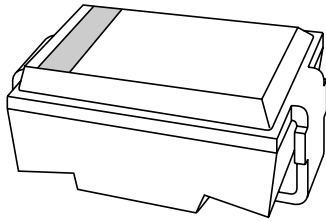


DATA SHEET



BZG01 series SMA voltage regulator diodes

Product specification

2000 Feb 17

SMA voltage regulator diodes

BZG01 series

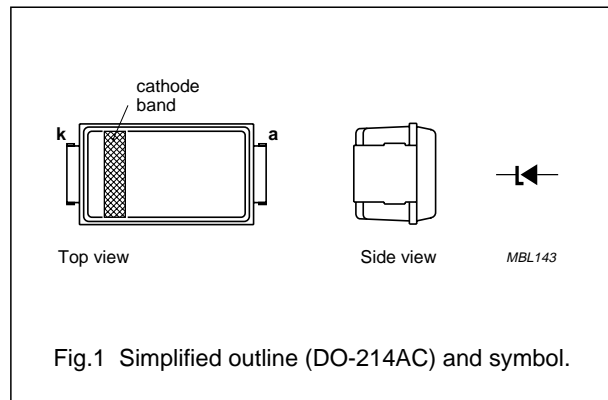
FEATURES

- Glass passivated
- High maximum operating temperature
- Ideal for surface mount automotive applications
- Low leakage current
- Excellent stability
- UL 94V-O classified plastic package
- Zener working voltage range: 10 to 270 V for 35 types
- Supplied in 12 mm embossed tape and reel, 1500 and 7500 pieces
- Marking: cathode, date code, type name
- Easy pick and place.

DESCRIPTION

DO-214AC surface mountable package with glass passivated chip.

The well-defined void-free case is of a transfer-moulded thermo-setting plastic. The small rectangular package has two J bent leads.



LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

| SYMBOL | PARAMETER | CONDITIONS | MIN. | MAX. | UNIT |
|------------------|---|---|------|------|------|
| P _{tot} | total power dissipation | T _{tp} = 100 °C; see Fig.2 | – | 2.50 | W |
| | | T _{amb} = 25 °C; see Fig.2; device mounted on an Al ₂ O ₃ printed-circuit board: see Fig.5 | – | 1.50 | W |
| P _{ZSM} | non-repetitive peak reverse power dissipation | t _p = 100 µs; square pulse; T _j = 25 °C prior to surge; see Fig.3 | – | 150 | W |
| T _{stg} | storage temperature | | –65 | +175 | °C |
| T _j | junction temperature | | –65 | +175 | °C |

SMA voltage regulator diodes

BZG01 series

ELECTRICAL CHARACTERISTICS**Total series**

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

| SYMBOL | PARAMETER | CONDITIONS | MAX. | UNIT |
|--------|-----------------|----------------------------------|------|------|
| V_F | forward voltage | $I_F = 0.1\text{ A}$; see Fig.4 | 1.2 | V |

