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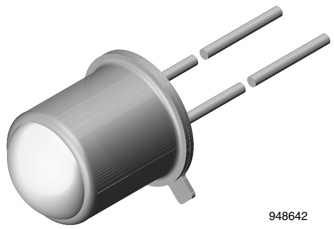
Infrared Emitting Diode, RoHS Compliant, 950 nm, GaAs



948642

DESCRIPTION

TSTS7300 is an infrared, 950 nm emitting diode in GaAs technology in a hermetically sealed TO-18 package with lens.

FEATURES

- Package type: leaded
- Package form: TO-18
- Dimensions (in mm): ∅ 4.7
- Peak wavelength: λ_p = 950 nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: φ = ± 12°
- 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

APPLICATIONS

- Radiation source in near infrared range

PRODUCT SUMMARY				
COMPONENT	**I_e (mW/sr)**	**φ (deg)**	**λ_P (nm)**	**t_r (ns)**
TSTS7300	6.3	± 12	950	800

Note
Test conditions see table "Basic Characteristics"

ORDERING INFORMATION			
ORDERING CODE	**PACKAGING**	**REMARKS**	**PACKAGE FORM**
TSTS7300	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	$T_{case} \le 25$ °C	I_F	250	mA
Peak forward current	$t_p/T = 0.5$, $t_p \le 100$ µs, $T_{case} \le 25$ °C	I_{FM}	500	mA
Surge forward current	$t_p \le 100$ µs	I_{FSM}	2.5	A
Power dissipation		P_V	170	mW
	$T_{case} \le 25$ °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

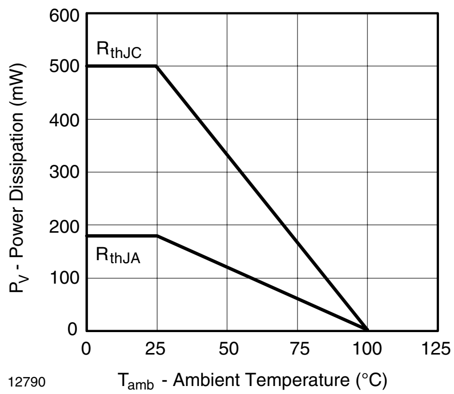


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

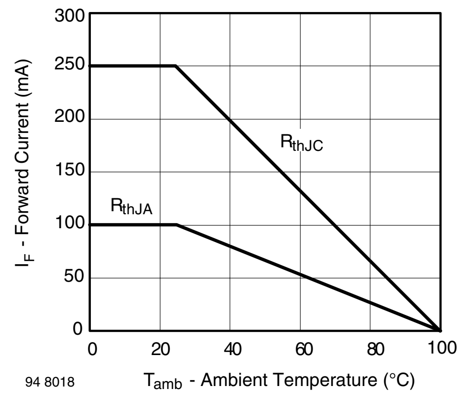


Fig. 2 - Forward Current Limit vs. Ambient Temperature

BASIC CHARACTERISTICS						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Forward voltage	I_F = 100 mA, $t_p \leq$ 20 ms	V_F		1.3	1.7	V
Temperature coefficient of V_F	I_F = 100 mA	TK_{VF}		- 1.3		mV/K
Breakdown voltage	I_R = 100 µA	$V_{(BR)}$	5			V
Junction capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_j		30		pF
Radiant intensity	I_F = 100 mA, t_p = 20 ms	I_e	4	6.3	32	mW/sr
Radiant power	I_F = 100 mA, $t_p \leq$ 20 ms	ϕ_e		7		mW
Temperature coefficient of ϕ_e	I_F = 100 mA	$TK\phi_e$		- 0.8		%/K
Angle of half intensity		φ		± 12		deg
Peak wavelength	I_F = 100 mA	λ_p		950		nm
Spectral bandwidth	I_F = 100 mA	$\Delta\lambda$		50		nm
Rise time	I_F = 100 mA	t_r		800		ns
	I_F = 1.5 A, t_p/T = 0.01, $t_p \leq$ 10 µs	t_r		400		ns
Virtual source diameter		d		1		mm

