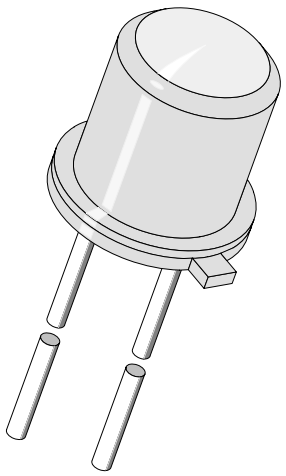
GaAs IR Emitting Diodes in Hermetically Sealed TO18 Case

Description

The TSTS 750. series are infrared emitting diodes in standard GaAs technology in a hermetically sealed TO–18 package. Their flat glass windows make them ideal for use with external optics.



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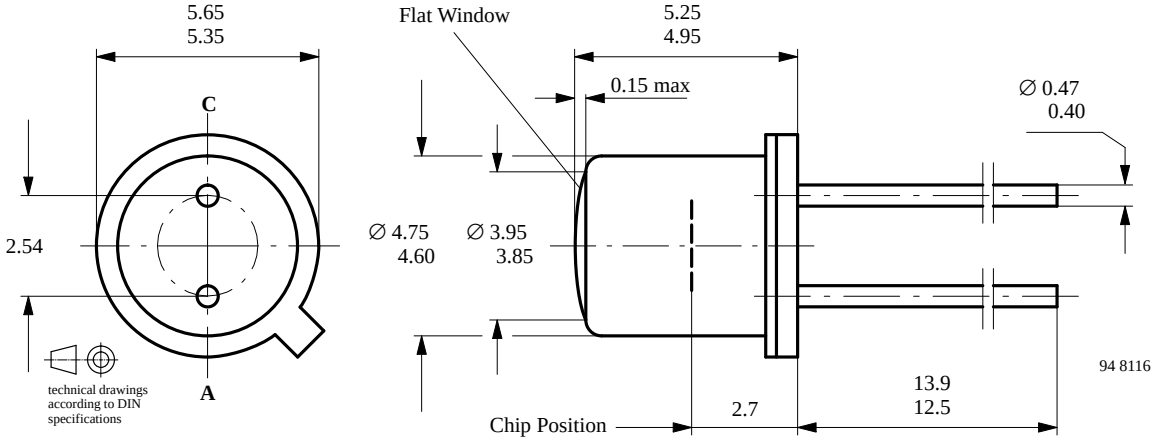
Features

- Suitable for pulse operation
- Wide angle of half intensity $\varphi = \pm 30^\circ$
- Peak wavelength $\lambda_p = 950$ 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	$T_{case} \leqq 25$ ˚C	I_F	250	mA
Peak Forward Current	$t_p/T=0.5$, $t_p \leqq 100\mu s$, $T_{case} \leqq 25$˚C	I_{FM}	500	mA
Surge Forward Current	$t_p \leqq 100$ µs	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		1.3	1.7	V
Breakdown Voltage	I_R = 100 µA	$V_{(BR)}$	5			V
Junction Capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_j		50		pF
Radiant Power	I_F = 100 mA, $t_p \leqq 20$ ms	ϕ_e		7		mW
Temp. Coefficient of ϕ_e	I_F = 100 mA	$TK_{\phi e}$		–0.8		%/K
Angle of Half Intensity		φ		±30		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=1.5A, $t_p/T=0.01$, $t_p \leqq 10\mu s$	t_r		400		ns
Fall Time	I_F=1.5A, $t_p/T=0.01$, $t_p \leqq 10\mu s$	t_f		400		ns

Type Dedicated Characteristics

T_{amb} = 25°C

Parameter	Type	Test Conditions	Symbol	Min	Typ	Max	Unit
Radiant Intensity	TSTS7500	I_F=100mA, t_p=20ms	I_e	1.25			mW/sr
	TSTS7501	I_F=100mA, t_p=20ms	I_e	1.6		3.2	mW/sr
	TSTS7502	I_F=100mA, t_p=20ms	I_e	2.5		5	mW/sr
	TSTS7503	I_F=100mA, t_p=20ms	I_e	4		8	mW/sr

