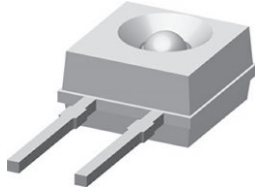


## Infrared Emitting Diode, 950 nm, GaAs



14354

### DESCRIPTION

The TSKS5400S is an infrared, 950 nm emitting diode in GaAs technology with high radiant power, molded in a clear plastic package.

### FEATURES

- Package type: leaded
- Package form: side view lens
- Dimensions (L x W x H in mm): 5 x 2.65 x 5
- Peak wavelength:  $\lambda_p = 950$  nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity:  $\phi = \pm 30^\circ$
- Low forward voltage
- Suitable for high pulse current operation
- Good spectral matching with Si photodetectors
- Package matched with detector TEKS5400
- 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

- Photointerrupters
- Transmissive sensors, gap sensors
- Reflective sensors

| PRODUCT SUMMARY |               |              |                  |            |
|-----------------|---------------|--------------|------------------|------------|
| COMPONENT       | $I_e$ (mW/sr) | $\phi$ (deg) | $\lambda_p$ (nm) | $t_r$ (ns) |
| TSKS5400S       | 4.5           | $\pm 30$     | 950              | 800        |

### Note

- Test conditions see table "Basic Characteristics"

| ORDERING INFORMATION |           |                              |                |
|----------------------|-----------|------------------------------|----------------|
| ORDERING CODE        | PACKAGING | REMARKS                      | PACKAGE FORM   |
| TSKS5400S            | 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             |
| Reverse voltage   |  | $V_R$      | 6             | V                |
| Forward current   |  | $I_F$      | 100           | mA               |
| Surge forward current   | $t_p \leq 100 \mu\text{s}$             | $I_{FSM}$  | 2             | A                |
| Power dissipation   |  | $P_V$      | 170           | mW               |
| Junction temperature  |  | $T_J$      | 100           | $^\circ\text{C}$ |
| Operating temperature range   |  | $T_{amb}$  | - 25 to + 85  | $^\circ\text{C}$ |
| Storage temperature range   |  | $T_{stg}$  | - 40 to + 100 | $^\circ\text{C}$ |
| Soldering temperature   | $t \leq 5$ s, 2 mm from case           | $T_{sd}$   | 260           | $^\circ\text{C}$ |
| Thermal resistance junction/ambient   | J-STD-051, leads 7 mm, soldered on PCB | $R_{thJA}$ | 270           | K/W              |

