



# BZX84 series

## Voltage regulator diodes

Rev. 7 — 1 January 2023

Product data sheet

## 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  $\pm 1\%$  (BZX84-A),  $\pm 2\%$  (BZX84-B) and approximately  $\pm 5\%$  (BZX84-C) tolerance range. The series includes 37 breakdown voltages with nominal working voltages from 2.4 V to 75 V.

## 2. Features and benefits

- Total power dissipation:  $\leq 250$  mW
- Three tolerance series:  $\pm 1\%$ ,  $\pm 2\%$  and approximately  $\pm 5\%$
- Working voltage range: nominal 2.4 V to 75 V (E24 range)
- Non-repetitive peak reverse power dissipation:  $\leq 40$  W

## 3. Applications

- General regulation functions

## 4. Quick reference data

Table 1. Quick reference data

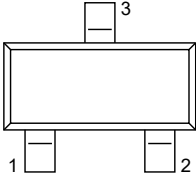
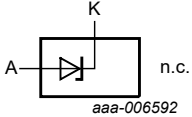
| Symbol    | Parameter               | Conditions           |     | Min | Typ | Max | Unit |
|-----------|-------------------------|----------------------|-----|-----|-----|-----|------|
| $V_F$     | forward voltage         | $I_F = 10$ mA        | [1] | -   | -   | 0.9 | V    |
| $P_{tot}$ | total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

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

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

5. Pinning information

Table 2. Pinning

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

6. 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 consists of 37 breakdown voltages with nominal working voltages from 2.4 V to 75 V and  $\pm 1\%$ ,  $\pm 2\%$  and  $\pm 5\%$  tolerances.

## 7. Marking

Table 4. Marking codes

| Type number | Marking code | Type number | Marking code | Type number | Marking code |
|-------------|--------------|-------------|--------------|-------------|--------------|
| BZX84-A2V4  | %50          | BZX84-B2V4  | %Z0          | BZX84-C2V4  | %T3          |
| BZX84-A2V7  | %51          | BZX84-B2V7  | %Z1          | BZX84-C2V7  | %T4          |
| BZX84-A3V0  | %52          | BZX84-B3V0  | %S1          | BZX84-C3V0  | %T9          |
| BZX84-A3V3  | %53          | BZX84-B3V3  | %S2          | BZX84-C3V3  | %B1          |
| BZX84-A3V6  | %C1          | BZX84-B3V6  | %S3          | BZX84-C3V6  | %B2          |
| BZX84-A3V9  | %55          | BZX84-B3V9  | %S4          | BZX84-C3V9  | %B3          |
| BZX84-A4V3  | %56          | BZX84-B4V3  | %S7          | BZX84-C4V3  | %B6          |
| BZX84-A4V7  | %57          | BZX84-B4V7  | %S8          | BZX84-C4V7  | Z1%          |
| BZX84-A5V1  | %58          | BZX84-B5V1  | %R1          | BZX84-C5V1  | Z2%          |
| BZX84-A5V6  | %59          | BZX84-B5V6  | %R2          | BZX84-C5V6  | Z3%          |
| BZX84-A6V2  | %60          | BZX84-B6V2  | %R5          | BZX84-C6V2  | Z4%          |
| BZX84-A6V8  | %61          | BZX84-B6V8  | %R6          | BZX84-C6V8  | Z5%          |
| BZX84-A7V5  | %62          | BZX84-B7V5  | %R8          | BZX84-C7V5  | Z6%          |
| BZX84-A8V2  | %63          | BZX84-B8V2  | %R9          | BZX84-C8V2  | Z7%          |
| BZX84-A9V1  | %64          | BZX84-B9V1  | %T1          | BZX84-C9V1  | Z8%          |
| BZX84-A10   | %65          | BZX84-B10   | %66          | BZX84-C10   | Z9%          |
| BZX84-A11   | %04          | BZX84-B11   | %Z6          | BZX84-C11   | Y1%          |
| BZX84-A12   | %67          | BZX84-B12   | %Z7          | BZX84-C12   | Y2%          |
| BZX84-A13   | %C0          | BZX84-B13   | %Z8          | BZX84-C13   | Y3%          |
| BZX84-A15   | %69          | BZX84-B15   | %Z9          | BZX84-C15   | Y4%          |
| BZX84-A16   | KE%          | BZX84-B16   | %70          | BZX84-C16   | Y5%          |
| BZX84-A18   | KF%          | BZX84-B18   | %71          | BZX84-C18   | Y6%          |
| BZX84-A20   | %C2          | BZX84-B20   | %72          | BZX84-C20   | Y7%          |
| BZX84-A22   | KG%          | BZX84-B22   | %73          | BZX84-C22   | Y8%          |
| BZX84-A24   | KH%          | BZX84-B24   | %74          | BZX84-C24   | Y9%          |
| BZX84-A27   | %75          | BZX84-B27   | %Z5          | BZX84-C27   | %T2          |
| BZX84-A30   | KJ%          | BZX84-B30   | %Z4          | BZX84-C30   | %T5          |
| BZX84-A33   | KK%          | BZX84-B33   | %Y1          | BZX84-C33   | %T6          |
| BZX84-A36   | %C3          | BZX84-B36   | %Y2          | BZX84-C36   | %T7          |
| BZX84-A39   | %C4          | BZX84-B39   | %S0          | BZX84-C39   | %T8          |
| BZX84-A43   | %C5          | BZX84-B43   | %S5          | BZX84-C43   | %B4          |
| BZX84-A51   | %C6          | BZX84-B47   | %S6          | BZX84-C47   | %B5          |
| BZX84-A75   | %86          | BZX84-B51   | %S9          | BZX84-C51   | %B7          |
| -           | -            | BZX84-B56   | %R0          | BZX84-C56   | %B8          |
| -           | -            | BZX84-B62   | %R3          | BZX84-C62   | %B9          |
| -           | -            | BZX84-B68   | %R4          | BZX84-C68   | %B0          |
| -           | -            | BZX84-B75   | %R7          | BZX84-C75   | %A1          |

