

# 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 |

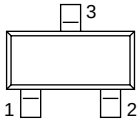
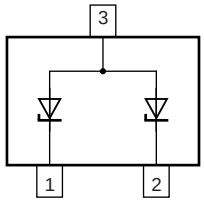
[1] Pulse test: $t_p \leq 300$ µs; $\delta \leq 0.02$.

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

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## 2. Pinning information

Table 2. Pinning

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



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## 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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