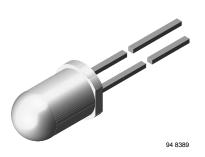


TSHA6200, TSHA6201, TSHA6202, TSHA6203

Vishay Semiconductors

GREEN

Infrared Emitting Diode, 875 nm, GaAlAs



DESCRIPTION

The TSHA620. series are infrared, 875 nm emitting diodes in GaAlAs technology, molded in a clear, untinted plastic package.

FEATURES

Package type: leadedPackage form: T-1¾

• Dimensions (in mm): Ø 5

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

· High reliability

• Angle of half intensity: $\varphi = \pm 12^{\circ}$

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
- This emitter series 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)	
TSHA6200	40	± 12	875	600	
TSHA6201	50	± 12	875	600	
TSHA6202	60	± 12	875	600	
TSHA6203	65	± 12	875	600	

Note

Test conditions see table "Basic Characteristics"

ORDERING INFORMATION					
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM		
TSHA6200	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1¾		
TSHA6201	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1¾		
TSHA6202	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1¾		
TSHA6203	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1¾		

Note

· MOQ: minimum order quantity



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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	Α	
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	

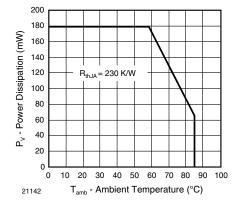


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

Fig. 2 - Forward Current Limit vs. Ambient Temperature

PARAMETER	TEST CONDITION	SYMBOL	MIN.	MIN. TYP.		UNIT
Forward voltage	$I_F = 100 \text{ mA}, t_D = 20 \text{ ms}$	V _F		1.5	1.8	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 V, f = 1 MHz, E = 0	Cj		20		pF
Temperature coefficient of φ _e	I _F = 20 mA	TKφ _e		- 0.7		%/K
Angle of half intensity		φ		± 12		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
	I _F = 100 mA	t _r		600		ns
Rise time	I _F = 1 A	t _r		300		ns
Fall time	I _F = 100 mA	t _f		600		ns
Fall time	I _F = 1 A	t _f		300		ns
Virtual source diameter		d		3.7		mm



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TYPE DEDICATED CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
	1 1 1 1 1 100	TSHA6200	V _F		2.8	3.5	V
Converd velters		TSHA6201	V _F		2.8	3.5	V
Forward voltage	$I_F = 1 \text{ A}, t_p = 100 \mu s$	TSHA6202	V _F		2.8	3.5	5 V
		TSHA6203	V _F		2.8	3.5 3.5	V
		TSHA6200	l _e	25	40	125	mW/sr
	$I_F = 100 \text{ mA}, t_D = 20 \text{ ms}$	TSHA6201	l _e	30	50	125	mW/sr
	$I_F = 100 \text{ mA}, I_p = 20 \text{ ms}$	TSHA6202	l _e	36	60	125	mW/sr
Dedient intensity		TSHA6203	l _e	50	65	125	mW/sr
Radiant intensity		TSHA6200	l _e	200	330		mW/sr
	L 1 A + 100 ···	TSHA6201	I _e	260	400		mW/sr
	$I_F = 1 \text{ A}, t_p = 100 \ \mu\text{s}$	TSHA6202	l _e	330	460		mW/sr
		TSHA6203	l _e	400	530		mW/sr
		TSHA6200	фе		22		mW
Padiant namer	- 100 mA + - 20 ma	TSHA6201	фе		23		mW
Radiant power	$I_F = 100 \text{ mA}, t_p = 20 \text{ ms}$	TSHA6202	фе		24		mW
		TSHA6203	φ _e		25		mW

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

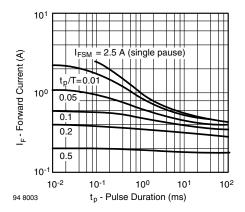


Fig. 3 - Pulse Forward Current vs. Pulse Duration

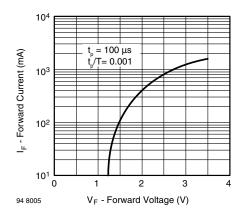


Fig. 4 - Forward Current vs. Forward Voltage

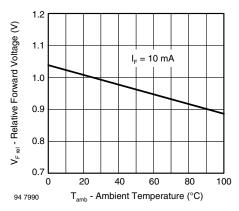


Fig. 5 - Relative Forward Voltage vs. Ambient Temperature

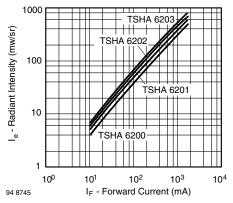


Fig. 6 - Radiant Intensity vs. Forward Current

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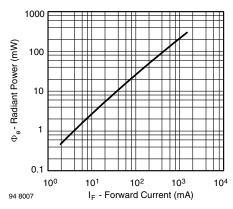


Fig. 7 - Radiant Power vs. Forward Current

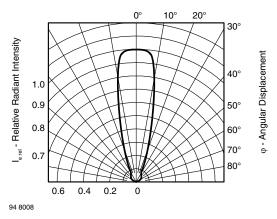


Fig. 10 - Relative Radiant Intensity vs. Angular Displacement

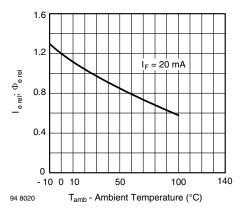


Fig. 8 - Relative Radiant Intensity/Power vs. Ambient Temperature

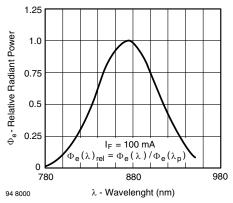


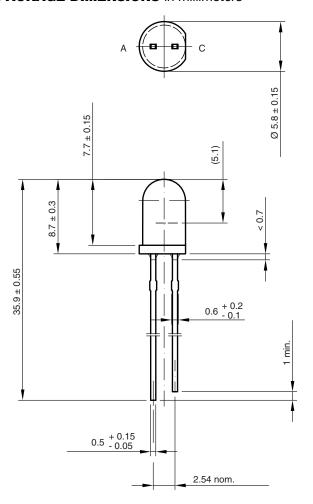
Fig. 9 - Relative Radiant Power vs. Wavelength



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PACKAGE DIMENSIONS in millimeters



Area not plane

Ø 5 ± 0.15

technical drawings according to DIN specifications

Drawing-No.: 6.544-5259.04-4

Issue: 8; 19.05.09

96 12125



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