

BZX84 series

Voltage regulator diodes

Rev. 6 — 6 March 2014 Product data sheet

1. Product profile

1.1 General description

Low-power voltage regulator diodes in a small SOT23 (TO-236AB) Surface-Mounted Device (SMD) plastic package.

The diodes are available in the normalized E24 ±1 % (BZX84-A), ±2 % (BZX84-B) and approximately ±5 % (BZX84-C) tolerance range. The series includes 37 breakdown voltages with nominal working voltages from 2.4 V to 75 V.

1.2 Features and benefits

- Total power dissipation: ≤ 250 mW
- Three tolerance series: ±1 %, ±2 % and approximately ±5 %
- AEC-Q101 qualified
- Working voltage range: nominal 2.4 V to 75 V (E24 range)
- Non-repetitive peak reverse power dissipation: ≤ 40 W

1.3 Applications

- General regulation functions

1.4 Quick reference data

Table 1. Quick reference data

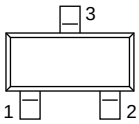
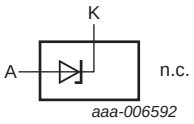
Symbol	Parameter	Conditions		Min	Typ	Max	Unit
V_F	forward voltage	I_F = 10 mA	[1]	-	-	0.9	V
P_{tot}	total power dissipation	T_{amb} ≤ 25 °C	[2]	-	-	250	mW

[1] Pulse test: $t_p \leq 100\ \mu s$; $\delta \leq 0.02$

[2] Device mounted on a FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

2. Pinning information

Table 2. Pinning

Pin	Symbol	Description	Simplified outline	Graphic symbol
1	A	anode		
2	n.c.	not connected		
3	K	cathode		

3. Ordering information

Table 3. Ordering information

Type number	Package		
	Name	Description	Version
BZX84 series[1]	TO-236AB	plastic surface-mounted package; 3 leads	SOT23

[1] The series includes 37 breakdown voltages with nominal working voltages from 2.4 V to 75 V and ±1 %, ±2 % and ±5 % tolerances.

4. Marking

Table 4. Marking codes

Type number	Marking code[1]	Type number	Marking code[1]
BZX84-A2V4	*50	BZX84-A18	KF*
BZX84-A2V7	*51	BZX84-A20	*C2
BZX84-A3V0	*52	BZX84-A22	KG*
BZX84-A3V3	*53	BZX84-A24	KH*
BZX84-A3V6	*C1	BZX84-A27	*75
BZX84-A3V9	*55	BZX84-A30	KJ*
BZX84-A4V3	*56	BZX84-A33	KK*
BZX84-A4V7	*57	BZX84-A36	*C3
BZX84-A5V1	*58	BZX84-A39	*C4
BZX84-A5V6	*59	BZX84-A43	*C5
BZX84-A6V2	*60	BZX84-A51	*C6
BZX84-A6V8	*61	BZX84-A75	*86
BZX84-A7V5	*62	BZX84-B2V4	*Z0
BZX84-A8V2	*63	BZX84-B2V7	*Z1
BZX84-A9V1	*64	BZX84-B3V0	*S1
BZX84-A10	*65	BZX84-B3V3	*S2
BZX84-A11	*04	BZX84-B3V6	*S3
BZX84-A12	*67	BZX84-B3V9	*S4
BZX84-A13	*C0	BZX84-B4V3	*S7
BZX84-A15	*69	BZX84-B4V7	*S8
BZX84-A16	KE*	BZX84-B5V1	*R1

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

Table 4. Marking codes *…continued*

Type number	Marking code[1]	Type number	Marking code[1]
BZX84-B5V6	*R2	BZX84-C3V9	*B3
BZX84-B6V2	*R5	BZX84-C4V3	*B6
BZX84-B6V8	*R6	BZX84-C4V7	Z1*
BZX84-B7V5	*R8	BZX84-C5V1	Z2*
BZX84-B8V2	*R9	BZX84-C5V6	Z3*
BZX84-B9V1	*T1	BZX84-C6V2	Z4*
BZX84-B10	*66	BZX84-C6V8	Z5*
BZX84-B11	*Z6	BZX84-C7V5	Z6*
BZX84-B12	*Z7	BZX84-C8V2	Z7*
BZX84-B13	*Z8	BZX84-C9V1	Z8*
BZX84-B15	*Z9	BZX84-C10	Z9*
BZX84-B16	*70	BZX84-C11	Y1*
BZX84-B18	*71	BZX84-C12	Y2*
BZX84-B20	*72	BZX84-C13	Y3*
BZX84-B22	*73	BZX84-C15	Y4*
BZX84-B24	*74	BZX84-C16	Y5*
BZX84-B27	*Z5	BZX84-C18	Y6*
BZX84-B30	*Z4	BZX84-C20	Y7*
BZX84-B33	*Y1	BZX84-C22	Y8*
BZX84-B36	*Y2	BZX84-C24	Y9*
BZX84-B39	*S0	BZX84-C27	*T2
BZX84-B43	*S5	BZX84-C30	*T5
BZX84-B47	*S6	BZX84-C33	*T6
BZX84-B51	*S9	BZX84-C36	*T7
BZX84-B56	*R0	BZX84-C39	*T8
BZX84-B62	*R3	BZX84-C43	*B4
BZX84-B68	*R4	BZX84-C47	*B5
BZX84-B75	*R7	BZX84-C51	*B7
BZX84-C2V4	*T3	BZX84-C56	*B8
BZX84-C2V7	*T4	BZX84-C62	*B9
BZX84-C3V0	*T9	BZX84-C68	*B0
BZX84-C3V3	*B1	BZX84-C75	*A1
BZX84-C3V6	*B2	-	-

