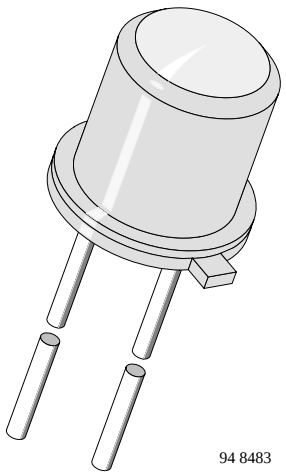
GaAlAs IR Emitting Diode in Hermetically Sealed TO18 Case

Description

TSTA 7100 is a high efficiency infrared emitting diode in GaAlAs on GaAlAs technology in a hermetically sealed TO 18 package. Its glass lens provides a very high radiant intensity without external optics.



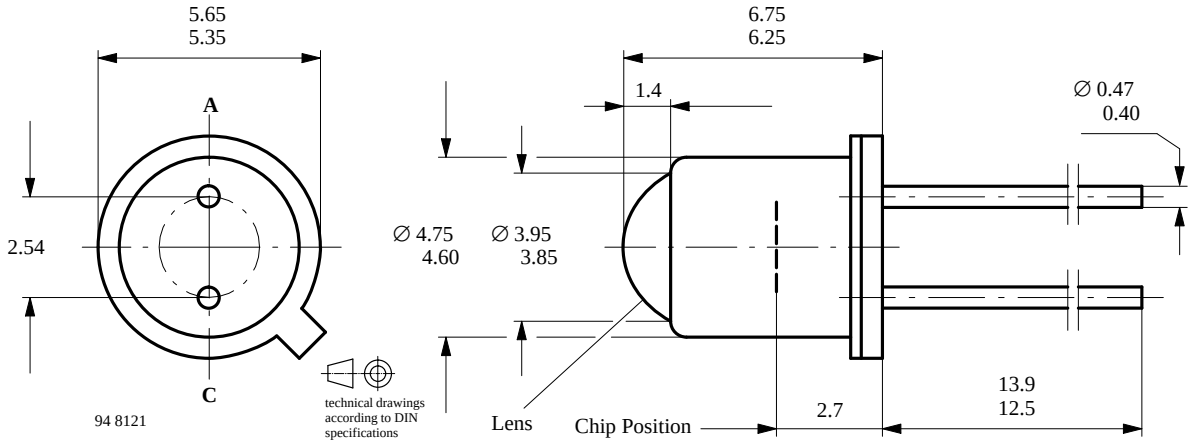
Features

- Extra high radiant intensity
- High radiant power
- Suitable for pulse operation
- Narrow angle of half intensity $\varphi = \pm 5^\circ$
- Peak wavelength $\lambda_p = 875$ nm
- High reliability
- Good spectral matching to Si photodetectors

Applications

Radiation source in near infrared range

Dimensions in mm



Absolute Maximum Ratings

T_{amb} = 25°C

Parameter	Test Conditions	Symbol	Value	Unit
Reverse Voltage		V_R	5	V
Forward Current		I_F	100	mA
Peak Forward Current	$t_p/T=0.5$, $t_p \leqq 100\mu s$	I_{FM}	200	mA
Surge Forward Current	$t_p \leqq 100\mu s$	I_{FSM}	2.5	A
Power Dissipation		P_V	170	mW
Power Dissipation	$T_{case} \leqq 25$ ˚C	P_V	500	mW
Junction Temperature		T_j	100	˚C
Storage Temperature Range		T_{stg}	–55...+100	˚C
Thermal Resistance Junction/Ambient		R_{thJA}	450	K/W
Thermal Resistance Junction/Case		R_{thJC}	150	K/W

Basic Characteristics

T_{amb} = 25°C

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Forward Voltage	I_F = 100 mA, $t_p \leqq 20$ 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		40		pF
Radiant Intensity	I_F = 100 mA, $t_p \leqq 20$ ms	I_e	20	50		mW/sr
Radiant Power	I_F = 100 mA, $t_p \leqq 20$ ms	ϕ_e		10		mW
Temp. 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=1.5A, $t_p/T=0.01$, $t_p \leqq 10\mu s$	t_r		300		ns
Fall Time	I_F=1.5A, $t_p/T=0.01$, $t_p \leqq 10\mu s$	t_f		300		ns

Typical Characteristics (T_{amb} = 25°C unless otherwise specified)

