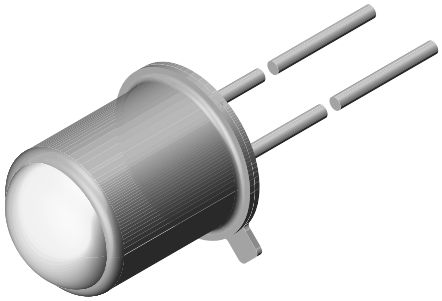
Infrared Emitting Diode, 950 nm, GaAlAs, MQW



FEATURES

- Package type: leaded
- Package 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: φ = ± 4°
- Low forward voltage
- Good spectral matching with Si photodetectors
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

e4

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 °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	°C
Ambient temperature range		T_{amb}	-40 to +85	°C
Storage temperature range		T_{stg}	-40 to +110	°C
Soldering temperature	t ≤ 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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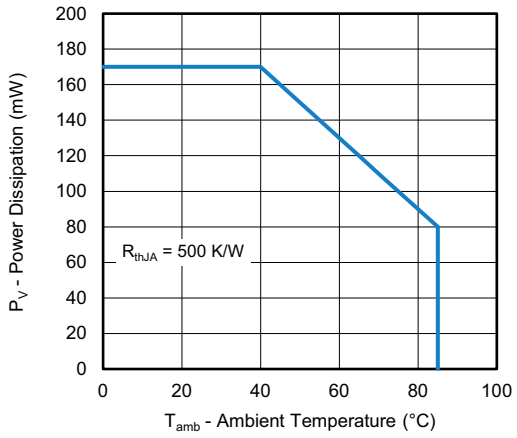

Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

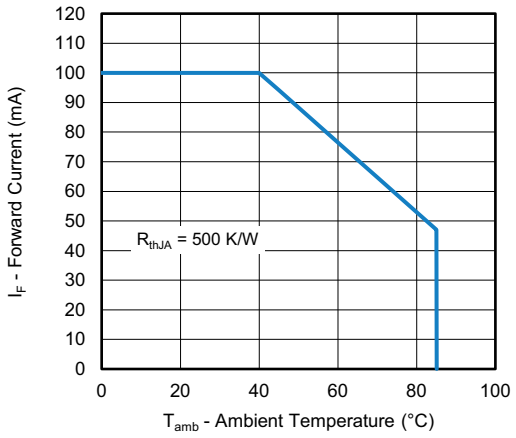

Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Forward voltage	I_F = 100 mA, t_p = 20 ms	V_F	-	1.4	1.7	V
	I_F = 1 A, t_p = 100 µs	V_F	-	2.2	-	V
Temperature coefficient of V_F	I_F = 100 mA, t_p = 20 ms	TK_{VF}	-	-1.1	-	mV/K
Reverse current		I_R	Not designed for reverse operation			µA
Junction capacitance	V_R = 0 V, f = 1 MHz, E = 0 mW/cm^2	C_j	-	56	-	pF
Radiant intensity	I_F = 100 mA, t_p = 20 ms	I_e	65	105	185	mW/sr
Radiant power	I_F = 100 mA, t_p = 20 ms	ϕ_e	-	17	-	mW
Temperature coefficient of ϕ_e	I_F = 100 mA, t_p = 20 ms	$TK\phi_e$	-	-0.5	-	%/K
Angle of half intensity		φ	-	± 4	-	°
Peak wavelength	I_F = 100 mA, t_p = 20 ms	λ_p	-	950	-	nm
Spectral bandwidth		$\Delta\lambda$	-	30	-	nm
Temperature coefficient of λ_p	I_F = 100 mA, t_p = 20 ms	$TK\lambda_p$	-	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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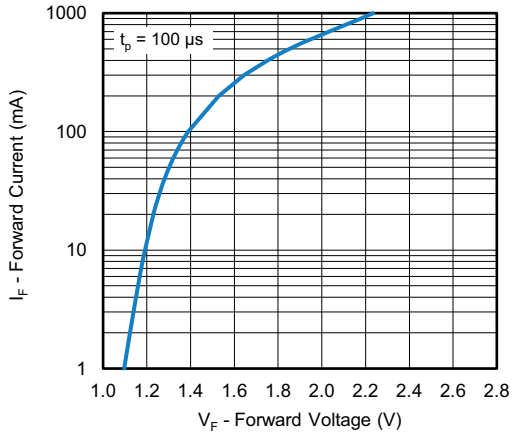