[1] * = placeholder for manufacturing site code

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

5. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions	Min	Max	Unit
I_F	forward current		-	200	mA
P_{ZSM}	non-repetitive peak reverse power dissipation	[1]	-	40	W
P_{tot}	total power dissipation	$T_{amb} \leq 25$ °C [2]	-	250	mW
T_{amb}	ambient temperature		-	150	°C
T_{stg}	storage temperature		−55	+150	°C
T_j	junction temperature		−65	+150	°C

[1] $t_p = 100$ μs; square wave; $T_j = 25$ °C before surge

[2] Device mounted on a FR4 PCB, single-sided copper, tin-plated and standard footprint.

6. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$R_{th(j-a)}$	thermal resistance from junction to ambient	in free air [1]	-	-	500	K/W
$R_{th(j-sp)}$	thermal resistance from junction to solder point	[2]	-	-	330	K/W

[1] Device mounted on a FR4 PCB, single-sided copper, tin-plated and standard footprint.

[2] Soldering point of cathode tab.

7. Characteristics

Table 7. Characteristics

$T_j = 25$ °C unless otherwise specified.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V_F	forward voltage	$I_F = 10$ mA [1]	-	-	0.9	V

[1] Pulse test: $t_p \leq 100$ μs; $\delta \leq 0.02$

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

Table 8. Characteristics per type; BZX84-A2V4 to BZX84-C24

T_j = 25 °C unless otherwise specified.

BZX84-xxx	Sel	Working voltage V_Z (V)		Differential resistance r_{dif} (Ω)				Reverse current I_R (μA)		Temperature coefficient S_Z (mV/K)			Diode capacitance C_d (pF)[1]	Non-repetitive peak reverse current I_{ZSM} (A)[2]
		I_Z = 5 mA		I_Z = 1 mA		I_Z = 5 mA				I_Z = 5 mA				
		Min	Max	Typ	Max	Typ	Max	Max	V_R (V)	Min	Typ	Max	Max	Max
2V4	A	2.37	2.43	275	600	70	100	50	1	−3.5	−1.6	0	450	6.0
	B	2.35	2.45											
	C	2.2	2.6											
2V7	A	2.67	2.73	300	600	75	100	20	1	−3.5	−2.0	0	450	6.0
	B	2.65	2.75											
	C	2.5	2.9											
3V0	A	2.97	3.03	325	600	80	95	10	1	−3.5	−2.1	0	450	6.0
	B	2.94	3.06											
	C	2.8	3.2											
3V3	A	3.26	3.34	350	600	85	95	5	1	−3.5	−2.4	0	450	6.0
	B	3.23	3.37											
	C	3.1	3.5											
3V6	A	3.56	3.64	375	600	85	90	5	1	−3.5	−2.4	0	450	6.0
	B	3.53	3.67											
	C	3.4	3.8											
3V9	A	3.86	3.94	400	600	85	90	3	1	−3.5	−2.5	0	450	6.0
	B	3.82	3.98											
	C	3.7	4.1											
4V3	A	4.25	4.35	410	600	80	90	3	1	−3.5	−2.5	0	450	6.0
	B	4.21	4.39											
	C	4.0	4.6											
4V7	A	4.65	4.75	425	500	50	80	3	2	−3.5	−1.4	0.2	300	6.0
	B	4.61	4.79											
	C	4.4	5.0											
5V1	A	5.04	5.16	400	480	40	60	2	2	−2.7	−0.8	1.2	300	6.0
	B	5.0	5.2											
	C	4.8	5.4											
5V6	A	5.54	5.66	80	400	15	40	1	2	−2.0	1.2	2.5	300	6.0
	B	5.49	5.71											
	C	5.2	6.0											
6V2	A	6.13	6.27	40	150	6	10	3	4	0.4	2.3	3.7	200	6.0
	B	6.08	6.32											
	C	5.8	6.6											
6V8	A	6.73	6.87	30	80	6	15	2	4	1.2	3.0	4.5	200	6.0
	B	6.66	6.94											
	C	6.4	7.2											

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

Table 8. Characteristics per type; BZX84-A2V4 to BZX84-C24 *…continued*

T_j = 25 °C unless otherwise specified.

