



The DNA of tech.™

Product Termination Notification

Product Group: OPT/Fri Jul 26, 2024/PTN-OPT-1341-2024-REV-0



Product Discontinuation: TSHG6210, TSHG6210-ASZ, TSHG8200, TSHG8200-ASZ, TSHG8400, TSHG8400-ASZ, TSHG8400-MSZ

For further information, please contact your regional Vishay office.

CONTACT INFORMATION

Americas

VISHAY Intertechnologies, Inc.
2585 Junction Avenue
-
San Jose California United States 95134-1923
Phone: +1-408-567-8358
Fax: +1 408-240-5687
-

Europe

VISHAY Semiconductor GmbH
Theresienstrasse 2
-
Heilbronn Germany 74072
Phone: +49-7131-67-2113
Fax: +49-7131-67-3144
-

Asia

VISHAY Intertechnology Asia Pte. Ltd.
25 Tampines Street 92
Keppel Building # 02-00
Singapore Singapore 528877
Phone: +65-6788-6668
Fax: +65-6788-3383
-

Description of Change: TSHG6210, TSHG6210-ASZ, TSHG8200, TSHG8200-ASZ, TSHG8400, TSHG8400-ASZ, TSHG8400-MSZ will be discontinued.

A list of recommended alternatives can be found in the attachment.

Reason for Change: Discontinuation of LPE Technology.

Expected Influence on Quality/Reliability/Performance: Since the recommended alternatives are not one to one equivalents, we expect a change in performance. So, we request the customers to test it in their application.

Part Numbers/Series/Families Affected: Please see materials list on the succeeding page.

Vishay Brand(S): Vishay Semiconductors

Time Schedule:

Last Time Buy Date: Fri Jan 31, 2025

Last Time Ship Date: Thu Jul 31, 2025

Sample Availability: NA

Product Identification: Product Label

Qualification Data: Upon request

This PTN is considered approved, without further notification, unless we receive specific customer concerns before Sat Aug 24, 2024 or as specified by contract.

Issued By: Mohankumar Kannusamy, mohankumar.kannusamy@vishay.com



The DNA of tech.™

Product Termination Notification

Product Group: OPT/Fri Jul 26, 2024/PTN-OPT-1341-2024-REV-0



TSHG6210	TSHG6210-ASZ	TSHG8200	TSHG8200-ASZ	TSHG8400
TSHG8400-ASZ	TSHG8400-MSZ			



The DNA of tech.™

TSHG6210,TSHG8200,TSHG8400 - EOL

Recommended Alternatives



© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.

1

Recommended Alternatives

Part Number	Recommended Alternative
TSHG6210 TSHG6210-ASZ	TSHG6200
TSHG8200 TSHG8200-ASZ	TSHG6200
TSHG8400 TSHG8400-ASZ TSHG8400-MSZ	TSHG6400

- Although, there is no one to one equivalents, we request the customers to test our recommendations in their applications.

© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.



The DNA of tech.™

2

TSHG6210: PTN

Recommended alternative : TSHG6200

© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.

3

Page 1 of the datasheet - Introduction

TSHG6210



www.vishay.com

TSHG6210
Vishay Semiconductors

High Speed Infrared Emitting Diode, 850 nm, GaAlAs Double Hetero



DESCRIPTION
TSHG6210 is an infrared, 850 nm emitting diode in GaAlAs double hetero (DH) technology with high radiant power and high speed, molded in a clear, unbranded plastic package.

FEATURES

- Package type: leaded
- Package form: T-1 1/4
- Dimensions (in mm): Ø 5
- Peak wavelength: $\lambda_p = 850$ nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: $\phi = \pm 10^\circ$
- Low forward voltage
- Suitable for high pulse current operation
- High modulation bandwidth: $f_m = 18$ MHz
- Good spectral matching with CMOS cameras
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

APPLICATIONS

- Infrared radiation source for operation with CMOS cameras
- High speed IR data transmission
- Smoke-automatic fire detectors



TSHG6200



www.vishay.com

TSHG6200
Vishay Semiconductors

High Speed Infrared Emitting Diode, 850 nm, Surface Emitter Technology



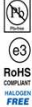
DESCRIPTION
TSHG6200 is an infrared, 850 nm emitting diode based on surface emitter chip technology with high radiant power and high speed, molded in a clear, unbranded plastic package.

