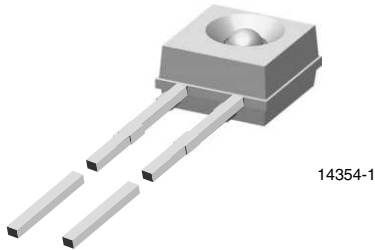


## Infrared Emitting Diode, RoHS Compliant, 950 nm, GaAs



### DESCRIPTION

The TSKS5400-FSZ 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:  $\varphi = \pm 30^\circ$
- Low forward voltage
- Suitable for high pulse current operation
- Good spectral matching with Si photodetectors
- Package matched with detector TEKS5400
- Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC


**RoHS**  
COMPLIANT

### APPLICATIONS

- Photointerrupters
- Transmissive sensors, gap sensors
- Reflective sensors

### PRODUCT SUMMARY

COMPONENT	$I_e$ (mW/sr)	$\varphi$ (deg)	$\lambda_p$ (nm)	$t_r$ (ns)
TSKS5400-FSZ	4.5	$\pm 30$	950	800

#### Note

Test conditions see table "Basic Characteristics"

### ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TSKS5400-FSZ	Tape and ammpack	MOQ: 2000 pcs, 2000 pcs/ammpack	Side view lens

#### Note

MOQ: minimum order quantity

### ABSOLUTE MAXIMUM RATINGS

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

#### Note

$T_{amb} = 25$   $^\circ\text{C}$ , unless otherwise specified

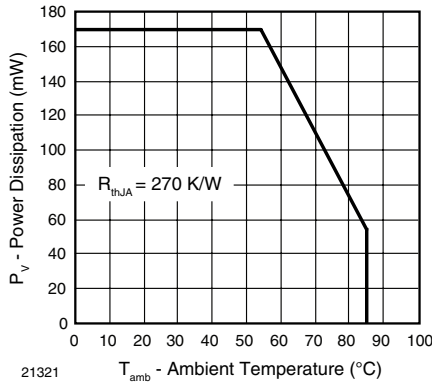


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

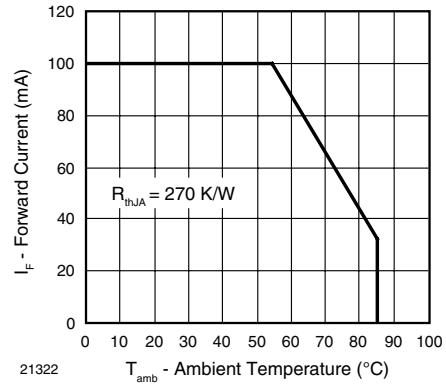


Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS						
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	$V_R = 0 \text{ V}$ , $f = 1 \text{ MHz}$ , $E = 0$	$C_j$		30		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 $\phi_e$	$I_F = 50 \text{ mA}$	$TK_{\phi_e}$		- 0.8		%/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

