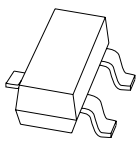


# BZB84 series

## Dual Zener diodes

Rev. 03 — 9 June 2009 | Product data sheet

## 1. Product profile

### 1.1 General description

General-purpose Zener diodes in a SOT23 (TO-236AB) small Surface-Mounted Device (SMD) plastic package.

### 1.2 Features

- Non-repetitive peak reverse power dissipation: ≤ 40 W
- Total power dissipation: ≤ 300 mW
- Two tolerance series: B = ±2 % and C = ±5 %
- Wide working voltage range: nominal 2.4 V to 75 V (E24 range)
- Small plastic package suitable for surface-mounted design
- Dual common anode configuration
- AEC-Q101 qualified

### 1.3 Applications

- General regulation functions

### 1.4 Quick reference data

Table 1. Quick reference data

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| **Per diode** | | | | | | | |
| $V_F$ | forward voltage | $I_F$ = 10 mA | [1] | - | - | 0.9 | V |
| $P_{ZSM}$ | non-repetitive peak reverse power dissipation | | [2] | - | - | 40 | W |

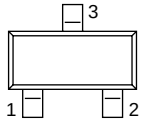
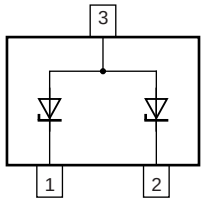
[1] Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.02$.

[2] $t_p$ = 100 µs; square wave; $T_j$ = 25 °C prior to surge

founded by Philips

## 2. Pinning information

**Table 2. Pinning**

| Pin | Description | Simplified outline | Graphic symbol |
|---|---|---|---|
| 1 | cathode (diode 1) |   |   006aaa154 |
| 2 | cathode (diode 2) | | |
| 3 | common anode | | |

## 3. Ordering information

**Table 3. Ordering information**

| Type number | Package | | |
|---|---|---|---|
| | Name | Description | Version |
| BZB84-B2V4 to BZB84-C75[1] | - | plastic surface-mounted package; 3 leads | SOT23 |

[1] The series consists of 74 types with nominal working voltages from 2.4 V to 75 V.

## 4. Marking

**Table 4. Marking codes**

| Type number | Marking code[1] | Type number | Marking code[1] |
|---|---|---|---|
| BZB84-B2V4 | V9* | BZB84-C2V4 | U9* |
| BZB84-B2V7 | VA* | BZB84-C2V7 | UA* |
| BZB84-B3V0 | VB* | BZB84-C3V0 | UB* |
| BZB84-B3V3 | VC* | BZB84-C3V3 | UC* |
| BZB84-B3V6 | VD* | BZB84-C3V6 | UD* |
| BZB84-B3V9 | VE* | BZB84-C3V9 | UE* |
| BZB84-B4V3 | VF* | BZB84-C4V3 | UF* |
| BZB84-B4V7 | VG* | BZB84-C4V7 | UG* |
| BZB84-B5V1 | VH* | BZB84-C5V1 | UH* |
| BZB84-B5V6 | VK* | BZB84-C5V6 | UK* |
| BZB84-B6V2 | VL* | BZB84-C6V2 | UL* |
| BZB84-B6V8 | VM* | BZB84-C6V8 | UM* |
| BZB84-B7V5 | VN* | BZB84-C7V5 | UN* |
| BZB84-B8V2 | VP* | BZB84-C8V2 | UP* |
| BZB84-B9V1 | VR* | BZB84-C9V1 | UR* |


