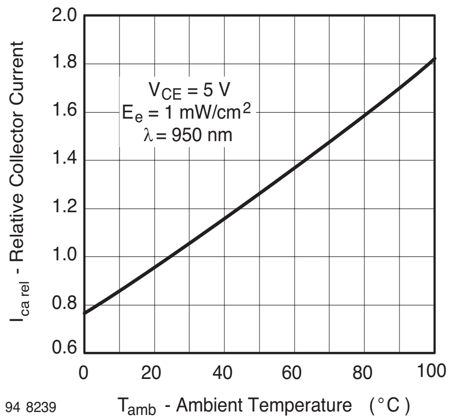


Figure 3. Relative Collector Current vs. Ambient Temperature

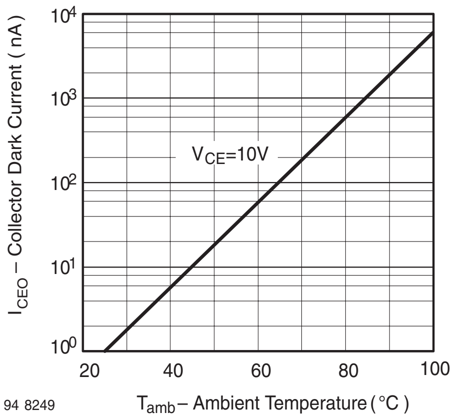


Figure 2. Collector Dark Current vs. Ambient Temperature

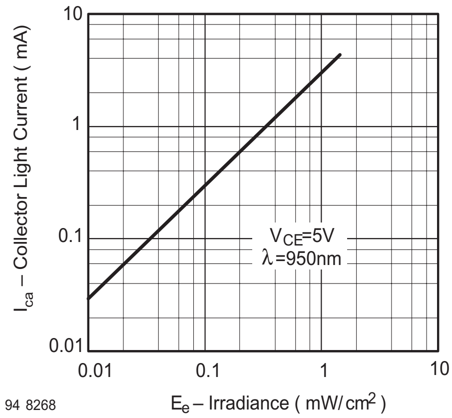


Figure 4. Collector Light Current vs. Irradiance

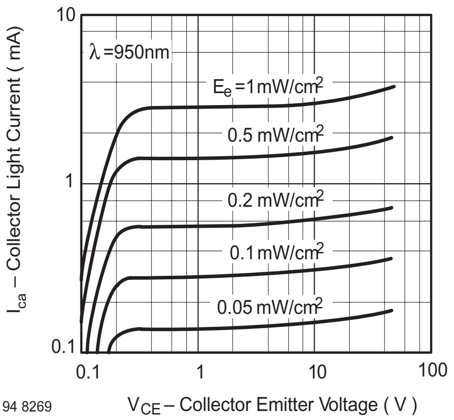


Figure 5. Collector Light Current vs. Collector Emitter Voltage

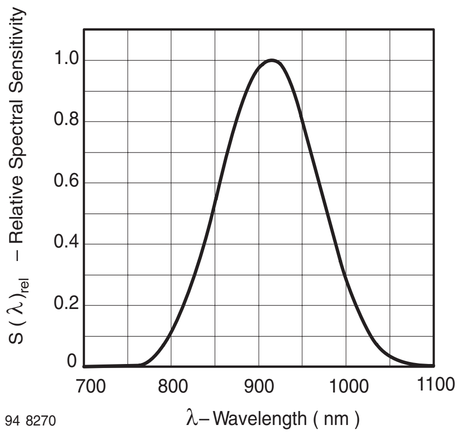


Figure 8. Relative Spectral Sensitivity vs. Wavelength

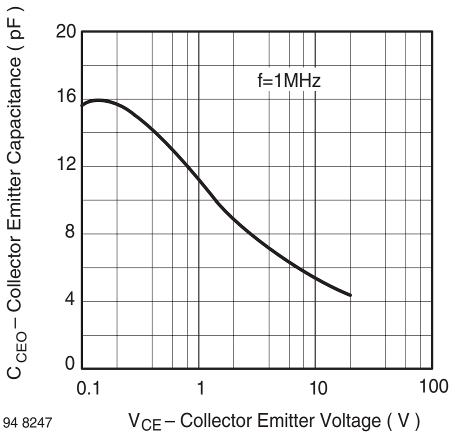


Figure 6. Collector Emitter Capacitance vs. Collector Emitter Voltage

