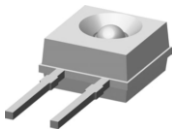
Infrared Emitting Diode, 950 nm, GaAs

Description

TSKS5400S is a standard GaAs infrared emitting diode in a flat sideview molded plastic package. A small recessed spherical lens provides high radiant intensity in a low profile package.
The package is compatible to TEKT5400S phototransistor and TEKS5400 Photo Schmitt Trigger. Assembled on PWB, pairs of emitters and detectors operate as transmissive sensors and reflective sensors.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Features

- High radiant intensity
- Peak wavelength λ_P = 950 nm
- Side view package with spherical lens
- Angle of half sensitivity φ = ± 30°
- Package compatible with TEKT5400S and TEKS5400
- Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC

Parts Table

Part	Ordering code	Remarks
TSKS5400S	TSKS5400S	MOQ: 2000 pcs in Plastic Bags
	TSKS5400S-ASZ	MOQ: 2000 pcs, Ammopack, 2.54 mm pin distance (lead to lead), 16 mm height of taping

Absolute Maximum Ratings

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

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage		V_R	6	V
Forward current		I_F	100	mA
Surge forward current	$t_p \leq 100$ µs	I_{FSM}	2	A
Power dissipation		P_V	170	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 ≤ 5 s, 2 mm from body	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
Forward voltage	I_F = 100 mA, $t_p \leq 20$ ms	V_F		1.3	1.7	V
Reverse voltage	I_R = 10 µA	V_R	6			V
Junction capacitance	V_R =0 V, f = 1 MHz, E = 0	C_j		50		pF
Radiant intensity	I_F = 50 mA, $t_p \leq 20$ ms	I_e	2		7	mW/sr
Radiant power	I_F = 50 mA, $t_p \leq 20$ ms	ϕ_e		10		mW
Temp. coefficient of ϕ_e	I_F = 50 mA	$TK\phi_e$		- 1.0		%K
Angle of half sensitivity		φ		± 30		°
Peak wavelength	I_F = 50 mA	λ_p		950		nm
Spectral bandwidth	I_F = 50 mA	$\Delta\lambda$		50		nm
Rise time	I_F = 1 A, t_p/T = 0.01, $t_p \leq 10$ µs	t_r		400		ns
Fall time	I_F = 1 A, t_p/T = 0.01, $t_p \leq 10$ µs	t_f		450		ns