FEATURES

- Package type: leaded
- Package form: T-1 1/4
- Dimensions (in mm): Ø 5
- Peak wavelength: $\lambda_p = 850$ nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: $\phi = \pm 10^\circ$
- Low forward voltage
- Suitable for high pulse current operation
- Good spectral matching with Si photodetectors
- Material categorization: for definitions of compliance please see www.vishay.com/doc?799912

APPLICATIONS

- Infrared high speed remote control and free air data transmission systems with high modulation frequencies or high data transmission rate requirements
- Transmission systems according to IrDA requirements and for carrier frequency based systems (e.g. ASK/FSK - coded, 450 kHz or 1.3 MHz)



© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.

4

Page 1 of the datasheet – Product Summary

TSHG6210

TSHG6200

PRODUCT SUMMARY				
COMPONENT	I_F (mW/sr)	θ (deg)	λ_g (nm)	t_r (ns)
TSHG6210	230	± 10	850	20

Note
• Test conditions see table "Basic Characteristics"

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TSHG6210	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1%

Note
• MOQ: minimum order quantity

PRODUCT SUMMARY				
COMPONENT	I_F (mW/sr)	θ (°)	λ_g (nm)	t_r (ns)
TSHG6200	230	± 10	850	10

Note
• Test conditions see table "Basic Characteristics"

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TSHG6200	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1%

Note
• MOQ: minimum order quantity

5

Page 1&2 of the datasheet– Abs. max. ratings and derating

TSHG6210

TSHG6200

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
Forward current		I_F	100	mA
Peak forward current	$t_F/T = 0.5$, $t_F = 100\ \mu\text{s}$	I_{FM}	200	mA
Surge forward current	$t_F = 100\ \mu\text{s}$	I_{FSM}	1	A
Power dissipation		P_F	180	mW
Junction temperature		T_J	100	$^\circ\text{C}$
Operating temperature range		T_{amb}	-40 to +85	$^\circ\text{C}$
Storage temperature range		T_{stg}	-40 to +100	$^\circ\text{C}$
Soldering temperature	$t \leq 5\ \text{s}$, 2 mm from case	T_{sd}	260	$^\circ\text{C}$
Thermal resistance junction/ambient	J-STD-051, leads 7 mm, soldered on PCB	R_{thJA}	230	K/W

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
Forward current		I_F	100	mA
Peak forward current	$t_F/T = 0.5$, $t_F = 100\ \mu\text{s}$	I_{FM}	200	mA
Surge forward current	$t_F = 100\ \mu\text{s}$	I_{FSM}	1	A
Power dissipation		P_F	180	mW
Junction temperature		T_J	100	$^\circ\text{C}$
Ambient temperature range		T_{amb}	-40 to +85	$^\circ\text{C}$
Storage temperature range		T_{stg}	-40 to +100	$^\circ\text{C}$
Soldering temperature	$t \leq 5\ \text{s}$, 2 mm from case	T_{sd}	260	$^\circ\text{C}$
Thermal resistance junction to ambient	J-STD-051, leads 7 mm, soldered on PCB	R_{thJA}	230	K/W

