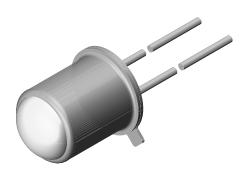




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Vishay Semiconductors

Infrared Emitting Diode, 950 nm, GaAlAs, MQW



DESCRIPTION

TSTS7100 is an infrared, 950 nm emitting diode in GaAlAs multi quantum well (MQW) technology in a hermetically sealed TO-18 package with lens.

FEATURES

Package type: leadedPackage form: TO-18

• Dimensions (in mm): Ø 4.7

• Peak wavelength: λ_p = 950 nm

High reliability

• High radiant power

• High radiant intensity

• Angle of half intensity: $\varphi = \pm 4^{\circ}$

· Low forward voltage

· Good spectral matching with Si photodetectors

 Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



· Radiation source in near infrared range

PRODUCT SUMMARY					
COMPONENT	l _e (mW/sr)	φ (°)	$\lambda_{\mathbf{p}}$ (nm)	t _r (ns)	
TSTS7100	105	± 4	950	15	

Note

· Test conditions see table "Basic Characteristics"

ORDERING INFORMATION					
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM		
TSTS7100	Bulk	MOQ: 1000 pcs, 1000 pcs/bulk	TO-18		

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	
Power dissipation		P _V	170	mW	
Junction temperature		Tj	125	°C	
Ambient temperature range		T _{amb}	-40 to +85	°C	
Storage temperature range		T _{stg}	-40 to +110	°C	
Soldering temperature	$t \le 5$ s, 2 mm from case	T _{sd}	260	°C	
Thermal resistance junction to ambient	J-STD-051	R _{thJA}	500	K/W	





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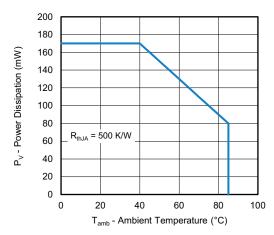


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

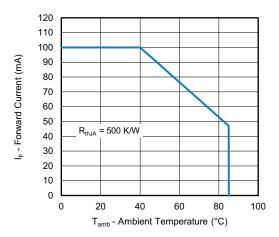


Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	V _F	-	1.4	1.7	V
	$I_F = 1 \text{ A}, t_p = 100 \ \mu\text{s}$	V _F	=	2.2	-	V
Temperature coefficient of V _F	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	TK _{VF}	-	-1.1	-	mV/K
Reverse current		I _R	Not designed for reverse operation			μΑ
Junction capacitance	$V_R = 0 \text{ V, f} = 1 \text{ MHz, E} = 0 \text{ mW/cm}^2$	Cj	-	56	-	pF
Radiant intensity	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	l _e	65	105	185	mW/sr
Radiant power	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	фe	-	17	-	mW
Temperature coefficient of φ _e	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	TKφe	-	-0.5	_	%/K
Angle of half intensity		φ	-	± 4	-	0
Peak wavelength	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	λ_{p}	-	950	-	nm
Spectral bandwidth		Δλ	-	30	-	nm
Temperature coefficient of λ_p	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	TKλ _p	-	0.2	-	%/K
Rise time	I _F = 100 mA	t _r	-	15	-	ns
Fall time	I _F = 100 mA	t _f	-	15	-	ns

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

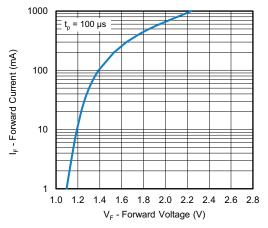


Fig. 3 - Forward Current vs. Forward Voltage

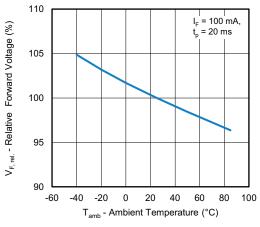


Fig. 4 - Forward Voltage vs. Ambient Temperature

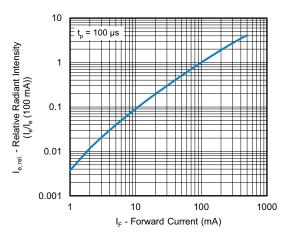


Fig. 5 - Relative Radiant Intensity vs. Forward Current

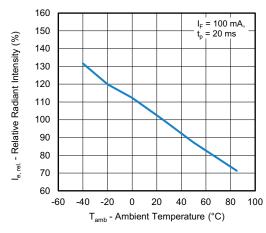


Fig. 6 - Relative Radiant Intensity vs. Ambient Temperature

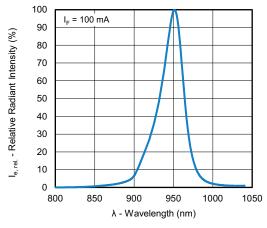


Fig. 7 - Relative Radiant Intensity vs. Wavelength

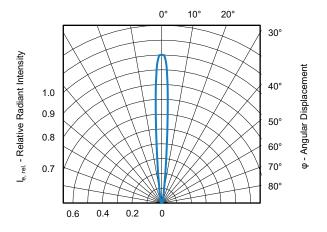
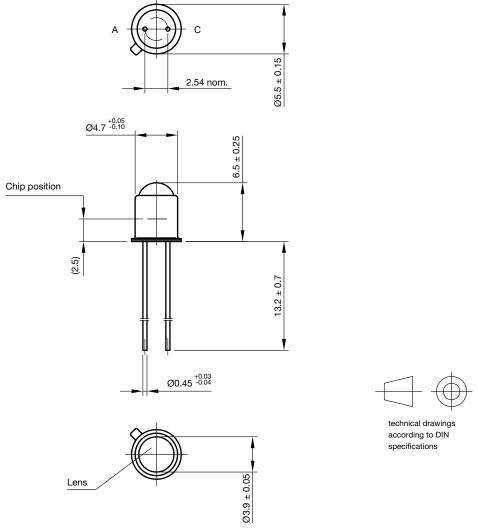


Fig. 8 - Relative Radiant Intensity vs. Angular Displacement



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PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.503-5002.02-4 Issue: 2VK; 25.03.2024



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