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[Vishay Semiconductor/Opto Division](#)
[TSUS3400](#)

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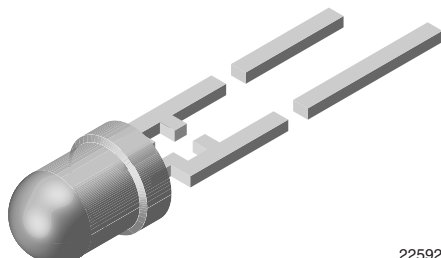


www.vishay.com

TSUS3400

Vishay Semiconductors

Infrared Emitting Diode, 950 nm, GaAs



22592

DESCRIPTION

TSUS3400 is an infrared, 950 nm emitting diode in GaAs technology, molded in a clear, blue tinted plastic package.

FEATURES

- Package type: leaded
- Package form: T-1
- Dimensions (in mm): Ø 3
- Peak wavelength: $\lambda_p = 950$ nm
- High reliability
- Angle of half intensity: $\phi = \pm 18^\circ$
- Low forward voltage
- Radiant power: 20 mW at $I_F = 100$ mA
- Suitable for DC and high pulse current operation
- Good spectral matching with Si photodetectors
- Compliant to RoHS Directive 2002/95/EC and in accordance with WEEE 2002/96/EC



RoHS
COMPLIANT
GREEN
(5-2008)**

Note

** Please see document "Vishay Material Category Policy":
www.vishay.com/doc?99902

APPLICATIONS

- Infrared source in photo interrupters, reflective and transmissive sensors

PRODUCT SUMMARY				
COMPONENT	I_e (mW/sr)	ϕ (deg)	λ_p (nm)	t_r (ns)
TSUS3400	15	± 18	950	800

Note

- Test conditions see table "Basic Characteristics"

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TSUS3400	Bulk	MOQ: 5000 pcs, 5000 pcs/bulk	T-1

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	5	V
Forward current		I_F	100	mA
Peak forward current	$t_p/T = 0.5, t_p = 100 \mu\text{s}$	I_{FM}	200	mA
Surge forward current	$t_p = 100 \mu\text{s}$	I_{FSM}	2	A
Power dissipation		P_V	170	mW
Junction temperature		T_j	100	$^\circ\text{C}$
Operating temperature range		T_{amb}	- 40 to + 100	$^\circ\text{C}$
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/ambient		R_{thJA}	450	K/W



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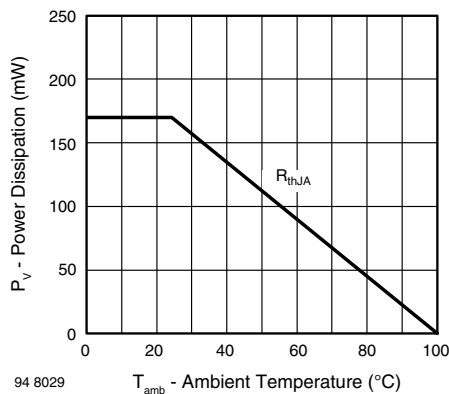


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

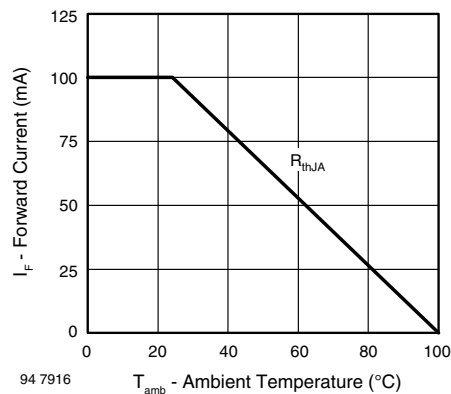


Fig. 2 - Forward Current vs. Ambient Temperature

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 = 20 ms	V _F		1.3	1.7	V
	I _F = 1.5 A, t _p = 100 μs	V _F		2.2		V
Temperature coefficient of V _F	I _F = 100 mA	TK _{V_F}		- 1.3		mV/K
Reverse current	V _R = 5 V	I _R			100	μA
Breakdown voltage	I _R = 100 μA	V _(BR)	5	40		V
Junction capacitance	V _R = 0 V, f = 1 MHz, E = 0	C _j		30		pF
Radiant intensity	I _F = 100 mA, t _p = 20 ms	I _e	7	15	35	mW/sr
	I _F = 1.5 A, t _p = 100 μs	I _e		140		mW/sr
Radiant power	I _F = 100 mA, t _p = 20 ms	φ _e		20		mW
Temperature coefficient of φ _e	I _F = 20 mA	TKφ _e		- 0.8		%/K
Angle of half intensity		φ		± 18		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 ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