## 8. 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                       | $T_{amb} \leq 25\text{ °C}$ | [2] | -   | 250  | mW   |
| $T_j$     | junction temperature                          |                             |     | -   | 150  | °C   |
| $T_{amb}$ | ambient temperature                           |                             |     | -55 | +150 | °C   |
| $T_{stg}$ | storage temperature                           |                             |     | -65 | +150 | °C   |

[1]  $t_p = 100\text{ }\mu\text{s}$ ; square wave;  $T_j = 25\text{ °C}$  prior to surge.

[2] Device mounted on an FR4 PCB, single-sided 70  $\mu\text{m}$  copper, tin-plated and standard footprint.

## 9. 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 an FR4 PCB, single-sided 70  $\mu\text{m}$  copper, tin-plated and standard footprint.

[2] Soldering point of cathode tab.

## 10. Characteristics

**Table 7. Characteristics**

$T_j = 25\text{ °C}$  unless otherwise specified.

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

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

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

 $T_j = 25\text{ }^{\circ}\text{C}$  unless otherwise specified.

| BZX84-xxx | Sel | Working voltage<br>$V_Z$ (V)<br>$I_Z = 5\text{ mA}$ |      | Maximum differential resistance<br>$r_{\text{dif}}$ ( $\Omega$ ) |                     | Reverse current<br>$I_R$ ( $\mu\text{A}$ ) |           | Temperature coefficient<br>$S_Z$ (mV/K)<br>$I_Z = 5\text{ mA}$ |     | Diode capacitance<br>$C_d$ (pF) [1] | Non-repetitive peak reverse current<br>$I_{ZSM}$ (A) [2] |
|-----------|-----|-----------------------------------------------------|------|------------------------------------------------------------------|---------------------|--------------------------------------------|-----------|----------------------------------------------------------------|-----|-------------------------------------|----------------------------------------------------------|
|           |     | Min                                                 | Max  | $I_Z = 1\text{ mA}$                                              | $I_Z = 5\text{ mA}$ | Max                                        | $V_R$ (V) | Min                                                            | Max | Max                                 | Max                                                      |
| 2V4       | A   | 2.37                                                | 2.43 | 600                                                              | 100                 | 50                                         | 1         | -3.5                                                           | 0.0 | 450                                 | 6.0                                                      |
|           | B   | 2.35                                                | 2.45 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 2.20                                                | 2.60 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 2V7       | A   | 2.67                                                | 2.73 | 600                                                              | 100                 | 20                                         | 1         | -3.5                                                           | 0.0 | 450                                 | 6.0                                                      |
|           | B   | 2.65                                                | 2.75 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 2.50                                                | 2.90 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 3V0       | A   | 2.97                                                | 3.03 | 600                                                              | 95                  | 10                                         | 1         | -3.5                                                           | 0.0 | 450                                 | 6.0                                                      |
|           | B   | 2.94                                                | 3.06 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 2.80                                                | 3.20 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 3V3       | A   | 3.26                                                | 3.34 | 600                                                              | 95                  | 5                                          | 1         | -3.5                                                           | 0.0 | 450                                 | 6.0                                                      |
|           | B   | 3.23                                                | 3.37 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 3.10                                                | 3.50 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 3V6       | A   | 3.56                                                | 3.64 | 600                                                              | 90                  | 5                                          | 1         | -3.5                                                           | 0.0 | 450                                 | 6.0                                                      |
|           | B   | 3.53                                                | 3.67 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 3.40                                                | 3.80 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 3V9       | A   | 3.86                                                | 3.94 | 600                                                              | 90                  | 3                                          | 1         | -3.5                                                           | 0.0 | 450                                 | 6.0                                                      |
|           | B   | 3.82                                                | 3.98 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 3.70                                                | 4.10 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 4V3       | A   | 4.25                                                | 4.35 | 600                                                              | 90                  | 3                                          | 1         | -3.5                                                           | 0.0 | 450                                 | 6.0                                                      |
|           | B   | 4.21                                                | 4.39 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 4.00                                                | 4.60 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 4V7       | A   | 4.65                                                | 4.75 | 500                                                              | 80                  | 3                                          | 2         | -3.5                                                           | 0.2 | 300                                 | 6.0                                                      |
|           | B   | 4.61                                                | 4.79 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 4.40                                                | 5.00 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 5V1       | A   | 5.04                                                | 5.16 | 480                                                              | 60                  | 2                                          | 2         | -2.7                                                           | 1.2 | 300                                 | 6.0                                                      |
|           | B   | 5.00                                                | 5.20 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 4.80                                                | 5.40 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 5V6       | A   | 5.54                                                | 5.66 | 400                                                              | 40                  | 1                                          | 2         | -2.0                                                           | 2.5 | 300                                 | 6.0                                                      |
|           | B   | 5.49                                                | 5.71 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 5.20                                                | 6.00 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 6V2       | A   | 6.13                                                | 6.27 | 150                                                              | 10                  | 3                                          | 4         | 0.4                                                            | 3.7 | 200                                 | 6.0                                                      |
|           | B   | 6.08                                                | 6.32 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 5.80                                                | 6.60 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 6V8       | A   | 6.73                                                | 6.87 | 80                                                               | 15                  | 2                                          | 4         | 1.2                                                            | 4.5 | 200                                 | 6.0                                                      |
|           | B   | 6.66                                                | 6.94 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 6.40                                                | 7.20 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
| 7V5       | A   | 7.42                                                | 7.58 | 80                                                               | 15                  | 1                                          | 5         | 2.5                                                            | 5.3 | 150                                 | 4.0                                                      |
|           | B   | 7.35                                                | 7.65 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |
|           | C   | 7.00                                                | 7.90 |                                                                  |                     |                                            |           |                                                                |     |                                     |                                                          |