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

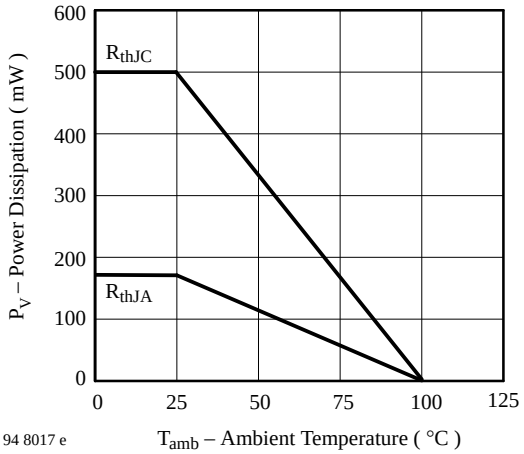


Figure 1 : Power Dissipation vs. Ambient Temperature

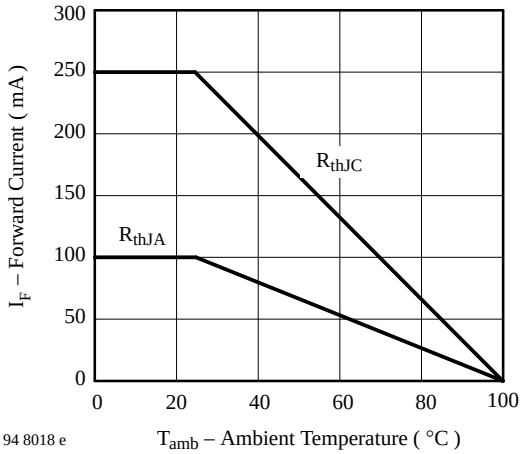


Figure 2 : Forward Current vs. Ambient Temperature

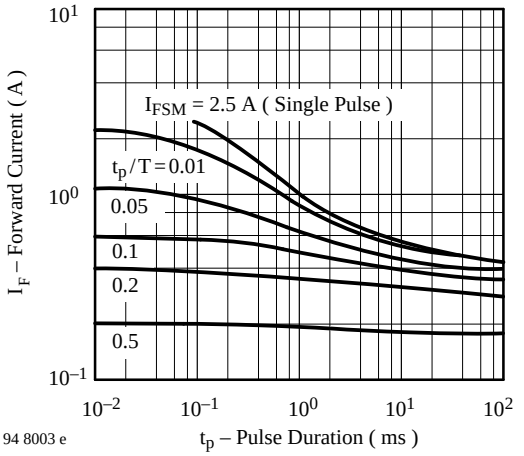


Figure 3 : Pulse Forward Current vs. Pulse Duration

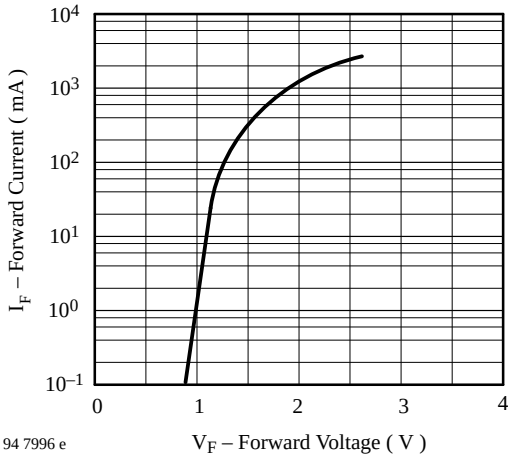


Figure 4 : Forward Current vs. Forward Voltage

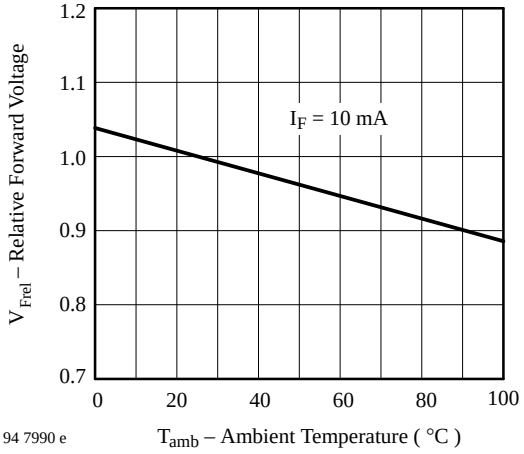


Figure 5 : Relative Forward Voltage vs. Ambient Temperature