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

BASIC CHARACTERISTICS

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

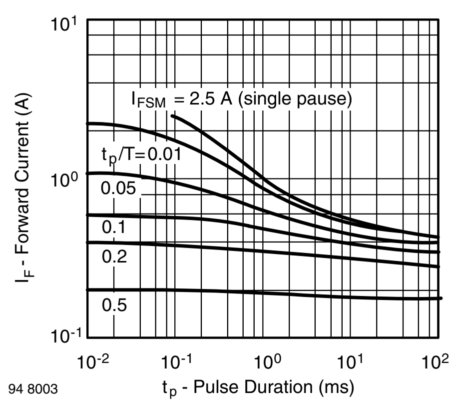


Fig. 3 - Pulse Forward Current vs. Pulse Duration

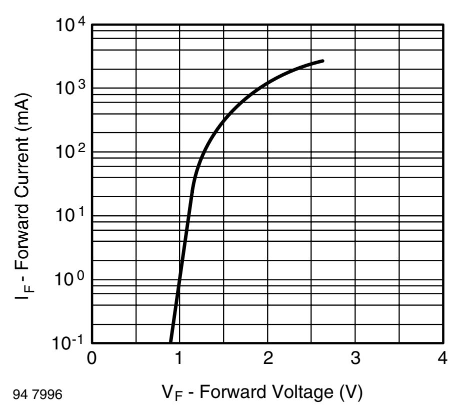


Fig. 4 - Forward Current vs. Forward Voltage

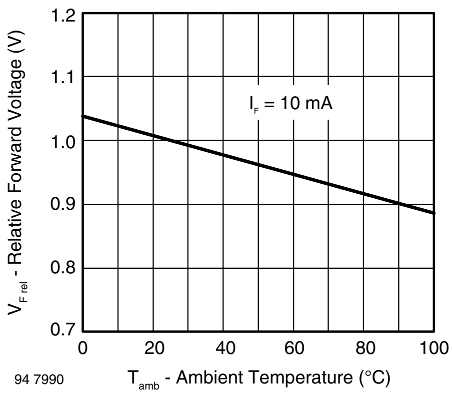


Fig. 5 - Relative Forward Voltage vs. Ambient Temperature

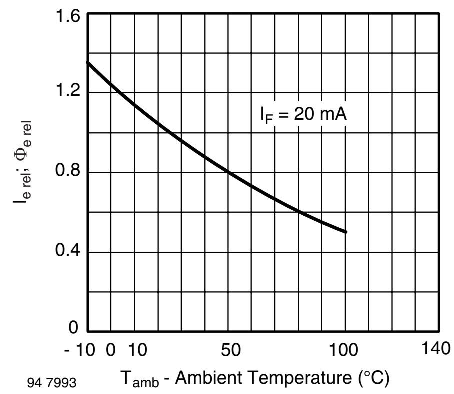


Fig. 8 - Relative Radiant Intensity/Power vs. Ambient Temperature

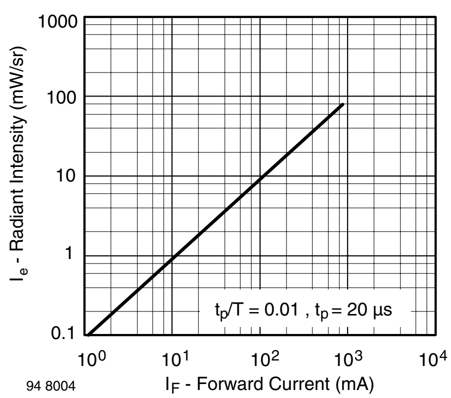