BZX84-xxx	Sel	Working voltage V_Z (V)		Differential resistance r_{dif} (Ω)				Reverse current I_R (μA)		Temperature coefficient S_Z (mV/K)			Diode capacitance C_d (pF)[1]	Non-repetitive peak reverse current I_{ZSM} (A)[2]
		I_Z = 5 mA		I_Z = 1 mA		I_Z = 5 mA				I_Z = 5 mA				
		Min	Max	Typ	Max	Typ	Max	Max	V_R (V)	Min	Typ	Max	Max	Max
7V5	A	7.42	7.58	30	80	6	15	1	5	2.5	4.0	5.3	150	4.0
	B	7.35	7.65											
	C	7.0	7.9											
8V2	A	8.11	8.29	40	80	6	15	0.7	5	3.2	4.6	6.2	150	4.0
	B	8.04	8.36											
	C	7.7	8.7											
9V1	A	9	9.2	40	100	6	15	0.5	6	3.8	5.5	7.0	150	3.0
	B	8.92	9.28											
	C	8.5	9.6											
10	A	9.9	10.1	50	150	8	20	0.2	7	4.5	6.4	8.0	90	3.0
	B	9.8	10.2											
	C	9.4	10.6											
11	A	10.8	11.11	50	150	10	20	0.1	8	5.4	7.4	9.0	85	2.5
	B	10.8	11.2											
	C	10.4	11.6											
12	A	11.88	12.12	50	150	10	25	0.1	8	6.0	8.4	10.0	85	2.5
	B	11.8	12.2											
	C	11.4	12.7											
13	A	12.87	13.13	50	170	10	30	0.1	8	7.0	9.4	11.0	80	2.5
	B	12.7	13.3											
	C	12.4	14.1											
15	A	14.85	15.15	50	200	10	30	0.05	10.5	9.2	11.4	13.0	75	2.0
	B	14.7	15.3											
	C	13.8	15.6											
16	A	15.84	16.16	50	200	10	40	0.05	11.2	10.4	12.4	14.0	75	1.5
	B	15.7	16.3											
	C	15.3	17.1											
18	A	17.82	18.18	50	225	10	45	0.05	12.6	12.4	14.4	16.0	70	1.5
	B	17.6	18.4											
	C	16.8	19.1											
20	A	19.8	20.2	60	225	15	55	0.05	14	14.4	16.4	18.0	60	1.5
	B	19.6	20.4											
	C	18.8	21.2											
22	A	21.78	22.22	60	250	20	55	0.05	15.4	16.4	18.4	20.0	60	1.25
	B	21.6	22.4											
	C	20.8	23.3											

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

Table 8. Characteristics per type; BZX84-A2V4 to BZX84-C24 *…continued*

T_j = 25 °C unless otherwise specified.

BZX84-xxx	Sel	Working voltage V_Z (V)		Differential resistance r_{dif} (Ω)				Reverse current I_R (μA)		Temperature coefficient S_Z (mV/K)			Diode capacitance C_d (pF)[1]	Non-repetitive peak reverse current I_{ZSM} (A)[2]
		I_Z = 5 mA		I_Z = 1 mA		I_Z = 5 mA				I_Z = 5 mA				
		Min	Max	Typ	Max	Typ	Max	Max	V_R (V)	Min	Typ	Max	Max	Max
24	A	23.76	24.24	60	250	25	70	0.05	16.8	18.4	20.4	22.0	55	1.25
	B	23.5	24.5											
	C	22.8	25.6											

[1] f = 1 MHz; V_R = 0 V

[2] t_p = 100 μs; square wave; T_j = 25 °C before surge

Table 9. Characteristics per type; BZX84-A27 to BZX84-C75

T_j = 25 °C unless otherwise specified.