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**Table 4. Marking codes** *...continued*

| Type number | Marking code[1] | Type number | Marking code[1] |
|---|---|---|---|
| BZB84-B10 | VS* | BZB84-C10 | US* |
| BZB84-B11 | VT* | BZB84-C11 | UT* |
| BZB84-B12 | VU* | BZB84-C12 | UU* |
| BZB84-B13 | VV* | BZB84-C13 | UV* |
| BZB84-B15 | VW* | BZB84-C15 | UW* |
| BZB84-B16 | PT* | BZB84-C16 | PB* |
| BZB84-B18 | PU* | BZB84-C18 | PC* |
| BZB84-B20 | RP* | BZB84-C20 | RQ* |
| BZB84-B22 | PV* | BZB84-C22 | PD* |
| BZB84-B24 | PW* | BZB84-C24 | PE* |
| BZB84-B27 | PX* | BZB84-C27 | PF* |
| BZB84-B30 | PY* | BZB84-C30 | PG* |
| BZB84-B33 | PZ* | BZB84-C33 | PH* |
| BZB84-B36 | RA* | BZB84-C36 | PJ* |
| BZB84-B39 | RB* | BZB84-C39 | PK* |
| BZB84-B43 | RC* | BZB84-C43 | PL* |
| BZB84-B47 | RD* | BZB84-C47 | PM* |
| BZB84-B51 | RE* | BZB84-C51 | PN* |
| BZB84-B56 | RF* | BZB84-C56 | PP* |
| BZB84-B62 | RG* | BZB84-C62 | PQ* |
| BZB84-B68 | RH* | BZB84-C68 | PR* |
| BZB84-B75 | RJ* | BZB84-C75 | PS* |

[1] * = -: made in Hong Kong
* = p: made in Hong Kong
* = t: made in Malaysia
* = W: made in China

## 5. Limiting values

**Table 5. Limiting values**

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

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|---|---|---|---|---|---|---|
| **Per diode** | | | | | | |
| $I_F$ | forward current | | | - | 200 | mA |
| $I_{ZSM}$ | non-repetitive peak reverse current | | [1] | - | see Table 8, 9, 10 and 11 | |
| $P_{ZSM}$ | non-repetitive peak reverse power dissipation | | [1] | - | 40 | W |


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**Table 5. Limiting values** *...continued*

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

| Symbol | Parameter | Conditions | | Min | Max | Unit |
|---|---|---|---|---|---|---|
| **Per device** | | | | | | |
| $P_{tot}$ | total power dissipation | $T_{amb} \leq 25$ °C | [2] | - | 300 | mW |
| $T_j$ | junction temperature | | | - | 150 | °C |
| $T_{amb}$ | ambient temperature | | | –55 | +150 | °C |
| $T_{stg}$ | storage temperature | | | –65 | +150 | °C |

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

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

## 6. Thermal characteristics

**Table 6. Thermal characteristics**

| Symbol | Parameter | Conditions | | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|---|
| **Per device; single diode loaded** | | | | | | | |
| $R_{th(j-a)}$ | thermal resistance from junction to ambient | in free air | [1] | - | - | 417 | K/W |
| $R_{th(j-sp)}$ | thermal resistance from junction to solder point | | [2] | - | - | 100 | K/W |

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

[2] Soldering points at pins 1 and 2.

## 7. Characteristics

**Table 7. Characteristics**

*$T_j$ = 25 °C unless otherwise specified.*

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

[1] Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.02$.



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**Table 8. Characteristics per type; BZB84-B2V4 to BZB84-B24**

