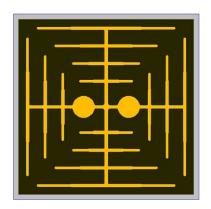


Vishay Semiconductors

Specification of High Power IR Emitting Diode Chip



FEATURES

· Package type: chip

Package form: single chip

· Technology: surface emitter

 Dimensions chip (L x W x H in mm): 1.066 x 1.066 x 0.17

Peak wavelength: λ = 850 nm

 Material categorization: for definitions of compliance please see www.vishav.com/doc?99912





ROHS COMPLIANT HALOGEN

FREE GREEN

DESCRIPTION

TS8542VA is a high power infrared, 850 nm surface emitting diode in GaAlAs technology with high radiant power and high speed. Polarity configuration is "n-up".

GENERAL INFORMATION

The datasheet is based on Vishay optoelectronics sample testing under certain predetermined and assumed conditions, and is provided for illustration purpose only. Customers are encouraged to perform testing in actual proposed packaged and used conditions. Vishay optoelectronics die products are tested using Vishay optoelectronics based quality assurance procedures and are manufactured using Vishay optoelectronics established processes. Estimates such as those described and set forth in this datasheet for semiconductor die will vary depending on a number of packaging, handling, use, and other factors. Therefore sold die may not perform on an equivalent basis to standard package products.

PRODUCT SUMMARY					
COMPONENT	φ _e (mW)	I _e (mW/sr)	φ (deg)	λ _p (nm)	t _r (ns)
TS8542VA	350	7.5	55	850	15

Note

• Test condition see table "Basic Characteristics"

ORDERING INFORMATION					
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM		
TS8542VA-SF-F	wafer sawn on foil	MOQ: 5000 pcs	chip		

Note

MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Forward current		I _F	1	Α	
Reverse voltage		V_R	5	V	
Surge forward current	t _p = 100 μs	I _{FSM}	5	Α	
Junction temperature		T _j	140	°C	
Storage temperature range chip		T _{stg1}	-40 to +125	°C	
Storage temperature range on foil		T _{stg2}	-20 to +65	°C	
Temperature during packaging	t _p < 10 s		280	°C	

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BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Famous de la la casa	I _F = 100 mA	V _F		1.3	1.5	V
Forward voltage	I _F = 1 A	V_{F}		2.0	2.5	V
Radiant power (1)	I _F = 100 mA	фe	32			mW
hadiant power (*)	I _F = 1000 mA	фe	350			mW
Radiant intensity (2)	I _F = 100 mA	l _e	7.5			mW/sr
Reverse voltage	I _R = 10 μA	V_{R}	10			V
Angle of half intensity	I _F = 100 mA	φ	50	55	60	deg
Peak wavelength	I _F = 1 A	λ_{p}	830	850	870	nm
Spectral bandwidth	I _F = 1 A	λ _{0.5}		30		nm
Rise time / fall time	$I_F = 1 A$, $R_L = 50 \Omega$	t _r , t _f		15		ns

Notes

- (1) The measurements are based on samples of die which are mounted on a TO-18 gold header without resin coating
- (2) The radiant intensity, I_e, is measured on the geometric axis of the TO-18 header

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

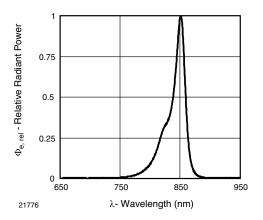


Fig. 1 - Relative Spectral Emission $_{\phi e \ rel} = f \ (\lambda)$

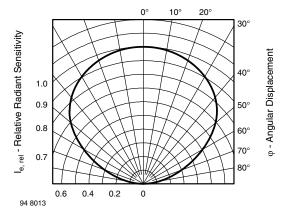


Fig. 2 - Radiant Characteristics $I_{rel} = f(\phi)$

MECHANICAL DIMENSIONS					
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Length of chip edge (x-direction)	L _x		1.066		mm
Length of chip edge (y-direction)	L _y		1.066		mm
Die height	Н		0.17		mm
Diameter of bondpad	d		0.127		mm

ADDITIONAL INFORMATION				
Frontside metallization, cathode	gold alloy			
Backside metallization, anode	gold alloy			
Dicing	sawing			
Die bonding technology	epoxy bonding			

Note

All chips are checked in accordance with the Vishay Semiconductor, specification of visual inspection FVOV6870.
The visual inspection shall be made in accordance with the "specification of visual inspection as referenced". The visual inspection of chip backside is performed with stereo microscope with incident light and 40x to 80x magnification.
The quality inspection (final visual inspection) is performed by production. An additional visual inspection step as special release procedure by QM is not installed.



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HANDLING AND STORAGE CONDITIONS

- The hermetically sealed shipment lots shall be opened in temperature and moisture controlled cleanroom environment only. It is mandatory to follow the rules for disposition of material that can be hazardous for humans and environment.
- Product must be handled only at ESD safe workstations. Standard ESD precautions and safe work environments are as defined in MIL-HDBK-263.
- Singulated die are not to be handled with tweezers. A vacuum wand with non metallic ESD protected tip should be used.

PACKING

Chips are fixed on adhesive foil. Upon request the foils can be mounted on plastic frame or disco frame. For shipment, the wafers are arranged to stacks and hermetically sealed in plastic bags to ensure protection against environmental influence (humidity and contamination).

Use for recycling reliable operators only. We can help getting in touch with your nearest sales office. By agreement we will take back packing material, if it is sorted. You will have to bear the costs of transport. We will invoice you for any costs incurred for packing material that is returned unsorted or which we are not obliged to accept.



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Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.

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