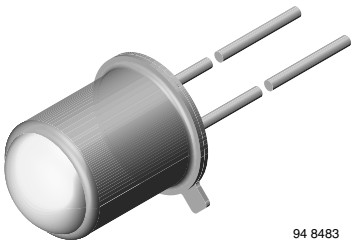
Infrared Emitting Diode, RoHS Compliant, 875 nm, GaAlAs



FEATURES

- Package type: leaded
- Package form: TO-18
- Dimensions (in mm): ∅ 4.7
- Peak wavelength: λ_p = 875 nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: $\varphi = \pm 5°$
- Low forward voltage
- Suitable for high pulse current operation
- Good spectral matching with Si photodetectors
- Lead (Pb)-free component in accordance with RoHS 2002/95/EC and WEEE 2002/96/EC

Pb-free

e4

RoHS COMPLIANT

DESCRIPTION

TSTA7100 is an infrared, 875 nm emitting diode in GaAlAs technology in a hermetically sealed TO-18 package with lens.

APPLICATIONS

- Radiation source near infrared range

PRODUCT SUMMARY				
COMPONENT	I_e (mW/sr)	φ (deg)	λ_P (nm)	t_r (ns)
TSTA7100	50	± 5	875	600

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				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
Forward current		I_F	100	mA
Peak forward current	$t_p/T = 0.5$, $t_p \leq 100$ µs	I_{FM}	200	mA
Surge forward current	$t_p \leq 100$ µs	I_{FSM}	2.5	A
Power dissipation		P_V	180	mW
	$T_{case} \leq 25$ °C	P_V	500	mW
Junction temperature		T_j	100	°C
Storage temperature range		T_{stg}	- 55 to + 100	°C
Thermal resistance junction/ambient	leads not soldered	R_{thJA}	450	K/W
Thermal resistance junction/case	leads not soldered	R_{thJC}	150	K/W

Note

T_{amb} = 25 °C, unless otherwise specified

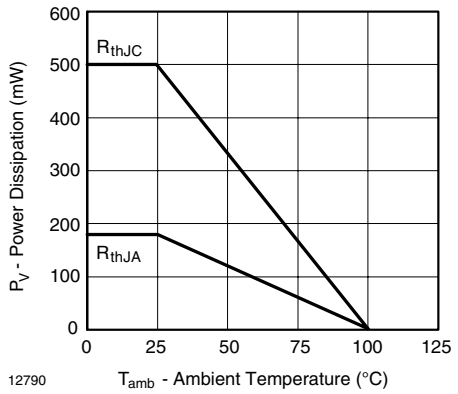


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

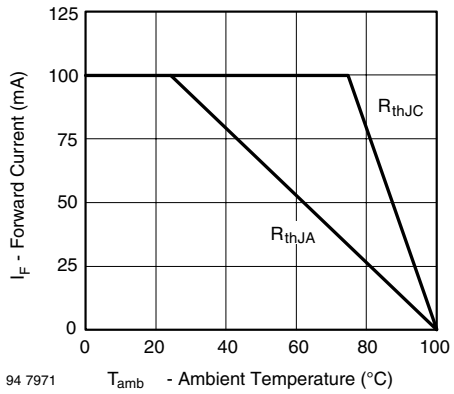


Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Forward voltage	I_F = 100 mA, $t_p \leq$ 20 ms	V_F		1.4	1.8	V
Breakdown voltage	I_R = 100 µA	$V_{(BR)}$	5			V
Junction capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_j		20		pF
Radiant intensity	I_F = 100 mA, $t_p \leq$ 20 ms	I_e	20	50	100	mW/sr
Radiant power	I_F = 100 mA, $t_p \leq$ 20 ms	ϕ_e		10		mW
Temperature coefficient of ϕ_e	I_F = 100 mA	$TK\phi_e$		- 0.7		%/K
Angle of half intensity		φ		± 5		deg
Peak wavelength	I_F = 100 mA	λ_p		875		nm
Spectral bandwidth	I_F = 100 mA	$\Delta\lambda$		80		nm
Rise time	I_F = 100 mA	t_r		600		ns
	I_F = 1.5 A, t_p/T = 0.01, $t_p \leq$ 10 µs	t_r		300		ns
Virtual source diameter		d		1.5		mm

