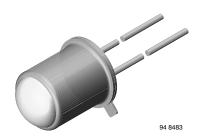
Vishay Semiconductors



Infrared Emitting Diode, RoHS Compliant, 875 nm, GaAlAs



DESCRIPTION

TSTA7100 is an infrared, 875 nm emitting diode in GaAlAs technology in a hermetically sealed TO-18 package with lens.

FEATURES

Package type: leaded
Package form: TO-18
Dimensions (in mm): Ø 4.7
Peak wavelength: λ_p = 875 nm

High reliability

High radiant power

· High radiant intensity

• Angle of half intensity: ϕ = ± 5°

· Low forward voltage

• Suitable for high pulse current operation

· Good spectral matching with Si photodetectors

 Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC



· Radiation source near infrared range

PRODUCT SUMMARY					
COMPONENT	I _e (mW/sr)	φ (deg)	λ _P (nm)	t _r (ns)	
TSTA7100	50	± 5	875	600	

Note

Test conditions see table "Basic Characteristics"

ORDERING INFORMATION					
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM		
TSTA7100	Bulk	MOQ: 1000 pcs, 1000 pcs/bulk	TO-18		

Note

MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Reverse voltage		V _R	5	V	
Forward current		I _F	100	mA	
Peak forward current	$t_p/T = 0.5, t_p \le 100 \ \mu s$	I _{FM}	200	mA	
Surge forward current	t _p ≤ 100 μs	I _{FSM}	2.5	А	
Dower discipation		P _V	180	mW	
Power dissipation	T _{case} ≤ 25 °C	P _V	500	mW	
Junction temperature		Tj	100	°C	
Storage temperature range		T _{stg}	- 55 to + 100	°C	
Thermal resistance junction/ambient	leads not soldered	R _{thJA}	450	K/W	
Thermal resistance junction/case	leads not soldered	R_{thJC}	150	K/W	

Note

T_{amb} = 25 °C, unless otherwise specified

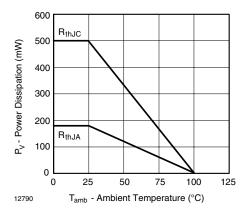




ROHS



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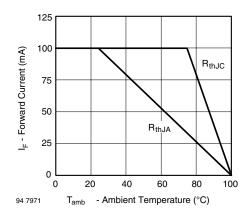


Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 100 \text{ mA}, t_p \le 20 \text{ ms}$	V_{F}		1.4	1.8	V
Breakdown voltage	I _R = 100 μA	V _(BR)	5			V
Junction capacitance	$V_R = 0 V, f = 1 MHz, E = 0$	C _j		20		pF
Radiant intensity	$I_F = 100 \text{ mA}, t_p \le 20 \text{ ms}$	I _e	20	50	100	mW/sr
Radiant power	$I_F = 100 \text{ mA}, t_p \le 20 \text{ ms}$	фe		10		mW
Temperature coefficient of ϕ_e	I _F = 100 mA	TKφ _e		- 0.7		%/K
Angle of half intensity		φ		± 5		deg
Peak wavelength	I _F = 100 mA	λ_{p}		875		nm
Spectral bandwidth	I _F = 100 mA	Δλ		80		nm
Rise time	I _F = 100 mA	t _r		600		ns
	$I_F = 1.5 \text{ A}, t_p/T = 0.01, t_p \le 10 \mu\text{s}$	t _r		300		ns
Virtual source diameter		d		1.5		mm

Note

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BASIC CHARACTERISTICS

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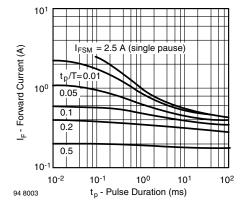


Fig. 3 - Pulse Forward Current vs. Pulse Duration

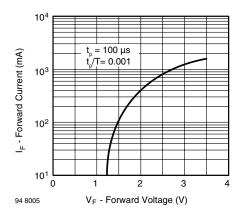


Fig. 4 - Forward Current vs. Forward Voltage

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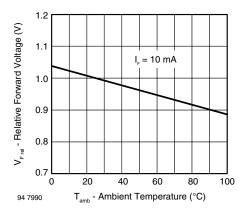


Fig. 5 - Relative Forward Voltage vs. Ambient Temperature

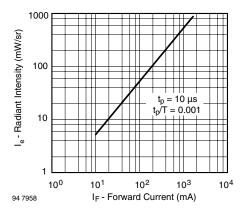


Fig. 6 - Radiant Intensity vs. Forward Current

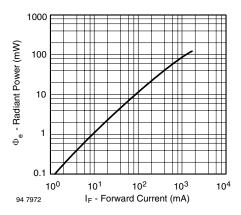


Fig. 7 - Radiant Power vs. Forward Current

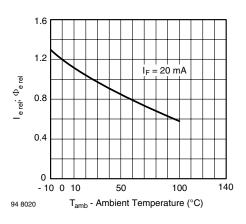


Fig. 8 - Rel. Radiant Intensity/Power vs. Ambient Temperature

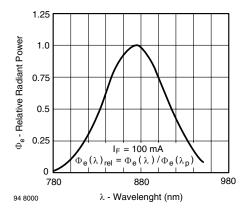


Fig. 9 - Relative Radiant Power vs. Wavelength

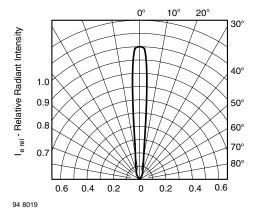
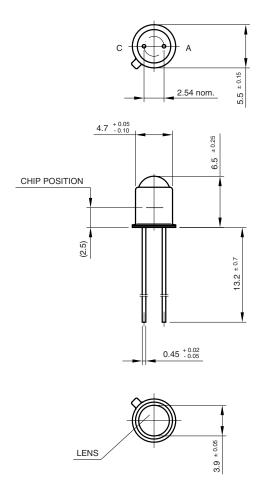


Fig. 10 - Relative Radiant Intensity vs. Angular Displacement



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PACKAGE DIMENSIONS in millimeters





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