*$T_j$ = 25 °C unless otherwise specified.*

| BZB84-Bxxx | 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 | Max | Max | Max | $V_R$ (V) | Min | Max | Max | Max |
| 2V4 | 2.35 | 2.45 | 600 | 100 | 50 | 1 | –3.5 | 0 | 450 | 6.0 |
| 2V7 | 2.65 | 2.75 | 600 | 100 | 20 | 1 | –3.5 | 0 | 450 | 6.0 |
| 3V0 | 2.94 | 3.06 | 600 | 95 | 10 | 1 | –3.5 | 0 | 450 | 6.0 |
| 3V3 | 3.23 | 3.37 | 600 | 95 | 5 | 1 | –3.5 | 0 | 450 | 6.0 |
| 3V6 | 3.53 | 3.67 | 600 | 90 | 5 | 1 | –3.5 | 0 | 450 | 6.0 |
| 3V9 | 3.82 | 3.98 | 600 | 90 | 3 | 1 | –3.5 | 0 | 450 | 6.0 |
| 4V3 | 4.21 | 4.39 | 600 | 90 | 3 | 1 | –3.5 | 0 | 450 | 6.0 |
| 4V7 | 4.61 | 4.79 | 500 | 80 | 3 | 2 | –3.5 | 0.2 | 300 | 6.0 |
| 5V1 | 5.00 | 5.20 | 480 | 60 | 2 | 2 | –2.7 | 1.2 | 300 | 6.0 |
| 5V6 | 5.49 | 5.71 | 400 | 40 | 1 | 2 | –2.0 | 2.5 | 300 | 6.0 |
| 6V2 | 6.08 | 6.32 | 150 | 10 | 3 | 4 | 0.4 | 3.7 | 200 | 6.0 |
| 6V8 | 6.66 | 6.94 | 80 | 15 | 2 | 4 | 1.2 | 4.5 | 200 | 6.0 |
| 7V5 | 7.35 | 7.65 | 80 | 15 | 1 | 5 | 2.5 | 5.3 | 150 | 4.0 |
| 8V2 | 8.04 | 8.36 | 80 | 15 | 0.70 | 5 | 3.2 | 6.2 | 150 | 4.0 |
| 9V1 | 8.92 | 9.28 | 100 | 15 | 0.50 | 6 | 3.8 | 7.0 | 150 | 3.0 |
| 10 | 9.80 | 10.20 | 150 | 20 | 0.20 | 7 | 4.5 | 8.0 | 90 | 3.0 |
| 11 | 10.80 | 11.20 | 150 | 20 | 0.10 | 8 | 5.4 | 9.0 | 85 | 2.5 |
| 12 | 11.80 | 12.20 | 150 | 25 | 0.10 | 8 | 6.0 | 10.0 | 85 | 2.5 |
| 13 | 12.70 | 13.30 | 170 | 30 | 0.10 | 8 | 7.0 | 11.0 | 80 | 2.5 |
| 15 | 14.70 | 15.30 | 200 | 30 | 0.05 | 10.5 | 9.2 | 13.0 | 75 | 2.0 |
| 16 | 15.70 | 16.30 | 200 | 40 | 0.05 | 11.2 | 10.4 | 14.0 | 75 | 1.5 |
| 18 | 17.60 | 18.40 | 225 | 45 | 0.05 | 12.6 | 12.4 | 16.0 | 70 | 1.5 |
| 20 | 19.6 | 20.4 | 225 | 55 | 0.05 | 14.0 | 14.4 | 18.0 | 60 | 1.5 |
| 22 | 21.6 | 22.4 | 250 | 55 | 0.05 | 15.4 | 16.4 | 20.0 | 60 | 1.25 |
| 24 | 23.5 | 24.5 | 250 | 70 | 0.05 | 16.8 | 18.4 | 22.0 | 55 | 1.25 |

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

[2] $t_p$ = 100 μs; square wave; $T_j$ = 25 °C prior to surge


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**Table 9. Characteristics per type; BZB84-B27 to BZB84-B75**

*$T_j$ = 25 °C unless otherwise specified.*

| BZB84-Bxxx | 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 | Max | Max | Max | $V_R$ (V) | Min | Max | Max | Max |
| 27 | 26.5 | 27.5 | 300 | 80 | 0.05 | 18.9 | 21.4 | 25.3 | 50 | 1.00 |
| 30 | 29.4 | 30.6 | 300 | 80 | 0.05 | 21.0 | 24.4 | 29.4 | 50 | 1.00 |
| 33 | 32.3 | 33.7 | 325 | 80 | 0.05 | 23.1 | 27.4 | 33.4 | 45 | 0.90 |
| 36 | 35.3 | 36.7 | 350 | 90 | 0.05 | 25.2 | 30.4 | 37.4 | 45 | 0.80 |
| 39 | 38.2 | 39.8 | 350 | 130 | 0.05 | 27.3 | 33.4 | 41.2 | 45 | 0.70 |
| 43 | 42.1 | 43.9 | 375 | 150 | 0.05 | 30.1 | 37.6 | 46.6 | 40 | 0.60 |
| 47 | 46.1 | 47.9 | 375 | 170 | 0.05 | 32.9 | 42.0 | 51.8 | 40 | 0.50 |
| 51 | 50.0 | 52.0 | 400 | 180 | 0.05 | 35.7 | 46.6 | 57.2 | 40 | 0.40 |
| 56 | 54.9 | 57.1 | 425 | 200 | 0.05 | 39.2 | 52.2 | 63.8 | 40 | 0.30 |
| 62 | 60.8 | 63.2 | 450 | 215 | 0.05 | 43.4 | 58.8 | 71.6 | 35 | 0.30 |
| 68 | 66.6 | 69.4 | 475 | 240 | 0.05 | 47.6 | 65.6 | 79.8 | 35 | 0.25 |
| 75 | 73.5 | 76.5 | 500 | 255 | 0.05 | 52.5 | 73.4 | 88.6 | 35 | 0.20 |

