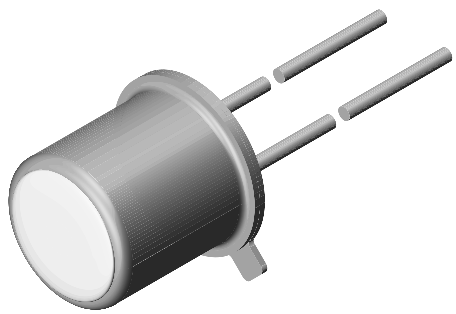
Infrared Emitting Diode, RoHS-Compliant, 890 nm, Surface Emitter Technology



FEATURES

- Package type: leaded
- Package form: TO-18
- Dimensions (in mm): ∅ 4.7
- Peak wavelength: λ_p = 890 nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: φ = ± 44°
- Suitable for high pulse current operation
- 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

TSTA7500 is an infrared, 890 nm emitting diode based on surface emitting chip technology in a hermetically sealed TO-18 package with lens.

PRODUCT SUMMARY

COMPONENT	I_e (mW/sr)	φ (°)	λ_p (nm)	t_r (ns)
TSTA7500	18	± 44	890	10

Note

- Test conditions see table “Basic Characteristics”

ORDERING INFORMATION

ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TSTA7500	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	200	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 form case	T_{sd}	260	°C
Thermal resistance junction to ambient		R_{thJA}	500	K/W

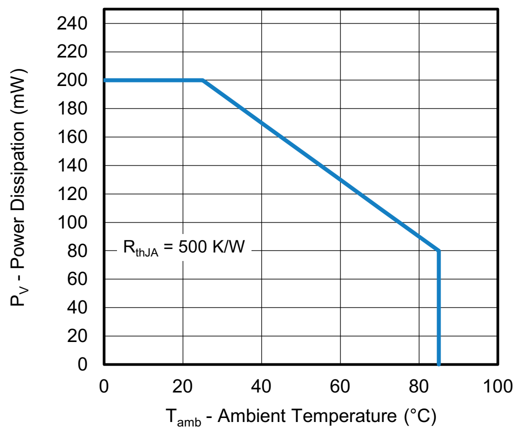


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

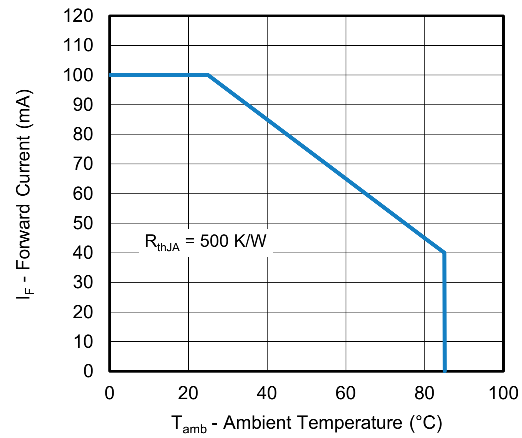


Fig. 2 - Forward Current Limit vs. Ambient Temperature

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

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I_F = 100 mA, $t_p \leq$ 20 ms	V_F	-	1.7	2.0	V
Temperature coefficient of V_F	I_F = 100 mA, t_p = 20 ms	TK_{VF}	-	-1.8	-	mV/K
Reverse current		I_R	Not designed for reverse operation			
Junction capacitance	V_R = 0 V, f = 1 MHz, E = 0 mW/cm^2	C_j	-	53	-	pF
Radiant intensity	I_F = 100 mA, $t_p \leq$ 20 ms	I_e	10	18	24	mW/sr
Radiant power	I_F = 100 mA, $t_p \leq$ 20 ms	ϕ_e	-	30	-	mW
Temperature coefficient of ϕ_e	I_F = 100 mA	$TK\phi_e$	-	-0.45	-	%/K
Angle of half intensity		φ	-	± 44	-	°
Peak wavelength	I_F = 100 mA	λ_p	-	890	-	nm
Spectral bandwidth	I_F = 100 mA	$\Delta\lambda$	-	40	-	nm
Temperature coefficient of V_F	I_F = 100 mA	$TK_{\lambda p}$	-	0.3	-	nm/K
Rise time	I_F = 100 mA	t_r	-	10	-	ns
	I_F = 100 mA	t_r	-	10	-	ns

