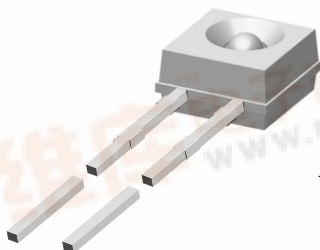




TSKS5400

Vishay Semiconductors

Infrared Emitting Diode, RoHS Compliant, 950 nm, GaAs



14354-1

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
- Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC

RoHS
COMPLIANT

DESCRIPTION

The TSKS5400-FSZ is an infrared, 950 nm emitting diode in GaAs technology with high radiant power, molded in a clear plastic package.

APPLICATIONS

- Photointerrupters
- Transmissive sensors, gap sensors
- Reflective sensors

PRODUCT SUMMARY

COMPONENT	I_e (mW/sr)	ϕ (deg)	λ_p (nm)	t_r (ns)
TSKS5400-FSZ	4.5	± 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	$t_p \leq 100 \mu s$	I_{FSM}	2	A
Power dissipation		P_V	170	mW
Junction temperature		T_j	100	$^\circ C$
Operating temperature range		T_{amb}	- 25 to + 85	$^\circ C$
Storage temperature range		T_{stg}	- 40 to + 100	$^\circ C$
Soldering temperature	$t \leq 5 s$, 2 mm from case	T_{sd}	260	$^\circ C$
Thermal resistance junction/ambient	J-STD-051, leads 7 mm, soldered on PCB	R_{thJA}	270	K/W

Note

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

TSKS5400

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

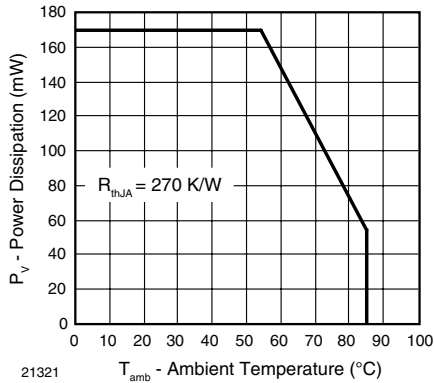


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

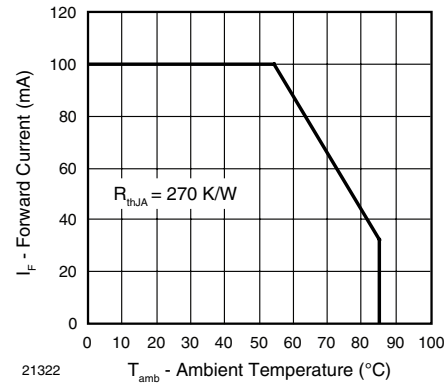


Fig. 2 - Forward Current Limit vs. Ambient Temperature

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	$I_F = 50 \text{ mA}$, $t_p \leq 20 \text{ ms}$	ϕ_e		10		mW
Temperature coefficient of ϕ_e	$I_F = 50 \text{ mA}$	TK_{ϕ_e}		- 0.8		%/K
Angle of half sensitivity		ϕ		± 30		deg
Peak wavelength	$I_F = 50 \text{ mA}$	λ_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