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

[2] $t_p$ = 100 μs; square wave; $T_j$ = 25 °C prior to surge



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**Table 10. Characteristics per type; BZB84-C2V4 to BZB84-C24**

*$T_j$ = 25 °C unless otherwise specified.*

| BZB84-Cxxx | 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 | Max | Max | Max | $V_R$ (V) | Min | Max | Max | Max |
| 2V4 | 2.2 | 2.6 | 600 | 100 | 50 | 1 | –3.5 | 0 | 450 | 6.0 |
| 2V7 | 2.5 | 2.9 | 600 | 100 | 20 | 1 | –3.5 | 0 | 450 | 6.0 |
| 3V0 | 2.8 | 3.2 | 600 | 95 | 10 | 1 | –3.5 | 0 | 450 | 6.0 |
| 3V3 | 3.1 | 3.5 | 600 | 95 | 5 | 1 | –3.5 | 0 | 450 | 6.0 |
| 3V6 | 3.4 | 3.8 | 600 | 90 | 5 | 1 | –3.5 | 0 | 450 | 6.0 |
| 3V9 | 3.7 | 4.1 | 600 | 90 | 3 | 1 | –3.5 | 0 | 450 | 6.0 |
| 4V3 | 4.0 | 4.6 | 600 | 90 | 3 | 1 | –3.5 | 0 | 450 | 6.0 |
| 4V7 | 4.4 | 5.0 | 500 | 80 | 3 | 2 | –3.5 | 0.2 | 300 | 6.0 |
| 5V1 | 4.8 | 5.4 | 480 | 60 | 2 | 2 | –2.7 | 1.2 | 300 | 6.0 |
| 5V6 | 5.2 | 6.0 | 400 | 40 | 1 | 2 | –2.0 | 2.5 | 300 | 6.0 |
| 6V2 | 5.8 | 6.6 | 150 | 10 | 3 | 4 | 0.4 | 3.7 | 200 | 6.0 |
| 6V8 | 6.4 | 7.2 | 80 | 15 | 2 | 4 | 1.2 | 4.5 | 200 | 6.0 |
| 7V5 | 7.0 | 7.9 | 80 | 15 | 1 | 5 | 2.5 | 5.3 | 150 | 4.0 |
| 8V2 | 7.7 | 8.7 | 80 | 15 | 0.70 | 5 | 3.2 | 6.2 | 150 | 4.0 |
| 9V1 | 8.5 | 9.6 | 100 | 15 | 0.50 | 6 | 3.8 | 7.0 | 150 | 3.0 |
| 10 | 9.4 | 10.6 | 150 | 20 | 0.20 | 7 | 4.5 | 8.0 | 90 | 3.0 |
| 11 | 10.4 | 11.6 | 150 | 20 | 0.10 | 8 | 5.4 | 9.0 | 85 | 2.5 |
| 12 | 11.4 | 12.7 | 150 | 25 | 0.10 | 8 | 6.0 | 10.0 | 85 | 2.5 |
| 13 | 12.4 | 14.1 | 170 | 30 | 0.10 | 8 | 7.0 | 11.0 | 80 | 2.5 |
| 15 | 13.8 | 15.6 | 200 | 30 | 0.05 | 10.5 | 9.2 | 13.0 | 75 | 2.0 |
| 16 | 15.3 | 17.1 | 200 | 40 | 0.05 | 11.2 | 10.4 | 14.0 | 75 | 1.5 |
| 18 | 16.8 | 19.1 | 225 | 45 | 0.05 | 12.6 | 12.4 | 16.0 | 70 | 1.5 |
| 20 | 18.8 | 21.2 | 225 | 55 | 0.05 | 14.0 | 14.4 | 18.0 | 60 | 1.5 |
| 22 | 20.8 | 23.3 | 250 | 55 | 0.05 | 15.4 | 16.4 | 20.0 | 60 | 1.25 |
| 24 | 22.8 | 25.6 | 250 | 70 | 0.05 | 16.8 | 18.4 | 22.0 | 55 | 1.25 |