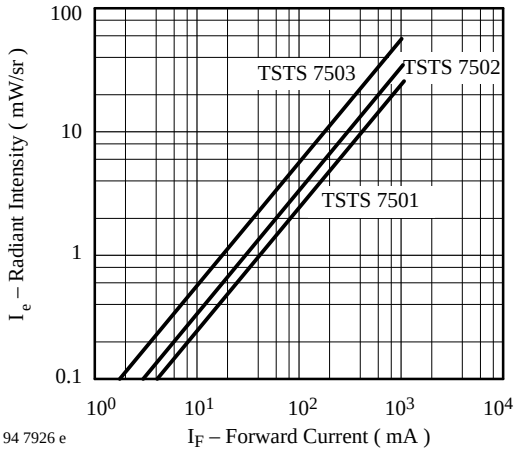


Figure 6 : Radiant Intensity vs. Forward Current

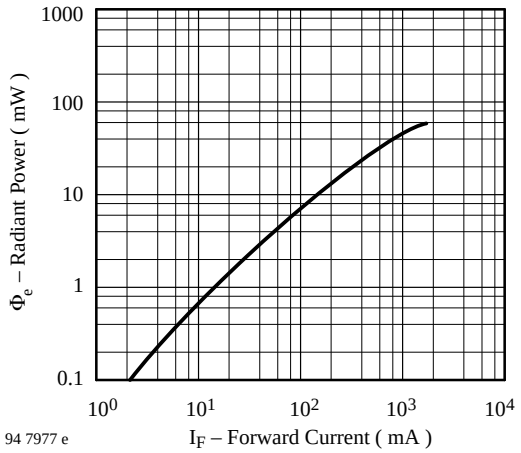


Figure 7 : Radiant Power vs. Forward Current

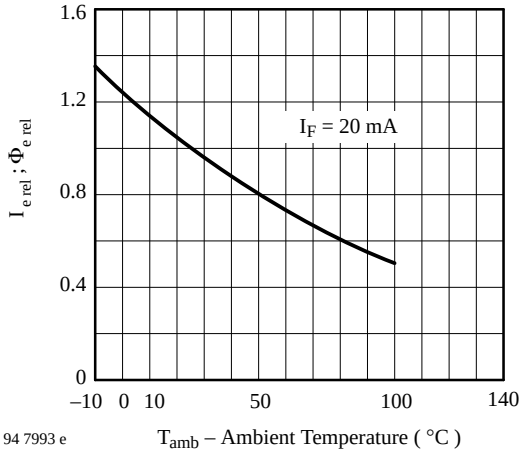


Figure 8 : Rel. Radiant Intensity\Power vs. Ambient Temperature

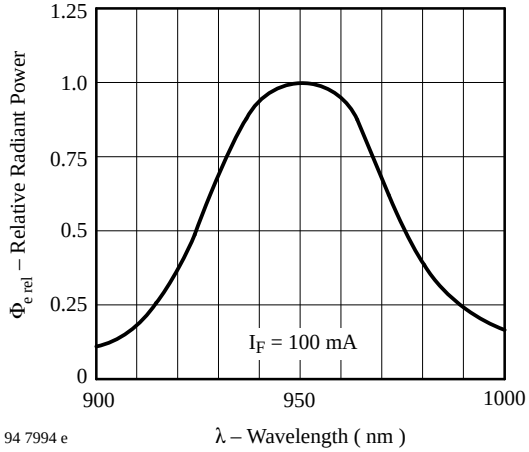


Figure 9 : Relative Radiant Power vs. Wavelength

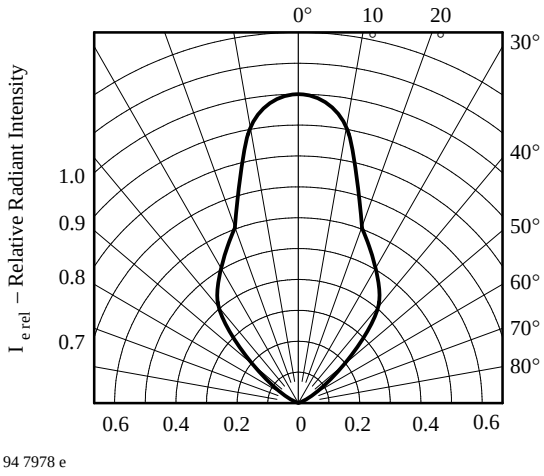


Figure 10 : Relative Radiant Intensity vs. Angular Displacement

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