BZX84-xxx	Sel	Working voltage V_Z (V)		Differential resistance r_{dif} (Ω)				Reverse current I_R (μA)		Temperature coefficient S_Z (mV/K)			Diode capacitance C_d (pF)[1]	Non-repetitive peak reverse current I_{ZSM} (A)[2]
		I_Z = 2 mA		I_Z = 0.5 mA		I_Z = 2 mA				I_Z = 2 mA				
		Min	Max	Typ	Max	Typ	Max	Max	V_R (V)	Min	Typ	Max	Max	Max
27	A	26.73	27.27	65	300	25	80	0.05	18.9	21.4	23.4	25.3	50	1.0
	B	26.5	27.5											
	C	25.1	28.9											
30	A	29.7	30.30	70	300	30	80	0.05	21	24.4	26.6	29.4	50	1.0
	B	29.4	30.6											
	C	28.0	32.0											
33	A	32.67	33.33	75	325	35	80	0.05	23.1	27.4	29.7	33.4	45	0.9
	B	32.3	33.7											
	C	31.0	35.0											
36	A	35.64	36.36	80	350	35	90	0.05	25.2	30.4	33.0	37.4	45	0.8
	B	35.3	36.7											
	C	34.0	38.0											
39	A	38.61	39.39	80	350	40	130	0.05	27.3	33.4	36.4	41.2	45	0.7
	B	38.2	39.8											
	C	37.0	41.0											
43	A	42.57	43.43	85	375	45	150	0.05	30.1	37.6	41.2	46.6	40	0.6
	B	42.1	43.9											
	C	40.0	46.0											
47	B	46.1	47.9	85	375	50	170	0.05	32.9	42.0	46.1	51.8	40	0.5
	C	44.0	50.0											
51	A	50.49	51.51	90	400	60	180	0.05	35.7	46.6	51.0	57.2	40	0.4
	B	50.0	52.0											
	C	48.0	54.0											

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

Table 9. Characteristics per type; BZX84-A27 to BZX84-C75 *…continued*

T_j = 25 °C unless otherwise specified.

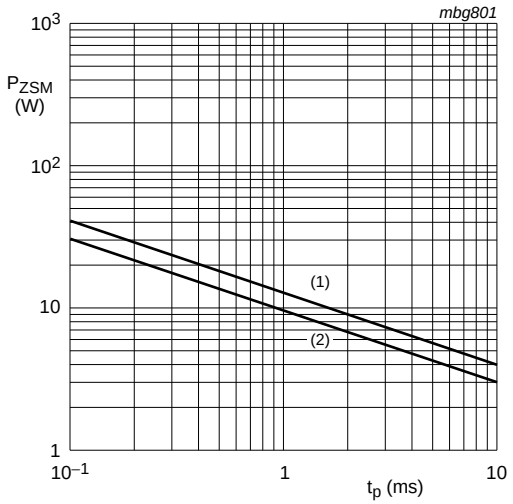
BZX84-xxx	Sel	Working voltage V_Z (V)		Differential resistance r_{dif} (Ω)				Reverse current I_R (μA)		Temperature coefficient S_Z (mV/K)			Diode capacitance C_d (pF)[1]	Non-repetitive peak reverse current I_{ZSM} (A)[2]
		I_Z = 2 mA		I_Z = 0.5 mA		I_Z = 2 mA				I_Z = 2 mA				
		Min	Max	Typ	Max	Typ	Max	Max	V_R (V)	Min	Typ	Max	Max	Max
56	B	54.9	57.1	100	425	70	200	0.05	39.2	52.2	57.0	63.8	40	0.3
	C	52.0	60.0											
62	B	60.8	63.2	120	450	80	215	0.05	43.4	58.8	64.4	71.6	35	0.3
	C	58.0	66.0											
68	B	66.6	69.4	150	475	90	240	0.05	47.6	65.6	71.7	79.8	35	0.25
	C	64.0	72.0											
75	A	74.25	75.75	170	500	95	255	0.05	52.5	73.4	80.2	88.6	35	0.20
	B	73.5	76.5											
	C	70.0	79.0											

[1] f = 1 MHz; V_R = 0 V

[2] t_p = 100 μs; square wave; T_j = 25 °C before surge

All information provided in this document is subject to legal disclaimers.

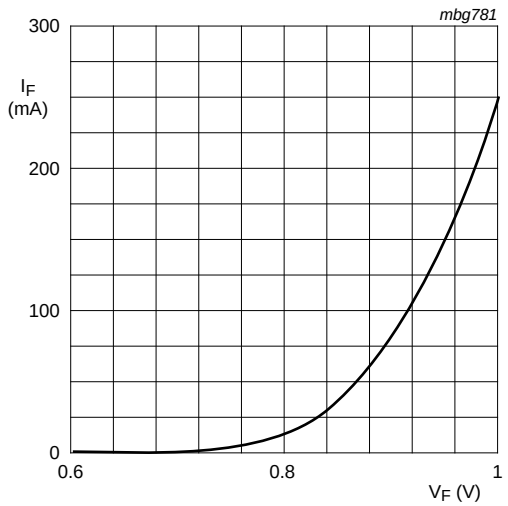
© NXP Semiconductors N.V. 2014. All rights reserved.