Note

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BASIC CHARACTERISTICS

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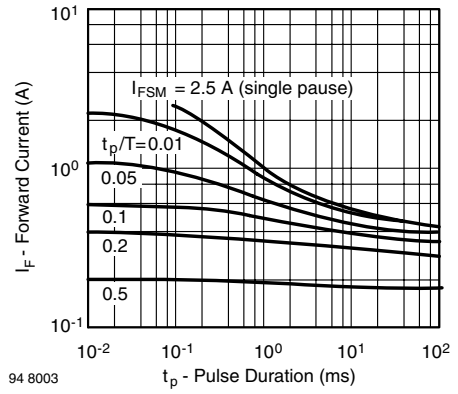


Fig. 3 - Pulse Forward Current vs. Pulse Duration

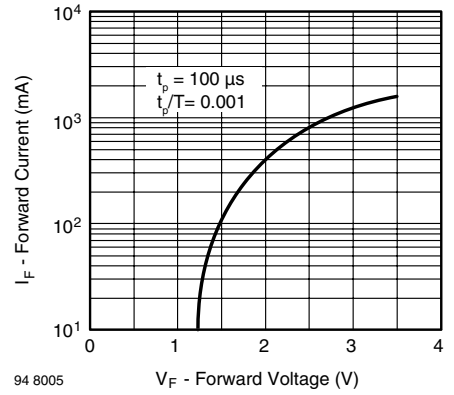


Fig. 4 - Forward Current vs. Forward Voltage

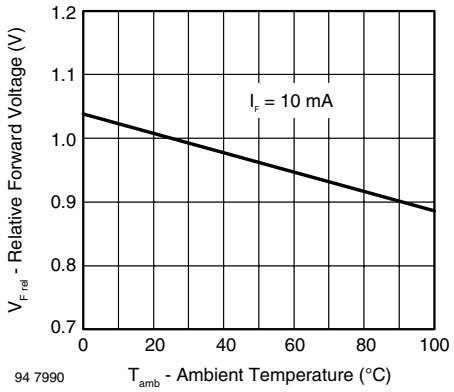


Fig. 5 - Relative Forward Voltage vs. Ambient Temperature

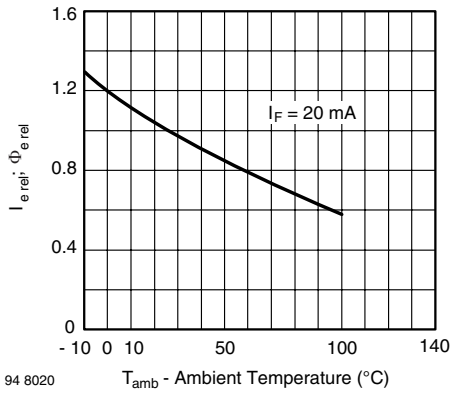


Fig. 8 - Rel. Radiant Intensity/Power vs. Ambient Temperature

