HALOGEN FREE

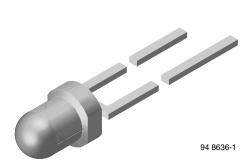
GREEN

(5-2008)



Vishay Semiconductors

Infrared Emitting Diode, 950 nm, GaAs



DESCRIPTION

TSUS4300 is an infrared, 950 nm emitting diode in GaAs technology molded in a blue tinted plastic package.

FEATURES

Package type: leadedPackage form: T-1

• Dimensions (in mm): Ø 3

• Peak wavelength: $\lambda_p = 950 \text{ nm}$

High reliability

• Angle of half intensity: $\varphi = \pm 16^{\circ}$

• Low forward voltage

• Suitable for high pulse current operation

· Good spectral matching with Si photodetectors

Package matches with detector TEFT4300

 Material categorization: for definitions of compliance please see <u>www.vishav.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	I _e (mW/sr)	φ (deg)	λ _p (nm)	t _r (ns)
TSUS4300	18	± 16	950	800

Note

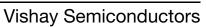
• Test conditions see table "Basic Characteristics"

ORDERING INFORMATION						
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM			
TSUS4300	Bulk	MOQ: 5000 pcs, 5000 pcs/bulk	T-1			
TSUS4300-ASZ	Ammopack	MOQ: 10 000 pcs, 2000 pcs/box	T-1			

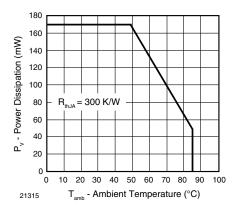
Note

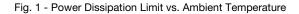
· MOQ: minimum order quantity

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	Α	
Power dissipation		P _V	170	mW	
Junction temperature		Tj	100	°C	
Operating temperature range		T _{amb}	-40 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}	300	K/W	









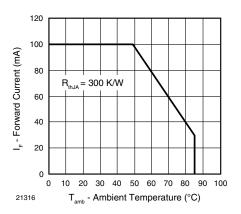


Fig. 2 - Forward Current Limit vs. Ambient Temperature

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	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	I _F = 100 mA	TK _{VF}	-	-1.3	-	mV/K
Reverse current	V _R = 5 V	I _R	=	-	100	μΑ
Breakdown voltage	I _R = 100 μA	V _(BR)	5	40	-	
Junction capacitance	$V_R = 0 \text{ V, } f = 1 \text{ MHz, } E = 0$	Cj	-	30	-	pF
Radiant intensity	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	I _e	7	18	35	mW/sr
	$I_F = 1.5 \text{ A}, t_p = 100 \mu \text{s}$	I _e	-	160	-	mW/sr
Radiant power	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	фe	-	20	-	mW
Temperature coefficient of ϕ_e	I _F = 20 mA	TKφ _e	=	-0.8	-	%/K
Angle of half intensity		φ	=	± 16	-	deg
Peak wavelength	I _F = 100 mA	λ_{p}	-	950	-	nm
Spectral bandwidth	I _F = 100 mA	Δλ	=	50	-	nm
Temperature coefficient of λ_p	I _F = 100 mA	TKλ _p	=	0.2	-	nm/K
Rise time	I _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)

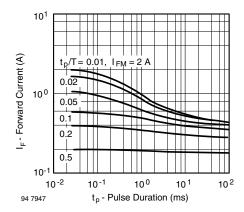


Fig. 3 - Pulse Forward Current vs. Pulse Duration

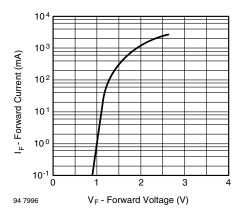


Fig. 4 - Forward Current vs. Forward Voltage

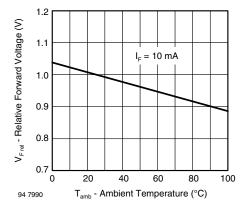


Fig. 5 - Relative Forward Voltage vs. Ambient Temperature

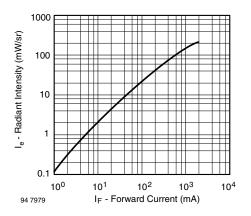


Fig. 6 - Radiant Intensity vs. Forward Current

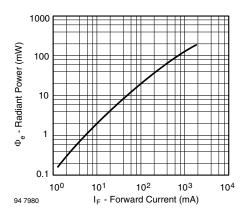


Fig. 7 - Radiant Power vs. Forward Current

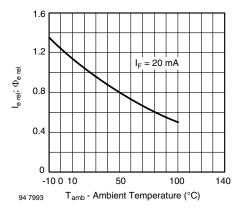
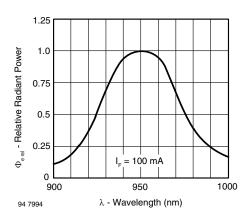
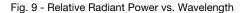


Fig. 8 - Relative Radiant Intensity/Power vs. Ambient Temperature



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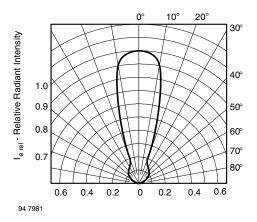
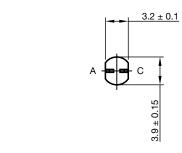
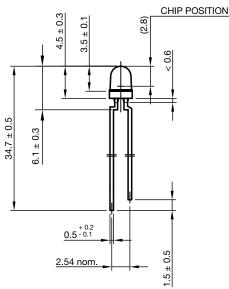
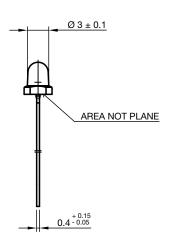


Fig. 10 - Relative Radiant Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters









Drawing-No.: 6.544-5269.02-4

Issue: 5; 28.07.14



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