(1) T_j = 25 °C (before surge)

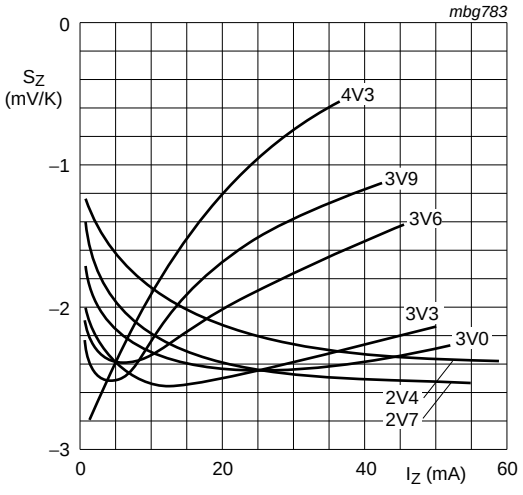
(2) T_j = 150 °C (before surge)

Fig 1. Non-repetitive peak reverse power dissipation as a function of pulse duration; maximum values



T_j = 25 °C

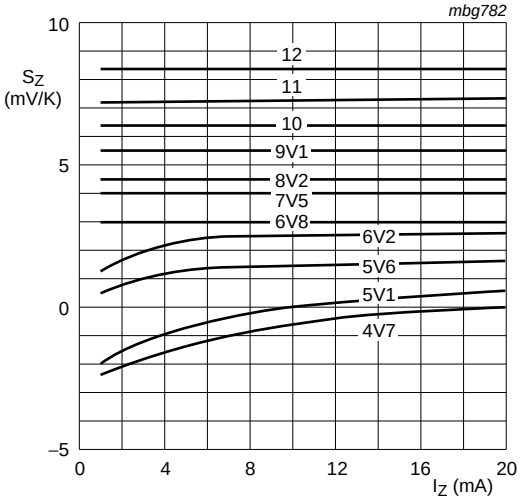
Fig 2. Forward current as a function of forward voltage; typical values



BZX84-A/B/C2V4 to BZX84-A/B/C4V3

T_j = 25 °C to 150 °C

Fig 3. Temperature coefficient as a function of working current; typical values



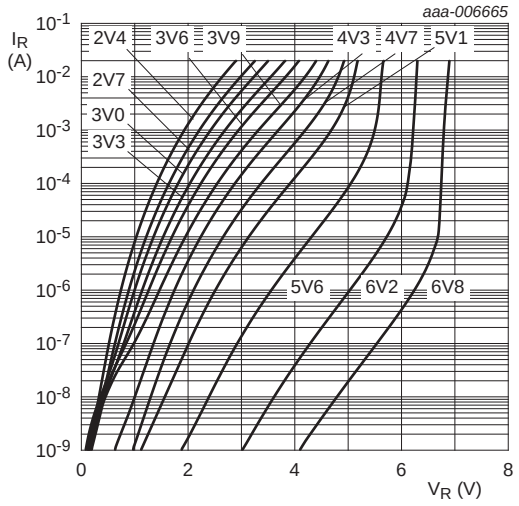
BZX84-A/B/C4V7 to BZX84-A/B/C12

T_j = 25 °C to 150 °C

Fig 4. Temperature coefficient as a function of working current; typical values

All information provided in this document is subject to legal disclaimers.

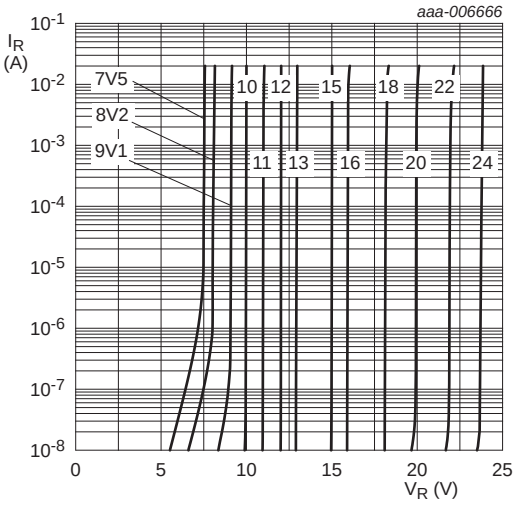
© NXP Semiconductors N.V. 2014. All rights reserved.