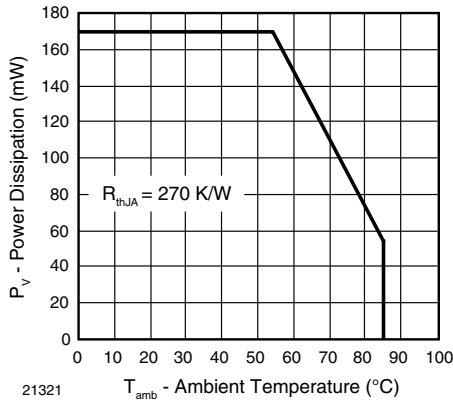


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

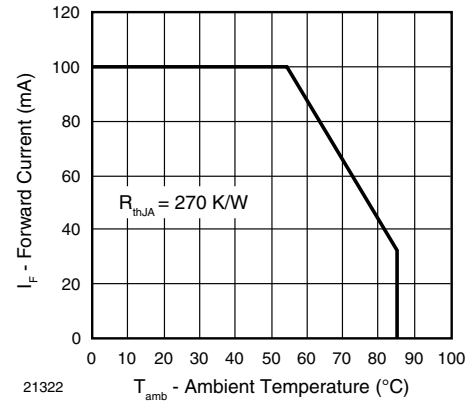


Fig. 2 - Forward Current Limit vs. Ambient Temperature

| <b>BASIC CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |  |                 |      |          |      |       |
|---|--|-----------------|------|----------|------|-------|
| PARAMETER   | TEST CONDITION   | SYMBOL          | MIN. | TYP.     | MAX. | UNIT  |
| Forward voltage   | $I_F = 100\text{ mA}$ , $t_p \leq 20\text{ ms}$                        | $V_F$           |      | 1.3      | 1.7  | V     |
| Reverse voltage   | $I_R = 10\text{ }\mu\text{A}$  | $V_R$           | 6    |          |      | V     |
| Temperature coefficient of $V_F$  | $I_F = 100\text{ mA}$  | $TK_{V_F}$      |      | -1.3     |      | mV/K  |
| Junction capacitance  | $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$                      | $C_j$           |      | 50       |      | pF    |
| Radiant intensity   | $I_F = 100\text{ mA}$ , $t_p \leq 20\text{ ms}$                        | $I_e$           | 2    | 4.5      | 7    | mW/sr |
| Radiant power   | $I_F = 50\text{ mA}$ , $t_p \leq 20\text{ ms}$                         | $\phi_e$        |      | 10       |      | mW    |
| Temperature coefficient of $\phi_e$   | $I_F = 50\text{ mA}$   | $TK_{\phi_e}$   |      | -1.0     |      | %/K   |
| Angle of half sensitivity   |  | $\phi$          |      | $\pm 30$ |      | deg   |
| Peak wavelength   | $I_F = 50\text{ mA}$   | $\lambda_p$     |      | 950      |      | nm    |
| Spectral bandwidth  | $I_F = 50\text{ mA}$   | $\Delta\lambda$ |      | 50       |      | nm    |
| Rise time   | $I_F = 100\text{ mA}$  | $t_r$           |      | 800      |      | ns    |
|   | $I_F = 1\text{ A}$ , $t_p/T = 0.01$ , $t_p \leq 10\text{ }\mu\text{s}$ | $t_r$           |      | 450      |      | ns    |

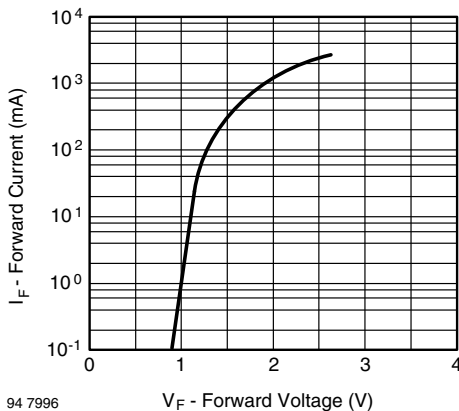
**BASIC CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 3 - Pulse Forward Current vs. Forward Voltage

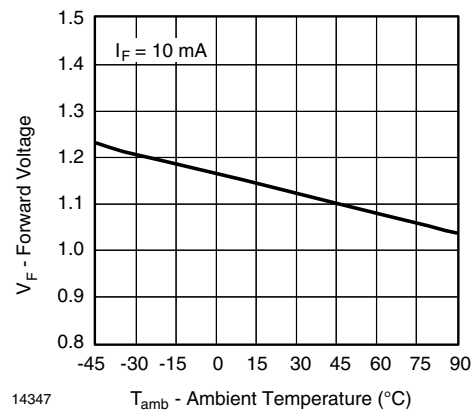
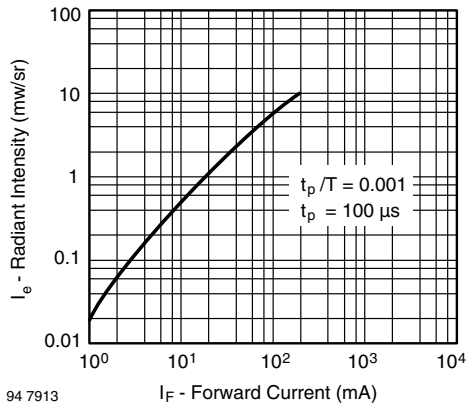
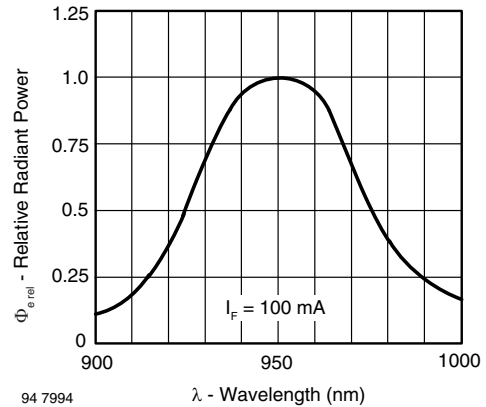