| BZX84-xxx | Sel | Working voltage<br>$V_Z$ (V)<br>$I_Z = 5$ mA |       | Maximum differential resistance<br>$r_{dif}$ ( $\Omega$ ) |              | Reverse current<br>$I_R$ ( $\mu$ A) |           | Temperature coefficient<br>$S_Z$ (mV/K)<br>$I_Z = 5$ mA |      | Diode capacitance<br>$C_d$ (pF) [1] | Non-repetitive peak reverse current<br>$I_{ZSM}$ (A) [2] |
|-----------|-----|----------------------------------------------|-------|-----------------------------------------------------------|--------------|-------------------------------------|-----------|---------------------------------------------------------|------|-------------------------------------|----------------------------------------------------------|
|           |     | Min                                          | Max   | $I_Z = 1$ mA                                              | $I_Z = 5$ mA | Max                                 | $V_R$ (V) | Min                                                     | Max  | Max                                 | Max                                                      |
| 8V2       | A   | 8.11                                         | 8.29  | 80                                                        | 15           | 0.7                                 | 5         | 3.2                                                     | 6.2  | 150                                 | 4.0                                                      |
|           | B   | 8.04                                         | 8.36  |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 7.70                                         | 8.70  |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
| 9V1       | A   | 9.00                                         | 9.20  | 100                                                       | 15           | 0.5                                 | 6         | 3.8                                                     | 7.0  | 150                                 | 3.0                                                      |
|           | B   | 8.92                                         | 9.28  |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 8.50                                         | 9.60  |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
| 10        | A   | 9.90                                         | 10.10 | 150                                                       | 20           | 0.2                                 | 7         | 4.5                                                     | 8.0  | 90                                  | 3.0                                                      |
|           | B   | 9.80                                         | 10.20 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 9.40                                         | 10.60 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
| 11        | A   | 10.89                                        | 11.11 | 150                                                       | 20           | 0.1                                 | 8         | 5.4                                                     | 9.0  | 85                                  | 2.5                                                      |
|           | B   | 10.80                                        | 11.20 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 10.40                                        | 11.60 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
| 12        | A   | 11.88                                        | 12.12 | 150                                                       | 25           | 0.1                                 | 8         | 6.0                                                     | 10.0 | 85                                  | 2.5                                                      |
|           | B   | 11.80                                        | 12.20 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 11.40                                        | 12.70 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
| 13        | A   | 12.87                                        | 13.13 | 170                                                       | 30           | 0.1                                 | 8         | 7.0                                                     | 11.0 | 80                                  | 2.5                                                      |
|           | B   | 12.70                                        | 13.30 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 12.40                                        | 14.10 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
| 15        | A   | 14.85                                        | 15.15 | 200                                                       | 30           | 0.05                                | 10.5      | 9.2                                                     | 13.0 | 75                                  | 2.0                                                      |
|           | B   | 14.70                                        | 15.30 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 13.80                                        | 15.60 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
| 16        | A   | 15.84                                        | 16.16 | 200                                                       | 40           | 0.05                                | 11.2      | 10.4                                                    | 14.0 | 75                                  | 1.5                                                      |
|           | B   | 15.70                                        | 16.30 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 15.30                                        | 17.10 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
| 18        | A   | 17.82                                        | 18.18 | 225                                                       | 45           | 0.05                                | 12.6      | 12.4                                                    | 16.0 | 70                                  | 1.5                                                      |
|           | B   | 17.60                                        | 18.40 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 16.80                                        | 19.10 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
| 20        | A   | 19.80                                        | 20.20 | 225                                                       | 55           | 0.05                                | 14        | 14.4                                                    | 18.0 | 60                                  | 1.5                                                      |
|           | B   | 19.60                                        | 20.40 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 18.80                                        | 21.20 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
| 22        | A   | 21.78                                        | 22.22 | 250                                                       | 55           | 0.05                                | 15.4      | 16.4                                                    | 20.0 | 60                                  | 1.25                                                     |
|           | B   | 21.60                                        | 22.40 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 20.80                                        | 23.30 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
| 24        | A   | 23.76                                        | 24.24 | 250                                                       | 70           | 0.05                                | 16.8      | 18.4                                                    | 22.0 | 55                                  | 1.25                                                     |
|           | B   | 23.50                                        | 24.50 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |
|           | C   | 22.80                                        | 25.60 |                                                           |              |                                     |           |                                                         |      |                                     |                                                          |

