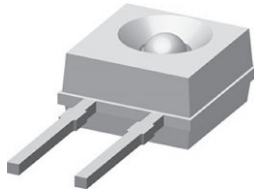




Infrared Emitting Diode, 950 nm, GaAs



14354

DESCRIPTION

The TSKS5400S 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: $\phi = \pm 30^\circ$
- 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



APPLICATIONS

- Photointerrupters
- Transmissive sensors, gap sensors
- Reflective sensors

PRODUCT SUMMARY

COMPONENT	I_e (mW/sr)	ϕ (°)	λ_p (nm)	t_r (ns)
TSKS5400S	4.5	± 30	950	800

Note

- Test conditions see table "Basic Characteristics"

ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TSKS5400S	Bulk	MOQ: 2000 pcs, 2000 pcs/bulk	Side view lens

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	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- to-ambient	J-STD-051, leads 7 mm, soldered on PCB	R_{thJA}	270	K/W

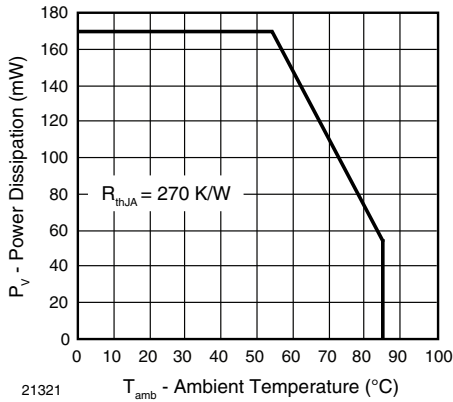


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

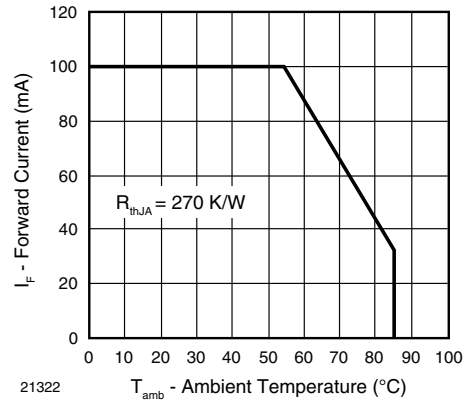


Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)						
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	-	50	-	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}	-	-1.0	-	%/K
Angle of half sensitivity		ϕ	-	± 30	-	$^{\circ}$
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

