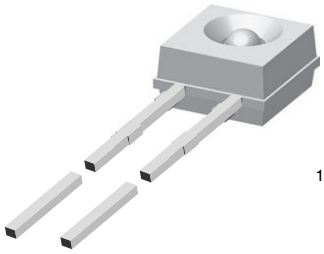
Infrared Emitting Diode, 950 nm, GaAs



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: λ_p = 950 nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: φ = ± 30°
- Low forward voltage
- Suitable for high pulse current operation
- Good spectral matching with Si photodetectors
- Package matched with detector TEKS5400
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e3

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 ammopack	MOQ: 2000 pcs, 2000 pcs/ammopack	Side view lens

Note

- MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °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	$t_p \leq 100$ µs	I_{FSM}	2	A
Power dissipation		P_V	170	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	- 25 to + 85	°C
Storage temperature range		T_{stg}	- 40 to + 100	°C
Soldering temperature	t ≤ 5 s, 2 mm from case	T_{sd}	260	°C
Thermal resistance junction/ambient	J-STD-051, leads 7 mm, soldered on PCB	R_{thJA}	270	K/W

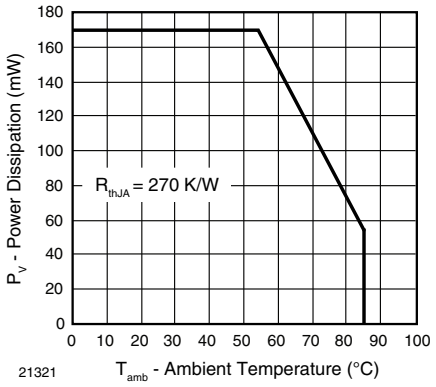


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

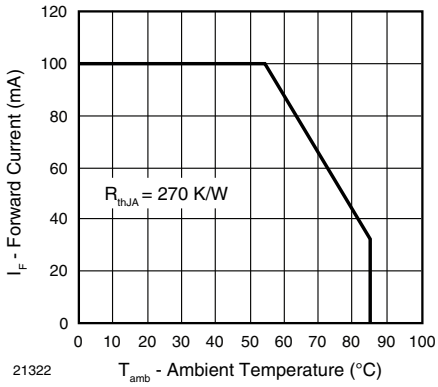


Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Forward voltage	I_F = 100 mA, $t_p \leq 20$ ms	V_F		1.3	1.7	V
Reverse voltage	I_R = 10 µA	V_R	6			V
Temperature coefficient of V_F	I_F = 100 mA	TK_{VF}		- 1.3		mV/K
Junction capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_j		30		pF
Radiant intensity	I_F = 100 mA, $t_p \leq 20$ ms	I_e	2	4.5	7	mW/sr
Radiant power	I_F = 50 mA, $t_p \leq 20$ ms	ϕ_e		10		mW
Temperature coefficient of ϕ_e	I_F = 50 mA	$TK\phi_e$		- 0.8		%/K
Angle of half sensitivity		φ		± 30		deg
Peak wavelength	I_F = 50 mA	λ_p		950		nm
Spectral bandwidth	I_F = 50 mA	$\Delta\lambda$		50		nm
Rise time	I_F = 100 mA	t_r		800		ns
	I_F = 1 A, t_p/T = 0.01, $t_p \leq 10$ µs	t_r		450		ns