BZX84-A/B/C2V4 to BZX84-A/B/C6V8

T_{amb} = 25 °C

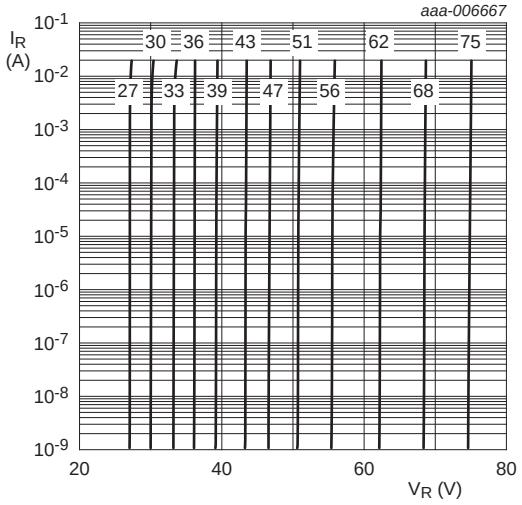
Fig 5. Reverse current as a function of reverse voltage; typical values



BZX84-A/B/C7V5 to BZX84-A/B/C24

T_{amb} = 25 °C

Fig 6. Reverse current as a function of reverse voltage; typical values



BZX84-A/B/C27 to BZX84-A/B/C75

T_{amb} = 25 °C

Fig 7. Reverse current as a function of reverse voltage; typical values

8. Test information

8.1 Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard *Q101 - Stress test qualification for discrete semiconductors*, and is suitable for use in automotive applications.

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

9. Package outline

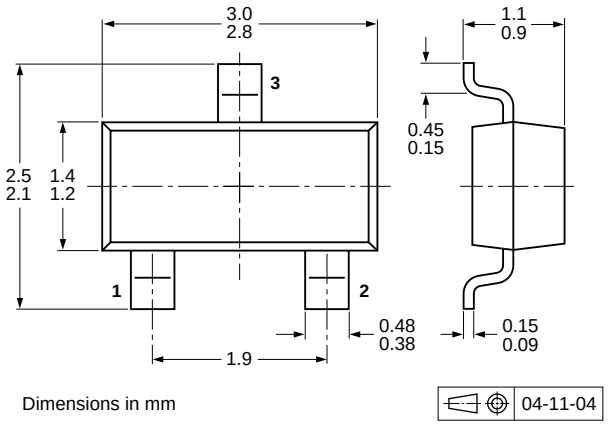


Fig 8. Package outline SOT23 (TO-236AB)

10. Packing information

Table 10. Packing methods

The indicated -xxx are the last three digits of the 12NC ordering code.[1]

Type number	Package	Description	Packing quantity	
			3000	10000
BZX84 series[2]	SOT23 (TO-236AB)	4 mm pitch, 8 mm tape and reel	-215	-235

[1] For further information and the availability of packing methods, see Section 14.

[2] The series includes 37 breakdown voltages with nominal working voltages from 2.4 V to 75 V and ±1 %, ±2 % and ±5 % tolerances.

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

11. Soldering

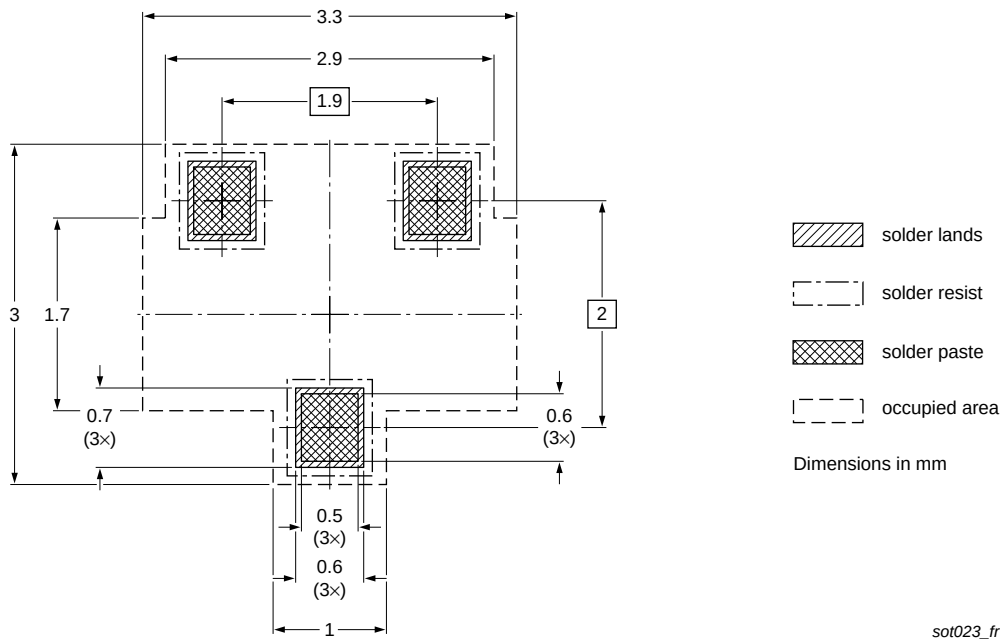


Fig 9. Reflow soldering footprint SOT23 (TO-236AB)