Fig. 3 - Forward Current vs. Forward Voltage

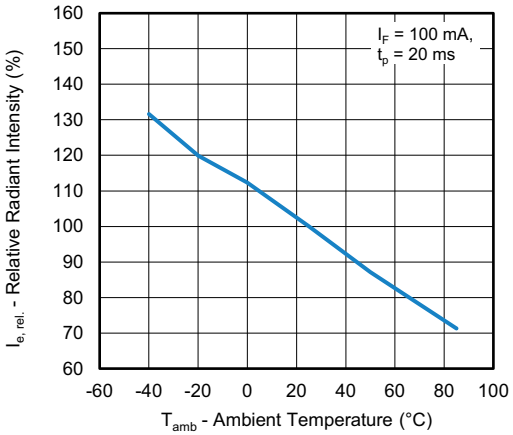

Fig. 6 - Relative Radiant Intensity vs. Ambient Temperature

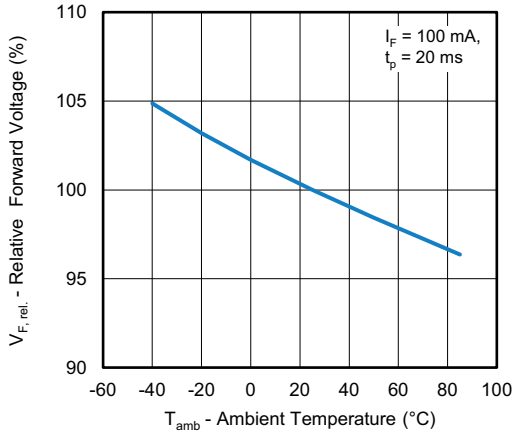

Fig. 4 - Forward Voltage vs. Ambient Temperature

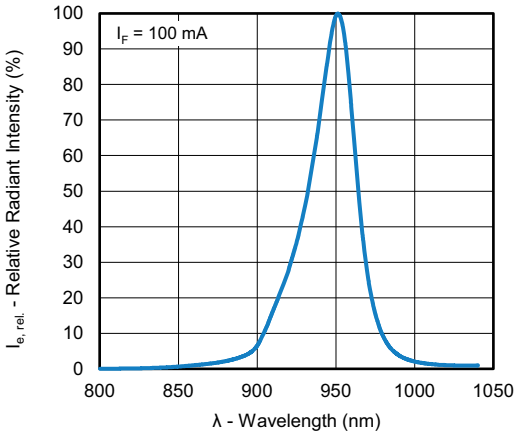

Fig. 7 - Relative Radiant Intensity vs. Wavelength

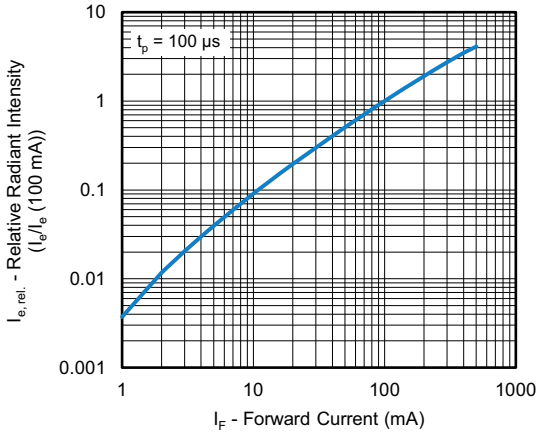