Fig. 6 - Radiant Intensity vs. Forward Current

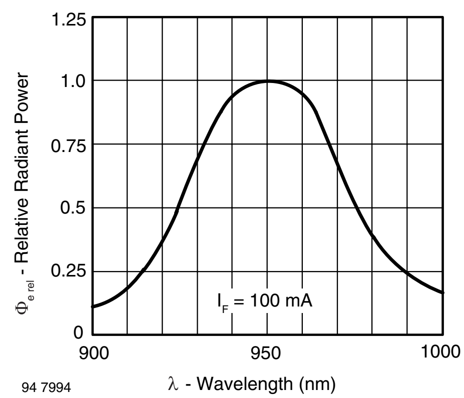


Fig. 9 - Relative Radiant Power vs. Wavelength

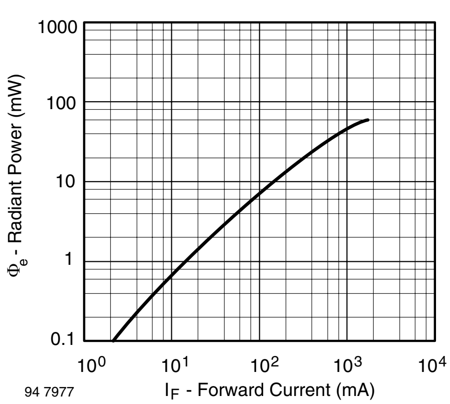


Fig. 7 - Radiant Power vs. Forward Current

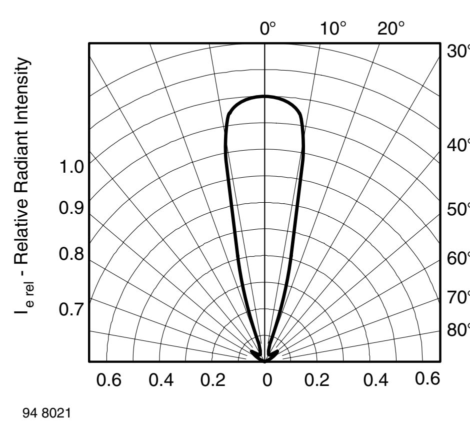
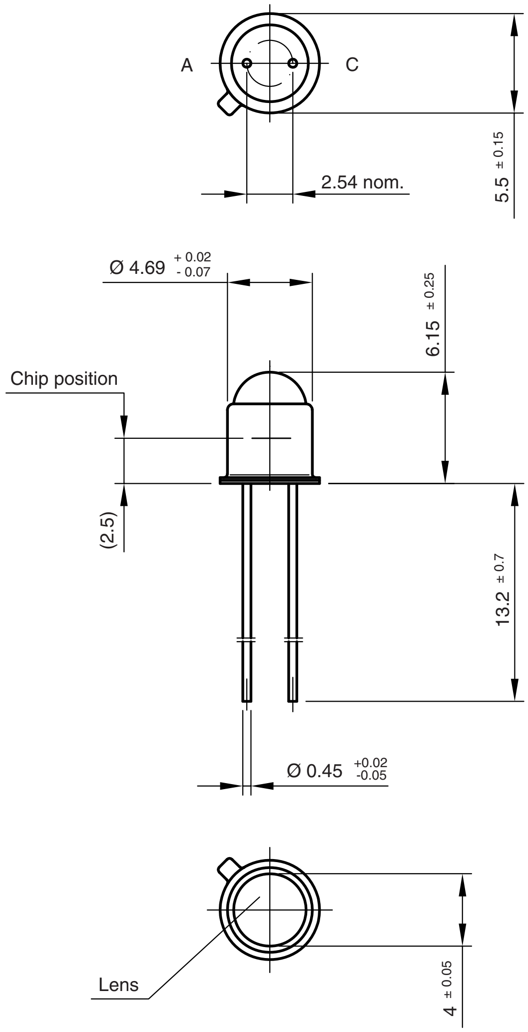
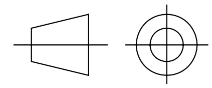


Fig. 10 - Relative Radiant Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters





technical drawings
according to DIN
specifications

Drawing-No.: 6.503-5022.02-4

Issue: 1; 24.08.98

14487

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