

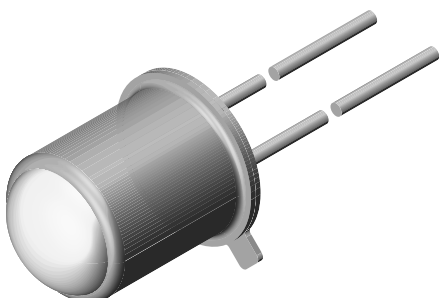


THE DATASHEET OF TSTA7100





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



FEATURES

- Package type: leaded
- Package form: TO-18
- Dimensions (in mm): \varnothing 4.7
- Peak wavelength: $\lambda_p = 890$ nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: $\varphi = \pm 5^\circ$
- 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



RoHS
COMPLIANT

DESCRIPTION

TSTA7100 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 ($^\circ$)	λ_p (nm)	t_r (ns)
TSTA7100	400	± 5	890	10

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 ($T_{amb} = 25$ °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	$^\circ$ C
Ambient temperature range		T_{amb}	-40 to +85	$^\circ$ C
Storage temperature range		T_{stg}	-40 to +110	$^\circ$ C
Soldering temperature	$t < 5$ s, 2 mm form case	T_{sd}	260	$^\circ$ C
Thermal resistance junction to ambient		R_{thJA}	500	K/W

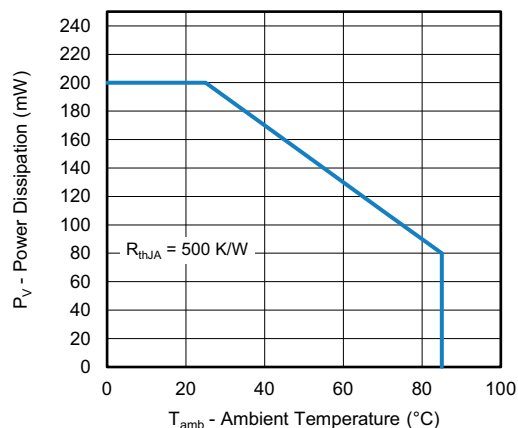


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

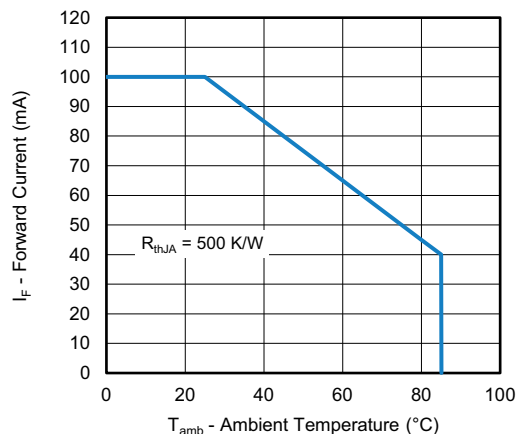


Fig. 2 - Forward Current Limit vs. Ambient Temperature

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 ≤ 20 ms	V _F	-	1.7	2.0	V
Temperature coefficient of V _F	I _F = 100 mA, t _p = 20 ms	TK _{V_F}	-	-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 ≤ 20 ms	I _e	200	400	645	mW/sr
Radiant power	I _F = 100 mA, t _p ≤ 20 ms	φ _e	-	30	-	mW
Temperature coefficient of φ _e	I _F = 100 mA	TK _{φ_e}	-	-0.45	-	%/K
Angle of half intensity		φ	-	± 5	-	°
Peak wavelength	I _F = 100 mA	λ _p	-	890	-	nm
Spectral bandwidth	I _F = 100 mA	Δλ	-	40	-	nm
Temperature coefficient of V _F	I _F = 100 mA	TK _{λ_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 ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