Per type

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

| TYPE No. SUFFIX (1) | WORKING VOLTAGE | | | DIFFERENTIAL RESISTANCE | | TEMPERATURE COEFFICIENT | | TEST CURRENT I_Z (mA) | REVERSE CURRENT at REVERSE VOLTAGE | |
|---------------------------|--------------------|------|------|---------------------------------|------|-------------------------|------|----------------------------|------------------------------------|-----------|
| | V_Z (V) at I_Z | | | r_{dif} (Ω) at I_Z | | S_Z (%/K) at I_Z | | | I_R (μA) | V_R (V) |
| | MIN. | NOM. | MAX. | TYP. | MAX. | MIN. | MAX. | MAX. | | |
| C10 | 9.4 | 10 | 10.6 | 2 | 7 | 0.05 | 0.09 | 25 | 10 | 7.5 |
| C11 | 10.4 | 11 | 11.6 | 3 | 8 | 0.05 | 0.10 | 20 | 4 | 8.2 |
| C12 | 11.4 | 12 | 12.7 | 3 | 9 | 0.05 | 0.10 | 20 | 3 | 9.1 |
| C13 | 12.4 | 13 | 14.1 | 3 | 10 | 0.05 | 0.10 | 20 | 2 | 10 |
| C15 | 13.8 | 15 | 15.6 | 5 | 15 | 0.05 | 0.10 | 15 | 1 | 11 |
| C16 | 15.3 | 16 | 17.1 | 5 | 15 | 0.06 | 0.11 | 15 | 1 | 12 |
| C18 | 16.8 | 18 | 19.1 | 7 | 20 | 0.06 | 0.11 | 15 | 1 | 13 |
| C20 | 18.8 | 20 | 21.2 | 8 | 24 | 0.06 | 0.11 | 10 | 1 | 15 |
| C22 | 20.8 | 22 | 23.3 | 8 | 25 | 0.06 | 0.11 | 10 | 1 | 16 |
| C24 | 22.8 | 24 | 25.6 | 8 | 25 | 0.06 | 0.11 | 10 | 1 | 18 |
| C27 | 25.1 | 27 | 28.9 | 10 | 30 | 0.06 | 0.11 | 8 | 1 | 20 |
| C30 | 28 | 30 | 32 | 10 | 30 | 0.06 | 0.11 | 8 | 1 | 22 |
| C33 | 31 | 33 | 35 | 12 | 35 | 0.06 | 0.11 | 8 | 1 | 24 |
| C36 | 34 | 36 | 38 | 13 | 40 | 0.06 | 0.11 | 8 | 1 | 27 |
| C39 | 37 | 39 | 41 | 17 | 50 | 0.06 | 0.11 | 6 | 1 | 30 |
| C43 | 40 | 43 | 46 | 17 | 50 | 0.07 | 0.12 | 6 | 1 | 33 |
| C47 | 44 | 47 | 50 | 30 | 90 | 0.07 | 0.12 | 4 | 1 | 36 |
| C51 | 48 | 51 | 54 | 40 | 115 | 0.07 | 0.12 | 4 | 1 | 39 |
| C56 | 52 | 56 | 60 | 40 | 120 | 0.07 | 0.12 | 4 | 1 | 43 |
| C62 | 58 | 62 | 66 | 40 | 125 | 0.08 | 0.13 | 4 | 1 | 47 |
| C68 | 64 | 68 | 72 | 40 | 130 | 0.08 | 0.13 | 4 | 1 | 51 |
| C75 | 70 | 75 | 79 | 40 | 135 | 0.08 | 0.13 | 4 | 1 | 56 |
| C82 | 77 | 82 | 87 | 70 | 200 | 0.08 | 0.13 | 2.7 | 1 | 62 |
| C91 | 85 | 91 | 96 | 80 | 250 | 0.09 | 0.13 | 2.7 | 1 | 68 |
| C100 | 94 | 100 | 106 | 120 | 350 | 0.09 | 0.13 | 2.7 | 1 | 75 |
| C110 | 104 | 110 | 116 | 150 | 450 | 0.09 | 0.13 | 2.7 | 1 | 82 |
| C120 | 114 | 120 | 127 | 200 | 550 | 0.09 | 0.13 | 2 | 1 | 91 |
| C130 | 124 | 130 | 141 | 250 | 700 | 0.09 | 0.13 | 2 | 1 | 100 |
| C150 | 138 | 150 | 156 | 300 | 1000 | 0.09 | 0.13 | 2 | 1 | 110 |