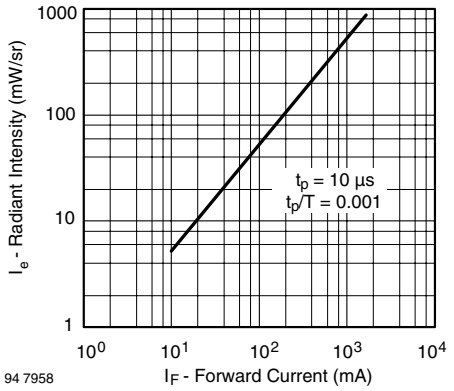


Fig. 6 - Radiant Intensity vs. Forward Current

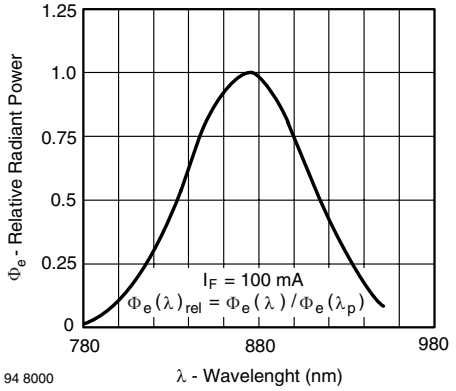


Fig. 9 - Relative Radiant Power vs. Wavelength

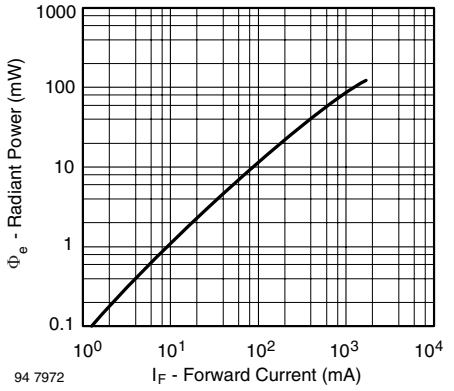


Fig. 7 - Radiant Power vs. Forward Current

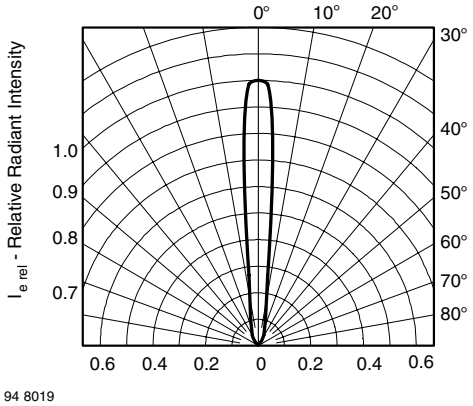
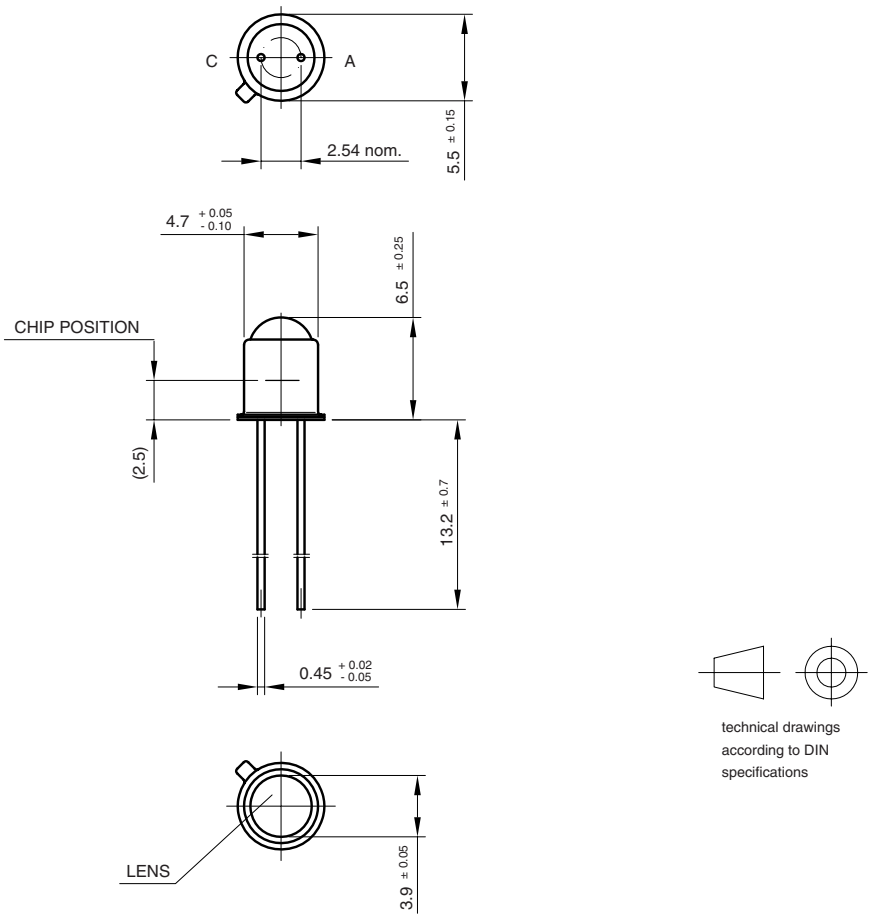


Fig. 10 - Relative Radiant Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters



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