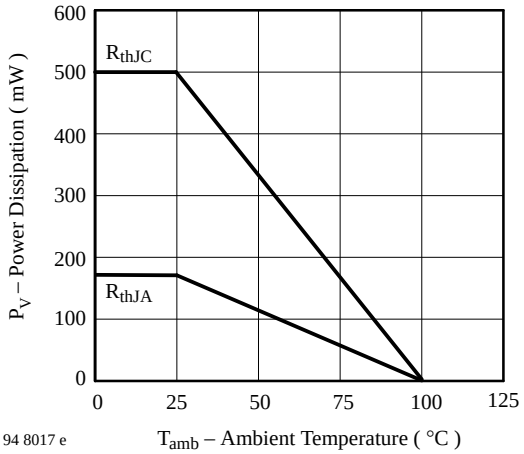


Figure 1 : Power Dissipation vs. Ambient Temperature

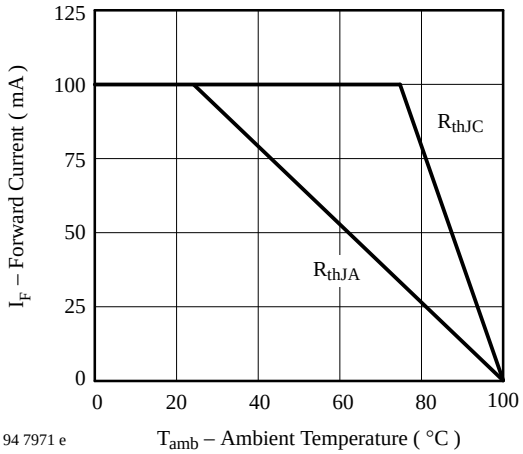


Figure 2 : Forward Current vs. Ambient Temperature

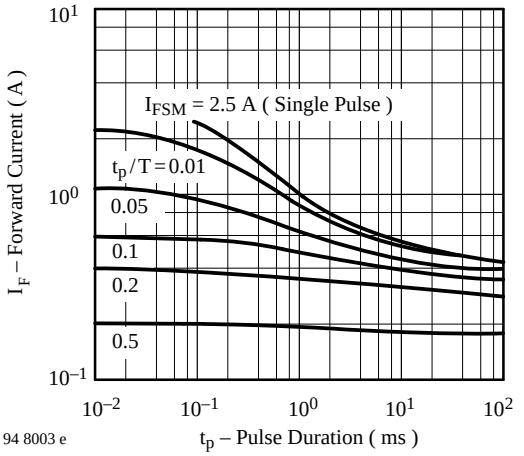


Figure 3 : Pulse Forward Current vs. Pulse Duration

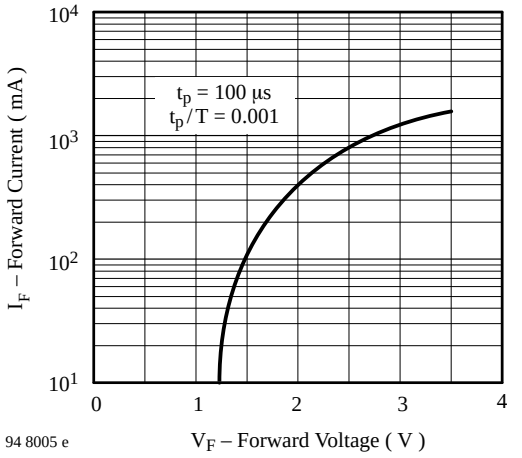


Figure 4 : Forward Current vs. Forward Voltage

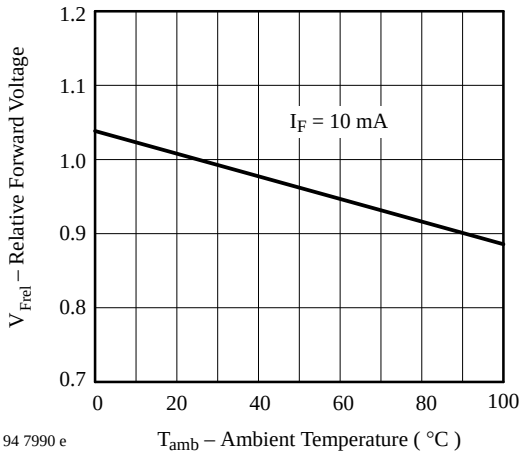


Figure 5 : Relative Forward Voltage vs. Ambient Temperature

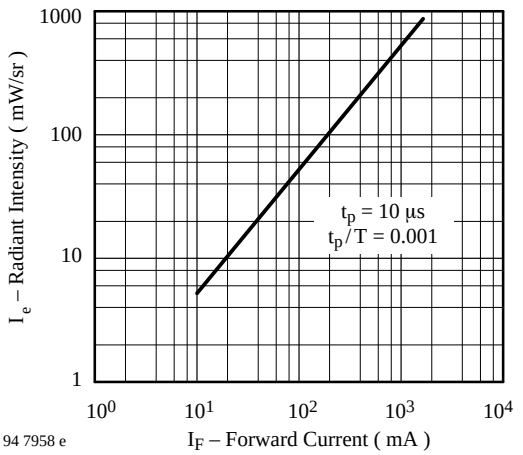


