

## BZG03 Series

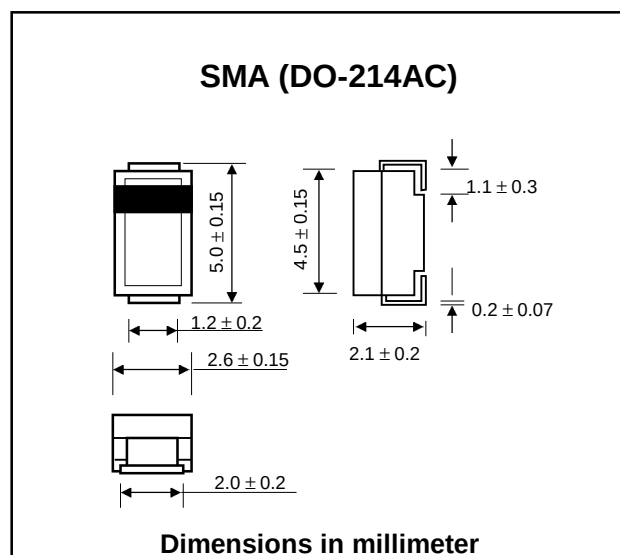
### FEATURES :

- \* Complete Voltage Range 10 to 270 Volts
- \* High maximum operating temperature
- \* Excellent stability
- \* Low leakage current
- \* **Pb / RoHS Free**

### MECHANICAL DATA

- \* Case : SMA (DO-214AC) Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Lead formed for Surface mount
- \* Polarity : Color band denotes cathode end
- \* Mounting position : Any
- \* Weight : 0.064 gram

## VOLTAGE REGULATOR DIODES



### MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified

| Parameter                   | Symbol    | Condition                                                                                                       | Min. | Max. | Unit               |
|-----------------------------|-----------|-----------------------------------------------------------------------------------------------------------------|------|------|--------------------|
| Power dissipation           | $P_{tot}$ | $T_{tp} = 100\text{ }^{\circ}\text{C}$ , see Fig. 1                                                             | -    | 3    | W                  |
| Power dissipation           | $P_{tot}$ | $T_a = 50\text{ }^{\circ}\text{C}$ , see Fig. 1; device mounted on an $\text{Al}_2\text{O}_3$ PCB (Fig. 4)      | -    | 1.25 | W                  |
| Non-repetitive peak reverse | $P_{ZSM}$ | $t_p = 100\text{ }\mu\text{s}$ ; square pulse;<br>$T_j = 25\text{ }^{\circ}\text{C}$ prior to surge; see Fig. 2 | -    | 600  | W                  |
| Forward voltage             | $V_F$     | $I_F = 0.5\text{ A}$ ; $T_j = 25\text{ }^{\circ}\text{C}$ ; see Fig. 3                                          | -    | 1.2  | V                  |
| Junction Temperature Range  | $T_j$     |                                                                                                                 | -65  | +175 | $^{\circ}\text{C}$ |
| Storage Temperature Range   | $T_{stg}$ |                                                                                                                 | -65  | +175 | $^{\circ}\text{C}$ |

### THERMAL CHARACTERISTICS

| Parameter                                     | Symbol         | Condition | Value | Unit |
|-----------------------------------------------|----------------|-----------|-------|------|
| Thermal resistance from junction to tie-point | $R_{th\ j-tp}$ |           | 25    | K/W  |
| Thermal resistance from junction to ambient   | $R_{th\ j-a}$  |           | 100   | K/W  |

#### Note

1. Device mounted on an  $\text{Al}_2\text{O}_3$  printed-circuit board, 0.7 mm thick; thickness of Cu-layer  $\geq 35\text{ }\mu\text{m}$ , see Fig.4.