[1]  $f = 1$  MHz;  $V_R = 0$  V[2]  $t_p = 100$   $\mu$ s; square wave;  $T_j = 25$  °C

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

 $T_j = 25\text{ °C}$  unless otherwise specified.

| BZX84-xxx | Sel | Working voltage<br>$V_Z$ (V)<br>$I_Z = 2\text{ mA}$ |       | Maximum differential resistance<br>$r_{dif}$ ( $\Omega$ ) |                     | Reverse current<br>$I_R$ ( $\mu\text{A}$ ) |           | Temperature coefficient<br>$S_Z$ (mV/K)<br>$I_Z = 2\text{ mA}$ |      | Diode capacitance<br>$C_d$ (pF) [1] | Non-repetitive peak reverse current<br>$I_{ZSM}$ (A) [2] |
|-----------|-----|-----------------------------------------------------|-------|-----------------------------------------------------------|---------------------|--------------------------------------------|-----------|----------------------------------------------------------------|------|-------------------------------------|----------------------------------------------------------|
|           |     | Min                                                 | Max   | $I_Z = 0.5\text{ mA}$                                     | $I_Z = 2\text{ mA}$ | Max                                        | $V_R$ (V) | Min                                                            | Max  | Max                                 | Max                                                      |
| 27        | A   | 26.73                                               | 27.27 | 300                                                       | 80                  | 0.05                                       | 18.9      | 21.4                                                           | 25.3 | 50                                  | 1.0                                                      |
|           | B   | 26.50                                               | 27.50 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
|           | C   | 25.10                                               | 28.90 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
| 30        | A   | 29.70                                               | 30.30 | 300                                                       | 80                  | 0.05                                       | 21        | 24.4                                                           | 29.4 | 50                                  | 1.0                                                      |
|           | B   | 29.40                                               | 30.60 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
|           | C   | 28.00                                               | 32.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
| 33        | A   | 32.67                                               | 33.33 | 325                                                       | 80                  | 0.05                                       | 23.1      | 27.4                                                           | 33.4 | 45                                  | 0.9                                                      |
|           | B   | 32.30                                               | 33.70 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
|           | C   | 31.00                                               | 35.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
| 36        | A   | 35.64                                               | 36.36 | 350                                                       | 90                  | 0.05                                       | 25.2      | 30.4                                                           | 37.4 | 45                                  | 0.8                                                      |
|           | B   | 35.30                                               | 36.70 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
|           | C   | 34.00                                               | 38.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
| 39        | A   | 38.61                                               | 39.39 | 350                                                       | 130                 | 0.05                                       | 27.3      | 33.4                                                           | 41.2 | 45                                  | 0.7                                                      |
|           | B   | 38.20                                               | 39.80 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
|           | C   | 37.00                                               | 41.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
| 43        | A   | 42.57                                               | 43.43 | 375                                                       | 150                 | 0.05                                       | 30.1      | 37.6                                                           | 46.6 | 40                                  | 0.6                                                      |
|           | B   | 42.10                                               | 43.90 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
|           | C   | 40.00                                               | 46.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
| 47        | B   | 46.10                                               | 47.90 | 375                                                       | 170                 | 0.05                                       | 32.9      | 42.0                                                           | 51.8 | 40                                  | 0.5                                                      |
|           | C   | 44.00                                               | 50.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
| 51        | A   | 50.49                                               | 51.51 | 400                                                       | 180                 | 0.05                                       | 35.7      | 46.6                                                           | 57.2 | 40                                  | 0.4                                                      |
|           | B   | 50.00                                               | 52.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
|           | C   | 48.00                                               | 54.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
| 56        | B   | 54.90                                               | 57.10 | 425                                                       | 200                 | 0.05                                       | 39.2      | 52.2                                                           | 63.8 | 40                                  | 0.3                                                      |
|           | C   | 52.00                                               | 60.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
| 62        | B   | 60.80                                               | 63.20 | 450                                                       | 215                 | 0.05                                       | 43.4      | 58.8                                                           | 71.6 | 35                                  | 0.3                                                      |
|           | C   | 58.00                                               | 66.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
| 68        | B   | 66.60                                               | 69.40 | 475                                                       | 240                 | 0.05                                       | 47.6      | 65.6                                                           | 79.8 | 35                                  | 0.25                                                     |
|           | C   | 64.00                                               | 72.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
| 75        | A   | 74.25                                               | 75.75 | 500                                                       | 255                 | 0.05                                       | 52.5      | 73.4                                                           | 88.6 | 35                                  | 0.20                                                     |
|           | B   | 73.50                                               | 76.50 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |
|           | C   | 70.00                                               | 79.00 |                                                           |                     |                                            |           |                                                                |      |                                     |                                                          |