Figure 6 : Radiant Intensity vs. Forward Current

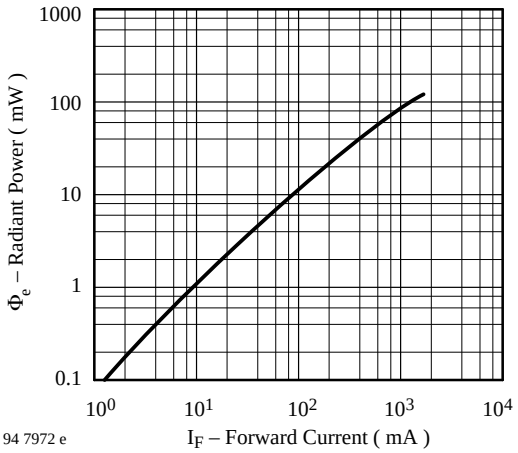


Figure 7 : Radiant Power vs. Forward Current

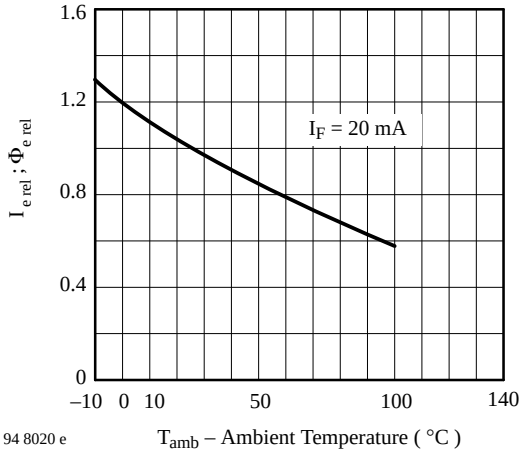


Figure 8 : Rel. Radiant Intensity\Power vs. Ambient Temperature

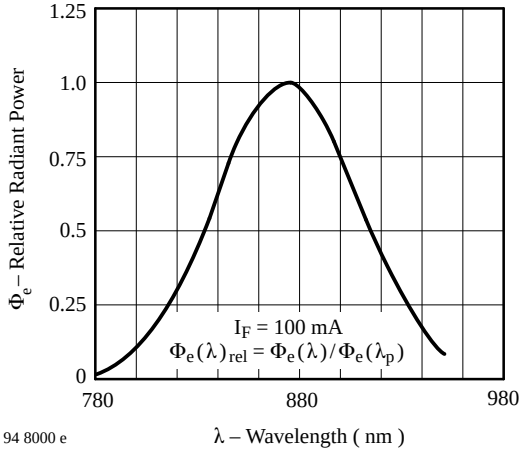


Figure 9 : Relative Radiant Power vs. Wavelength

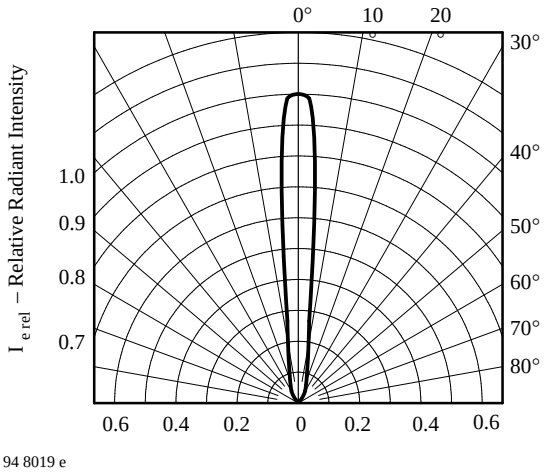


Figure 10 : Relative Radiant Intensity vs. Angular Displacement

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