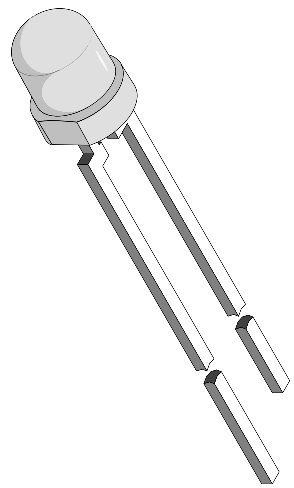
TSUS 4300

GaAs Infrared Emitting Diode in ø 3 mm (T–1) Package

Description

TSUS 4300 is an infrared emitting diode in standard GaAs on GaAs technology, molded in a clear, blue tinted plastic package. Its lens provides a high radiant intensity without external optics.



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Features

- High radiant power and radiant intensity
- Low forward voltage
- Suitable for DC and high pulse current operation
- Standard T–1(ø 3 mm) package
- Package flattening as additional polarity sign
- Angle of half intensity $\varphi = \pm 16^{\circ}$
- Peak wavelength λ_p = 950 nm
- High reliability
- Good spectral matching to Si photodetectors

Applications

Infrared remote control systems with small package and low cost requirements in combination with silicon photo detectors.
Infrared source in reflective sensors, tabe end detection.
Excellent matching with phototransistor TEFT 4300.

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=100 µs	I_{FM}	200	mA
Surge Forward Current	t_p=100 µs	I_{FSM}	2	A
Power Dissipation		P_V	170	mW
Junction Temperature		T_j	100	°C
Operating Temperature Range		T_{amb}	–55...+100	°C
Storage Temperature Range		T_{stg}	–55...+100	°C
Soldering Temperature	t ≦ 5sec, 2 mm from case	T_{sd}	260	°C
Thermal Resistance Junction/Ambient		R_{thJA}	450	K/W

Basic Characteristics

T_{amb} = 25°C

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Forward Voltage	I_F = 100 mA, t_p = 20 ms	V_F		1.3	1.7	V
Forward Voltage	I_F = 1.5 A, t_p = 100 µs	V_F		2.2		V
Temp. Coefficient of V_F	I_F = 100mA	TK_{VF}		–1.3		mV/K
Reverse Current	V_R = 5 V	I_R			100	µA
Breakdown Voltage	I_R = 100 µA	$V_{(BR)}$	5	40		
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	7	18		mW/sr
Radiant Intensity	I_F = 1.5 A, t_p = 100 µs	I_e		160		mW/sr
Radiant Power	I_F = 100 mA, t_p = 20 ms	ϕ_e		13		mW
Temp. Coefficient of ϕ_e	I_F = 20 mA	$TK_{\phi e}$		–0.8		%/K
Angle of Half Intensity		φ		±16		deg
Peak Wavelength	I_F = 100 mA	λ_p		950		nm
Spectral Bandwidth	I_F = 100 mA	$\Delta\lambda$		50		nm
Temp. Coefficient of λ_p	I_F = 100 mA	$TK_{\lambda p}$		0.2		nm/K
Rise Time	I_F = 100 mA	t_r		800		ns
Rise Time	I_F = 1.5 A	t_r		400		ns
Fall Time	I_F = 100 mA	t_f		800		ns
Fall Time	I_F = 1.5 A	t_f		400		ns