**Note**

$T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

**BASIC CHARACTERISTICS**

$T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

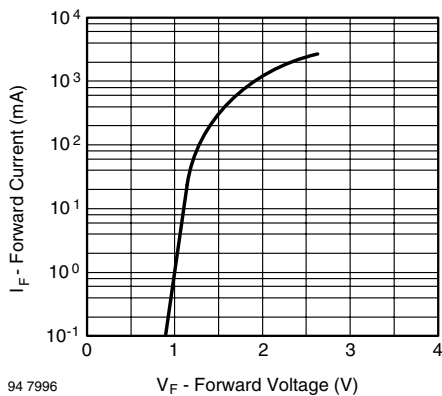


Fig. 3 - Pulse Forward Current vs. Forward Voltage

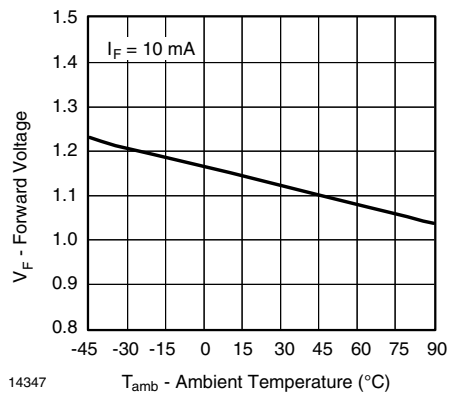


Fig. 4 - Forward Voltage vs. Ambient Temperature

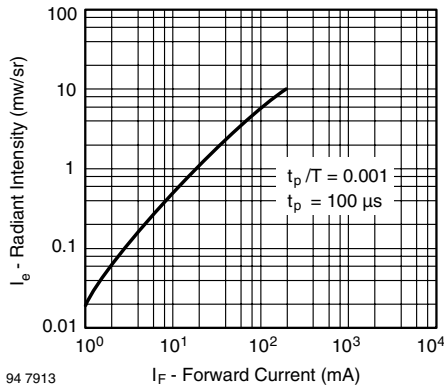


Fig. 5 - Radiant Intensity vs. Forward Current

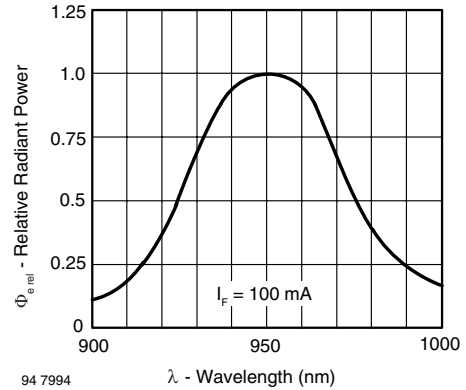


Fig. 8 - Relative Radiant Power vs. Wavelength

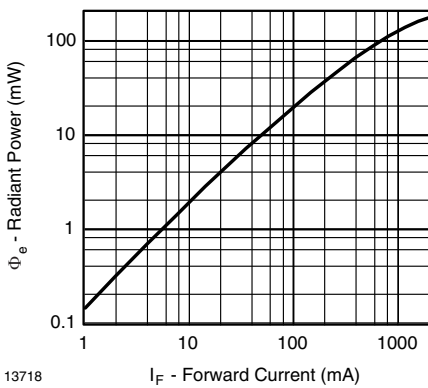


