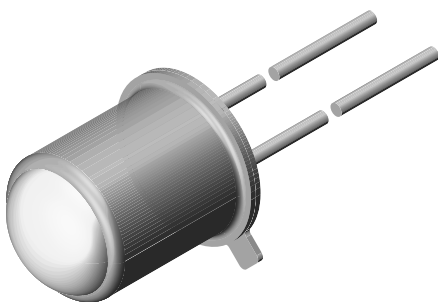




Infrared Emitting Diode, 950 nm, GaAlAs, MQW



FEATURES

- Package type: leaded
- Package form: TO-18
- Dimensions (in mm): $\varnothing$ 4.7
- Peak wavelength: $\lambda_p = 950$ 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



RoHS
COMPLIANT

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.

APPLICATIONS

- Radiation source in near infrared range

PRODUCT SUMMARY

COMPONENT	I_e (mW/sr)	φ (°)	λ_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 ($T_{amb} = 25^\circ\text{C}$, 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		T_j	125	$^\circ\text{C}$
Ambient temperature range		T_{amb}	-40 to +85	$^\circ\text{C}$
Storage temperature range		T_{stg}	-40 to +110	$^\circ\text{C}$
Soldering temperature	$t \leq 5$ s, 2 mm from case	T_{sd}	260	$^\circ\text{C}$
Thermal resistance junction to ambient	J-STD-051	R_{thJA}	500	K/W

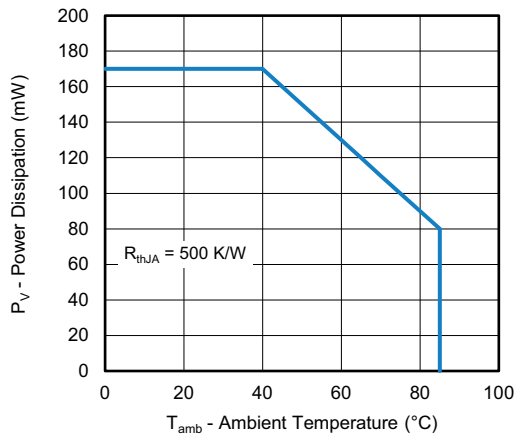


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

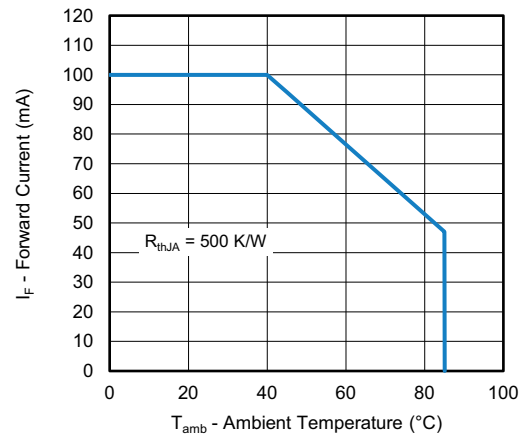


Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS ($T_{amb} = 25^\circ\text{C}$, 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
	$I_F = 1\text{ A}$, $t_p = 100\text{ }\mu\text{s}$	V_F	-	2.2	-	V
Temperature coefficient of V_F	$I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	TK_{V_F}	-	-1.1	-	mV/K
Reverse current		I_R	Not designed for reverse operation			μA
Junction capacitance	$V_R = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0\text{ mW/cm}^2$	C_j	-	56	-	pF
Radiant intensity	$I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	I_e	65	105	185	mW/sr
Radiant power	$I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	ϕ_e	-	17	-	mW
Temperature coefficient of ϕ_e	$I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	TK_{ϕ_e}	-	-0.5	-	%/K
Angle of half intensity		ϕ	-	± 4	-	$^\circ$
Peak wavelength	$I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	λ_p	-	950	-	nm
Spectral bandwidth		$\Delta\lambda$	-	30	-	nm
Temperature coefficient of λ_p	$I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	TK_{λ_p}	-	0.2	-	%/K
Rise time	$I_F = 100\text{ mA}$	t_r	-	15	-	ns
Fall time	$I_F = 100\text{ mA}$	t_f	-	15	-	ns