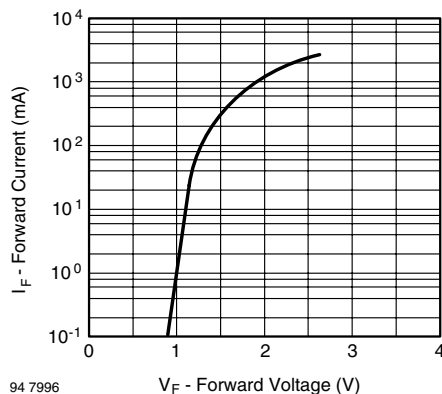


Fig. 3 - Pulse Forward Current vs. Forward Voltage

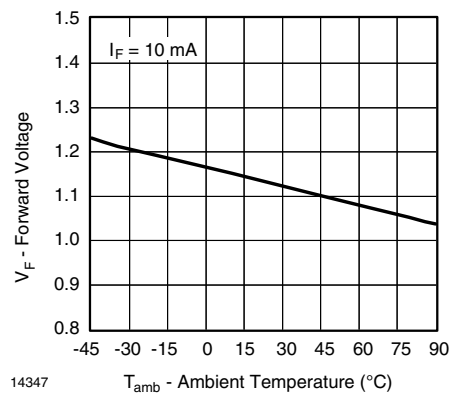


Fig. 4 - Forward Voltage vs. Ambient Temperature



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

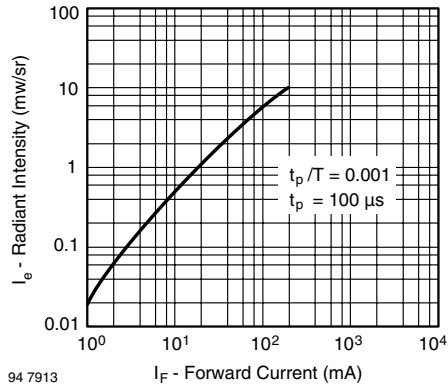


Fig. 5 - Radiant Intensity vs. Forward Current

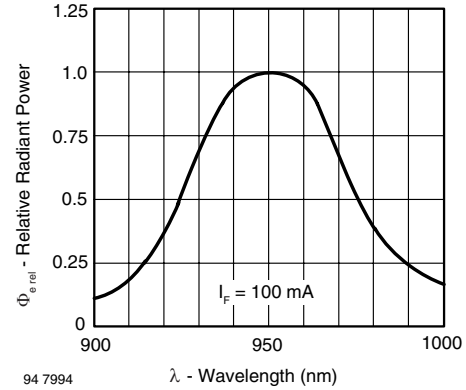


Fig. 8 - Relative Radiant Power vs. Wavelength