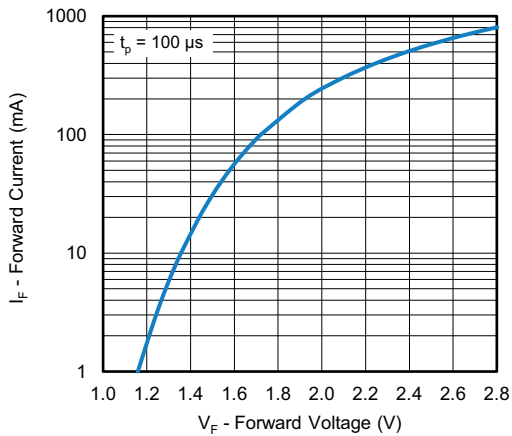


Fig. 3 - Forward Current vs. Forward Voltage

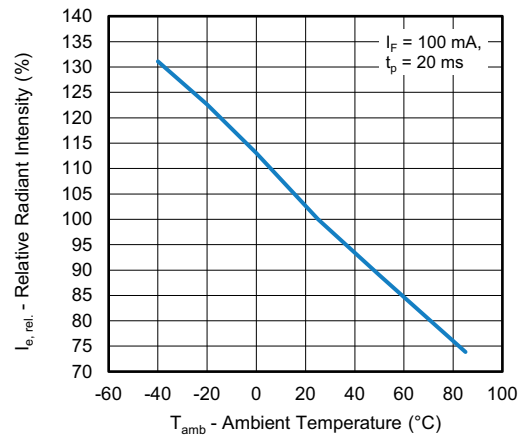


Fig. 6 - Relative Radiant Intensity vs. Ambient Temperature

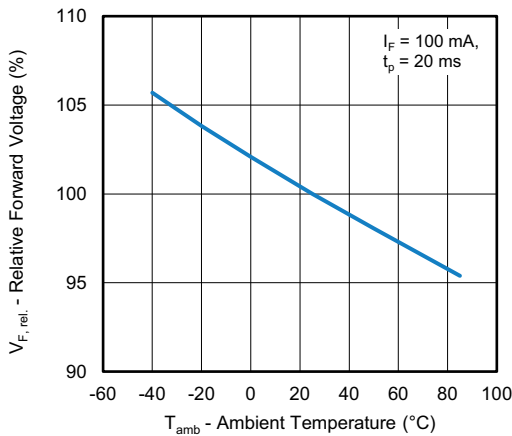


Fig. 4 - Forward Voltage vs. Ambient Temperature

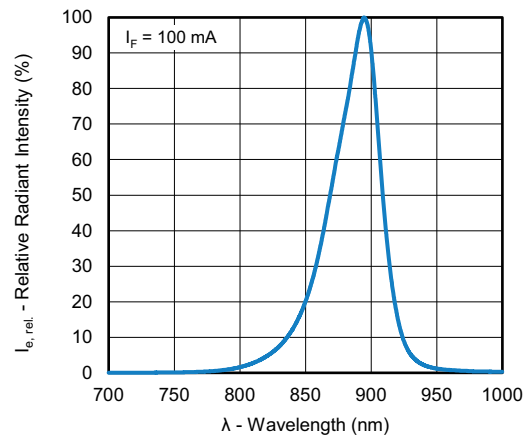


Fig. 7 - Relative Radiant Intensity vs. Wavelength

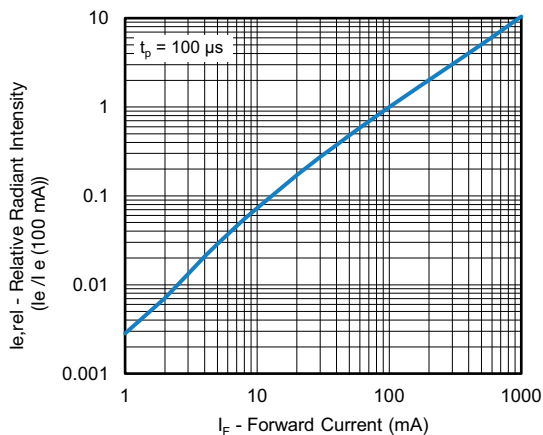


Fig. 5 - Relative Radiant Intensity vs. Forward Current

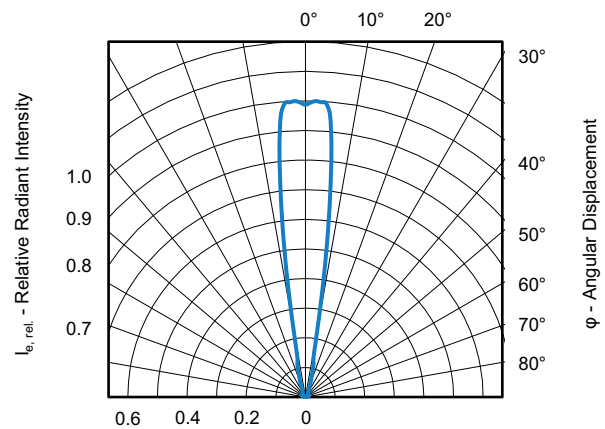
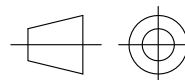
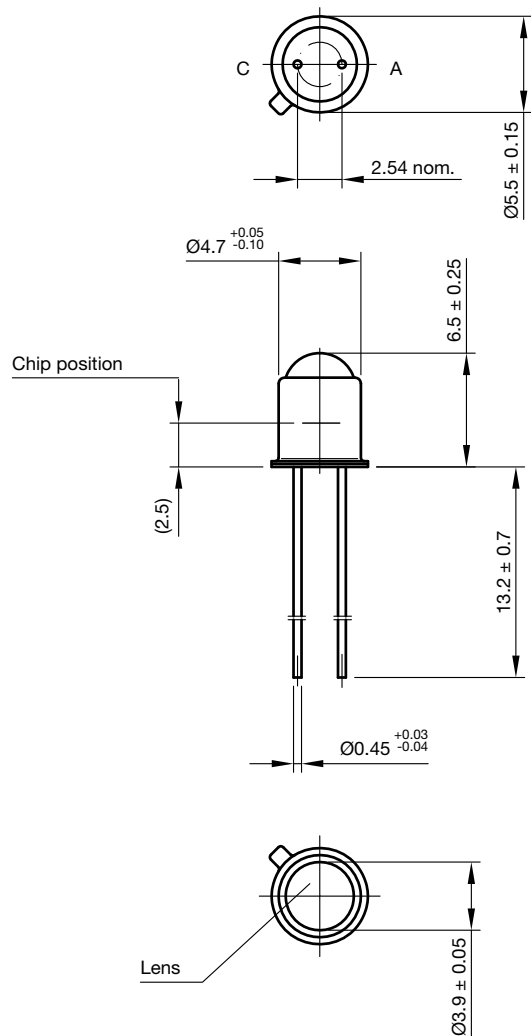


Fig. 8 - Relative Radiant Intensity vs. Angular Displacement



PACKAGE DIMENSIONS in millimeters



technical drawings
according to DIN
specifications

Drawing-No.: 6.503-5002.01-4

Issue: 3VK; 25.03.2024



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