Fig. 4 - Forward Voltage vs. Ambient Temperature



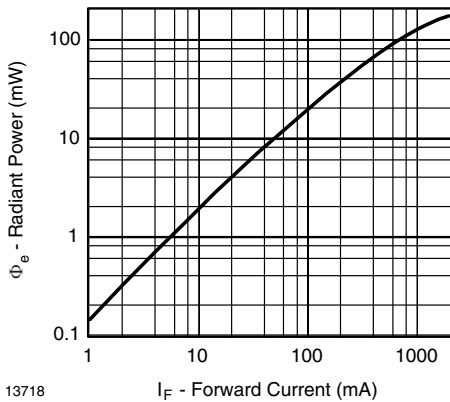
94 7913

Fig. 5 - Radiant Intensity vs. Forward Current



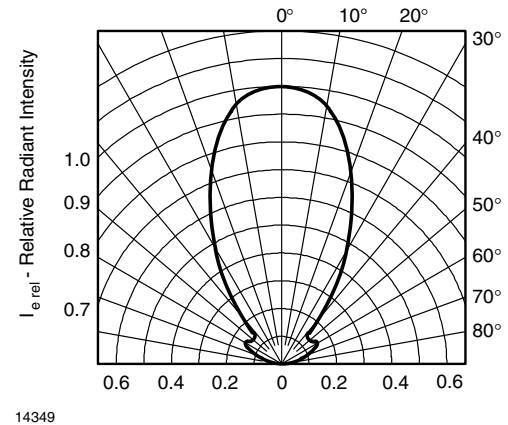
94 7994

Fig. 8 - Relative Radiant Power vs. Wavelength



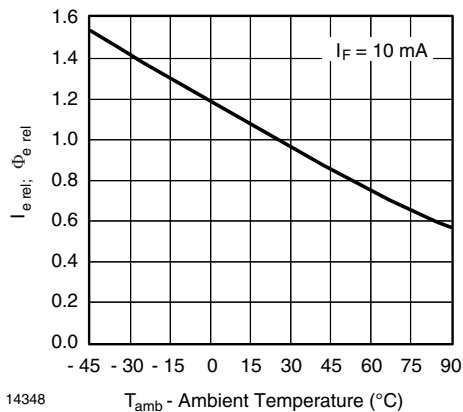
13718

Fig. 6 - Radiant Power vs. Forward Current



14349

Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

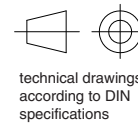
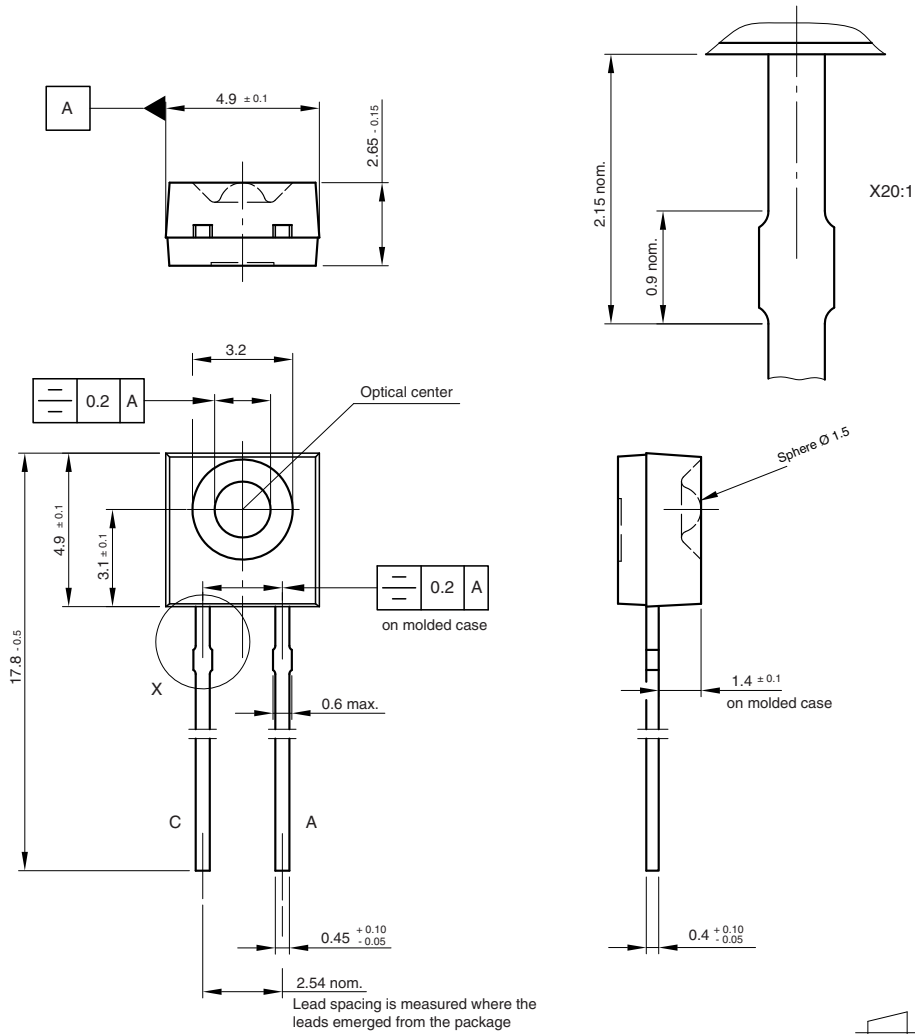