[1]  $f = 1\text{ MHz}$ ;  $V_R = 0\text{ V}$ [2]  $t_p = 100\text{ }\mu\text{s}$ ; square wave;  $T_j = 25\text{ °C}$

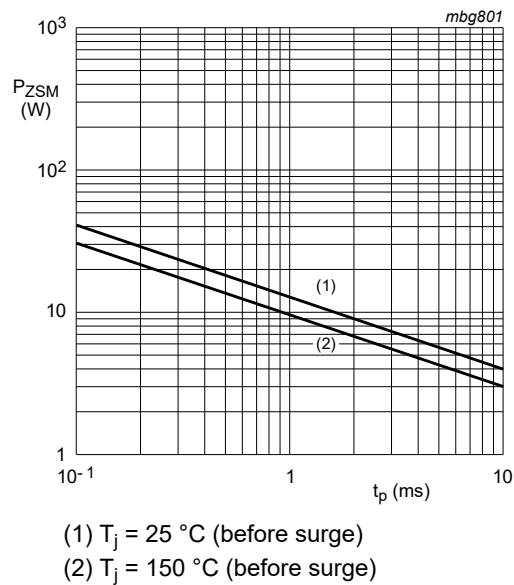


Fig. 1. Non-repetitive peak reverse power dissipation as a function of pulse duration; maximum values

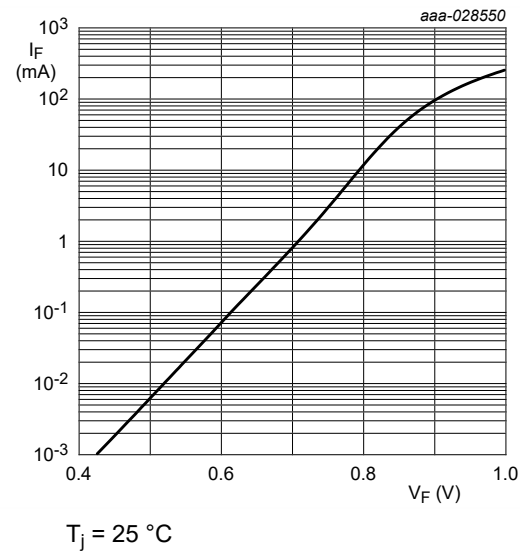


Fig. 2. Forward current as a function of forward voltage; typical values (BZX84-A/B/C2V4)

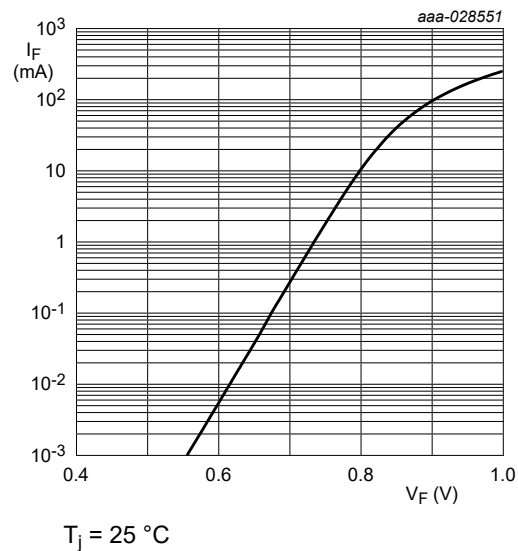


Fig. 3. Forward current as a function of forward voltage; typical values (BZX84-A/B/C6V8)