Typical Characteristics

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

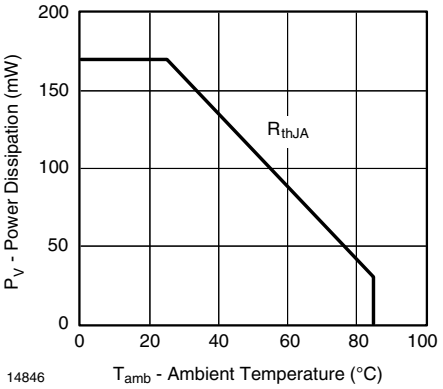


Figure 1. Power Dissipation vs. Ambient Temperature

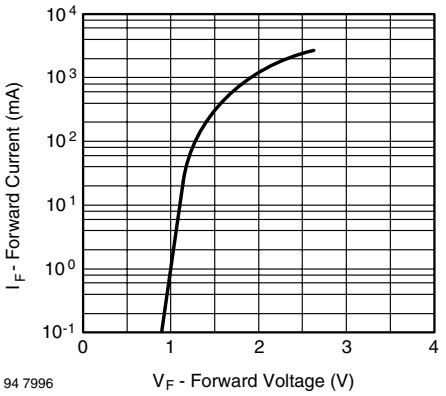


Figure 3. Forward Current vs. Forward Voltage

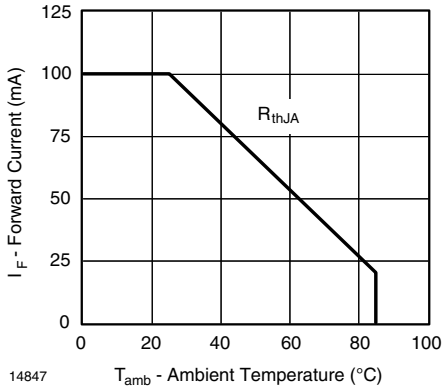


Figure 2. Forward Current vs. Ambient Temperature

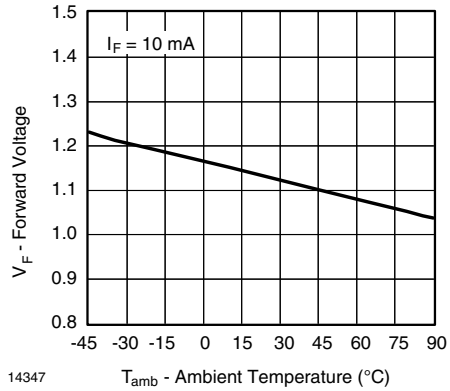


Figure 4. Forward Voltage vs. Ambient Temperature

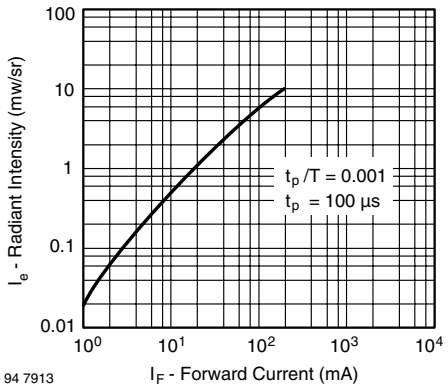


Figure 5. Radiant Intensity vs. Forward Current

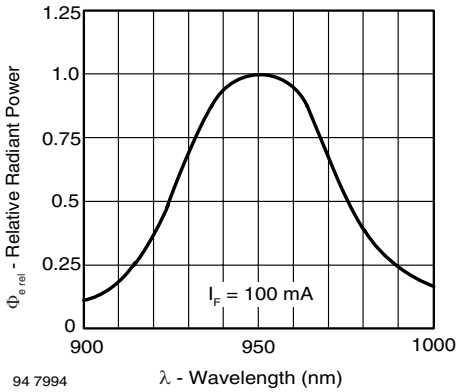


Figure 8. Relative Radiant Power vs. Wavelength

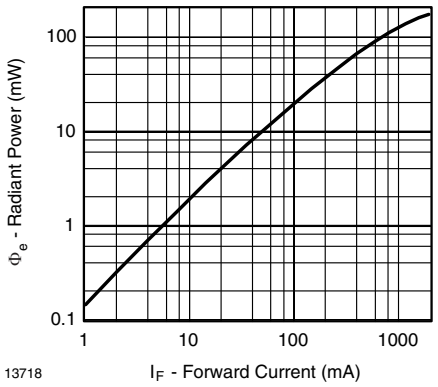