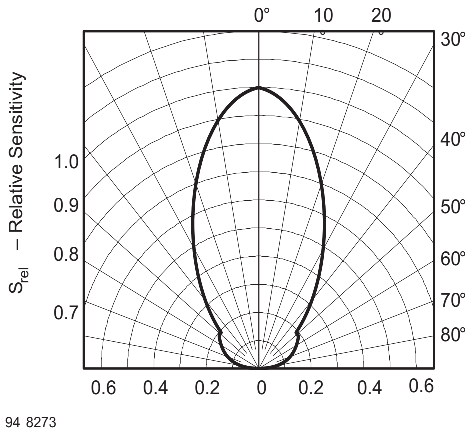


Figure 9. Relative Radiant Sensitivity vs. Angular Displacement

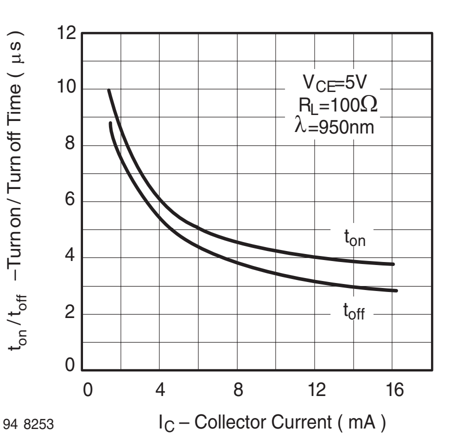


Figure 7. Turn On/Turn Off Time vs. Collector Current

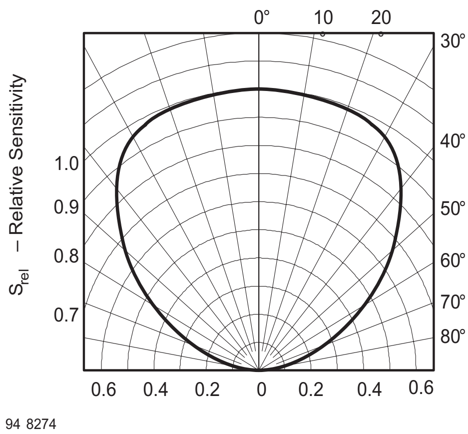
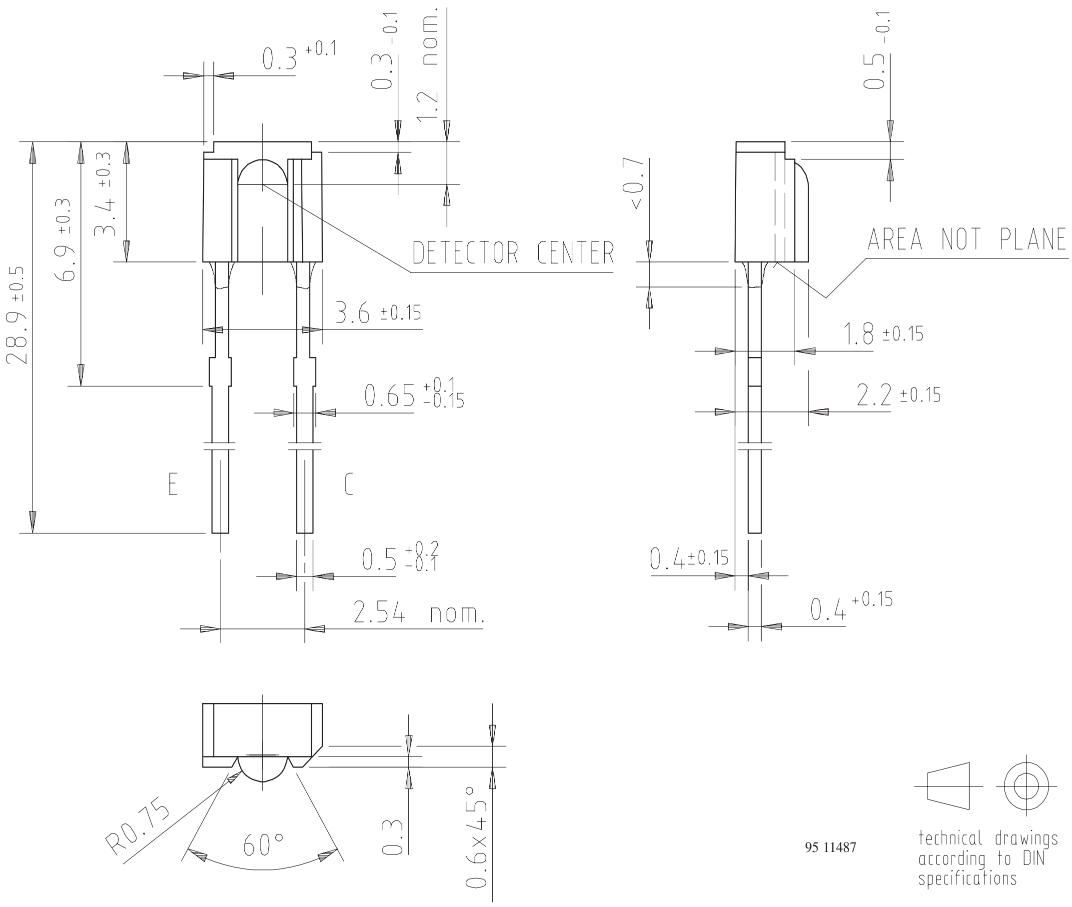


Figure 10. Relative Radiant Sensitivity vs. Angular Displacement

Package Dimensions in mm



Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operatingsystems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

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