Fig. 5 - Relative Radiant Intensity vs. Forward Current

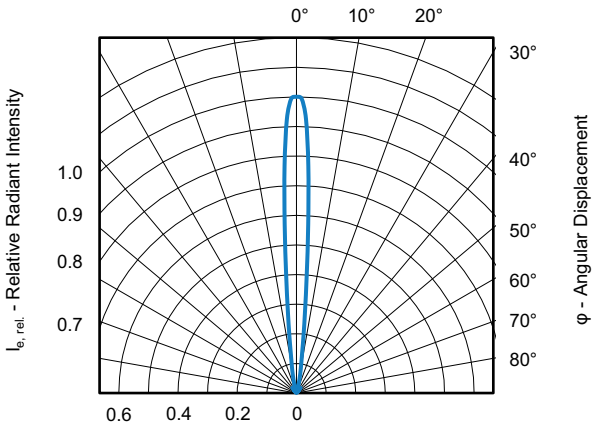

Fig. 8 - Relative Radiant Intensity vs. Angular Displacement

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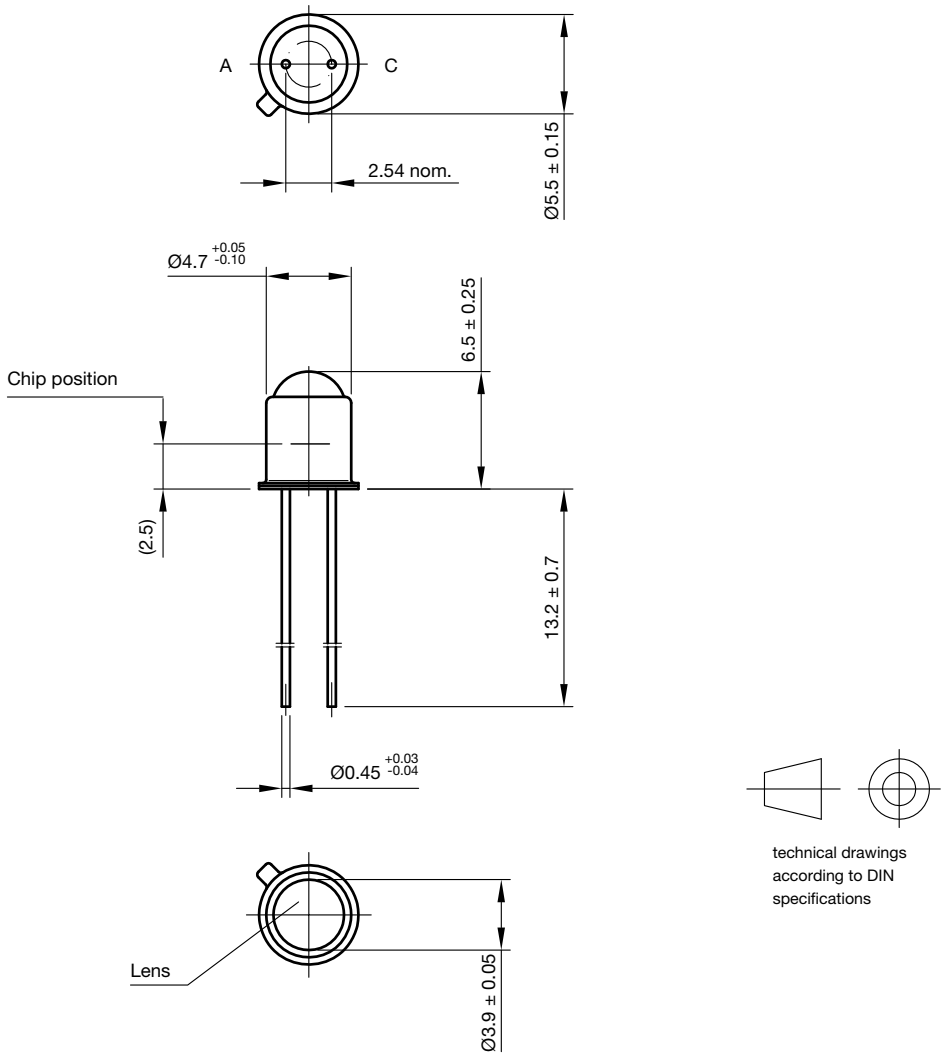
PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.503-5002.02-4

Issue: 2VK; 25.03.2024

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