14348

Fig. 7 - Relative Radiant Intensity vs. Ambient Temperature



### PACKAGE DIMENSIONS in millimeters



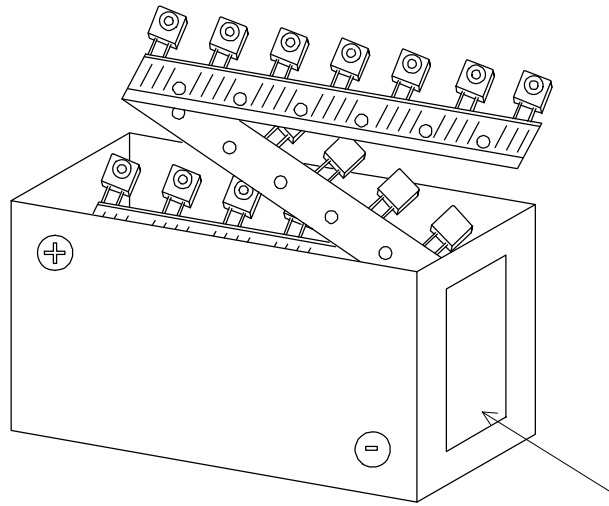
Protruded resin area where the leads emerged from the package  $0.8$  max.

Drawing-No.: 6.544-5306.51-4  
Issue: 6; 04.07.02  
14307

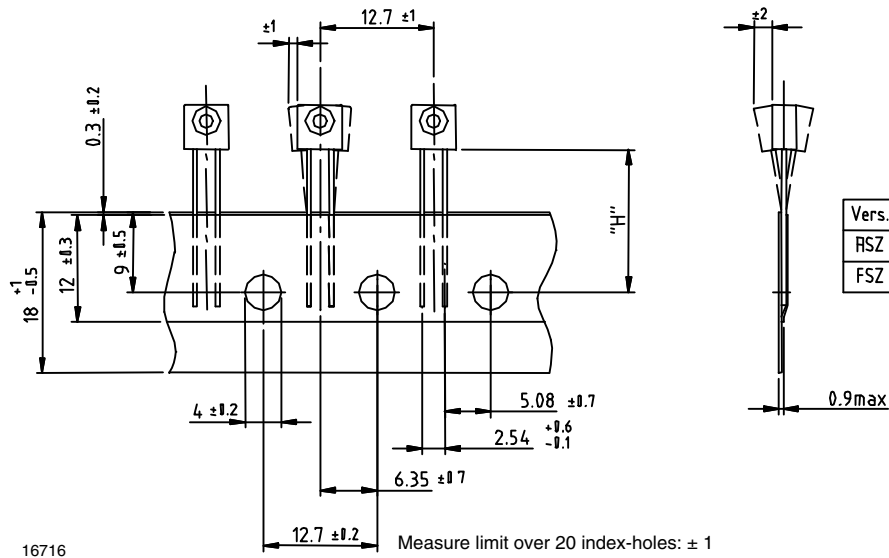
technical drawings according to DIN specifications



### TAPE AND AMMOPACK STANDARDS DIMENSIONS in millimeters



Labeling: barcode-label see 5.6.4





## Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

## Material Category Policy

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.**

**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

**Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.**

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А