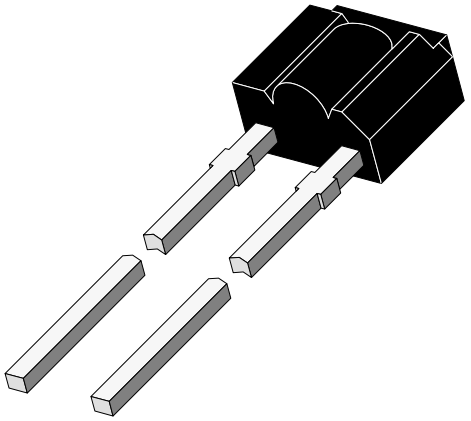
Silicon NPN Phototransistor

Description

TEST 2600 is a high sensitive silicon NPN epitaxial planar phototransistor in a miniature side view plastic package with cylindrical lens.
Its epoxy casting is designed as a infrared filter to spectrally match to GaAs IR emitters (λ_p=950nm).



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Features

- High radiant sensitivity (2.5 mA)
- Miniature side view package with cylindrical lens
- Very wide viewing angle $\varphi = \pm 30^\circ / \pm 60^\circ$
- Suitable for near IR radiation
- Matches with TSSS 2600 IR emitter

Applications

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

Absolute Maximum Ratings

T_{amb} = 25°C

Parameter	Test Conditions	Symbol	Value	Unit
Collector Emitter Voltage		V_{CEO}	70	V
Emitter Collector Voltage		V_{ECO}	5	V
Collector Current		I_C	50	mA
Peak Collector Current	t_p/T = 0.5, $t_p \leqq$ 10 ms	I_{CM}	100	mA
Total Power Dissipation	$T_{amb} \leqq$ 55 ˚C	P_{tot}	100	mW
Junction Temperature		T_j	100	˚C
Storage Temperature Range		T_{stg}	–55...+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

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Collector Emitter Breakdown Voltage	I_C = 1 mA	$V_{(BR)CEO}$	70			V
Collector 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
Collector Light Current	E_e=1mW/cm^2, λ=950nm, V_{CE}=5V	I_{ca}	1	2.5		mA
Angle of Half Sensitivity	horizontal	φ_1		±30		deg
Angle of Half Sensitivity	vertical	φ_2		±60		deg
Wavelength of Peak Sensitivity		λ_p		920		nm
Range of Spectral Bandwidth		$\lambda_{0.5}$		850...980		nm
Collector Emitter Saturation Voltage	E_e=1mW/cm^2, λ=950nm, I_C=0.1mA	V_{CEsat}			0.3	V
Turn–On Time	V_S=5V, I_C=5mA, R_L=100Ω	t_{on}		6		µs
Turn–Off Time	V_S=5V, I_C=5mA, R_L=100Ω	t_{off}		5		µs
Cut–Off Frequency	V_S=5V, I_C=5mA, R_L=100Ω	f_c		110		kHz

Typical Characteristics (T_{amb} = 25°C unless otherwise specified)