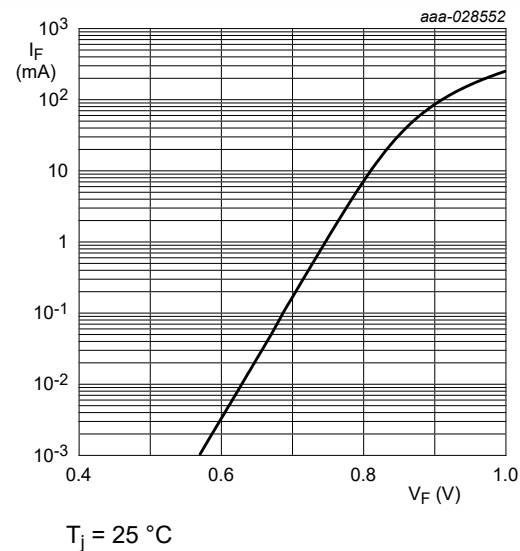


Fig. 4. Forward current as a function of forward voltage; typical values (BZX84-A/B/C7V5)

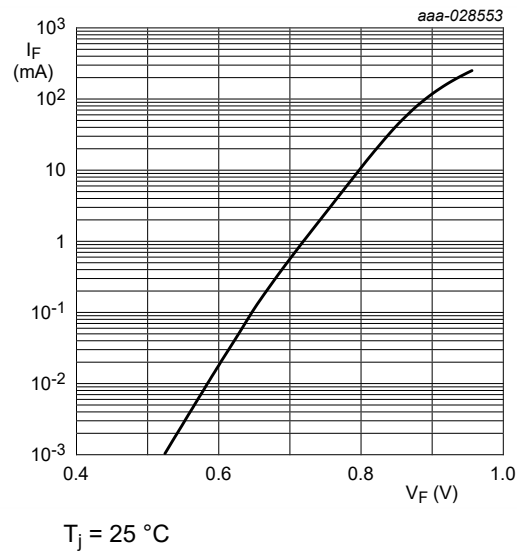


Fig. 5. Forward current as a function of forward voltage; typical values (BZX84-A/B/C75)

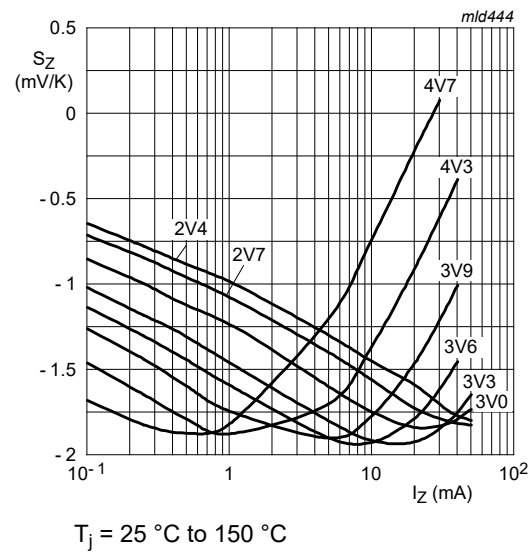


Fig. 6. Temperature coefficient as a function of working current; typical values (BZX84-A/B/C2V4 to BZX84-A/B/C4V7)

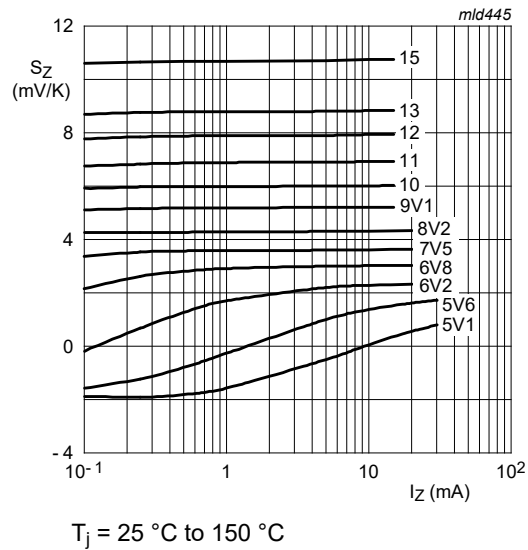


Fig. 7. Temperature coefficient as a function of working current; typical values (BZX84-A/B/C5V1 to BZX84-A/B/C15)