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

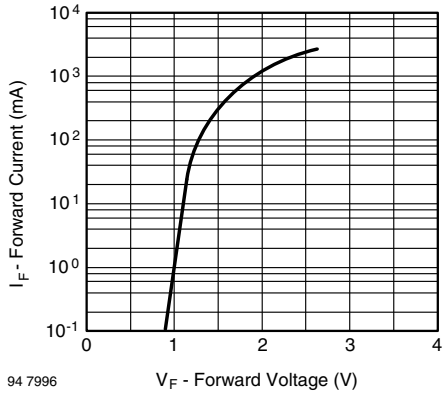


Fig. 3 - Pulse Forward Current vs. Forward Voltage

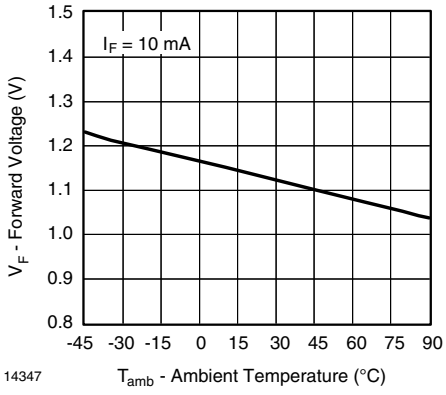


Fig. 4 - Forward Voltage vs. Ambient Temperature

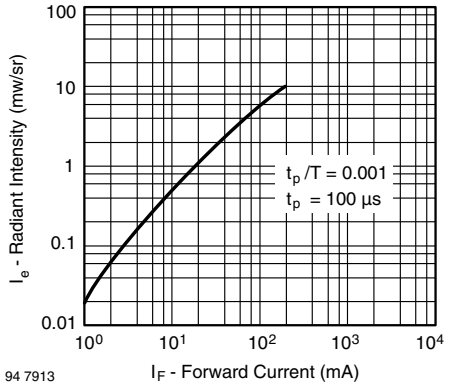


Fig. 5 - Radiant Intensity vs. Forward Current

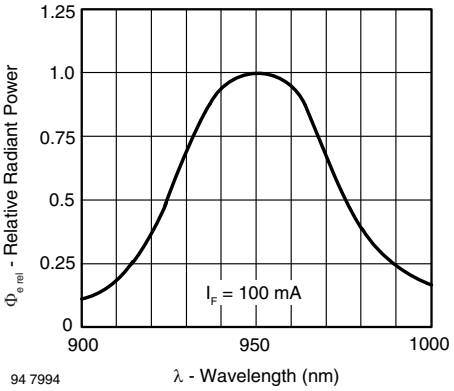


Fig. 8 - Relative Radiant Power vs. Wavelength

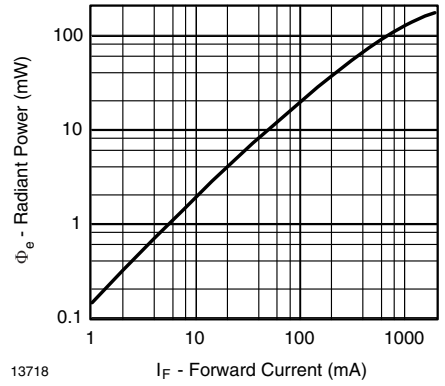