SMA voltage regulator diodes

BZG01 series

| TYPE No. SUFFIX (1) | WORKING VOLTAGE | | | DIFFERENTIAL RESISTANCE | | TEMPERATURE COEFFICIENT | | TEST CURRENT I_Z (mA) | REVERSE CURRENT at REVERSE VOLTAGE | |
|---------------------------|--------------------|------|------|---------------------------------|------|-------------------------|------|----------------------------|------------------------------------|-----------|
| | V_Z (V) at I_Z | | | r_{dif} (Ω) at I_Z | | S_Z (%/K) at I_Z | | | I_R (μ A) | V_R (V) |
| | MIN. | NOM. | MAX. | TYP. | MAX. | MIN. | MAX. | MAX. | | |
| C160 | 153 | 160 | 171 | 350 | 1100 | 0.09 | 0.13 | 1.5 | 1 | 120 |
| C180 | 168 | 180 | 191 | 400 | 1200 | 0.09 | 0.13 | 1.5 | 1 | 130 |
| C200 | 188 | 200 | 212 | 500 | 1500 | 0.09 | 0.13 | 1.5 | 1 | 150 |
| C220 | 208 | 220 | 233 | 700 | 2250 | 0.09 | 0.13 | 1 | 1 | 160 |
| C240 | 228 | 240 | 256 | 800 | 2550 | 0.09 | 0.13 | 1 | 1 | 180 |
| C270 | 251 | 270 | 289 | 1000 | 3000 | 0.09 | 0.13 | 1 | 1 | 200 |

Note

- To complete the type number the suffix is added to the basic type number, e.g. BZG01-C130.

THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | CONDITIONS | VALUE | UNIT |
|----------------|---|------------|-------|------|
| $R_{th\ j-tp}$ | thermal resistance from junction to tie-point | | 30 | K/W |
| $R_{th\ j-a}$ | thermal resistance from junction to ambient | note 1 | 100 | K/W |
| | | note 2 | 150 | K/W |