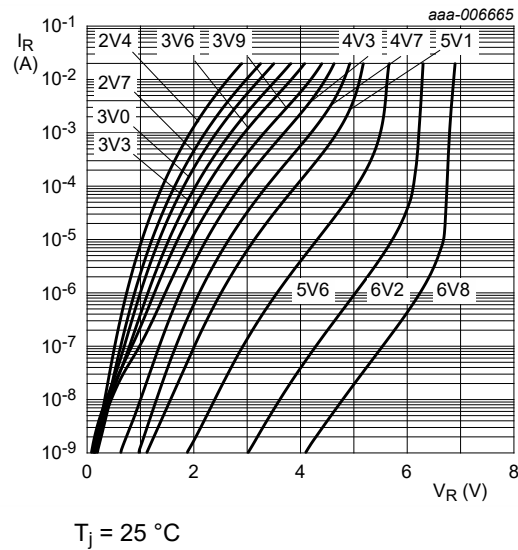
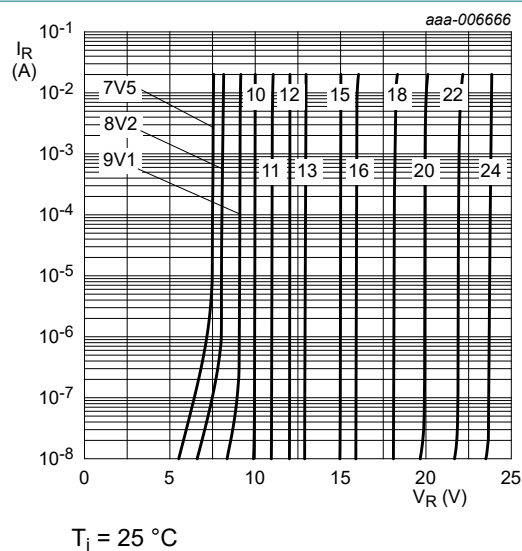
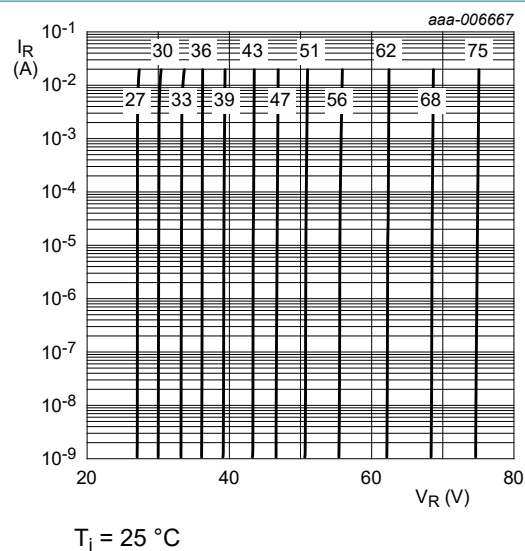


Fig. 8. Reverse current as a function of reverse voltage; typical values (BZX84-A/B/C2V4 to BZX84-A/B/C6V8)