Fig. 6 - Radiant Power vs. Forward Current

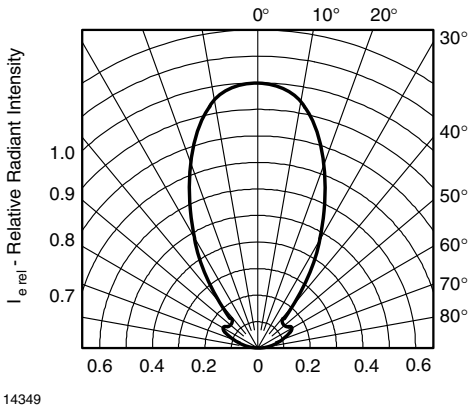


Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

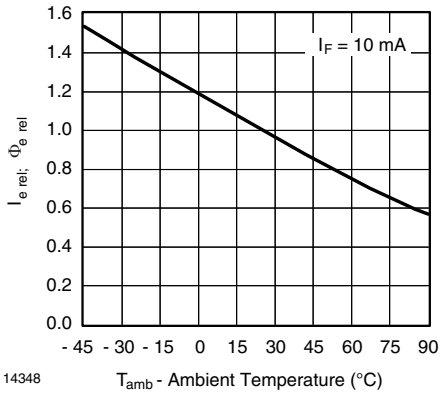
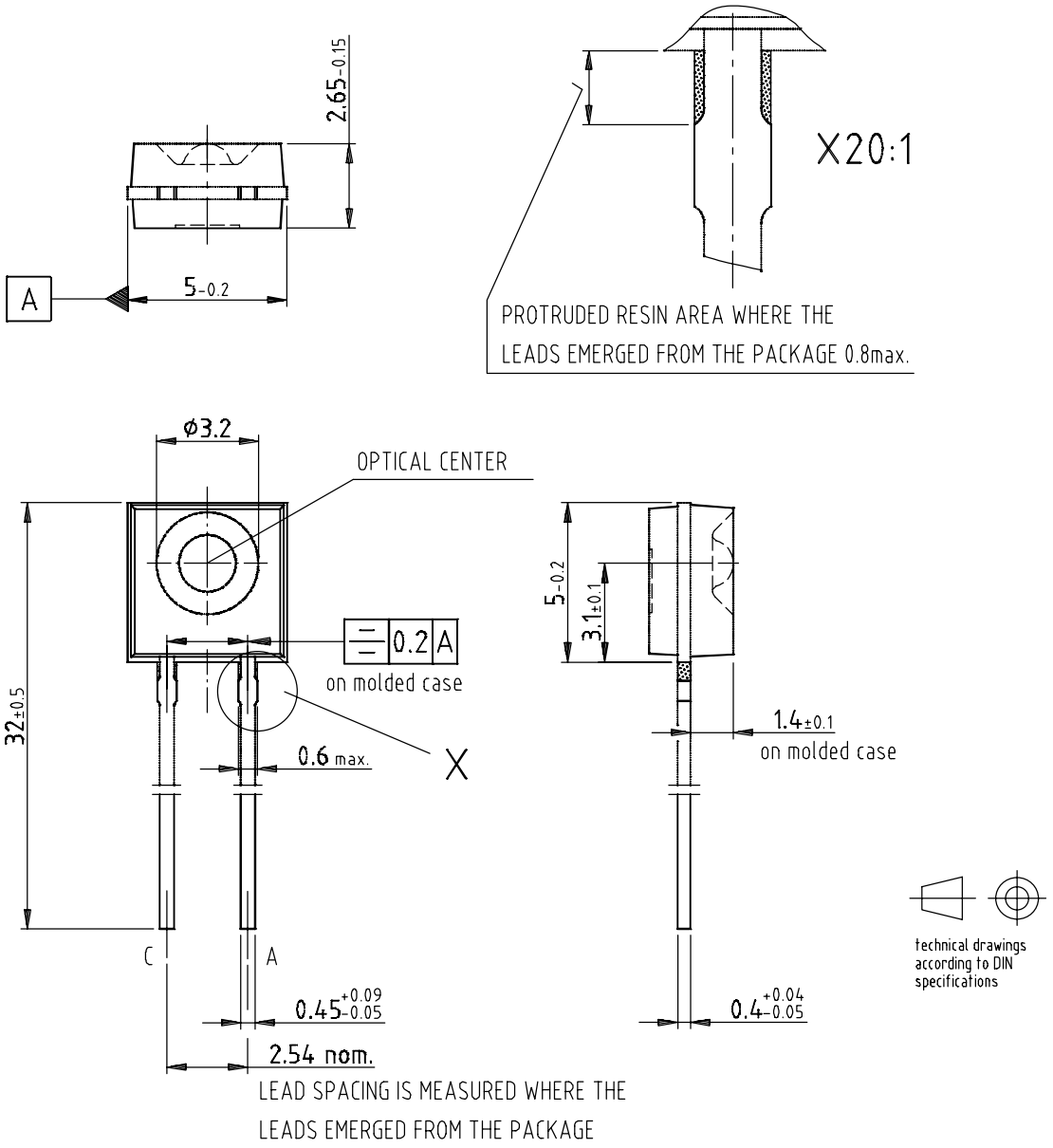


Fig. 7 - Relative Radiant Intensity vs. Ambient Temperature

PACKAGE DIMENSIONS in millimeters



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Issue: 7; 05.12.00

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