Fig. 6 - Radiant Power vs. Forward Current

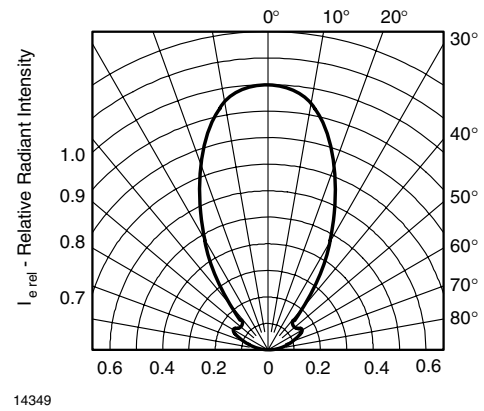


Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

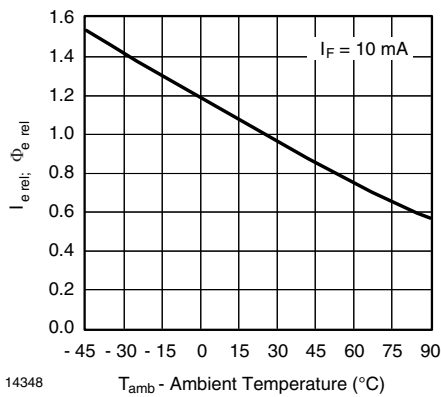


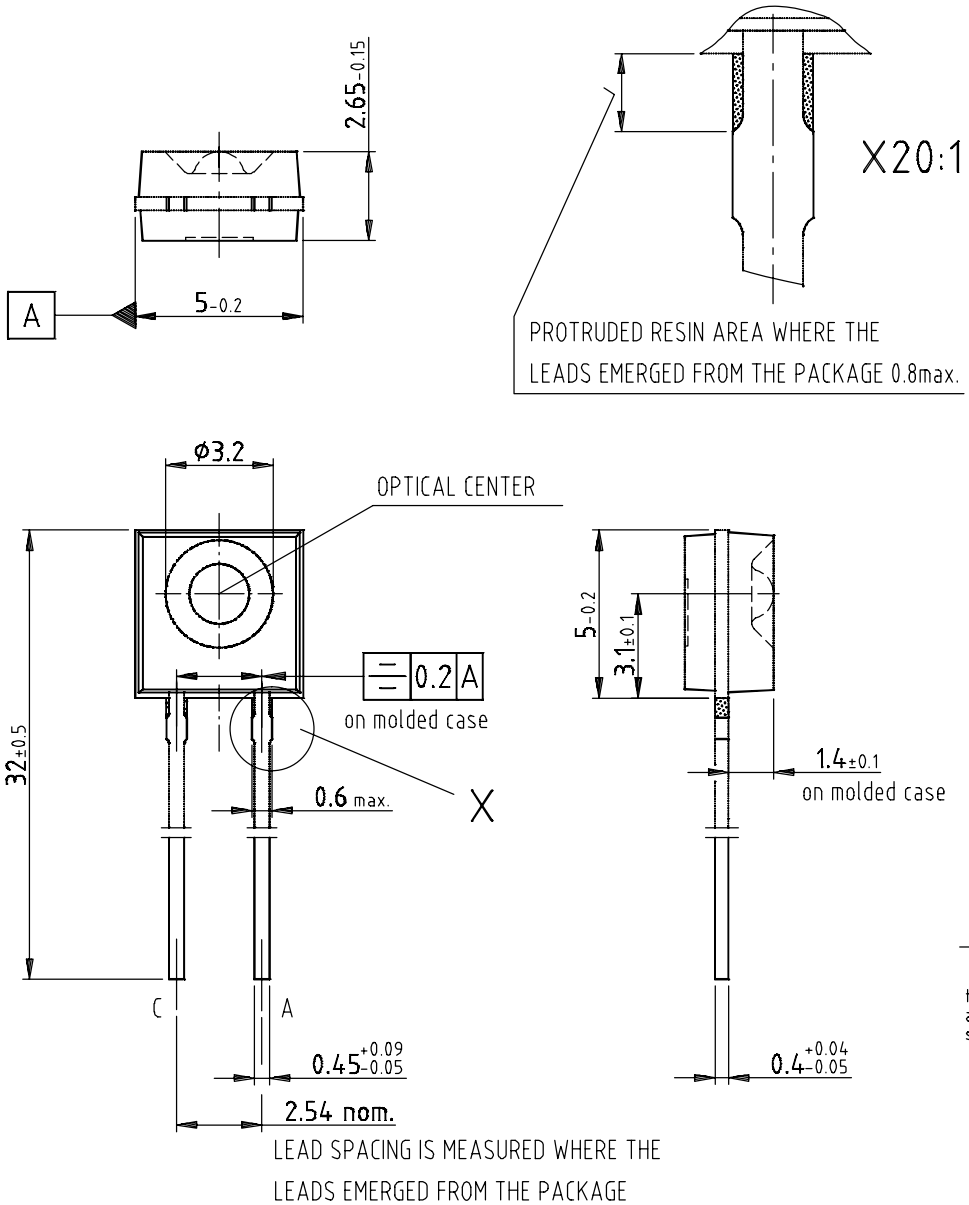
Fig. 7 - Relative Radiant Intensity vs. Ambient Temperature

# TSKS5400



Vishay Semiconductors Infrared Emitting Diode, RoHS Compliant,  
950 nm, GaAs

## PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5308.51-4

Issue: 7; 05.12.00

14345



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