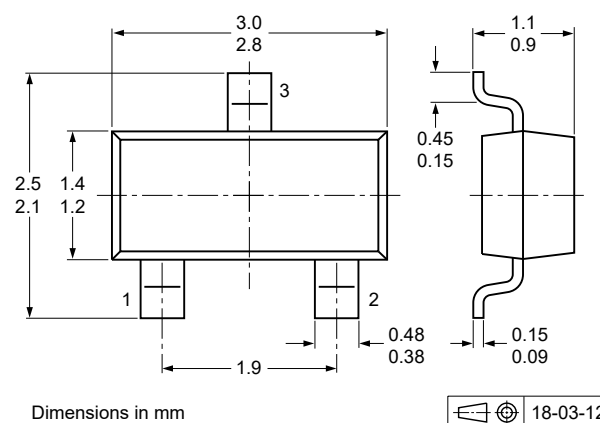


**Fig. 9. Reverse current as a function of reverse voltage; typical values (BZX84-A/B/C7V5 to BZX84-A/B/C24)**



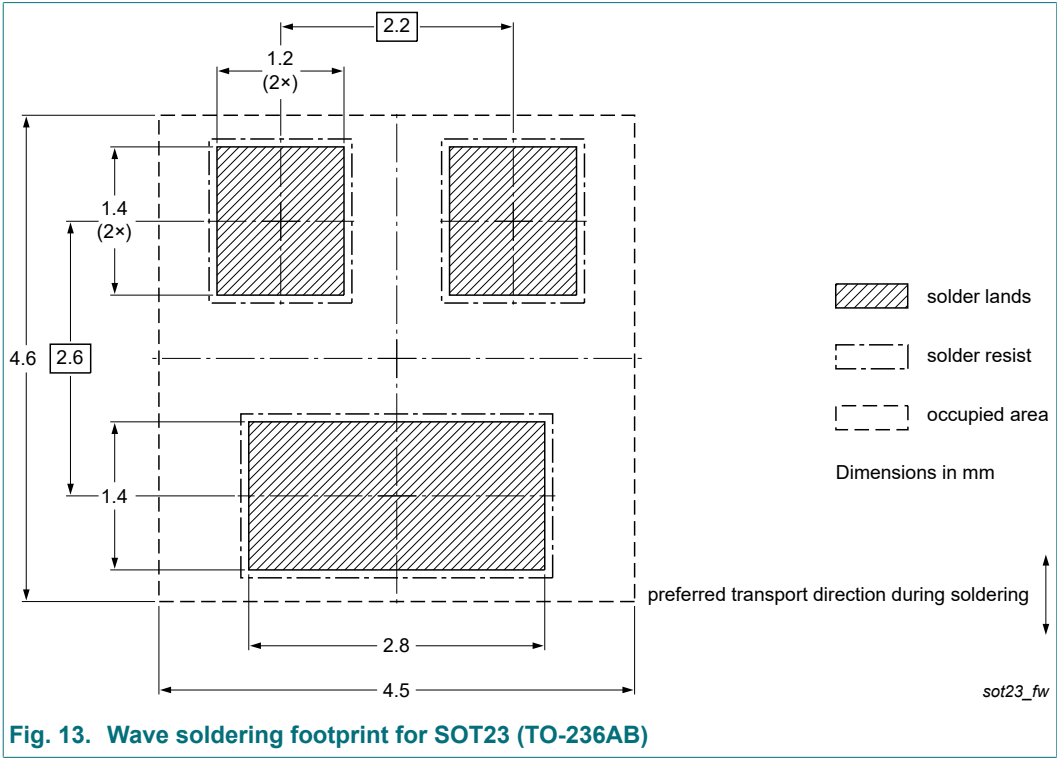
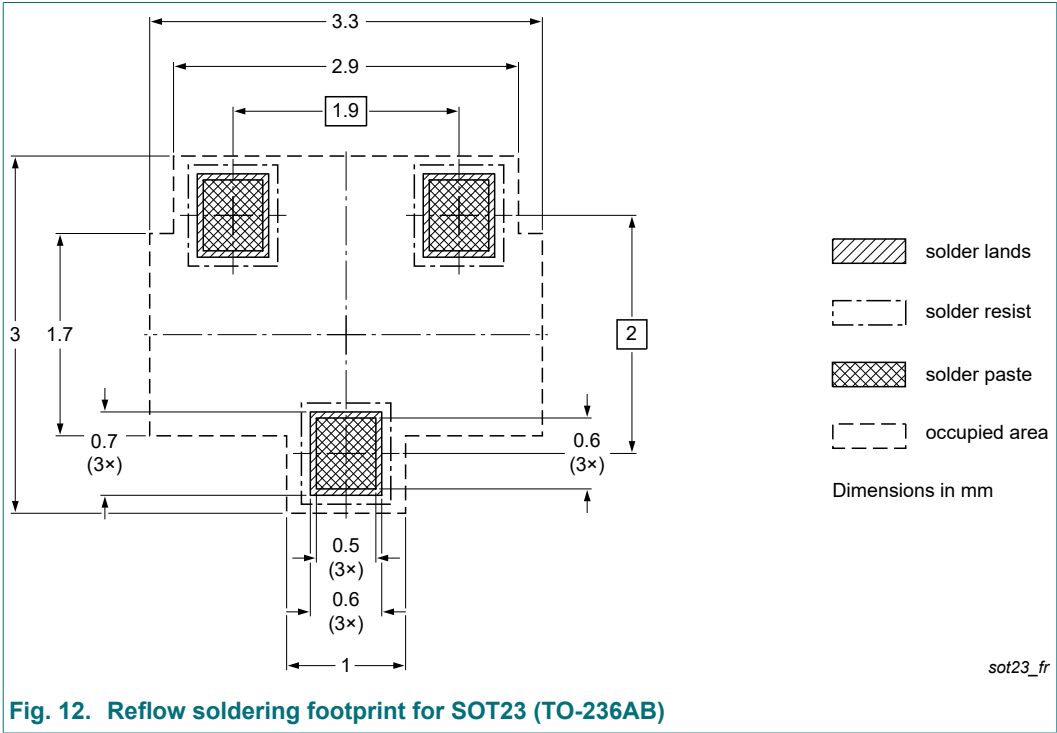
**Fig. 10. Reverse current as a function of reverse voltage; typical values (BZX84-A/B/C27 to BZX84-A/B/C75)**

## 11. Package outline



**Fig. 11. Package outline SOT23 (TO-236AB)**

12. Soldering



## 13. Revision history

Table 10. Revision history

| Document ID      | Release date                                                                                                                                                                                                                                                                                                                     | Data sheet status     | Change notice | Supersedes       |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------|------------------|
| BZX84_SER v.7    | 20230101                                                                                                                                                                                                                                                                                                                         | Product data sheet    | -             | BZX84_SER v.6    |
| Modifications:   | <ul style="list-style-type: none"><li>• Section "Packing information" removed</li><li>• Limiting values: Temperature specifications adjusted</li><li>• Products changed to non-automotive qualification. Please refer to <a href="https://www.nexperia.com">nexperia.com</a> for automotive (-Q) product alternatives.</li></ul> |                       |               |                  |
| BZX84_SER v.6    | 20140306                                                                                                                                                                                                                                                                                                                         | Product data sheet    |               | BZX84_SER v.5    |
| 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 | -             | -                |

## 14. Legal information

### 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 <https://www.nexperia.com>.

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