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

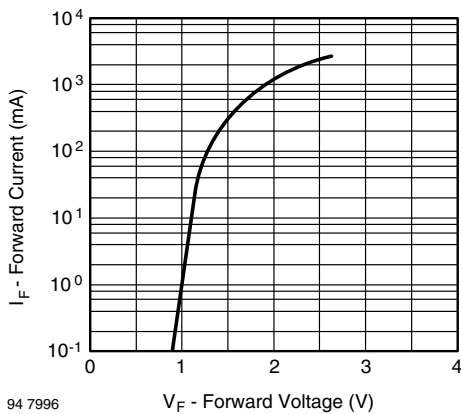


Fig. 3 - Pulse Forward Current vs. Forward Voltage

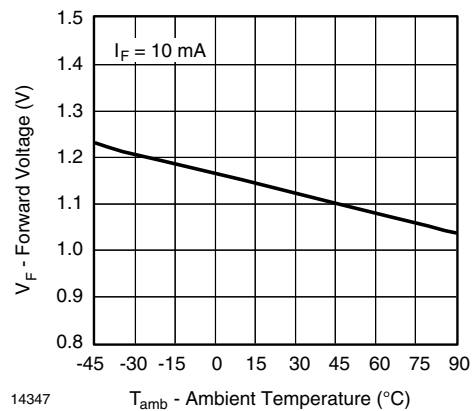


Fig. 4 - Forward Voltage vs. Ambient Temperature

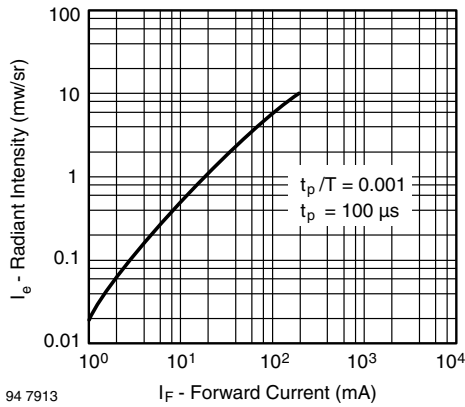


Fig. 5 - Radiant Intensity vs. Forward Current

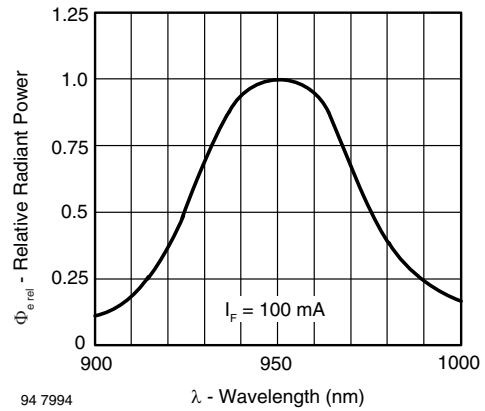


Fig. 8 - Relative Radiant Power vs. Wavelength

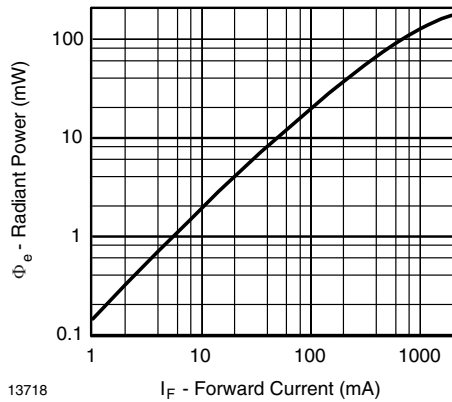


Fig. 6 - Radiant Power vs. Forward Current

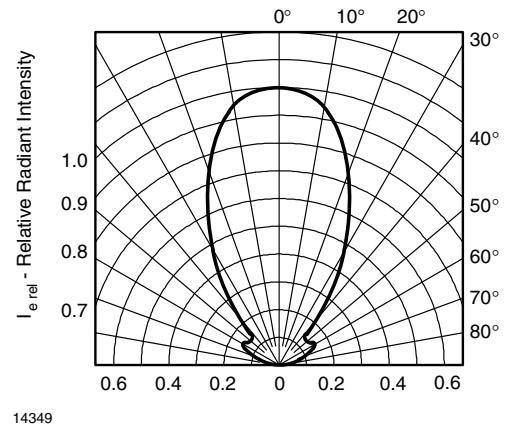


Fig. 9 - Relative Radiant Intensity vs. Angular Displacement

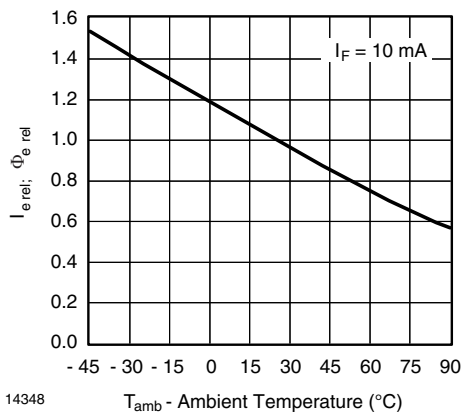
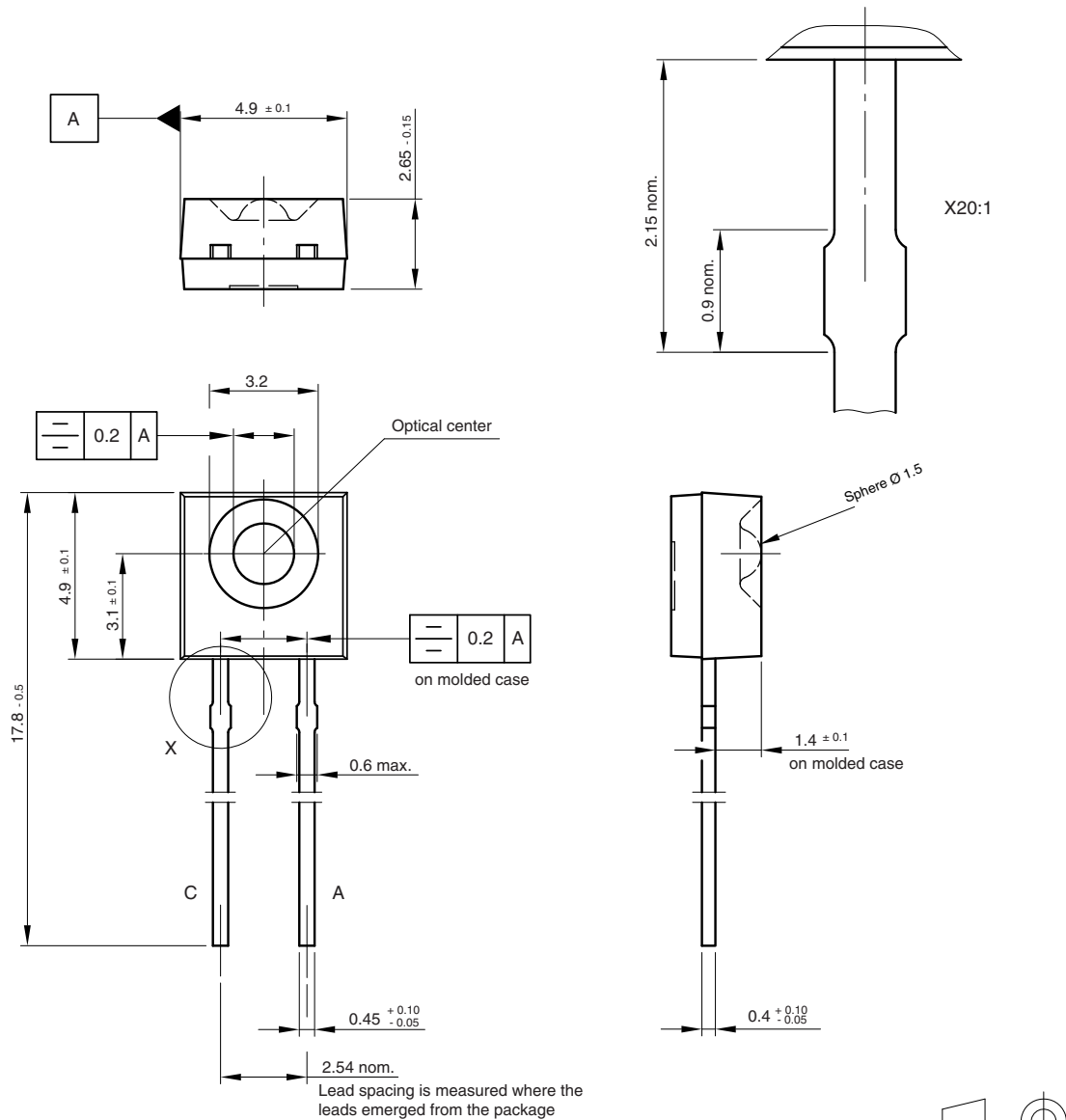


