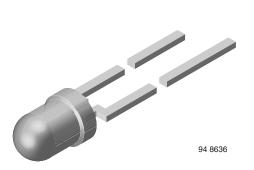


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TSUS4400

Infrared Emitting Diode, 950 nm, GaAs



DESCRIPTION

TSUS4400 is an infrared, 950 nm emitting diode in GaAs technology molded in a blue tinted plastic package.

FEATURES

- Package type: leaded
- Package form: T-1
- Dimensions (in mm): Ø 3
- Peak wavelength: $\lambda_p = 950 \text{ nm}$
- High reliability
- Angle of half intensity: $\phi = \pm 18^{\circ}$
- Low forward voltage
- Suitable for high pulse current operation
- Good spectral matching with Si photodetectors
- Material categorization: for definitions of compliance please see <u>www.vishay.com/doc?99912</u>

APPLICATIONS

- Infrared remote control and free air transmission systems with low forward voltage and small package requirements
- Emitter in transmissive sensors
- Emitter in reflective sensors

PRODUCT SUMMARY COMPONENT Ie (mW/sr) φ (°) λp (nm) tr (ns) TSUS4400 15 ± 18 950 800

Note

Test conditions see table "Basic Characteristics"

ORDERING INFORMATION

ORDERING INFORMATION						
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM			
TSUS4400	Bulk	MOQ: 5000 pcs, 5000 pcs/bulk	T-1			

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	5	V		
Forward current		I _F	100	mA		
Peak forward current	$t_p/T = 0.5, t_p = 100 \ \mu s$	I _{FM}	200	mA		
Surge forward current	t _p = 100 μs	I _{FSM}	2	A		
Power dissipation		Pv	170	mW		
Junction temperature		Тj	100	°C		
Operating temperature range		T _{amb}	-40 to + 85	°C		
Storage temperature range		T _{stg}	-40 to +100	°C		
Soldering temperature	$t \le 5$ s, 2 mm from case	T _{sd}	260	°C		
Thermal resistance junction to ambient	J-STD-051, leads 7 mm, soldered on PCB	R _{thJA}	300	K/W		

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(5-2008)

End of Life May-2021 - Alternative Device: VSLY3943



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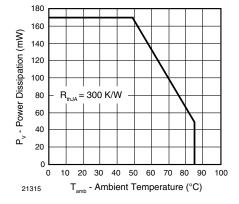
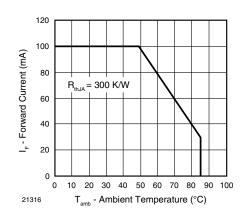


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature



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Fig. 2 - Forward Current Limit vs. Ambient Temperature

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 100 mA, t _p = 20 ms	V _F	-	1.3	1.7	V
	$I_F = 1.5 \text{ A}, t_p = 100 \ \mu \text{s}$	V _F	-	2.2	-	V
Temperature coefficient of V _F	l _F = 100 mA	TK _{VF}	-	-1.3	-	mV/K
Reverse current	V _R = 5 V	I _R	-		100	μA
Breakdown voltage	I _R = 100 μA	V _(BR)	5	40	-	μA
Junction capacitance	V _R = 0 V, f = 1 MHz, E = 0	Cj	-	30	-	pF
Radiant intensity	I _F = 100 mA, t _p = 20 ms	l _e	7	15	35	mW/sr
	$I_F = 1.5 \text{ A}, t_p = 100 \ \mu \text{s}$	l _e	-	140	-	mW/sr
Radiant power	I _F = 100 mA, t _p = 20 ms	фе	-	20	-	mW
Temperature coefficient of ϕ_{e}	I _F = 20 mA	ΤKφ _e	-	-0.8	-	%/K
Angle of half intensity		φ	-	± 18	-	0
Peak wavelength	l _F = 100 mA	λρ	-	950	-	nm
Spectral bandwidth	l _F = 100 mA	Δλ	-	50	-	nm
Temperature coefficient of λ_p	l _F = 100 mA	ΤΚλρ	-	0.2	-	nm/K
Rise time	l _F = 100 mA	t _r	-	800	-	ns
	I _F = 1.5 A	t _r	-	400	-	ns
Fall time	I _F = 100 mA	t _f	-	800	-	ns
	I _F = 1.5 A	t _f	-	400	-	ns
Virtual source diameter		d	-	2.1	-	mm

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

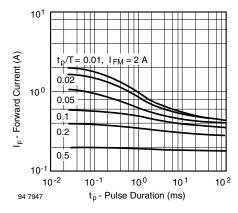


Fig. 3 - Pulse Forward Current vs. Pulse Duration

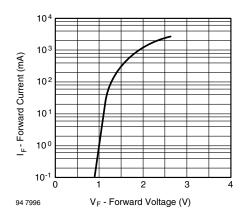


Fig. 4 - Forward Current vs. Forward Voltage

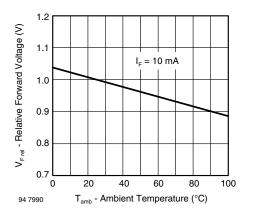


Fig. 5 - Relative Forward Voltage vs. Ambient Temperature

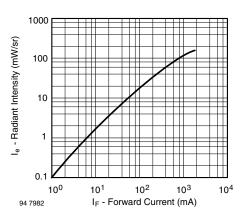


Fig. 6 - Radiant Intensity vs. Forward Current

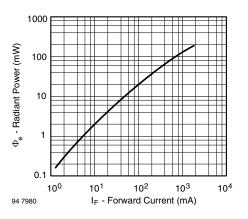


Fig. 7 - Radiant Power vs. Forward Current

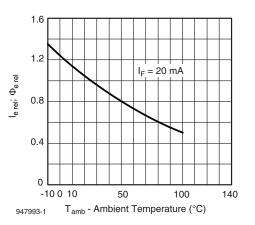


Fig. 8 - Relative Radiant Intensity/Power vs. Ambient Temperature

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End of Life May-2021 - Alternative Device: VSLY3943



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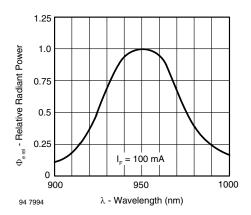
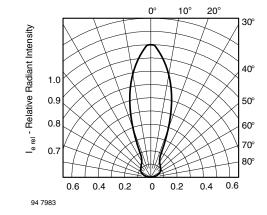


Fig. 9 - Relative Radiant Power vs. Wavelength

С

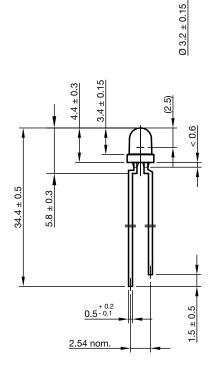
PACKAGE DIMENSIONS in millimeters

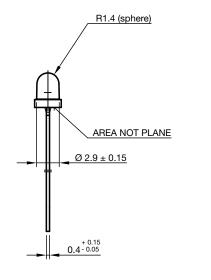


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Fig. 10 - Relative Radiant Intensity vs. Angular Displacement





technical drawings according to DIN specifications

Drawing-No.: 6.544-5255.01-4 Issue: 9; 28.07.14

Rev. 1.9, 29-Jan-2021

4

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