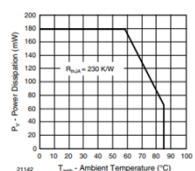


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

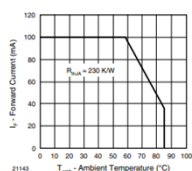


Fig. 2 - Forward Current Limit vs. Ambient Temperature

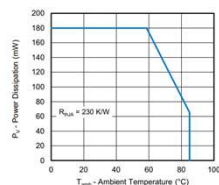


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

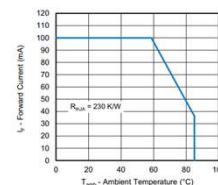


Fig. 2 - Forward Current Limit vs. Ambient Temperature

6

Page 2 of the datasheet – Basic Characteristics

TSHG6210

TSHG6200

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 100 mA, t _F = 20 ms	V _F		1.5	1.8	V
	I _F = 1 A, t _F = 100 μs	V _F		2.3		V
Temperature coefficient of V _F	I _F = 1 mA	TK _{VF}		-1.8		mV/K
Reverse current	V _R = 5 V	I _R			10	μA
Junction capacitance	V _R = 0 V, f = 1 MHz, E = 0	C _J		125		pF
Radiant intensity	I _F = 100 mA, t _F = 20 ms	I _e	140	230	420	mW/sr
	I _F = 1 A, t _F = 100 μs	I _e		2300		mW/sr
Radiant power	I _F = 100 mA, t _F = 20 ms	P _e		55		mW
Temperature coefficient of P _e	I _F = 100 mA	TK _{Pe}		-0.35		%/K
Angle of half intensity		φ		±10		deg
Peak wavelength	I _F = 100 mA	λ _p	820	850	880	nm
Spectral bandwidth	I _F = 100 mA	Δλ		40		nm
Temperature coefficient of λ _p	I _F = 100 mA	TK _{λp}		0.25		nm/K
Rise time	I _F = 100 mA	t _r		20		ns
Fall time	I _F = 100 mA	t _f		13		ns
Cut-off frequency	I _{OC} = 70 mA, I _{AC} = 30 mA pp	f _c		18		MHz
Virtual source diameter		d		3.7		mm

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 100 mA, t _F = 20 ms	V _F	-	1.6	1.8	V
	I _F = 1 A, t _F = 100 μs	V _F	-	3.0	-	V
Temperature coefficient of V _F	I _F = 100 mA	TK _{VF}	-	-1.5	-	mV/K
Reverse current		I _R	Not designed for reverse operation			
Junction capacitance	V _R = 0 V, f = 1 MHz, E = 0	C _J	-	53	-	pF
Radiant intensity	I _F = 100 mA, t _F = 20 ms	I _e	100	230	420	mW/sr
	I _F = 1 A, t _F = 100 μs	I _e	-	2460	-	mW/sr
Radiant power	I _F = 100 mA, t _F = 20 ms	P _e	-	61	-	mW
Temperature coefficient of P _e	I _F = 100 mA, t _F = 20 ms	TK _{Pe}	-	-0.27	-	%/K
Angle of half intensity		φ	-	±10	-	°
Peak wavelength	I _F = 100 mA	λ _p	-	850	-	nm
Spectral bandwidth	I _F = 100 mA	Δλ	-	30	-	nm
Temperature coefficient of λ _p	I _F = 100 mA, t _F = 20 ms	TK _{λp}	-	0.25	-	nm/K
Rise time	I _F = 100 mA	t _r	-	10	-	ns
Fall time	I _F = 100 mA	t _f	-	10	-	ns