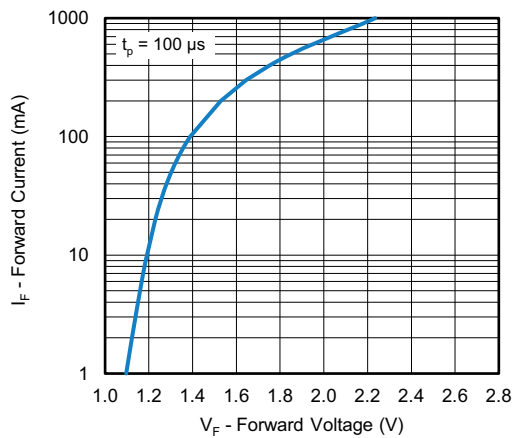
**BASIC CHARACTERISTICS** ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

Fig. 3 - Forward Current vs. Forward Voltage

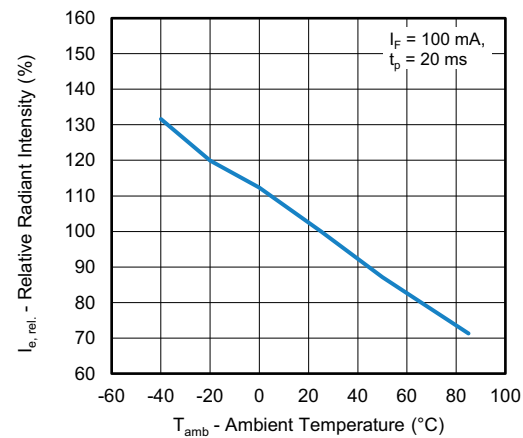


Fig. 6 - Relative Radiant Intensity vs. Ambient Temperature

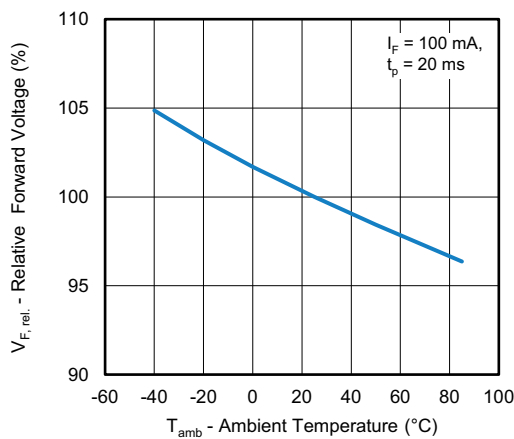


Fig. 4 - Forward Voltage vs. Ambient Temperature

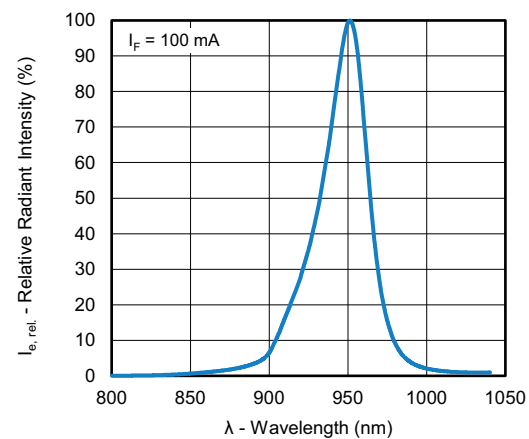


Fig. 7 - Relative Radiant Intensity vs. Wavelength