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

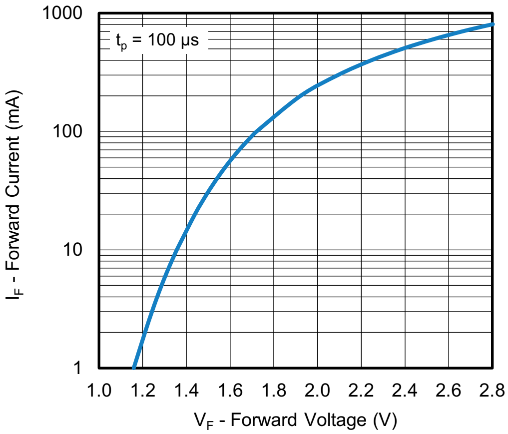


Fig. 3 - Forward Current vs. Forward Voltage

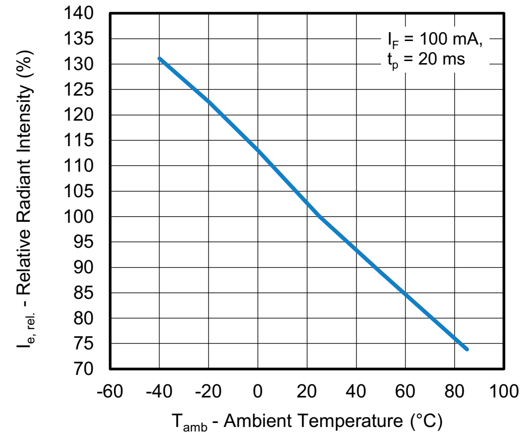


Fig. 6 - Relative Radiant Intensity vs. Ambient Temperature

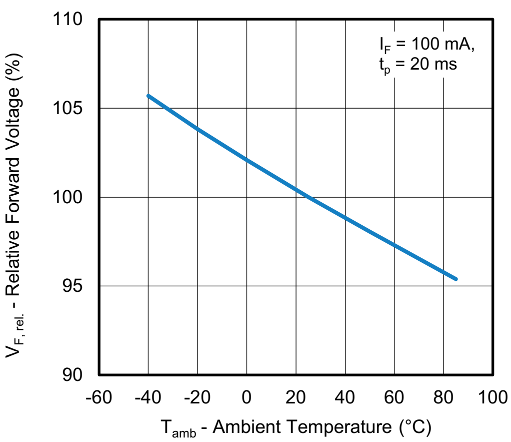


Fig. 4 - Forward Voltage vs. Ambient Temperature

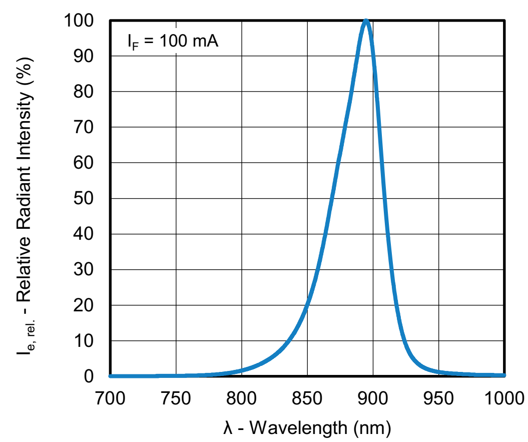