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

[2] $t_p$ = 100 μs; square wave; $T_j$ = 25 °C prior to surge


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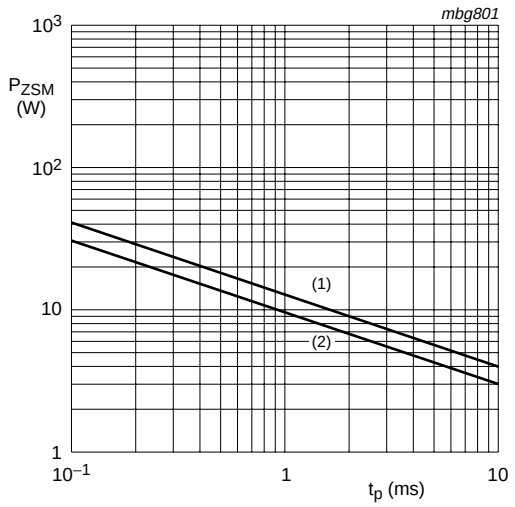
**Table 11. Characteristics per type; BZB84-C27 to BZB84-C75**

*$T_j$ = 25 °C unless otherwise specified.*

| BZB84-Cxxx | 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 | Max | Max | Max | $V_R$ (V) | Min | Max | Max | Max |
| 27 | 25.1 | 28.9 | 300 | 80 | 0.05 | 18.9 | 21.4 | 25.3 | 50 | 1.00 |
| 30 | 28.0 | 32.0 | 300 | 80 | 0.05 | 21.0 | 24.4 | 29.4 | 50 | 1.00 |
| 33 | 31.0 | 35.0 | 325 | 80 | 0.05 | 23.1 | 27.4 | 33.4 | 45 | 0.90 |
| 36 | 34.0 | 38.0 | 350 | 90 | 0.05 | 25.2 | 30.4 | 37.4 | 45 | 0.80 |
| 39 | 37.0 | 41.0 | 350 | 130 | 0.05 | 27.3 | 33.4 | 41.2 | 45 | 0.70 |
| 43 | 40.0 | 46.0 | 375 | 150 | 0.05 | 30.1 | 37.6 | 46.6 | 40 | 0.60 |
| 47 | 44.0 | 50.0 | 375 | 170 | 0.05 | 32.9 | 42.0 | 51.8 | 40 | 0.50 |
| 51 | 48.0 | 54.0 | 400 | 180 | 0.05 | 35.7 | 46.6 | 57.2 | 40 | 0.40 |
| 56 | 52.0 | 60.0 | 425 | 200 | 0.05 | 39.2 | 52.2 | 63.8 | 40 | 0.30 |
| 62 | 58.0 | 66.0 | 450 | 215 | 0.05 | 43.4 | 58.8 | 71.6 | 35 | 0.30 |
| 68 | 64.0 | 72.0 | 475 | 240 | 0.05 | 47.6 | 65.6 | 79.8 | 35 | 0.25 |
| 75 | 70.0 | 79.0 | 500 | 255 | 0.05 | 52.5 | 73.4 | 88.6 | 35 | 0.20 |