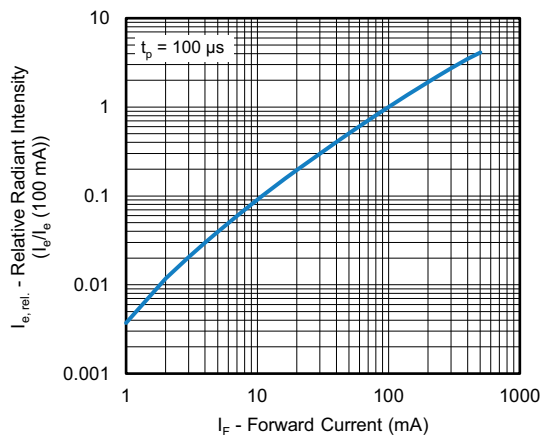


Fig. 5 - Relative Radiant Intensity vs. Forward Current

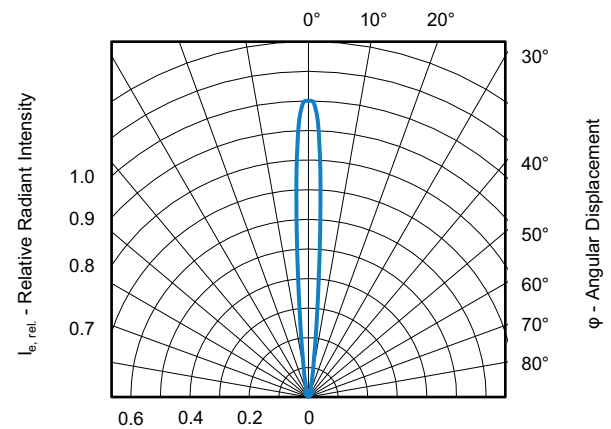
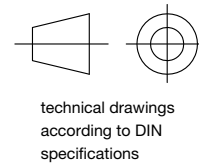
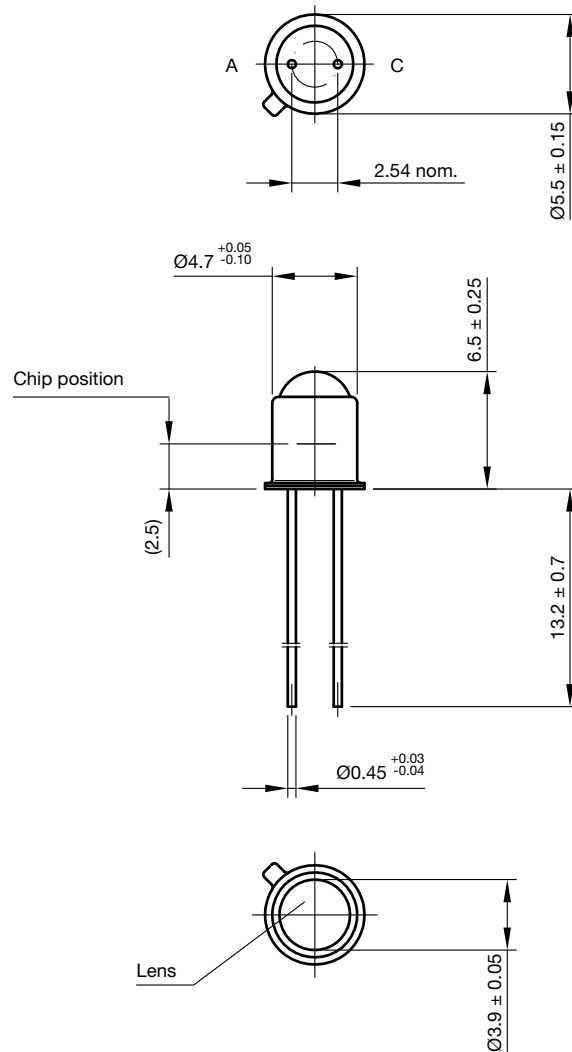


Fig. 8 - Relative Radiant Intensity vs. Angular Displacement



PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.503-5002.02-4
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