7

Page 3 of the datasheet - Graphs

TSHG6210

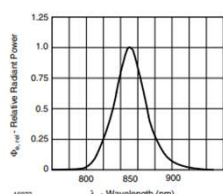


Fig. 7 - Relative Radiant Power vs. Wavelength

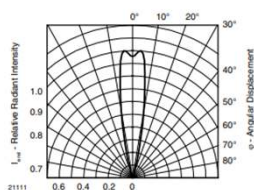


Fig. 8 - Relative Radiant Intensity vs. Angular Displacement

TSHG6200

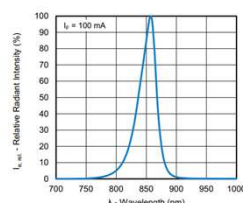


Fig. 7 - Relative Radiant Intensity vs. Wavelength

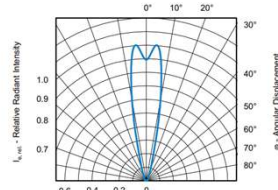
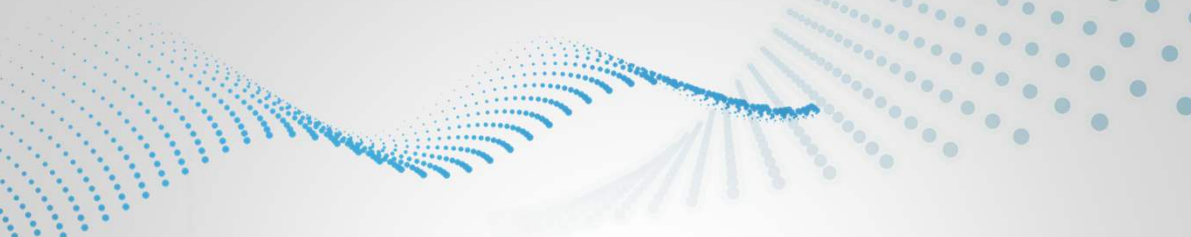


Fig. 8 - Relative Radiant Intensity vs. Angular Displacement

8





The DNA of tech.™

TSHG8200: PTN

Recommended alternative : TSHG6200

© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.

9

Page 1 of the datasheet - Introduction

TSHG8200



www.vishay.com

TSHG8200

Vishay Semiconductors

High Speed Infrared Emitting Diode, 830 nm, GaAlAs Double Hetero



84 61000

FEATURES

- Package type: leaded
- Package form: T-1 1/4
- Dimensions (in mm): Ø 5
- Peak wavelength: $\lambda_p = 830\text{ nm}$
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: $\phi = \pm 10^\circ$
- Low forward voltage
- Suitable for high pulse current operation
- High modulation bandwidth: $f_m = 18\text{ MHz}$
- Good spectral matching with CMOS cameras
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS COMPLIANT e3 GREEN (AS 61000)

DESCRIPTION

TSHG8200 is an infrared, 830 nm emitting diode in GaAlAs double hetero (DH) technology with high radiant power and high speed, molded in a clear, untinted plastic package.

APPLICATIONS

- Infrared radiation source for operation with CMOS cameras (illumination)
- High speed IR data transmission
- Smoke-automatic fire detectors

TSHG6200



www.vishay.com

TSHG6200

Vishay Semiconductors

High Speed Infrared Emitting Diode, 850 nm, Surface Emitter Technology



FEATURES

- Package type: leaded
- Package form: T-1 1/4
- Dimensions (in mm): Ø 5
- Peak wavelength: $\lambda_p = 850\text{ nm}$
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: $\phi = \pm 10^\circ$
- Low forward voltage
- Suitable for high pulse current operation
- Good spectral matching with Si photodetectors
- Material categorization: for definitions of compliance please see www.vishay.com/doc/799912



RoHS COMPLIANT e3 HALOGEN FREE GREEN (AS 61000)

DESCRIPTION

TSHG6200 is an infrared, 850 nm emitting diode based on surface emitter chip technology with high radiant power and high speed, molded in a clear, untinted plastic package.

APPLICATIONS

- Infrared high speed remote control and free air data transmission systems with high modulation frequencies or high data transmission rate requirements
- Transmission systems according to IrDA requirements and for carrier frequency based systems (e.g. ASK/FSK - coded, 450 kHz or 1.3 MHz)

© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.

10

Page 1 of the datasheet – Product Summary

TSHG8200

TSHG6200

PRODUCT SUMMARY				
COMPONENT	I_F (mA)	θ (deg)	λ_P (mm)	t_r (ns)
TSHG8200	180	± 10	830	20

Note
• Test conditions see table "Basic Characteristics"

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TSHG8200	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1%

Note
• MOQ: minimum order quantity

PRODUCT SUMMARY				
COMPONENT	I_F (mA)	θ (°)	λ_P (mm)	t_r (ns)
TSHG6200	230	± 10	850	10

Note
• Test conditions see table "Basic Characteristics"

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TSHG6200	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1%