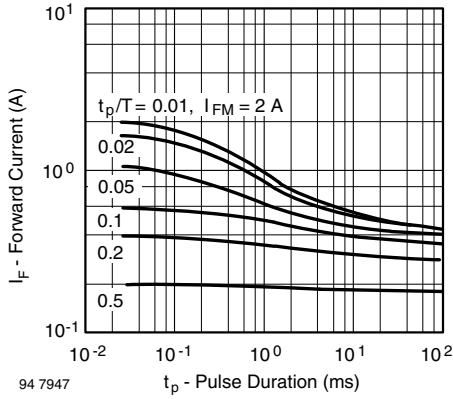


Fig. 3 - Pulse Forward Current vs. Pulse Duration

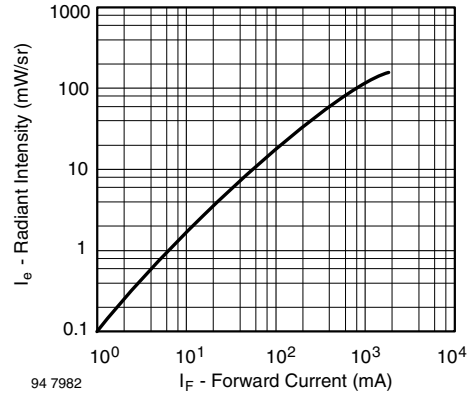


Fig. 6 - Radiant Intensity vs. Forward Current

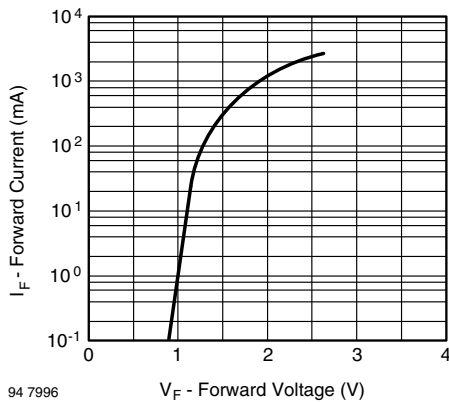


Fig. 4 - Forward Current vs. Forward Voltage

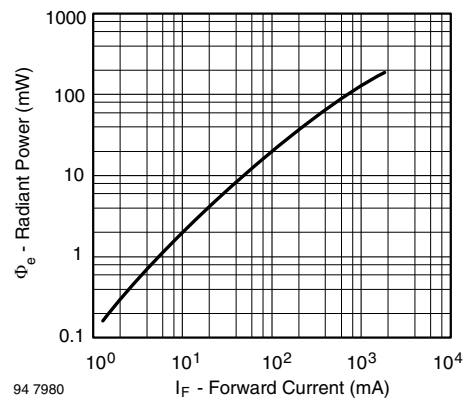


Fig. 7 - Radiant Power vs. Forward Current

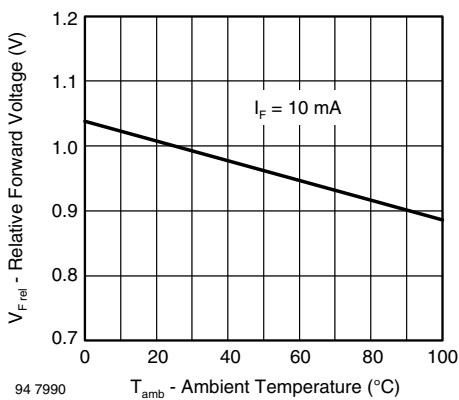


Fig. 5 - Relative Forward Voltage vs. Ambient Temperature

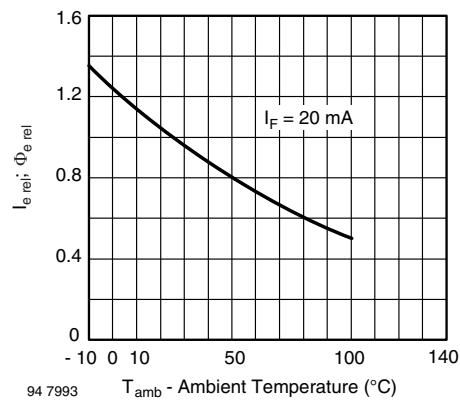


