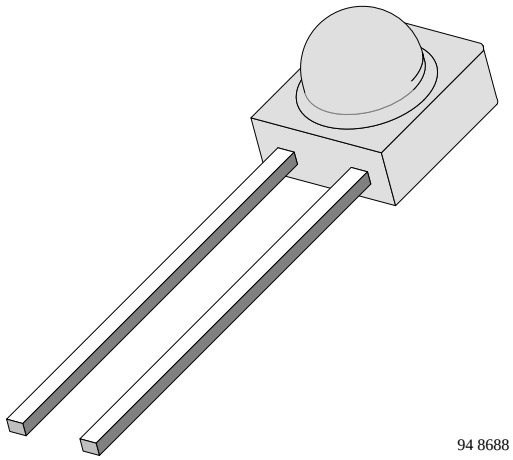
GaAlAs Infrared Emitting Diode in Side View Package

Description

TSSA 4500 is a high intensity infrared emitting diode in GaAlAs on GaAlAs technology, molded in a clear, untinted plastic package with spherical side view lens. The device is spectrally matched to silicon photodiodes and phototransistors.



Features

- Extra high radiant power and high radiant intensity
- Suitable for DC and high pulse current operation
- Lead frame without stand–offs
- Angle of half intensity $\varphi = \pm 20^{\circ}$
- Peak wavelength $\lambda_p = 875$ nm
- High reliability

Applications

High power infrared emitter in light curtains, light barriers, transmissive or reflective sensors in combination with PIN photodiodes or phototransistors.
Serial infrared data transmission together with PIN photodiodes.
Infrared remote control and free air transmission systems for long transmission distance and medium wide angle requirements in combination with PIN photodiodes.

Absolute Maximum Ratings

T_{amb} = 25°C

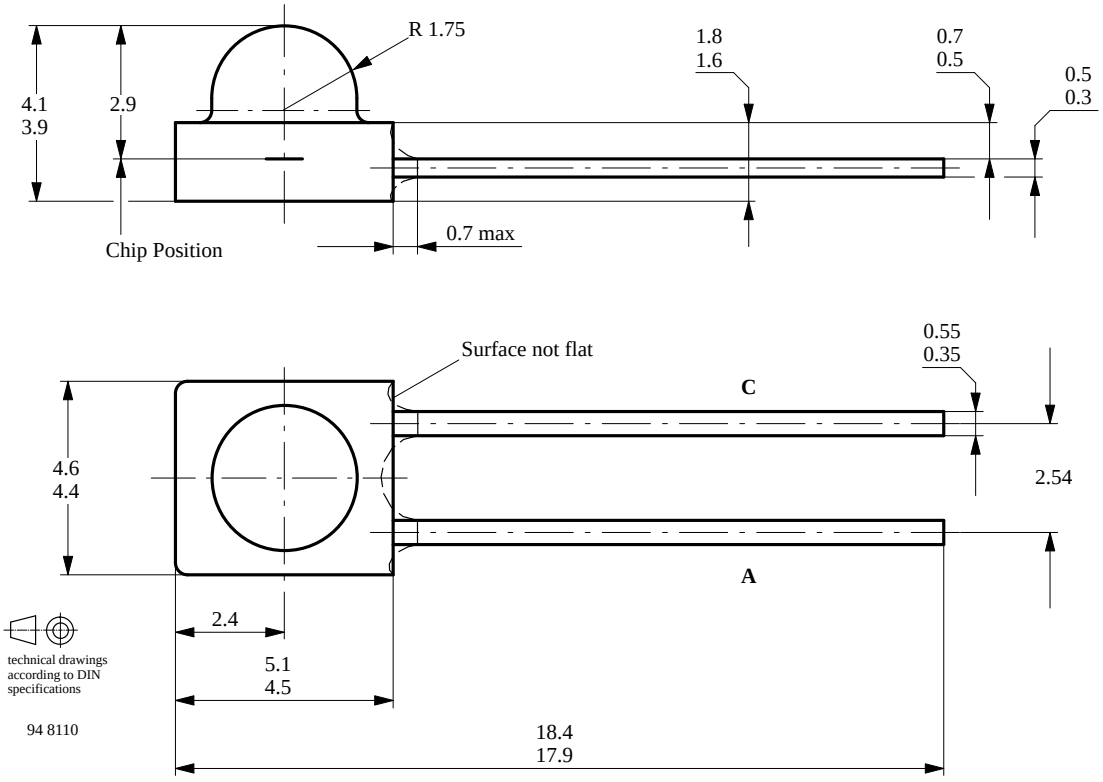
Parameter	Test Conditions	Symbol	Value	Unit
Reverse Voltage		V_R	5	V
Forward Current		I_F	100	mA
Peak Forward Current	$t_p/T=0.5$, $t_p=100$ µs	I_{FM}	200	mA
Surge Forward Current	$t_p=100$ µs	I_{FSM}	2.0	A
Power Dissipation		P_V	170	mW
Junction Temperature		T_j	100	˚C
Operating Temperature Range		T_{amb}	–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		1.5	1.8	V
Forward Voltage	I_F = 1.5 A, t_p = 100 µs	V_F		3.5		V
Temp. Coefficient of V_F	I_F = 100mA	TK_{VF}		–1.6		mV/K
Reverse Current	V_R = 5 V	I_R			100	µA
Junction Capacitance	V_R = 0 V, f = 1 MHz, E = 0	C_j		20		pF
Radiant Intensity	I_F = 100 mA, t_p = 20 ms	I_e		23		mW/sr
Radiant Intensity	I_F = 1.5 A, t_p = 100 µs	I_e		300		mW/sr
Radiant Power	I_F = 100 mA, t_p = 20 ms	ϕ_e		22		mW
Temp. Coefficient of ϕ_e	I_F = 100 mA	$TK_{\phi e}$		–0.7		%/K
Angle of Half Intensity		φ		±20		deg
Peak Wavelength	I_F = 100 mA	λ_p		875		nm
Spectral Bandwidth	I_F = 100 mA	$\Delta\lambda$		80		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		600		ns
Rise Time	I_F = 1.5 A	t_r		300		ns
Fall Time	I_F = 100 mA	t_f		600		ns
Fall Time	I_F = 1.5 A	t_f		300		ns

Dimensions in mm



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