Note
• MOQ: minimum order quantity

Page 1&2 of the datasheet– Abs. max. ratings and derating

TSHG8200

TSHG6200

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
Forward current		I_F	100	mA
Peak forward current	$t_F/T = 0.5$, $t_F = 100 \mu\text{s}$	I_{FM}	200	mA
Surge forward current	$t_F = 100 \mu\text{s}$	I_{FSM}	1	A
Power dissipation		P_F	180	mW
Junction temperature		T_J	100	$^\circ\text{C}$
Operating temperature range		T_{amb}	-40 to +85	$^\circ\text{C}$
Storage temperature range		T_{stg}	-40 to +100	$^\circ\text{C}$
Soldering temperature	$t \leq 5 \text{ s}$, 2 mm from case	T_{sd}	260	$^\circ\text{C}$
Thermal resistance junction/ambient	J-STD-051, leads 7 mm, soldered on PCB	$R_{\theta JA}$	230	K/W

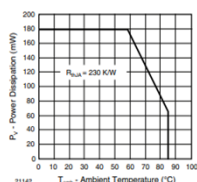


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

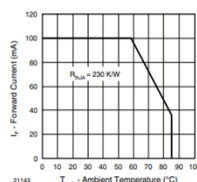


Fig. 2 - Forward Current Limit vs. Ambient Temperature

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
Forward current		I_F	100	mA
Peak forward current	$t_F/T = 0.5$, $t_F = 100 \mu\text{s}$	I_{FM}	200	mA
Surge forward current	$t_F = 100 \mu\text{s}$	I_{FSM}	1	A
Power dissipation		P_F	180	mW
Junction temperature		T_J	100	$^\circ\text{C}$
Ambient temperature range		T_{amb}	-40 to +85	$^\circ\text{C}$
Storage temperature range		T_{stg}	-40 to +100	$^\circ\text{C}$
Soldering temperature	$t \leq 5 \text{ s}$, 2 mm from case	T_{sd}	260	$^\circ\text{C}$
Thermal resistance junction to ambient	J-STD-051, leads 7 mm, soldered on PCB	$R_{\theta JA}$	230	K/W

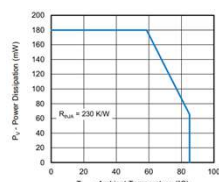


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

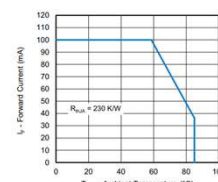


Fig. 2 - Forward Current Limit vs. Ambient Temperature

Page 2 of the datasheet – Basic Characteristics

TSHG8200

TSHG6200

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 100 mA, t _p = 20 ms	V _F		1.5	1.8	V
	I _F = 1 A, t _p = 100 μs	V _F		2.3		V
Temperature coefficient of V _F	I _F = 1 mA	TK _{VF}		-1.8		mV/K
Reverse current	V _B = 5 V	I _R			10	μA
Junction capacitance	V _B = 0 V, f = 1 MHz, E = 0	C _j		125		pF
	I _F = 100 mA, t _p = 20 ms	I _e	140	230	420	mW/sr
	I _F = 1 A, t _p = 100 μs	I _e		2300		mW/sr
Radiant power	I _F = 100 mA, t _p = 20 ms	Φ _e		55		mW
Temperature coefficient of Φ _e	I _F = 100 mA	TK _{Φe}		-0.35		%/K
Angle of half intensity		φ		±10		deg
Peak wavelength	I _F = 100 mA	λ _p	820	850	880	nm
Spectral bandwidth	I _F = 100 mA	Δλ		40		nm
Temperature coefficient of λ _p	I _F = 100 mA	TK _{λp}		0.25		nm/K
Rise time	I _F = 100 mA	t _r		20		ns
Fall time	I _F = 100 mA	t _f		13		ns
Cut-off frequency	I _{CC} = 70 mA, I _{CC} = 30 mA pp	f _c		18		MHz
Virtual source diameter		d		3.7		mm

