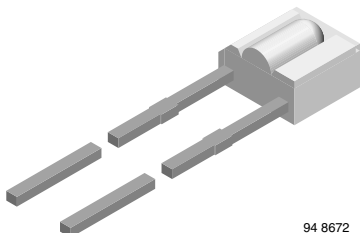


## Infrared Emitting Diode, 950 nm, GaAs



94 8672

### DESCRIPTION

TSSS2600 is an infrared, 950 nm emitting diode in GaAs technology, molded in a miniature, clear plastic package with side view lens.

### FEATURES

- Package type: leaded
- Package form: side view
- Dimensions (L x W x H in mm): 3.6 x 2.2 x 5
- Peak wavelength:  $\lambda_p = 950$  nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity:  $\phi = \pm 25^\circ$ , horizontal
- Low forward voltage
- Suitable for high pulse current operation
- Good spectral matching with Si photodetectors
- Package matched with detector TEST2600
- 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

- Infrared source in miniature light barriers or reflective sensor systems with short transmission distances and low forward voltage requirements. Matching with silicon PIN photodiodes or phototransistors (e.g. TEST2600)

### PRODUCT SUMMARY

| COMPONENT | $I_e$ (mW/sr) | $\phi$ (deg) | $\lambda_p$ (nm) | tr (ns) |
|-----------|---------------|--------------|------------------|---------|
| TSSS2600  | 2.6           | $\pm 25$     | 950              | 800     |

### Note

- Test conditions see table "Basic Characteristics"

### ORDERING INFORMATION

| ORDERING CODE | PACKAGING | REMARKS                      | PACKAGE FORM |
|---------------|-----------|------------------------------|--------------|
| TSSS2600      | Bulk      | MOQ: 5000 pcs, 5000 pcs/bulk | Side view    |

### 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                     |                                           | $V_R$      | 5             | V                |
| Forward current                     |                                           | $I_F$      | 100           | mA               |
| Peak forward current                | $t_p/T = 0.5$ , $t_p = 100$ $\mu\text{s}$ | $I_{FM}$   | 200           | mA               |
| Surge forward current               | $t_p = 100$ $\mu\text{s}$                 | $I_{FSM}$  | 2.0           | A                |
| Power dissipation                   |                                           | $P_V$      | 170           | mW               |
| Junction temperature                |                                           | $T_j$      | 100           | $^\circ\text{C}$ |
| Operating temperature range         |                                           | $T_{amb}$  | - 40 to + 100 | $^\circ\text{C}$ |
| 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 | Leads not soldered                        | $R_{thJA}$ | 450           | K/W              |