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

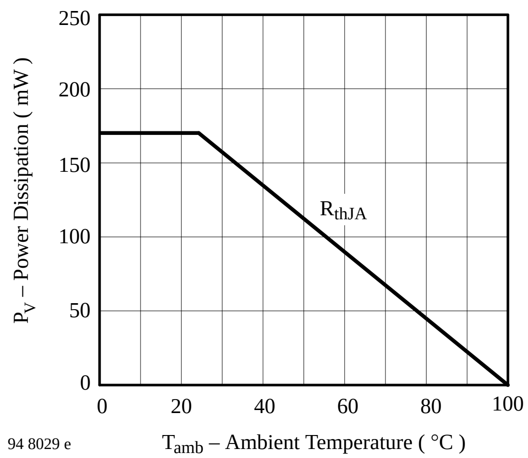


Figure 1 : Power Dissipation vs. Ambient Temperature

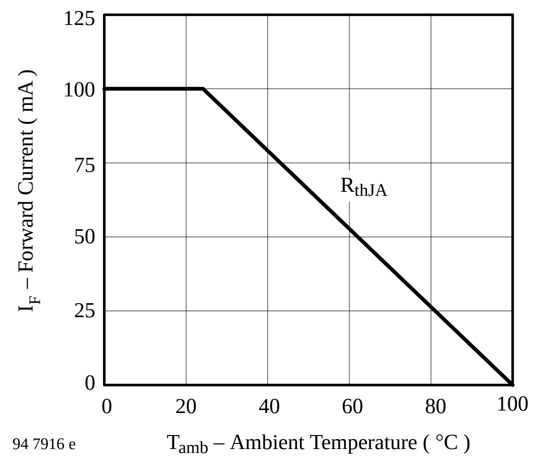


Figure 2 : Forward Current vs. Ambient Temperature

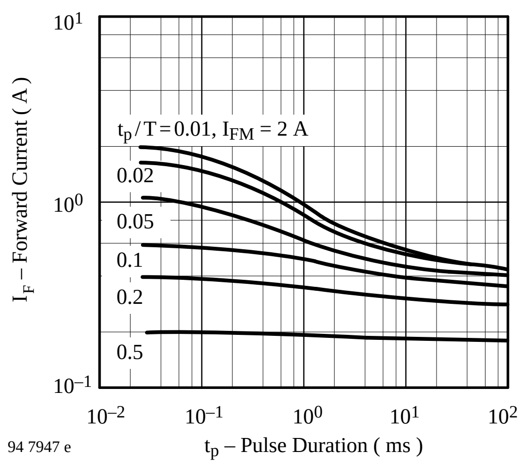


Figure 3 : Pulse Forward Current vs. Pulse Duration

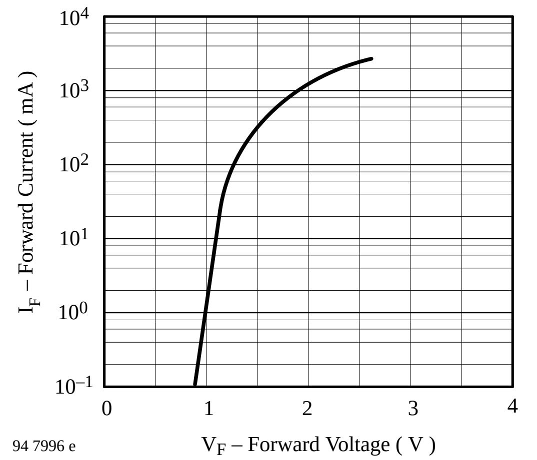


Figure 4 : Forward Current vs. Forward Voltage

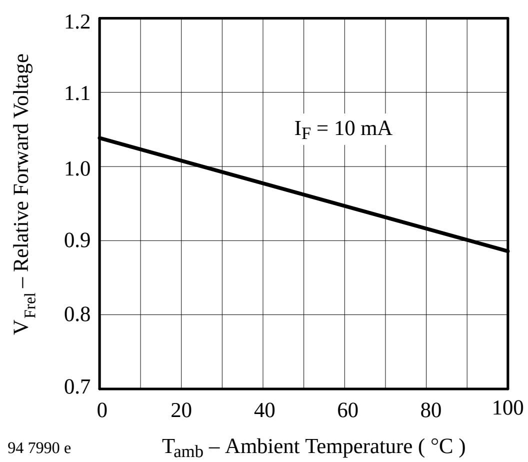


Figure 5 : Relative Forward Voltage vs. Ambient Temperature

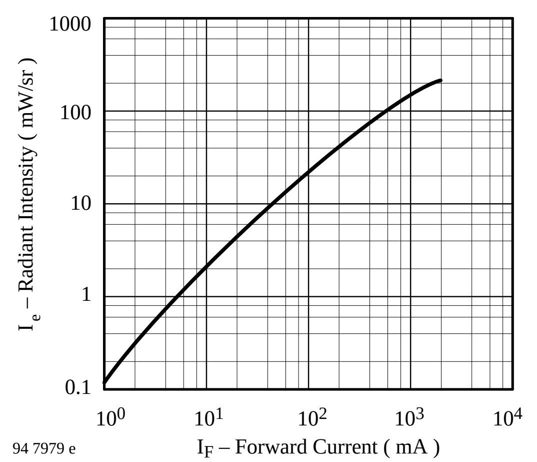