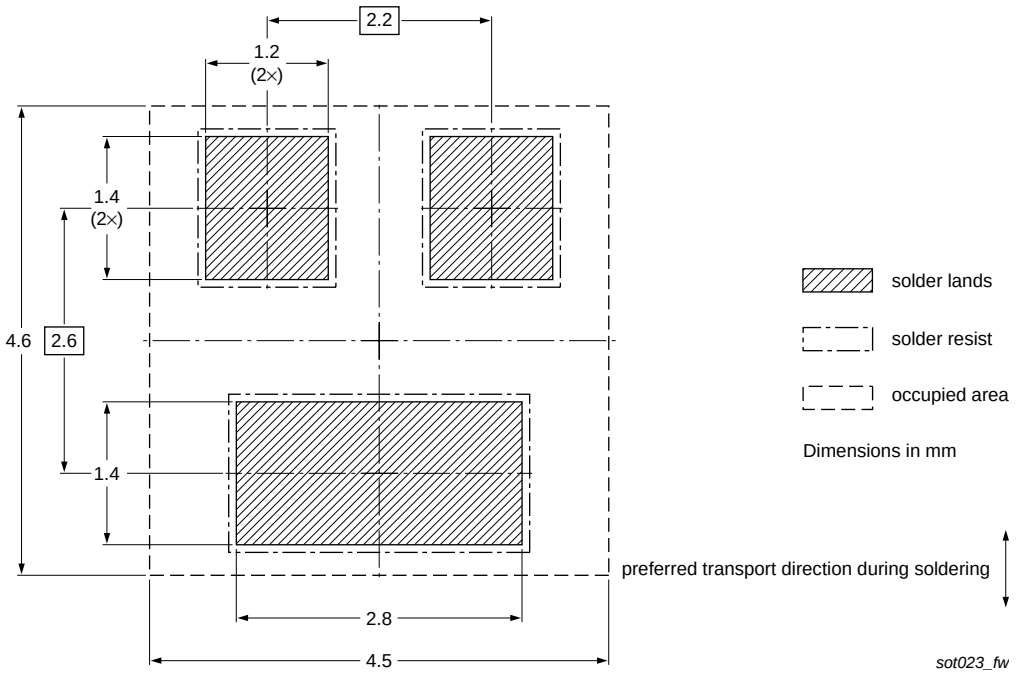


Fig 10. Wave soldering footprint SOT23 (TO-236AB)

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

12. Revision history

Table 11. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
BZX84_SER v.6	20140306	Product data sheet	-	BZX84_SER v.5
Modifications:	• Descriptive title of the document corrected			
BZX84_SER v.5	20130918	Product data sheet	-	BZX84_SER v.4
BZX84_SER v.4	20130322	Product data sheet	-	BZX84_SERIES v.3
BZX84_SERIES v.3	20030410	Product data sheet	-	BZX84 v.2
BZX84 v.2	19990518	Product specification	-	BZX84 v.1
BZX84 v.1	19960426	Product specification	-	-

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

13. Legal information

13.1 Data sheet status

Document status[1][2]	Product status[3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.

[2] The term 'short data sheet' is explained in section "Definitions".

[3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the Internet at URL http://www.nxp.com.

13.2 Definitions

Draft — The document is a draft version only. The content is still under internal review and subject to formal approval, which may result in modifications or additions. NXP Semiconductors does not give any representations or warranties as to the accuracy or completeness of information included herein and shall have no liability for the consequences of use of such information.

Short data sheet — A short data sheet is an extract from a full data sheet with the same product type number(s) and title. A short data sheet is intended for quick reference only and should not be relied upon to contain detailed and full information. For detailed and full information see the relevant full data sheet, which is available on request via the local NXP Semiconductors sales office. In case of any inconsistency or conflict with the short data sheet, the full data sheet shall prevail.

Product specification — The information and data provided in a Product data sheet shall define the specification of the product as agreed between NXP Semiconductors and its customer, unless NXP Semiconductors and customer have explicitly agreed otherwise in writing. In no event however, shall an agreement be valid in which the NXP Semiconductors product is deemed to offer functions and qualities beyond those described in the Product data sheet.