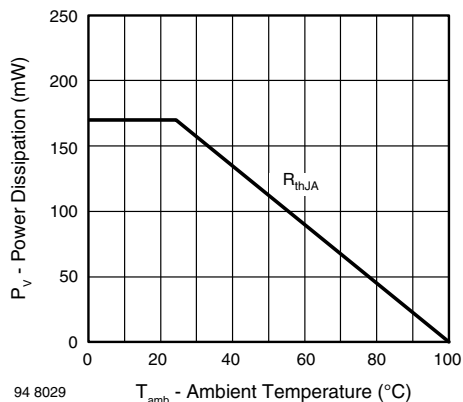


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

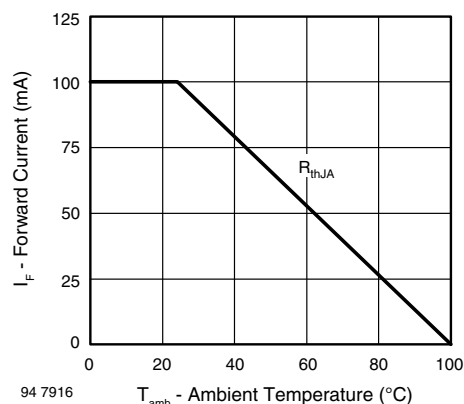


Fig. 1 - Forward Current Limit vs. Ambient Temperature

| <b>BASIC CHARACTERISTICS</b> ( $T_{amb} = 25^{\circ}\text{C}$ , unless otherwise specified) |                                                       |                  |      |          |      |               |
|---------------------------------------------------------------------------------------------|-------------------------------------------------------|------------------|------|----------|------|---------------|
| PARAMETER                                                                                   | TEST CONDITION                                        | SYMBOL           | MIN. | TYP.     | MAX. | UNIT          |
| Forward voltage                                                                             | $I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$          | $V_F$            |      | 1.25     | 1.6  | V             |
|                                                                                             | $I_F = 1.5\text{ A}$ , $t_p = 100\text{ }\mu\text{s}$ | $V_F$            |      | 2.2      |      | V             |
| Temperature coefficient of $V_F$                                                            | $I_F = 100\text{ mA}$                                 | $TK_{V_F}$       |      | - 1.3    |      | mV/K          |
| Reverse current                                                                             | $V_R = 5\text{ V}$                                    | $I_R$            |      |          | 100  | $\mu\text{A}$ |
| Junction capacitance                                                                        | $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ , $E = 0$     | $C_j$            |      | 30       |      | pF            |
| Radiant intensity                                                                           | $I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$          | $I_e$            | 1    | 2.6      | 3    | mW/sr         |
|                                                                                             | $I_F = 1.5\text{ A}$ , $t_p = 100\text{ }\mu\text{s}$ | $I_e$            |      | 25       |      | mW/sr         |
| Radiant power                                                                               | $I_F = 100\text{ mA}$ , $t_p = 20\text{ ms}$          | $\phi_e$         |      | 20       |      | mW            |
| Temperature coefficient of $\phi_e$                                                         | $I_F = 100\text{ mA}$                                 | $TK_{\phi_e}$    |      | - 0.8    |      | %/K           |
| Angle of half intensity                                                                     | horizontal                                            | $\phi_1$         |      | $\pm 25$ |      | deg           |
|                                                                                             | vertical                                              | $\phi_2$         |      | $\pm 60$ |      | deg           |
| Peak wavelength                                                                             | $I_F = 100\text{ mA}$                                 | $\lambda_p$      |      | 950      |      | nm            |
| Spectral bandwidth                                                                          | $I_F = 100\text{ mA}$                                 | $\Delta\lambda$  |      | 50       |      | nm            |
| Temperature coefficient of $\lambda_p$                                                      | $I_F = 100\text{ mA}$                                 | $TK_{\lambda_p}$ |      | 0.2      |      | nm/K          |
| Rise time                                                                                   | $I_F = 100\text{ mA}$                                 | $t_r$            |      | 800      |      | ns            |
|                                                                                             | $I_F = 1.5\text{ A}$                                  | $t_r$            |      | 400      |      | ns            |
| Fall time                                                                                   | $I_F = 100\text{ mA}$                                 | $t_f$            |      | 800      |      | ns            |
|                                                                                             | $I_F = 1.5\text{ A}$                                  | $t_f$            |      | 400      |      | ns            |
| Virtual source diameter                                                                     |                                                       | $d$              |      | 2        |      | mm            |

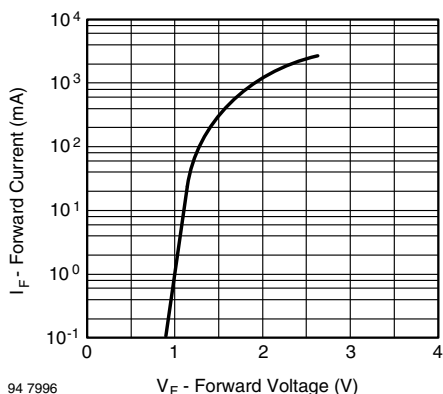
**BASIC CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 2 - Pulse Forward Current vs. Forward Voltage