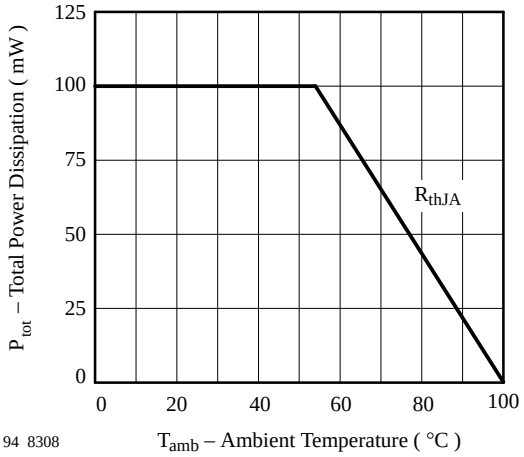


Figure 1 : Total Power Dissipation vs. Ambient Temperature

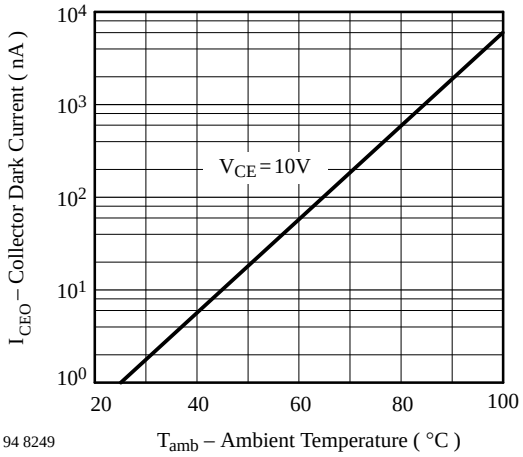


Figure 2 : Collector Dark Current vs. Ambient Temperature

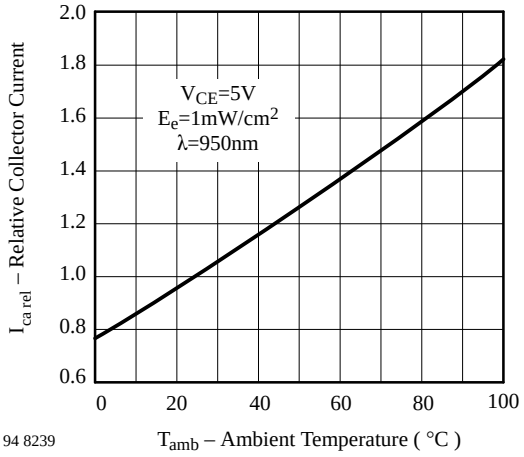


Figure 3 : Relative Collector Current vs. Ambient Temperature

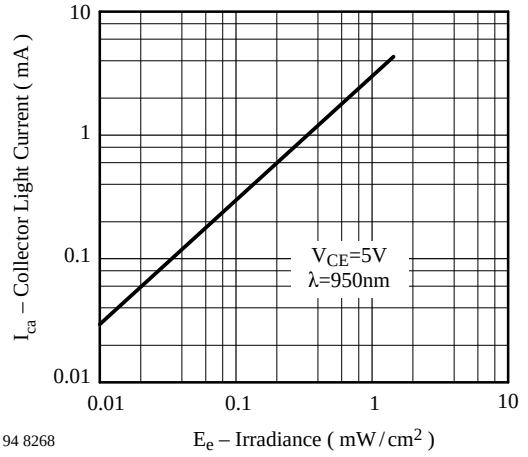


Figure 4 : Collector Light Current vs. Irradiance

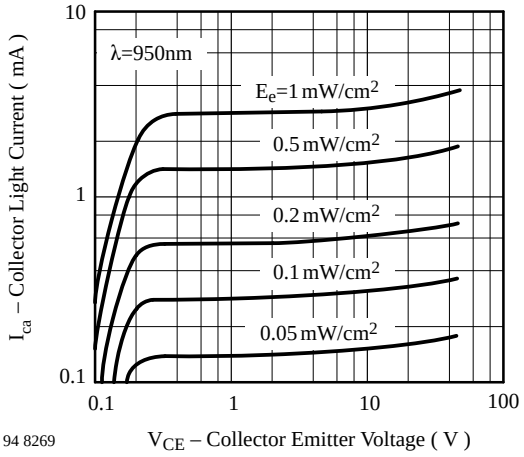


Figure 5 : Collector Light Current vs. Collector Emitter Voltage

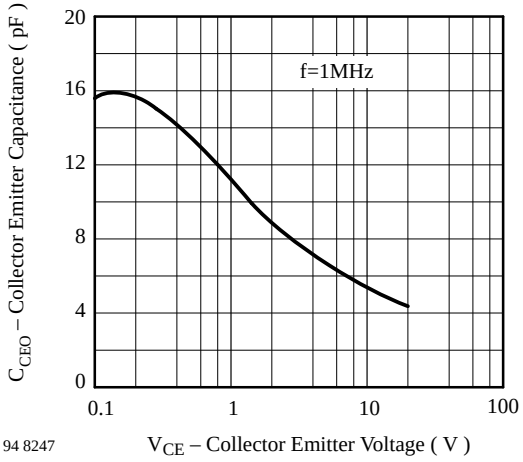