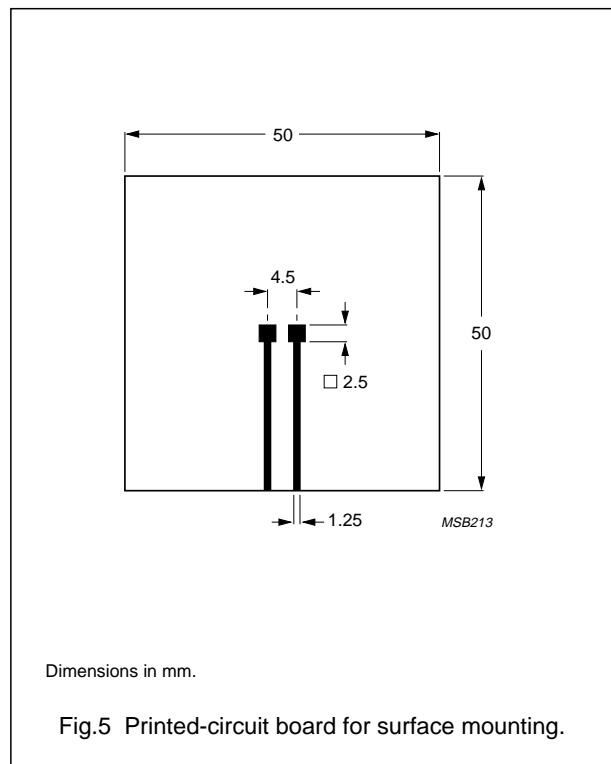
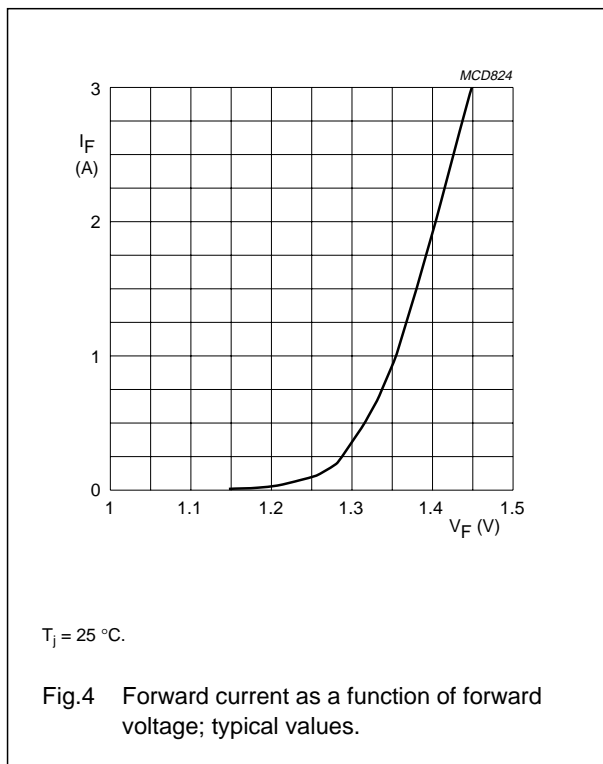
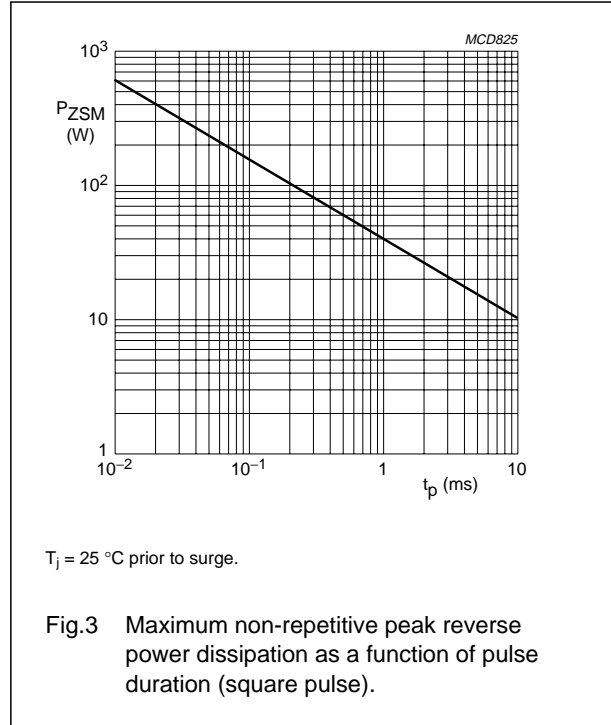
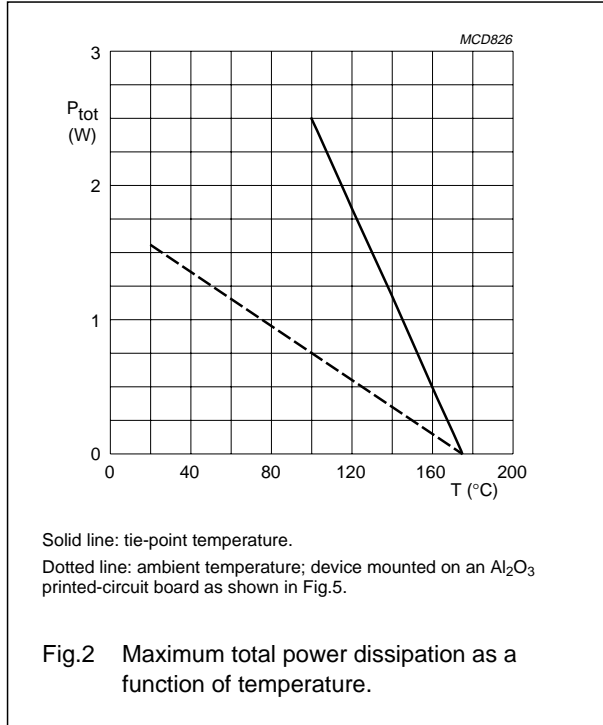
Notes

- Device mounted on an Al_2O_3 printed-circuit board, 0.7 mm thick; thickness of Cu-layer $\geq 35\ \mu m$, see Fig.5.
- Device mounted on an epoxy-glass printed-circuit board, 1.5 mm thick; thickness of Cu-layer $\geq 40\ \mu m$, see Fig.5. For more information please refer to the 'General Part of associated Handbook'.

