GREEN



Vishay Semiconductors

Infrared Emitting Diode, 875 nm, GaAlAs



DESCRIPTION

The TSHA5500 is an infrared, 875 nm emitting diode in GaAlAs on GaAlAs technology, molded in a clear, untinted plastic package.

FEATURES

Package type: leadedPackage form: T-1¾

Dimensions (in mm): Ø 5

· Leads with stand-off

• Peak wavelength: $\lambda_p = 875 \text{ nm}$

High reliability

• Angle of half intensity: $\varphi = \pm 24^{\circ}$

• Low forward voltage

· Suitable for high pulse current operation

· Good spectral matching with Si photodetectors

 Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

Note

** Please see document "Vishay Material Category Policy": www.vishay.com/doc?99902

APPLICATIONS

- Infrared remote control and free air data transmission systems with comfortable radiation angle
- This emitter is dedicated to systems with panes in transmission space between emitter and detector, because of the low absorbtion of 875 nm radiation in glass

PRODUCT SUMMARY				
COMPONENT	I _e (mW/sr)	φ (deg)	λ _p (nm)	t _r (ns)
TSHA5500	30	± 24	875	600

Note

· Test conditions see table "Basic Characteristics"

ORDERING INFORMATION				
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM	
TSHA5500	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1¾	

Note

MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Reverse voltage		V _R	5	V	
Forward current		I _F	100	mA	
Peak forward current	$t_p/T = 0.5, t_p = 100 \mu s$	I _{FM}	200	mA	
Surge forward current	t _p = 100 μs	I _{FSM}	2.5	А	
Power dissipation		P _V	180	mW	
Junction temperature		Tj	100	°C	
Operating temperature range		T _{amb}	- 40 to + 85	°C	
Storage temperature range		T _{stg}	- 40 to + 100	°C	
Soldering temperature	$t \le 5$ s, 2 mm from case	T _{sd}	260	°C	
Thermal resistance junction/ambient	J-STD-051, leads 7 mm, soldered on PCB	R _{thJA}	230	K/W	





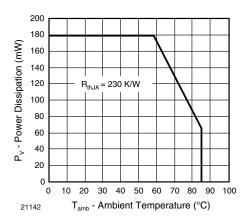


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

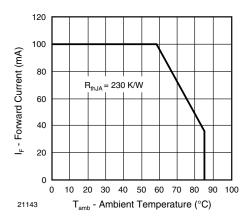


Fig. 2 - Forward Current Limit vs. Ambient Temperature

PARAMETER	(T _{amb} = 25 °C, unless othe	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	V _E		1.5	1.8	V
	$I_F = 1 \text{ A, } t_D = 100 \mu\text{s}$	V _F		2.8	3.5	V
Temperature coefficient of V _F	I _F = 100 mA	TK _{VF}		- 1.6		mV/K
Reverse current	V _R = 5 V	I _R			100	μA
Junction capacitance	$V_R = 0 \text{ V, } f = 1 \text{ MHz, } E = 0$	C _i		20		pF
Radiant intensity	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	I _e	16	30	48	mW/sr
	$I_F = 1 \text{ A}, t_p = 100 \mu \text{s}$	I _e	128	240		mW/sr
Radiant power	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	фе		24		mW
Temperature coefficient of φ _e	I _F = 20 mA	TKφ _e		- 0.7		%/K
Angle of half intensity		φ		± 24		deg
Peak wavelength	I _F = 100 mA	λ_{p}		875		nm
Spectral bandwidth	I _F = 100 mA	Δλ		80		nm
Temperature coefficient of λ_p	I _F = 100 mA	TKλ _p		0.2		nm/K
Rise time	I _F = 100 mA	t _r		600		ns
	I _F = 1 A	t _r		300		ns
E	I _F = 100 mA	t _f		600		ns
Fall time	I _F = 1 A	t _f		300		ns
Virtual source diameter		d		2.2		mm

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BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

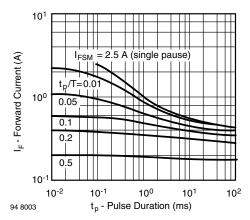


Fig. 3 - Pulse Forward Current vs. Pulse Duration

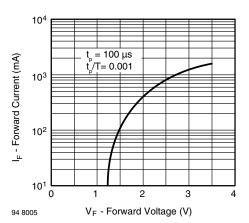


Fig. 4 - Forward Current vs. Forward Voltage

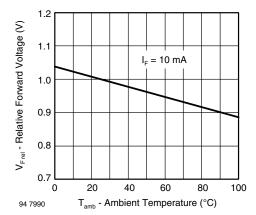


Fig. 5 - Relative Forward Voltage vs. Ambient Temperature

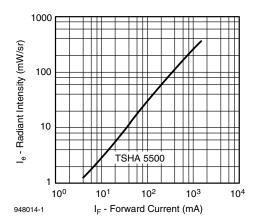


Fig. 6 - Radiant Intensity vs. Forward Current

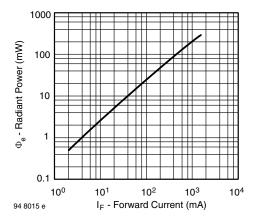


Fig. 7 - Radiant Power vs. Forward Current

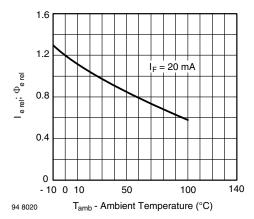


Fig. 8 - Relative Radiant Intensity/Power vs. Ambient Temperature



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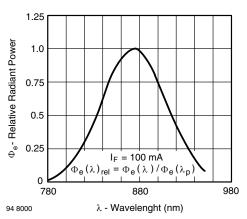


Fig. 9 - Relative Radiant Power vs. Wavelength

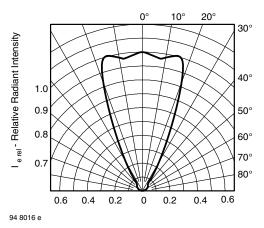
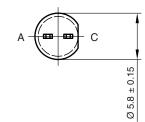
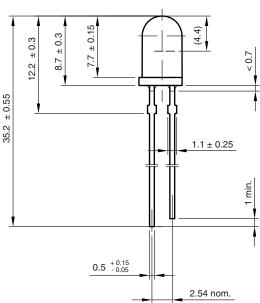


Fig. 10 - Relative Radiant Intensity vs. Angular Displacement

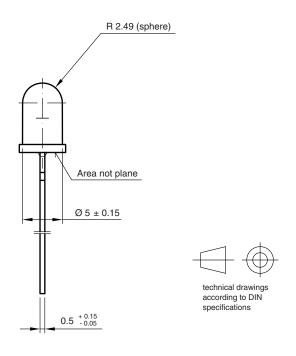
PACKAGE DIMENSIONS in millimeters





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