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 100 mA, t _p = 20 ms	V _F	-	1.6	1.8	V
	I _F = 1 A, t _p = 100 μs	V _F	-	3.0	-	V
Temperature coefficient of V _F	I _F = 100 mA	TK _{VF}	-	-1.5	-	mV/K
Reverse current		I _R	Not designed for reverse operation			
Junction capacitance	V _B = 0 V, f = 1 MHz, E = 0	C _j	-	53	-	pF
	I _F = 100 mA, t _p = 20 ms	I _e	100	230	420	mW/sr
	I _F = 1 A, t _p = 100 μs	I _e	-	2460	-	mW/sr
Radiant power	I _F = 100 mA, t _p = 20 ms	Φ _e	-	61	-	mW
Temperature coefficient of Φ _e	I _F = 100 mA, t _p = 20 ms	TK _{Φe}	-	-0.27	-	%/K
Angle of half intensity		φ	-	±10	-	°
Peak wavelength	I _F = 100 mA	λ _p	-	850	-	nm
Spectral bandwidth	I _F = 100 mA	Δλ	-	30	-	nm
Temperature coefficient of λ _p	I _F = 100 mA, t _p = 20 ms	TK _{λp}	-	0.25	-	nm/K
Rise time	I _F = 100 mA	t _r	-	10	-	ns
Fall time	I _F = 100 mA	t _f	-	10	-	ns

© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.

13

13

Page 3 of the datasheet - Graphs

TSHG8200

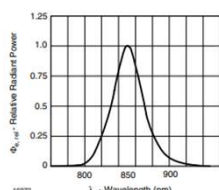


Fig. 7 - Relative Radiant Power vs. Wavelength

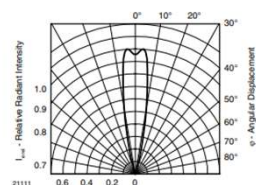


Fig. 8 - Relative Radiant Intensity vs. Angular Displacement

TSHG6200

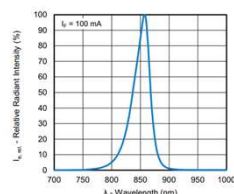


Fig. 7 - Relative Radiant Intensity vs. Wavelength

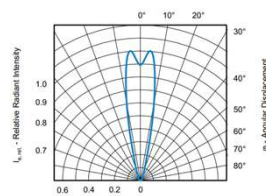
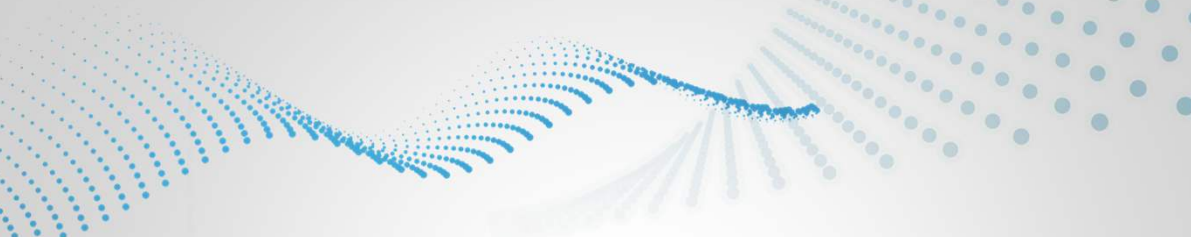


Fig. 8 - Relative Radiant Intensity vs. Angular Displacement

© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.

14

14





The DNA of tech.™

TSHG8400: PTN

Recommended alternative : TSHG6400

© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.

15

Page 1 of the datasheet - Introduction

TSHG8400



DESCRIPTION

TSHG8400 is an infrared, 830 nm emitting diode in GaAlAs double hetero (DH) technology with high radiant power and high speed, molded in a clear, untinted plastic package.

FEATURES

- Package type: leaded
- Package form: T-1 1/4
- Dimensions (in mm): Ø 5
- Peak wavelength: $\lambda_p = 830$ nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: $\phi = \pm 22^\circ$
- Low forward voltage
- Suitable for high pulse current operation
- High modulation bandwidth: $f_m = 18$ MHz
- Good spectral matching with CMOS cameras

APPLICATIONS

- Infrared radiation source for operation with CMOS cameras (illumination)
- High speed IR data transmission

TSHG6400



DESCRIPTION

TSHG6400 is an infrared, 850 nm emitting diode based on surface emitter chip technology with high radiant power and high speed, molded in a clear, untinted plastic package.