Figure 6 : Collector Emitter Capacitance vs. Collector Emitter Voltage

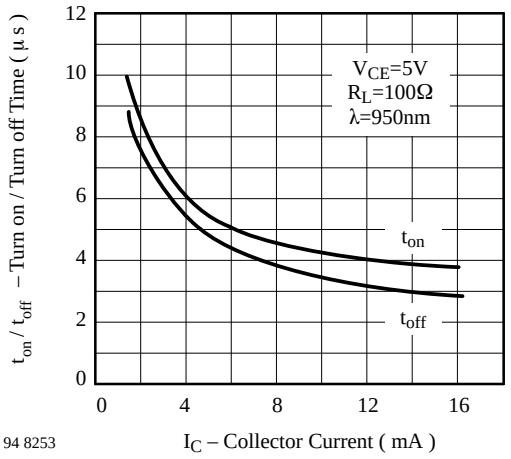


Figure 7 : Turn On/Turn Off Time vs. Collector Current

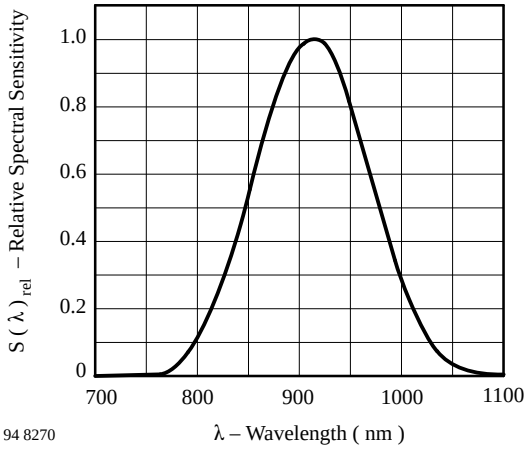


Figure 8 : Relative Spectral Sensitivity vs. Wavelength

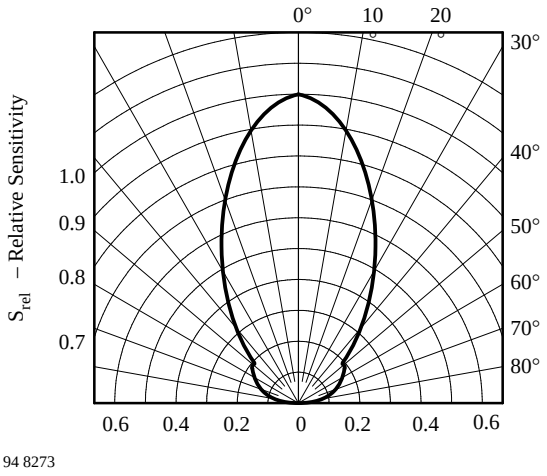


Figure 9 : Relative Radiant Sensitivity vs. Angular Displacement

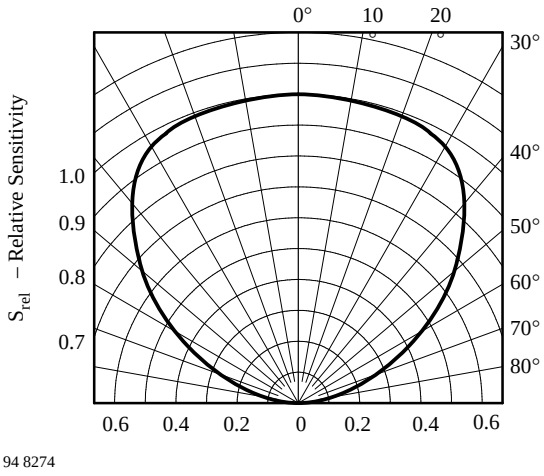
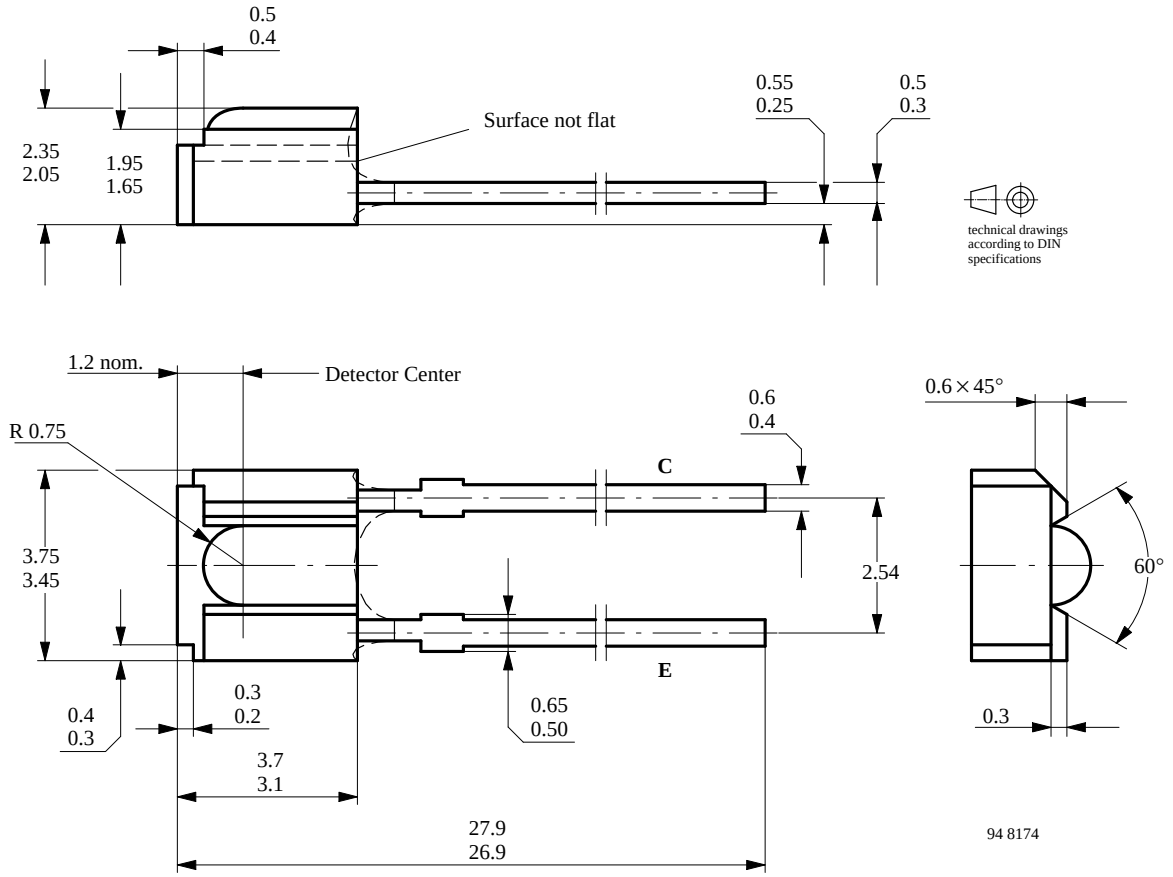


Figure 10 : Relative Radiant Sensitivity vs. Angular Displacement

Dimensions in mm



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