Figure 6 : Radiant Intensity vs. Forward Current

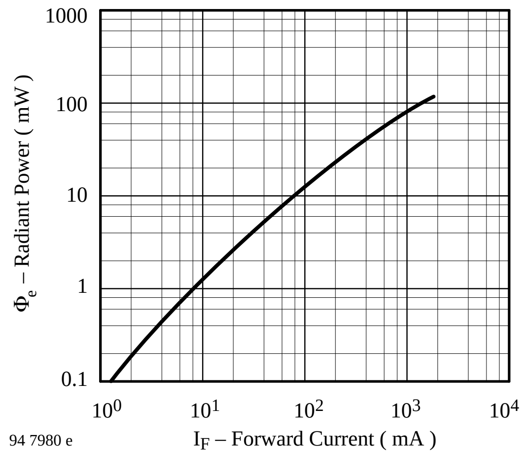


Figure 7 : Radiant Power vs. Forward Current

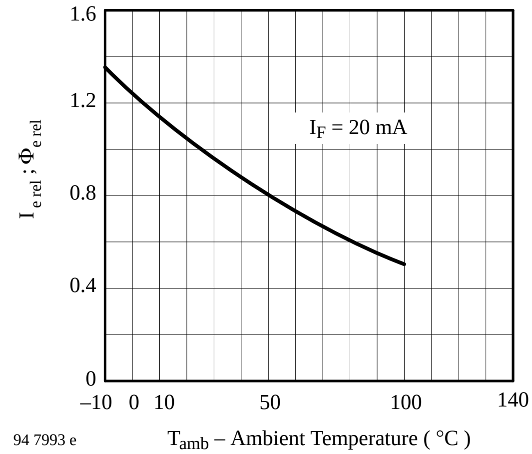


Figure 8 : Rel. Radiant Intensity\Power vs. Ambient Temperature

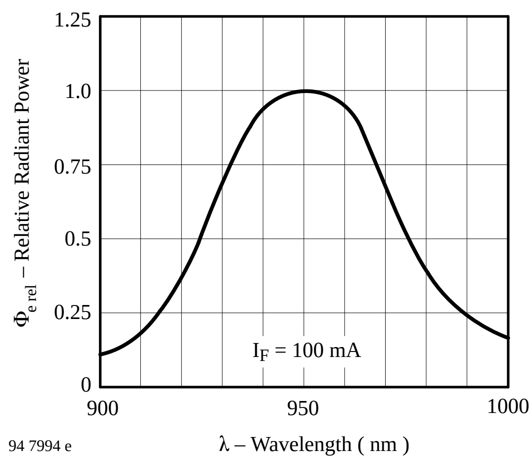


Figure 9 : Relative Radiant Power vs. Wavelength

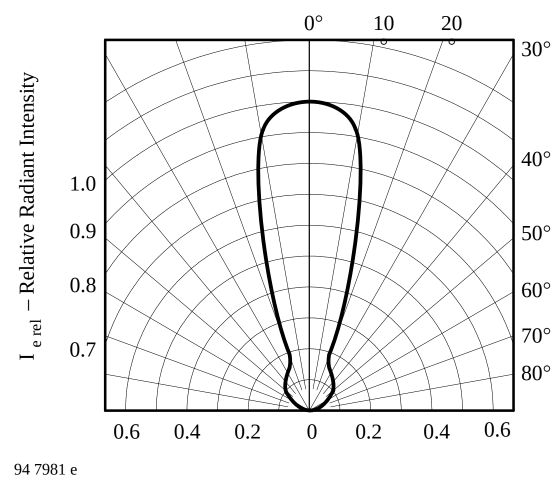
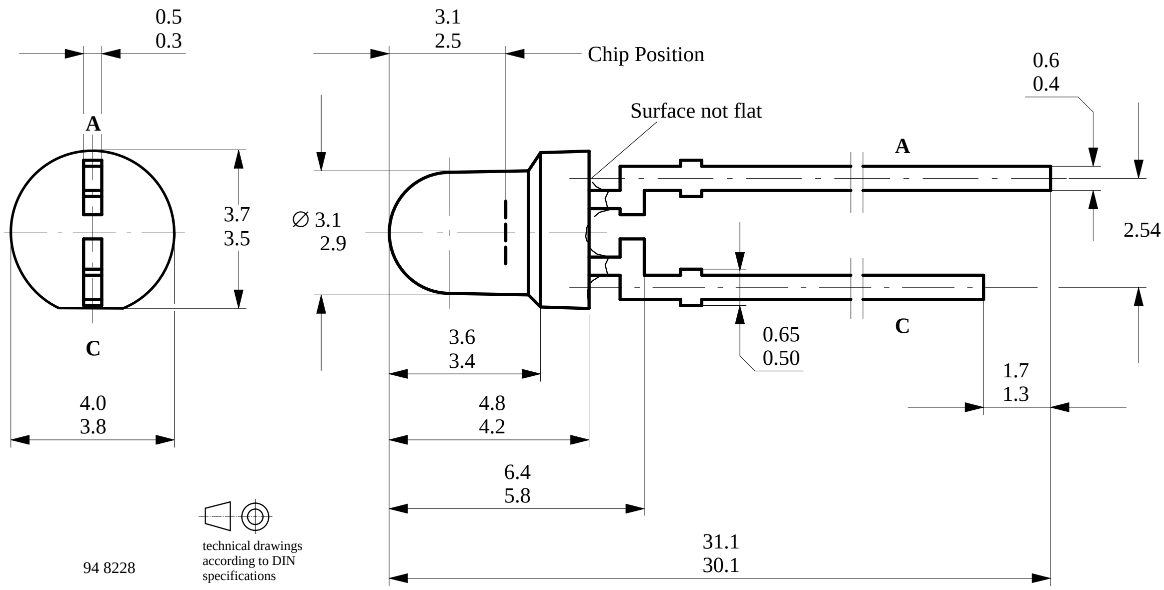


Figure 10 : Relative Radiant Intensity vs. Angular Displacement

Dimensions in mm



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