FEATURES

- Package type: leaded
- Package form: T-1 1/4
- Dimensions (in mm): Ø 5
- Peak wavelength: $\lambda_p = 850$ nm
- High reliability
- High radiant power
- High radiant intensity
- Angle of half intensity: $\phi = \pm 27^\circ$
- Low forward voltage
- Suitable for high pulse current operation
- Good spectral matching with Si photodetectors
- Material categorization: for definitions of compliance please see www.vishay.com/doc/799912

APPLICATIONS

- Infrared high speed remote control and free air data transmission systems with high modulation frequencies or high data transmission rate requirements
- Transmission systems according to IrDA requirements and for carrier frequency based systems (e.g. ASK/FSK - coded, 450 kHz or 1.3 MHz)

© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.

16

Page 1 of the datasheet – Product Summary

TSHG8400

TSHG6400

PRODUCT SUMMARY				
COMPONENT	I_f (mW/sr)	ϕ (deg)	λ_p (nm)	t_f (ns)
TSHG8400	70	± 22	830	20

Note

- Test conditions see table "Basic Characteristics"

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TSHG8400	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1%

Note

- MOQ: minimum order quantity

PRODUCT SUMMARY				
COMPONENT	I_f (mW/sr)	ϕ (°)	λ_p (nm)	t_f (ns)
TSHG6400	105	± 27	850	10

Note

- Test conditions see table "Basic Characteristics"

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
TSHG6400	Bulk	MOQ: 4000 pcs, 4000 pcs/bulk	T-1%

Note

- MOQ: minimum order quantity

Page 1&2 of the datasheet– Abs. max. ratings and derating

TSHG8400

TSHG6400

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
Forward current		I_F	100	mA
Peak forward current	$t_F/T = 0.5$, $t_F = 100 \mu\text{s}$	I_{FM}	200	mA
Surge forward current	$t_F = 100 \mu\text{s}$	I_{FSM}	1	A
Power dissipation		P_F	180	mW
Junction temperature		T_J	100	$^\circ\text{C}$
Operating temperature range		T_{amb}	-40 to +85	$^\circ\text{C}$
Storage temperature range		T_{stg}	-40 to +100	$^\circ\text{C}$
Soldering temperature	$t \leq 5 \text{ s}$, 2 mm from case	T_{sd}	260	$^\circ\text{C}$
Thermal resistance junction/ambient	J-STD-051, leads 7 mm soldered on PCB	R_{thJA}	230	K/W

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	5	V
Forward current		I_F	100	mA
Peak forward current	$t_F/T = 0.5$, $t_F = 100 \mu\text{s}$	I_{FM}	200	mA
Surge forward current	$t_F = 100 \mu\text{s}$	I_{FSM}	1	A
Power dissipation		P_F	180	mW
Junction temperature		T_J	100	$^\circ\text{C}$
Operating temperature range		T_{amb}	-40 to +85	$^\circ\text{C}$
Storage temperature range		T_{stg}	-40 to +100	$^\circ\text{C}$
Soldering temperature	$t \leq 5 \text{ s}$, 2 mm from case	T_{sd}	260	$^\circ\text{C}$
Thermal resistance junction to ambient	J-STD-051, leads 7 mm soldered on PCB	R_{thJA}	230	K/W