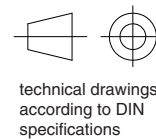
Fig. 7 - Relative Radiant Intensity vs. Ambient Temperature



PACKAGE DIMENSIONS in millimeters



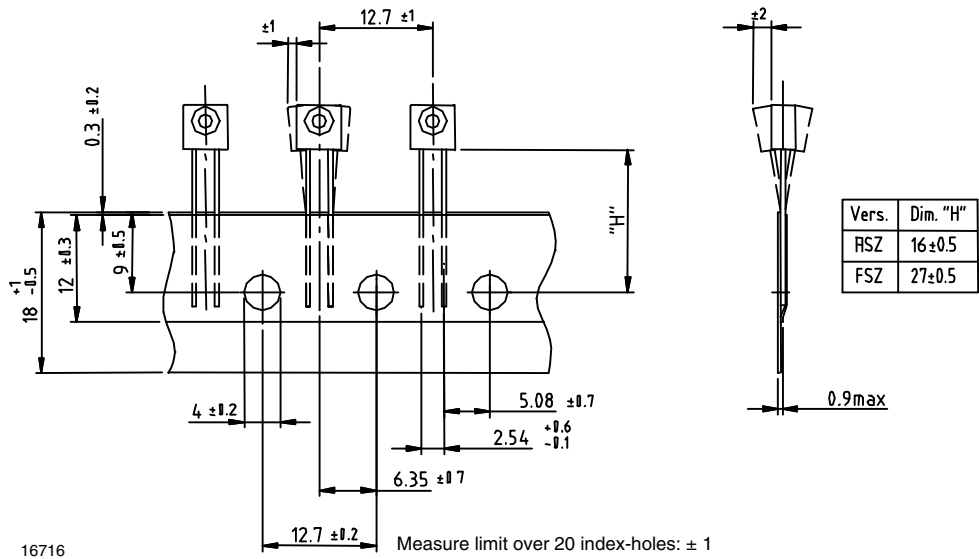
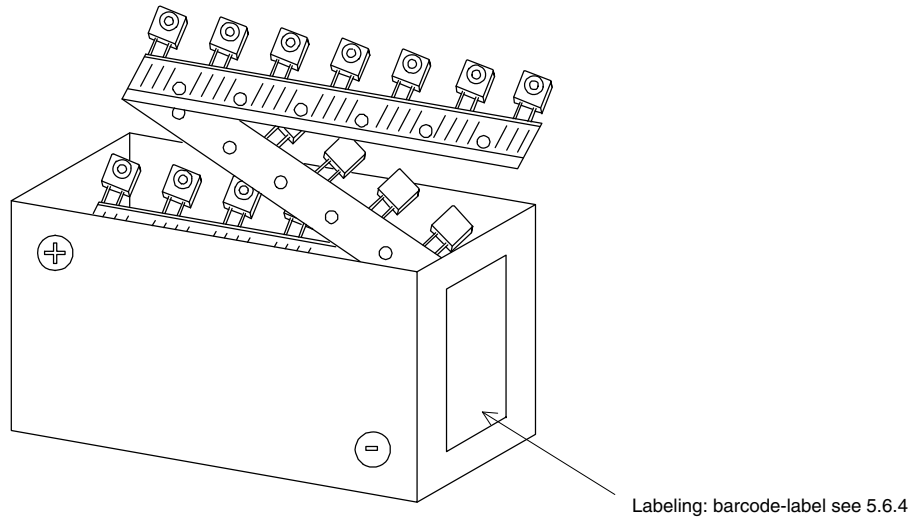
Protruded resin area where the leads emerged from the package 0.8 max.



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 14307



TAPE AND AMMOPACK STANDARDS DIMENSIONS in millimeters





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