SMA voltage regulator diodes

BZG01 series

GRAPHICAL DATA



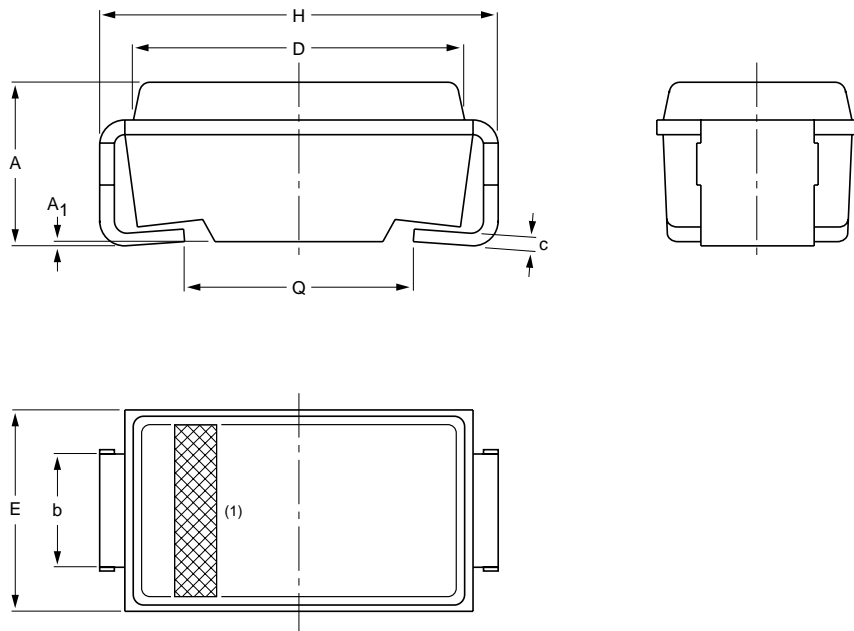
SMA voltage regulator diodes

BZG01 series

PACKAGE OUTLINE

Transfer-moulded thermo-setting plastic small rectangular surface mounted package;
2 connectors

SOD124



DIMENSIONS (mm are the original dimensions)

| UNIT | A | A ₁ | b | c | D | E | H | Q |
|------|------------|----------------|------------|-----|------------|------------|------------|------------|
| mm | 2.3 2.0 | 0.05 | 1.6 1.4 | 0.2 | 4.5 4.3 | 2.8 2.4 | 5.5 5.1 | 3.3 2.7 |

Note

1. The marking band indicates the cathode.

| OUTLINE VERSION | REFERENCES | | | EUROPEAN PROJECTION | ISSUE DATE |
|-----------------|------------|----------|------|---------------------|------------|
| | IEC | JEDEC | EIAJ | | |
| SOD124 | | DO-214AC | | | 99-10-22 |

SMA voltage regulator diodes

BZG01 series

DEFINITIONS

| Data sheet status | |
|---|--|
| Objective specification | This data sheet contains target or goal specifications for product development. |
| Preliminary specification | This data sheet contains preliminary data; supplementary data may be published later. |
| Product specification | This data sheet contains final product specifications. |
| Short-form specification | The data in this specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook. |
| Limiting values | |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 60134). Stress above one or more of the limiting values may cause permanent damage to the device. These are stress ratings only and operation of the device at these or at any other conditions above those given in the Characteristics sections of the specification is not implied. Exposure to limiting values for extended periods may affect device reliability. | |
| Application information | |
| Where application information is given, it is advisory and does not form part of the specification. | |

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