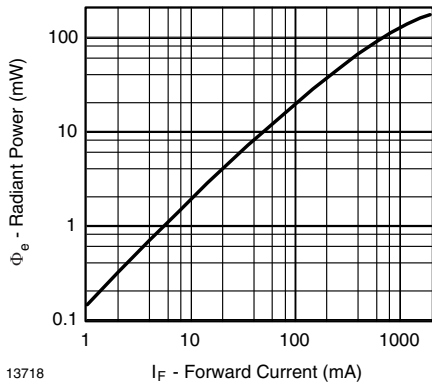


Fig. 6 - Radiant Power vs. Forward Current

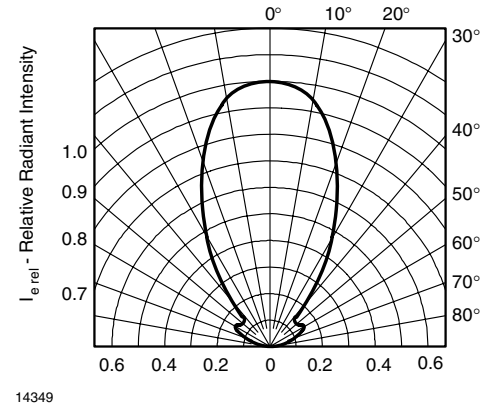


Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

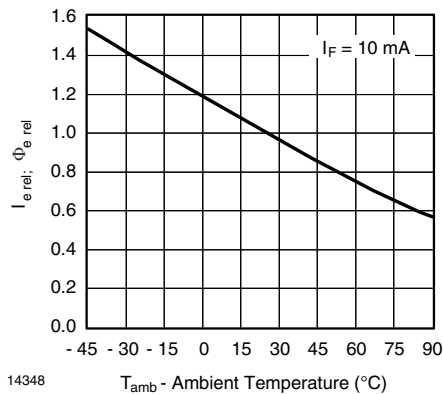


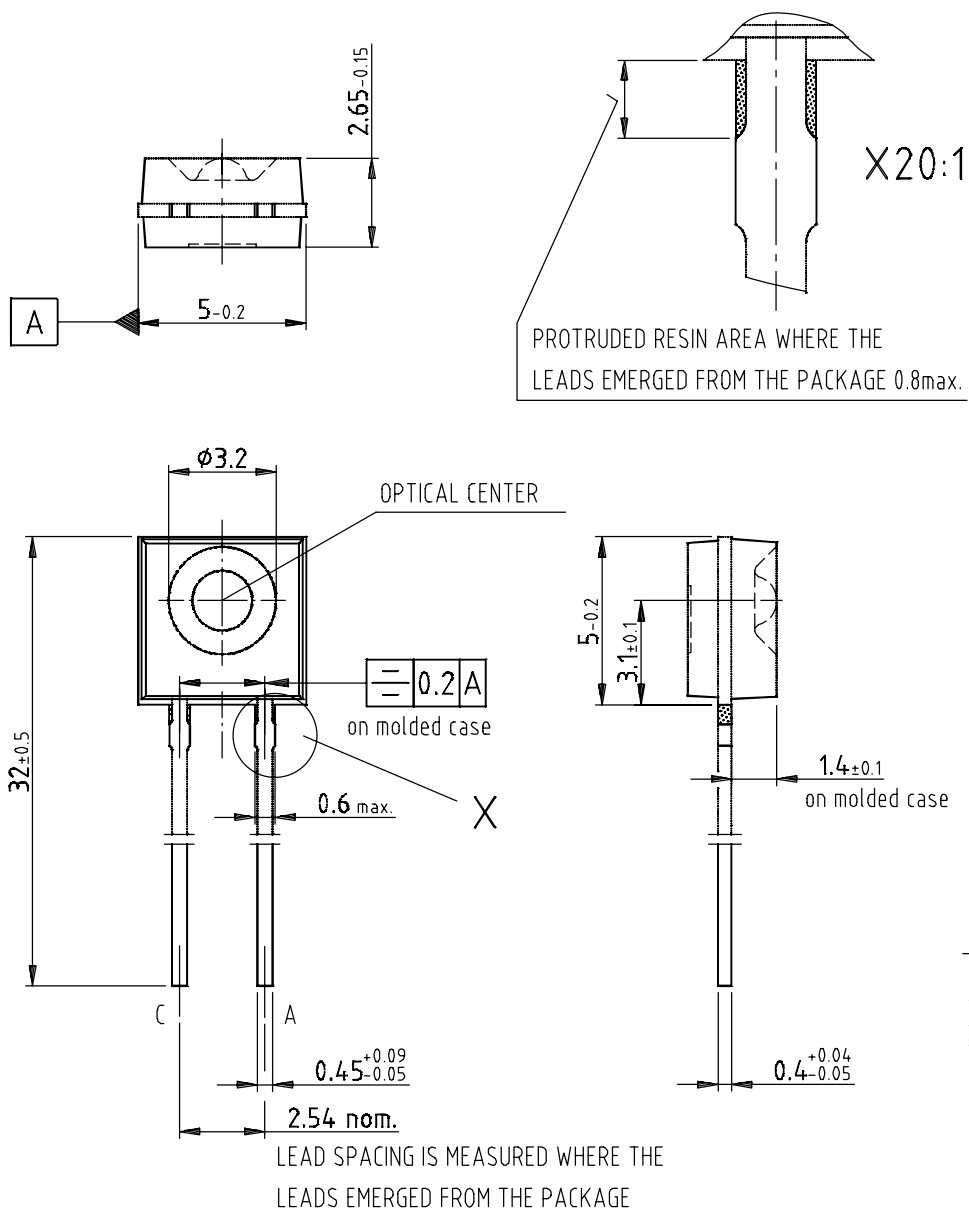
Fig. 7 - Relative Radiant Intensity vs. Ambient Temperature

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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