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

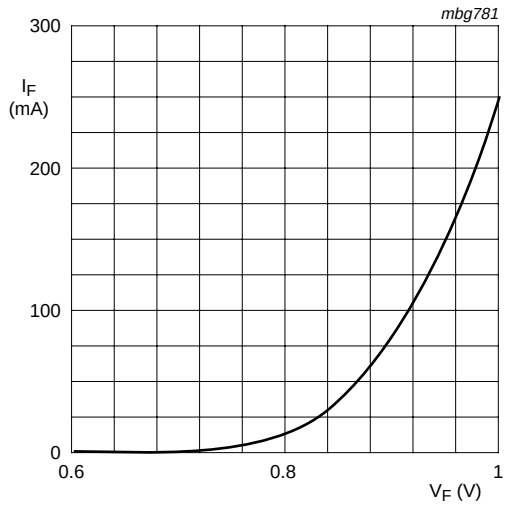
[2] $t_p$ = 100 μs; square wave; $T_j$ = 25 °C prior to surge




(1) $T_j$ = 25 °C (prior to surge)

(2) $T_j$ = 150 °C (prior to surge)

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




$T_j$ = 25 °C

**Fig 2. Per diode: Forward current as a function of forward voltage; typical values**



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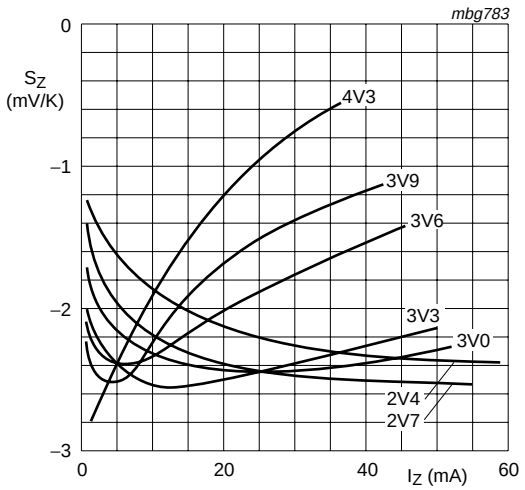
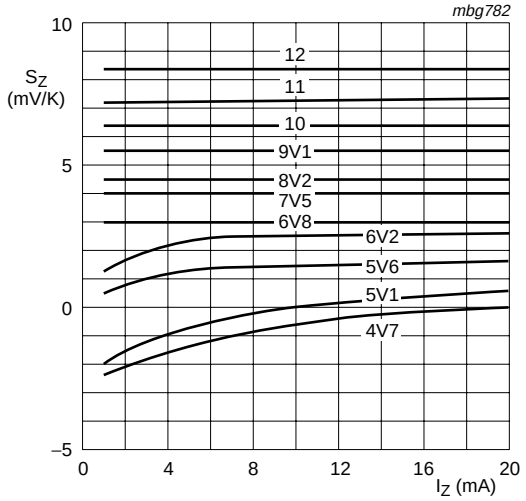



$T_j$ = 25 °C to 150 °C

BZB84-B/C2V4 to BZB84-B/C4V3

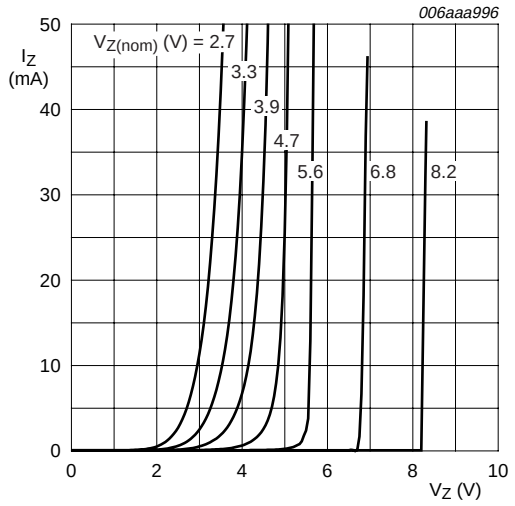
**Fig 3. Per diode: Temperature coefficient as a function of working current; typical values**