Fig. 8 - Relative Radiant Intensity/Power vs. Ambient Temperature



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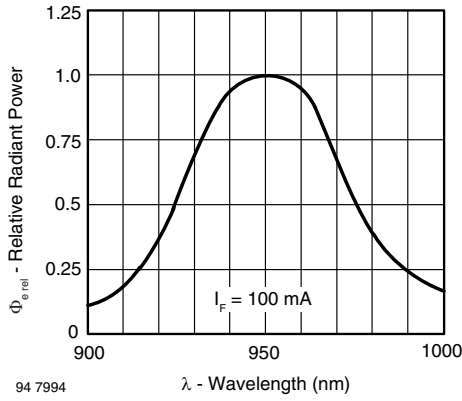


Fig. 9 - Relative Radiant Power vs. Wavelength

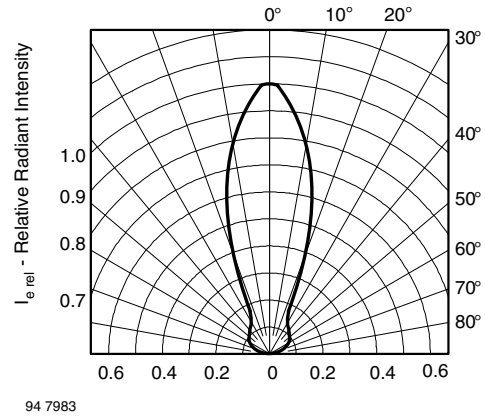
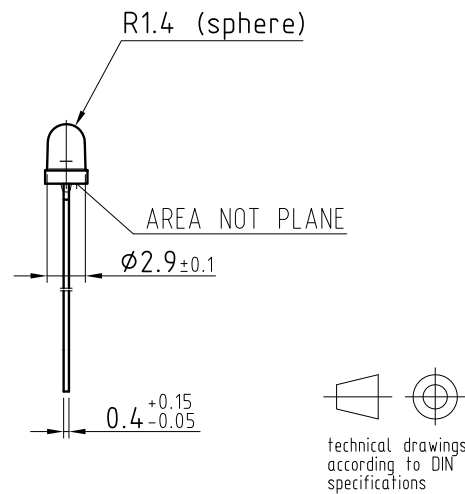
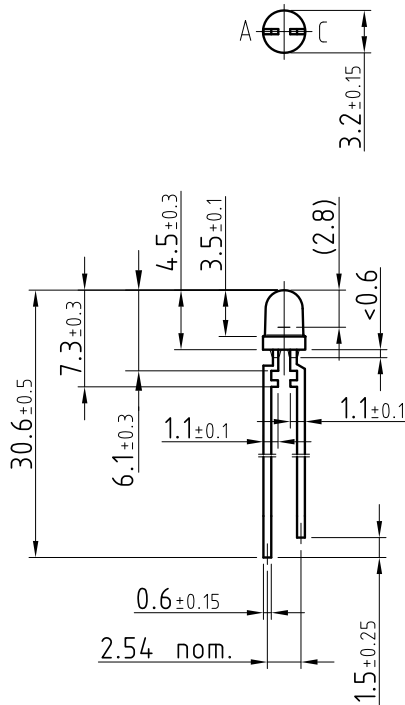


Fig. 10 - Relative Radiant Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5256.02-4
 Issue: 2; 19.05.98
 95 10915



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