13.3 Disclaimers

Limited warranty and liability — Information in this document is believed to be accurate and reliable. However, NXP Semiconductors does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information. NXP Semiconductors takes no responsibility for the content in this document if provided by an information source outside of NXP Semiconductors.

In no event shall NXP Semiconductors be liable for any indirect, incidental, punitive, special or consequential damages (including - without limitation - lost profits, lost savings, business interruption, costs related to the removal or replacement of any products or rework charges) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory.

Notwithstanding any damages that customer might incur for any reason whatsoever, NXP Semiconductors' aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the *Terms and conditions of commercial sale* of NXP Semiconductors.

Right to make changes — NXP Semiconductors reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use in automotive applications — This NXP Semiconductors product has been qualified for use in automotive applications. Unless otherwise agreed in writing, the product is not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or equipment, nor in applications where failure or malfunction of an NXP Semiconductors product can reasonably be expected to result in personal injury, death or severe property or environmental damage. NXP Semiconductors and its suppliers accept no liability for inclusion and/or use of NXP Semiconductors products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

Applications — Applications that are described herein for any of these products are for illustrative purposes only. NXP Semiconductors makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Customers are responsible for the design and operation of their applications and products using NXP Semiconductors products, and NXP Semiconductors accepts no liability for any assistance with applications or customer product design. It is customer's sole responsibility to determine whether the NXP Semiconductors product is suitable and fit for the customer's applications and products planned, as well as for the planned application and use of customer's third party customer(s). Customers should provide appropriate design and operating safeguards to minimize the risks associated with their applications and products.

NXP Semiconductors does not accept any liability related to any default, damage, costs or problem which is based on any weakness or default in the customer's applications or products, or the application or use by customer's third party customer(s). Customer is responsible for doing all necessary testing for the customer's applications and products using NXP Semiconductors products in order to avoid a default of the applications and the products or of the application or use by customer's third party customer(s). NXP does not accept any liability in this respect.

Limiting values — Stress above one or more limiting values (as defined in the Absolute Maximum Ratings System of IEC 60134) will cause permanent damage to the device. Limiting values are stress ratings only and (proper) operation of the device at these or any other conditions above those given in the Recommended operating conditions section (if present) or the Characteristics sections of this document is not warranted. Constant or repeated exposure to limiting values will permanently and irreversibly affect the quality and reliability of the device.

Terms and conditions of commercial sale — NXP Semiconductors products are sold subject to the general terms and conditions of commercial sale, as published at http://www.nxp.com/profile/terms, unless otherwise agreed in a valid written individual agreement. In case an individual agreement is concluded only the terms and conditions of the respective agreement shall apply. NXP Semiconductors hereby expressly objects to applying the customer's general terms and conditions with regard to the purchase of NXP Semiconductors products by customer.

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

No offer to sell or license — Nothing in this document may be interpreted or construed as an offer to sell products that is open for acceptance or the grant, conveyance or implication of any license under any copyrights, patents or other industrial or intellectual property rights.

Export control — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from competent authorities.

Quick reference data — The Quick reference data is an extract of the product data given in the Limiting values and Characteristics sections of this document, and as such is not complete, exhaustive or legally binding.

Translations — A non-English (translated) version of a document is for reference only. The English version shall prevail in case of any discrepancy between the translated and English versions.

13.4 Trademarks

Notice: All referenced brands, product names, service names and trademarks are the property of their respective owners.

14. Contact information

For more information, please visit: **http://www.nxp.com**

For sales office addresses, please send an email to: **salesaddresses@nxp.com**

All information provided in this document is subject to legal disclaimers.

© NXP Semiconductors N.V. 2014. All rights reserved.

15. Contents

1 Product profile 1
1.1 General description 1
1.2 Features and benefits 1
1.3 Applications 1
1.4 Quick reference data 1
2 Pinning information 2
3 Ordering information 2
4 Marking 2
5 Limiting values 4
6 Thermal characteristics 4
7 Characteristics 4
8 Test information 10
8.1 Quality information 10
9 Package outline 11
10 Packing information 11
11 Soldering 12
12 Revision history 13
13 Legal information 14
13.1 Data sheet status 14
13.2 Definitions 14
13.3 Disclaimers 14
13.4 Trademarks 15
14 Contact information 15
15 Contents 16

Please be aware that important notices concerning this document and the product(s) described herein, have been included in section 'Legal information'.

© NXP Semiconductors N.V. 2014. All rights reserved.

For more information, please visit: http://www.nxp.com
For sales office addresses, please send an email to: salesaddresses@nxp.com

Date of release: 6 March 2014
Document identifier: BZX84_SER