$T_j$ = 25 °C to 150 °C

BZB84-B/C4V7 to BZB84-B/C12

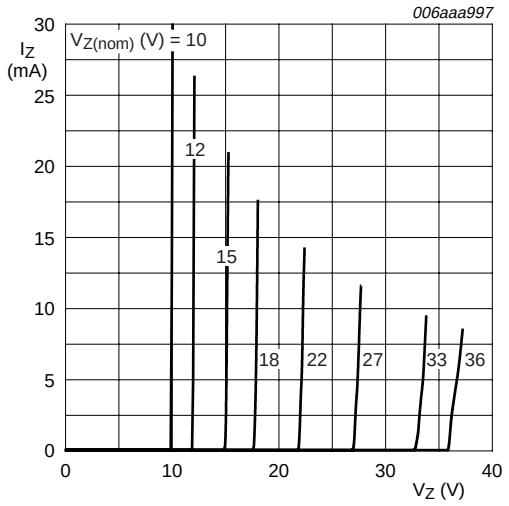
**Fig 4. Per diode: Temperature coefficient as a function of working current; typical values**




$T_j$ = 25 °C

BZB84-B/C2V7 to BZB84-B/C8V2

**Fig 5. Per diode: Working current as a function of working voltage; typical values**




$T_j$ = 25 °C

BZB84-B/C10 to BZB84-B/C36

**Fig 6. Per diode: Working current as a function of working voltage; typical values**



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# 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.

# 9. Package outline

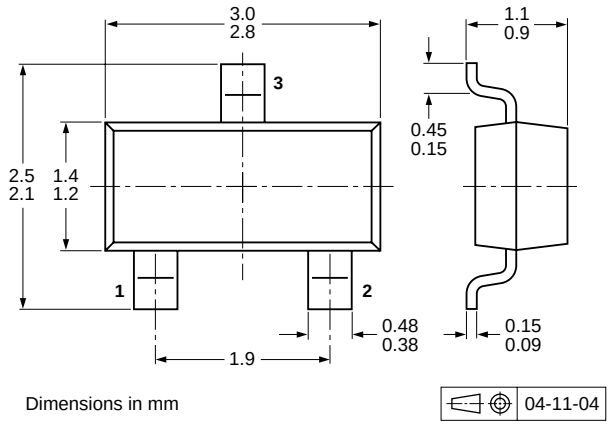


**Fig 7. Package outline SOT23 (TO-236AB)**

# 10. Packing information

**Table 12. Packing methods**

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

| Type number | Package | Description | Packing quantity | |
|---|---|---|---|---|
| | | | 3000 | 10000 |
| BZB84-B2V4 to BZB84-C75[2] | SOT23 | 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 consists of 74 types with nominal working voltages from 2.4 V to 75 V.