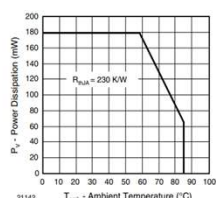


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

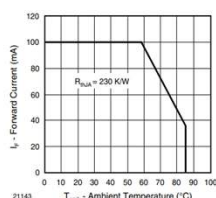


Fig. 2 - Forward Current Limit vs. Ambient Temperature

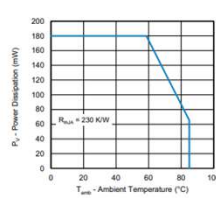


Fig. 1 - Power Dissipation Limit vs. Ambient Temperature

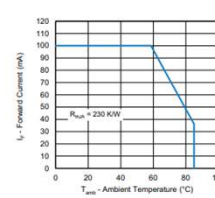


Fig. 2 - Forward Current Limit vs. Ambient Temperature

Page 2 of the datasheet – Basic Characteristics

TSHG8400

TSHG6400

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 100 mA, t _p = 20 ms	V _F		1.5	1.8	V
	I _F = 1 A, t _p = 100 μs	V _F		2.3		V
Temperature coefficient of V _F	I _F = 1 mA	TK _{VF}		-1.8		mV/K
Reverse current	V _R = 5 V	I _R			10	μA
Junction capacitance	V _R = 0 V, f = 1 MHz, E = 0	C _j		125		pF
Radiant intensity	I _F = 100 mA, t _p = 20 ms	I _e	45	70	135	mW/sr
	I _F = 1 A, t _p = 100 μs	I _e		700		mW/sr
Radiant power	I _F = 100 mA, t _p = 20 ms	Φ _e		50		mW
Temperature coefficient of Φ _e	I _F = 100 mA	TK _{Φe}		-0.35		%/K
Angle of half intensity		φ		± 22		deg
Peak wavelength	I _F = 100 mA	λ _p		830		nm
Spectral bandwidth	I _F = 100 mA	Δλ		40		nm
Temperature coefficient of λ _p	I _F = 100 mA	TK _{λp}		0.25		nm/K
Rise time	I _F = 100 mA	t _r		20		ns
Fall time	I _F = 100 mA	t _f		13		ns
Cut-off frequency	I _{CC} = 70 mA, I _{AC} = 30 mA pp	f _c		18		MHz
Virtual source diameter		d		3.7		mm

BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 100 mA, t _p = 20 ms	V _F	-	1.8	1.8	V
	I _F = 1 A, t _p = 100 μs	V _F	-	3.0	-	V
Temperature coefficient of V _F	I _F = 100 mA	TK _{VF}	-	-1.5	-	mV/K
Reverse current		I _R	Not designed for reverse operation			
Junction capacitance	V _R = 0 V, f = 1 MHz, E = 0	C _j	-	53	-	pF
Radiant intensity	I _F = 100 mA, t _p = 20 ms	I _e	45	105	170	mW/sr
	I _F = 1 A, t _p = 100 μs	I _e	-	1035	-	mW/sr
Radiant power	I _F = 100 mA, t _p = 20 ms	Φ _e	-	61	-	mW
Temperature coefficient of Φ _e	I _F = 100 mA, t _p = 20 ms	TK _{Φe}	-	-0.27	-	%/K
Angle of half intensity		φ	-	± 27	-	°
Peak wavelength	I _F = 100 mA	λ _p	-	850	-	nm
Spectral bandwidth	I _F = 100 mA	Δλ	-	30	-	nm
Temperature coefficient of λ _p	I _F = 100 mA, t _p = 20 ms	TK _{λp}	-	0.28	-	nm/K
Rise time	I _F = 100 mA	t _r	-	10	-	ns
Fall time	I _F = 100 mA	t _f	-	10	-	ns

© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.

19

19

Page 3 of the datasheet - Graphs

TSHG8400

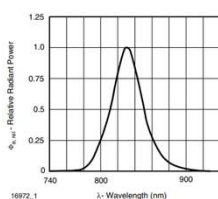


Fig. 7 - Relative Radiant Power vs. Wavelength

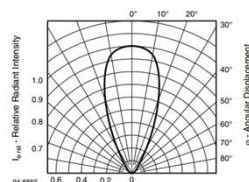


Fig. 8 - Relative Radiant Intensity vs. Angular Displacement

TSHG6400

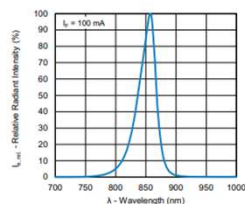


Fig. 7 - Relative Radiant Intensity vs. Wavelength

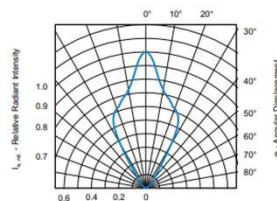


Fig. 8 - Relative Radiant Intensity vs. Angular Displacement

© VISHAY INTERTECHNOLOGY, INC. ALL RIGHTS RESERVED.

20

20