Fig. 7 - Relative Radiant Intensity vs. Wavelength

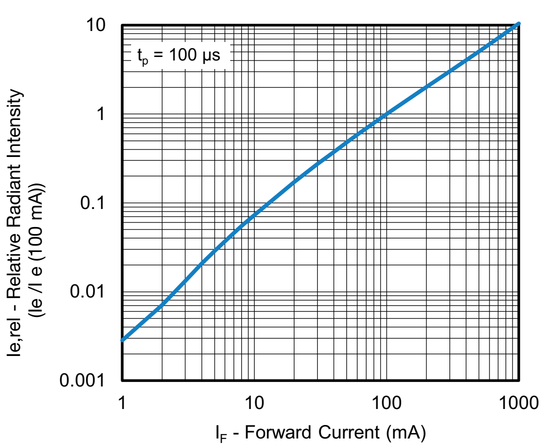


Fig. 5 - Relative Radiant Intensity vs. Forward Current

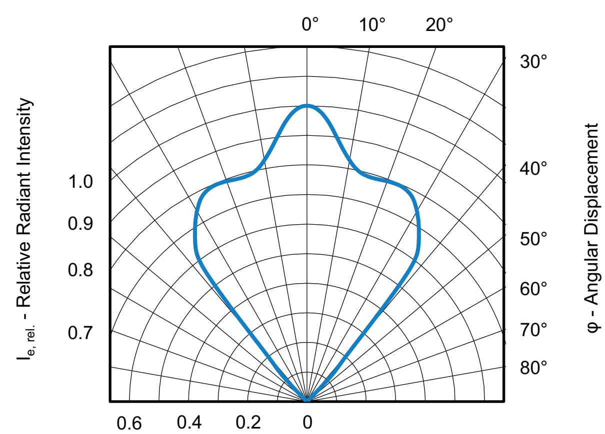
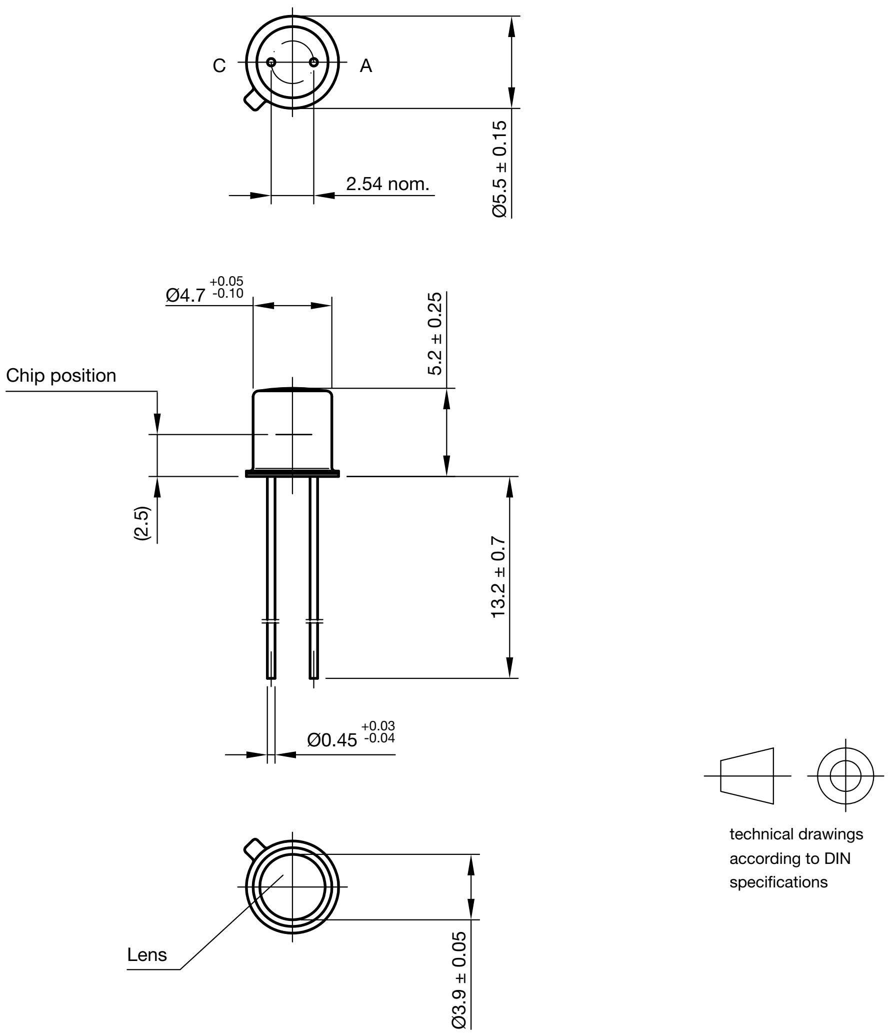


Fig. 8 - Relative Radiant Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters



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