Figure 6. Radiant Power vs. Forward Current

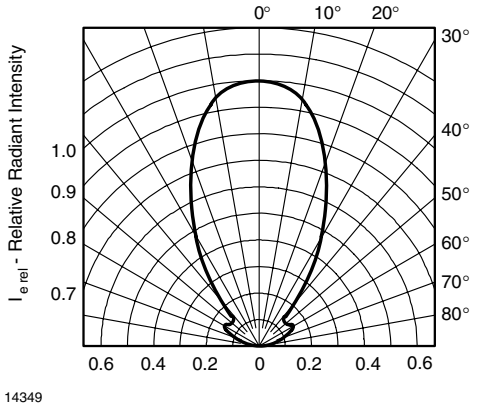


Figure 9. Relative Radiant Intensity vs. Angular Displacement

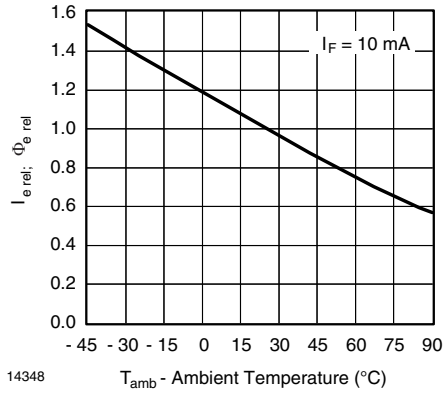
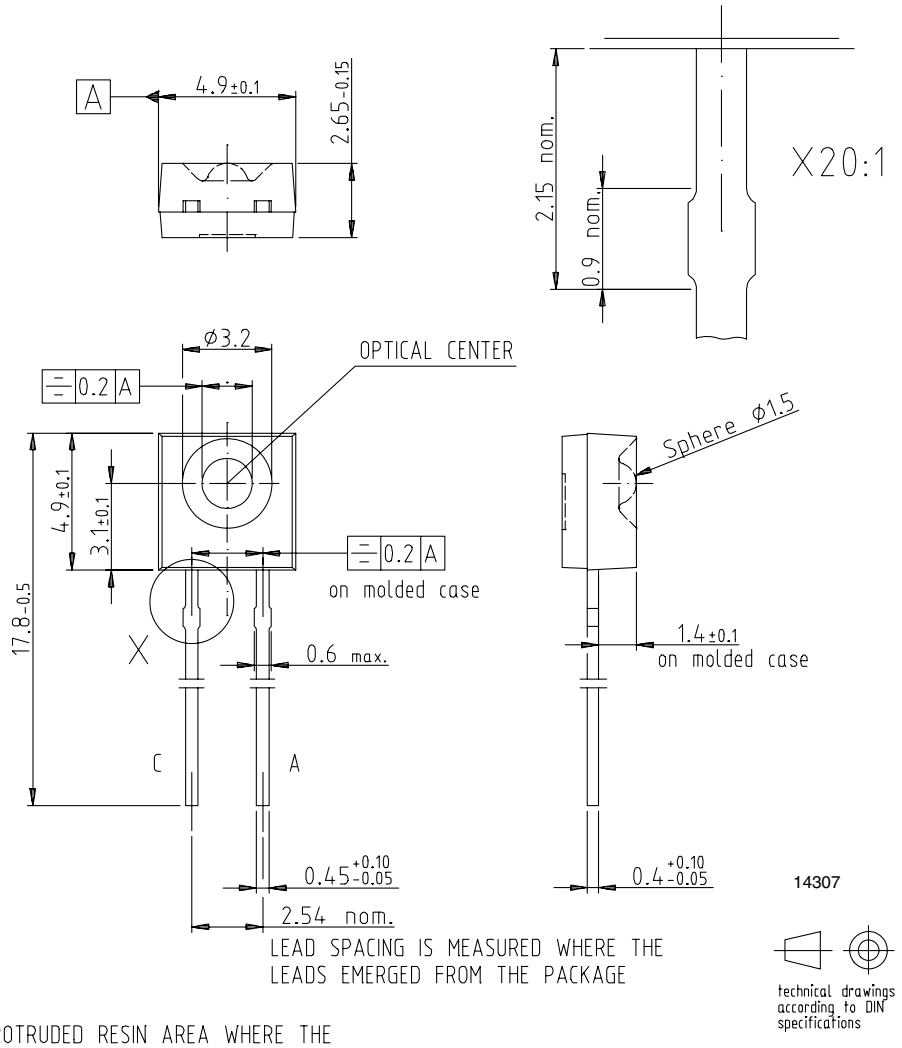
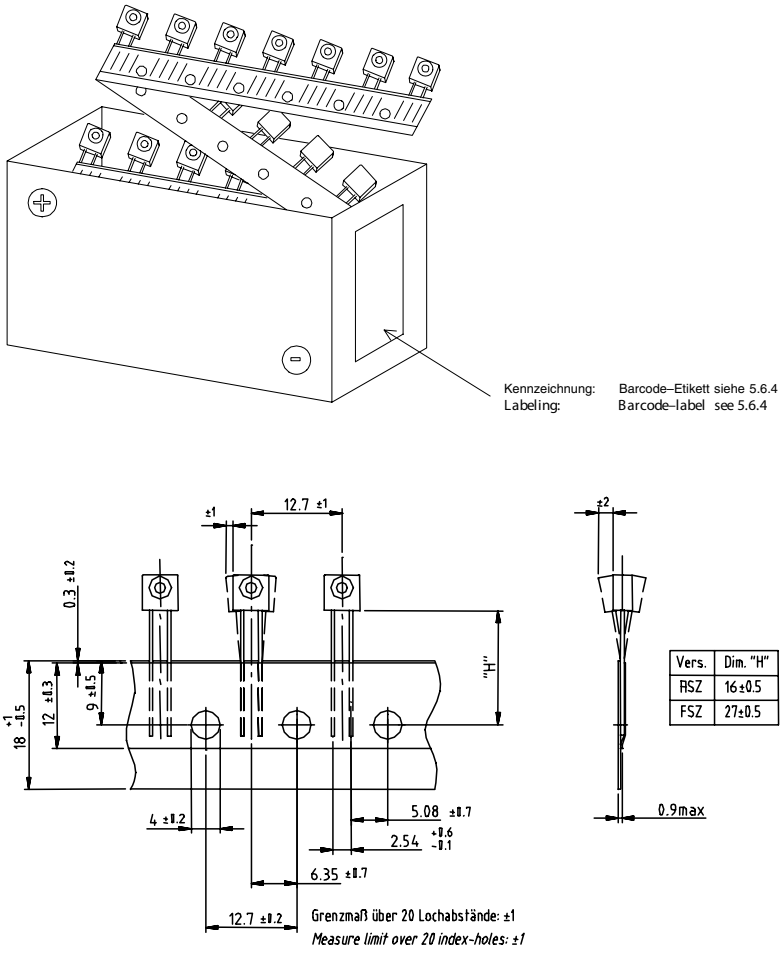


Figure 7. Relative Radiant Intensity vs. Ambient Temperature

Package Dimensions in mm



Tape and Ammopack Standards



Vers.	Dim. "H"
RSZ	16±0.5
FSZ	27±0.5

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 operating systems 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.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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