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## 11. Soldering

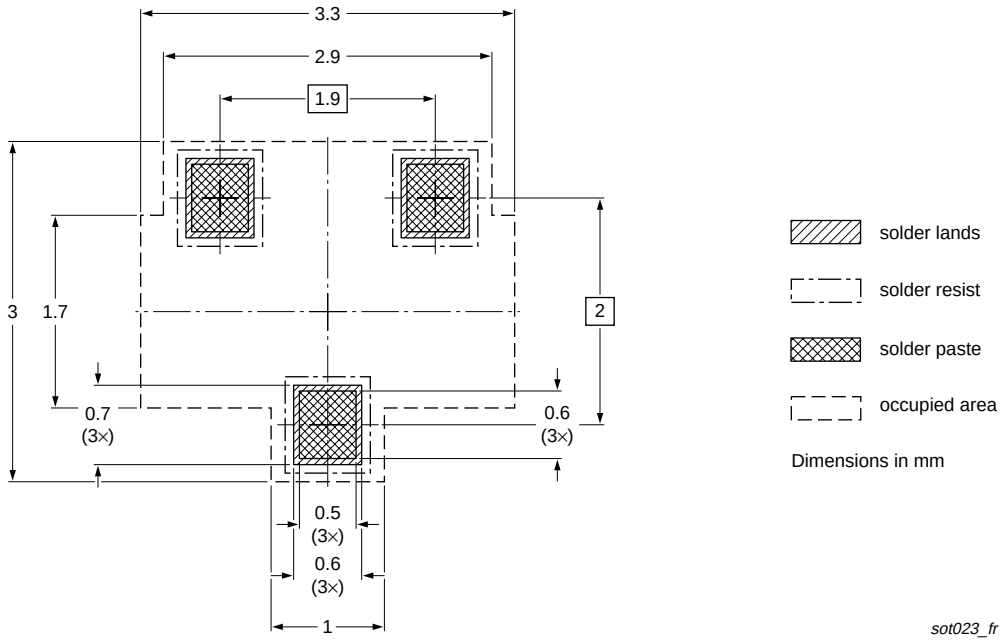


**Fig 8. Reflow soldering footprint SOT23 (TO-236AB)**

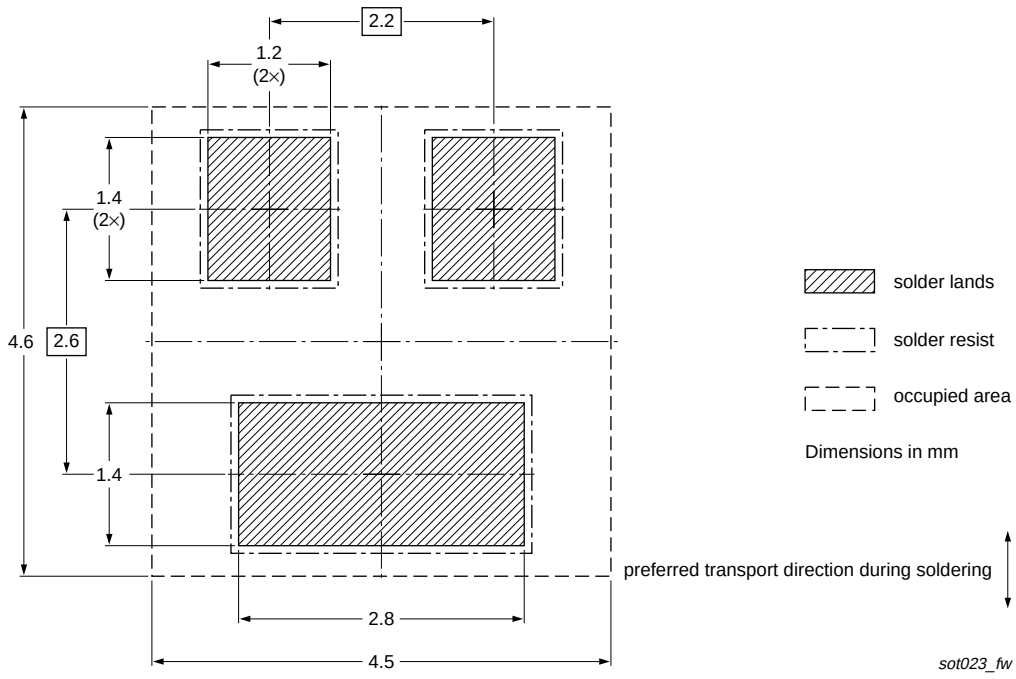


**Fig 9. Wave soldering footprint SOT23 (TO-236AB)**


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## 12. Revision history

**Table 13. Revision history**

| Document ID | Release date | Data sheet status | Change notice | Supersedes |
|---|---|---|---|---|
| BZB84_SER_3 | 20090609 | Product data sheet | - | BZB84_SER_2 |
| Modifications: | • Table 5 “Limiting values”: $P_{tot}$ maximum value amended<br>• Table 6: $R_{th}$ maximum values amended<br>• Section 13 “Legal information”: updated | | | |
| BZB84_SER_2 | 20090223 | Product data sheet | - | BZB84_SER_1 |
| BZB84_SER_1 | 20080514 | Product data sheet | - | - |


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# 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.

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