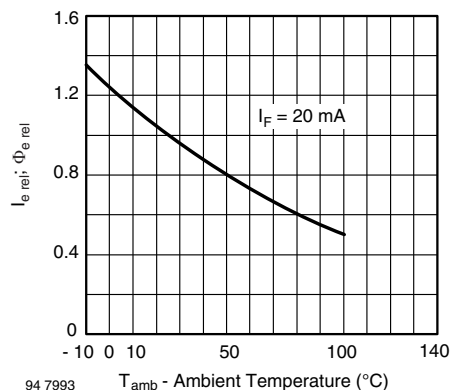


Fig. 5 - Relative Radiant Intensity/Power vs. Ambient Temperature

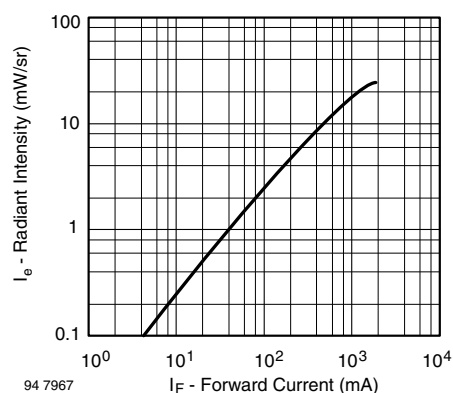


Fig. 3 - Radiant Intensity vs. Forward Current

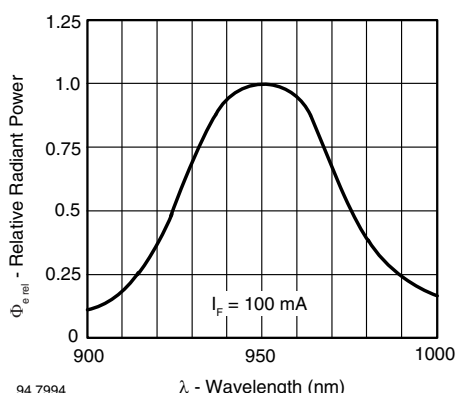


Fig. 6 - Relative Radiant Power vs. Wavelength

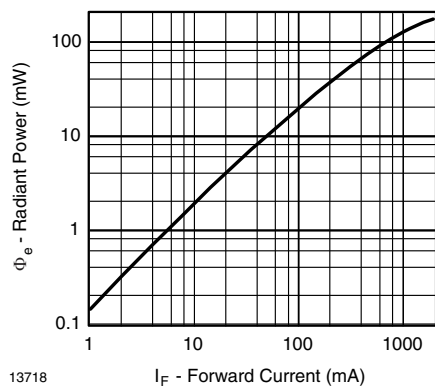


Fig. 4 - Radiant Power vs. Forward Current

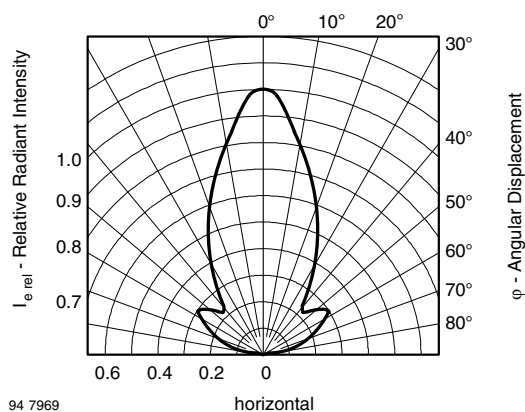


Fig. 7 - Relative Radiant Intensity vs. Angular Displacement

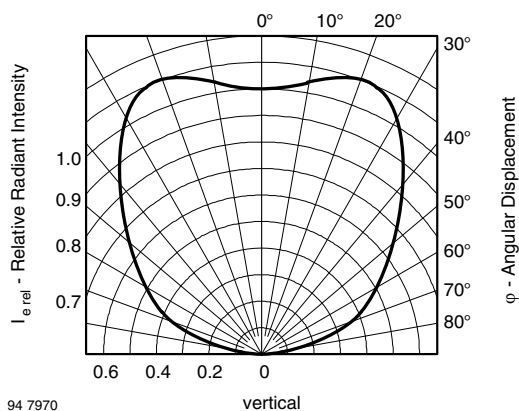
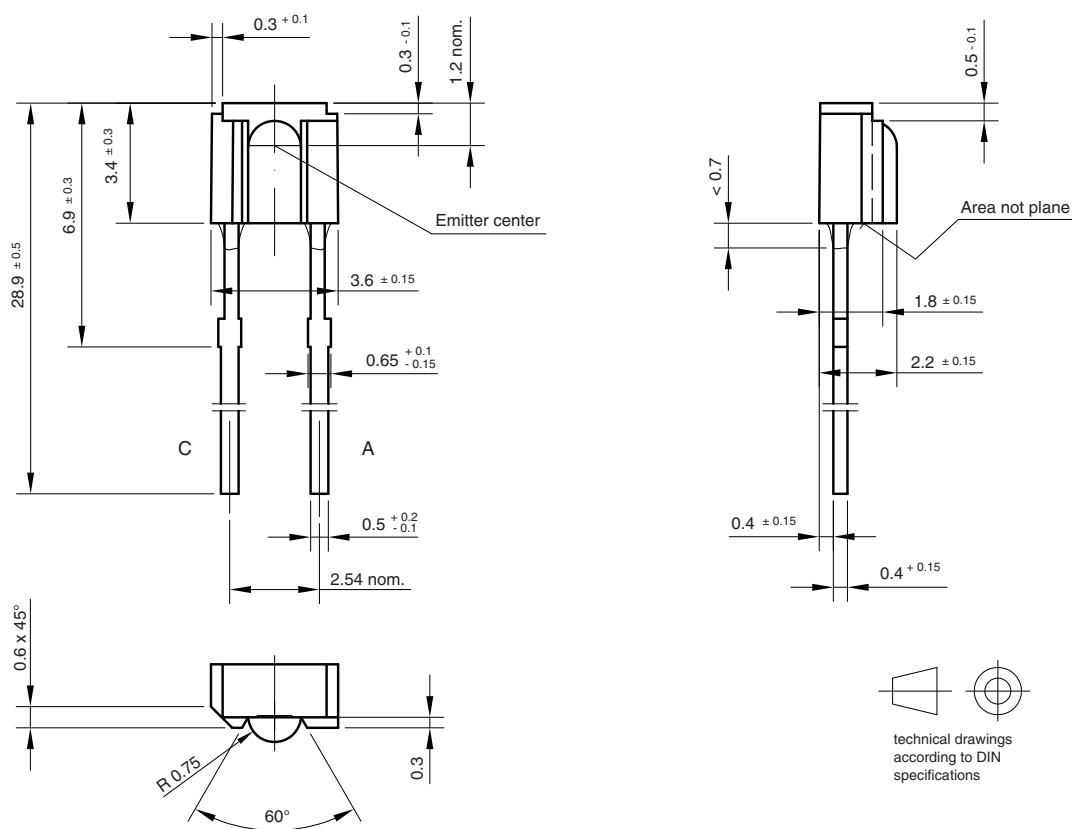


Fig. 2 - Relative Radiant Intensity vs. Angular Displacement

### PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5241.01-4

Issue: 3; 18.04.96

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