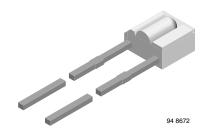
RoHS

GREEN (5-2008)\*\*



## Vishay Semiconductors

# Infrared Emitting Diode, 950 nm, GaAs

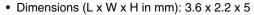


### **DESCRIPTION**

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: leadedPackage form: side view



Peak wavelength: λ<sub>p</sub> = 950 nm

· High reliability

- · High radiant power
- · High radiant intensity
- Angle of half intensity:  $\varphi = \pm 25^{\circ}$ , 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

### **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 <sub>e</sub> (mW/sr)	φ (deg)	λ <sub>p</sub> (nm)	tr (ns)
TSSS2600	2.6	± 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

<b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Reverse voltage		$V_R$	5	V	
Forward current		I <sub>F</sub>	100	mA	
Peak forward current	$t_p/T = 0.5, t_p = 100 \mu s$	I <sub>FM</sub>	200	mA	
Surge forward current	t <sub>p</sub> = 100 μs	I <sub>FSM</sub>	2.0	A	
Power dissipation		P <sub>V</sub>	170	mW	
Junction temperature		T <sub>j</sub>	100	°C	
Operating temperature range		T <sub>amb</sub>	- 40 to + 100	°C	
Storage temperature range		T <sub>stg</sub>	- 40 to + 100	°C	
Soldering temperature	$t \le 5$ s, 2 mm from case	T <sub>sd</sub>	260	°C	
Thermal resistance junction/ambient	Leads not soldered	R <sub>thJA</sub>	450	K/W	





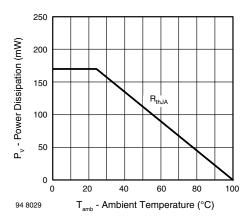


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

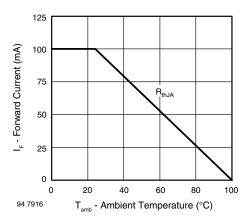


Fig. 1 - Forward Current Limit vs. Ambient Temperature

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
	$I_F = 1.5 \text{ A}, t_p = 100 \mu \text{s}$	$V_{F}$		2.2		V
Temperature coefficient of V <sub>F</sub>	I <sub>F</sub> = 100 mA	TK <sub>VF</sub>		- 1.3		mV/K
Reverse current	V <sub>R</sub> = 5 V	I <sub>R</sub>			100	μΑ
Junction capacitance	V <sub>R</sub> = 0 V, f = 1 MHz, E = 0	C <sub>j</sub>		30		pF
Radiant intensity	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	l <sub>e</sub>	1	2.6	3	mW/sr
	$I_F = 1.5 \text{ A}, t_p = 100 \mu\text{s}$	l <sub>e</sub>		25		mW/sr
Radiant power	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	фe		20		mW
Temperature coefficient of φ <sub>e</sub>	I <sub>F</sub> = 100 mA	TKφ <sub>e</sub>		- 0.8		%/K
Angle of half intensity	horizontal	Ψ1		± 25		deg
	vertical	φ <sub>2</sub>		± 60		deg
Peak wavelength	I <sub>F</sub> = 100 mA	$\lambda_{p}$		950		nm
Spectral bandwidth	I <sub>F</sub> = 100 mA	Δλ		50		nm
Temperature coefficient of $\lambda_p$	I <sub>F</sub> = 100 mA	TKλ <sub>p</sub>		0.2		nm/K
Rise time	I <sub>F</sub> = 100 mA	t <sub>r</sub>		800		ns
	I <sub>F</sub> = 1.5 A	t <sub>r</sub>		400		ns
Eall No.	I <sub>F</sub> = 100 mA	t <sub>f</sub>		800		ns
Fall time	I <sub>F</sub> = 1.5 A	t <sub>f</sub>		400		ns
Virtual source diameter		d		2		mm

# Vishay Semiconductors

### **BASIC CHARACTERISTICS** (T<sub>amb</sub> = 25 °C, unless otherwise specified)

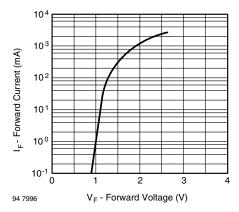


Fig. 2 - Pulse Forward Current vs. Forward Voltage

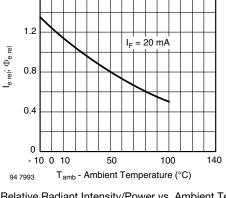


Fig. 5 - Relative Radiant Intensity/Power vs. Ambient Temperature

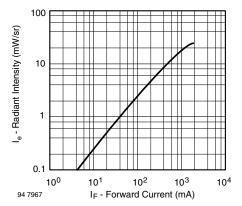


Fig. 3 - Radiant Intensity vs. Forward Current

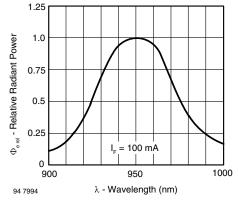


Fig. 6 - Relative Radiant Power vs. Wavelength

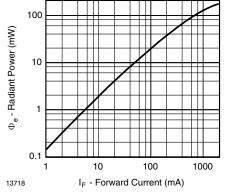


Fig. 4 - Radiant Power vs. Forward Current

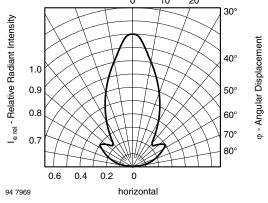


Fig. 7 - Relative Radiant Intensity vs. Angular Displacement



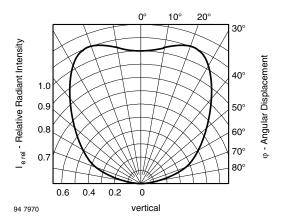
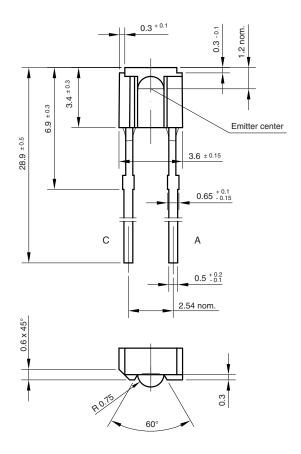
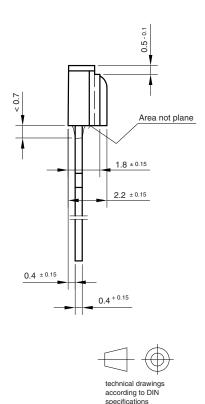


Fig. 2 - Relative Radiant Intensity vs. Angular Displacement

### **PACKAGE DIMENSIONS** in millimeters





Drawing-No.: 6.544-5241.01-4

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