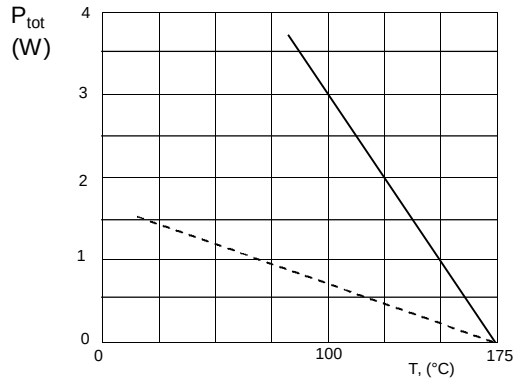
## ELECTRICAL CHARACTERISTICS

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

| Type No.   | Marking Code | Working Voltage |      |      | Differential Resistance                   |      | Temperature Coefficient      |      | Test Current | Maximum Reverse Leakage Current |     |
|------------|--------------|-----------------|------|------|-------------------------------------------|------|------------------------------|------|--------------|---------------------------------|-----|
|            |              | $V_Z @ I_Z$     |      |      | $r_{\text{diff}}(\Omega) \text{ at } I_Z$ |      | $S_Z (\%/K) \text{ at } I_Z$ |      | $I_Z$        | $I_R @ V_R$                     |     |
|            |              | Min.            | Nom. | Max. | Typ.                                      | Max. | Min.                         | Max. | (mA)         | ( $\mu\text{A}$ )               | (V) |
| BZG03-C10  | C10          | 9.4             | 10   | 10.6 | 2                                         | 4    | 0.05                         | 0.09 | 50           | 7.0                             | 7.5 |
| BZG03-C11  | C11          | 10.4            | 11   | 11.6 | 4                                         | 7    | 0.05                         | 0.1  | 50           | 4.0                             | 8.2 |
| BZG03-C12  | C12          | 11.4            | 12   | 12.7 | 4                                         | 7    | 0.05                         | 0.1  | 50           | 3.0                             | 9.1 |
| BZG03-C13  | C13          | 12.4            | 13   | 14.1 | 5                                         | 10   | 0.05                         | 0.1  | 50           | 2.0                             | 10  |
| BZG03-C15  | C15          | 13.8            | 15   | 15.6 | 5                                         | 10   | 0.05                         | 0.1  | 50           | 1.0                             | 11  |
| BZG03-C16  | C16          | 15.3            | 16   | 17.1 | 6                                         | 15   | 0.05                         | 0.11 | 25           | 1.0                             | 12  |
| BZG03-C18  | C18          | 16.8            | 18   | 19.1 | 6                                         | 15   | 0.06                         | 0.11 | 25           | 1.0                             | 13  |
| BZG03-C20  | C20          | 18.8            | 20   | 21.2 | 6                                         | 15   | 0.06                         | 0.11 | 25           | 1.0                             | 15  |
| BZG03-C22  | C22          | 20.8            | 22   | 23.3 | 6                                         | 15   | 0.06                         | 0.11 | 25           | 1.0                             | 16  |
| BZG03-C24  | C24          | 22.8            | 24   | 25.6 | 7                                         | 15   | 0.06                         | 0.11 | 25           | 1.0                             | 18  |
| BZG03-C27  | C27          | 25.1            | 27   | 28.9 | 7                                         | 15   | 0.06                         | 0.11 | 25           | 1.0                             | 20  |
| BZG03-C30  | C30          | 28              | 30   | 32   | 8                                         | 15   | 0.06                         | 0.11 | 25           | 1.0                             | 22  |
| BZG03-C33  | C33          | 31              | 33   | 35   | 8                                         | 15   | 0.06                         | 0.11 | 25           | 1.0                             | 24  |
| BZG03-C36  | C36          | 34              | 36   | 38   | 21                                        | 40   | 0.06                         | 0.11 | 10           | 1.0                             | 27  |
| BZG03-C39  | C39          | 37              | 39   | 41   | 21                                        | 40   | 0.06                         | 0.11 | 10           | 1.0                             | 30  |
| BZG03-C43  | C43          | 40              | 43   | 46   | 24                                        | 45   | 0.07                         | 0.12 | 10           | 1.0                             | 33  |
| BZG03-C47  | C47          | 44              | 47   | 50   | 24                                        | 45   | 0.07                         | 0.12 | 10           | 1.0                             | 36  |
| BZG03-C51  | C51          | 48              | 51   | 54   | 25                                        | 60   | 0.07                         | 0.12 | 10           | 1.0                             | 39  |
| BZG03-C56  | C56          | 52              | 56   | 60   | 25                                        | 60   | 0.07                         | 0.12 | 10           | 1.0                             | 43  |
| BZG03-C62  | C62          | 58              | 62   | 66   | 25                                        | 80   | 0.08                         | 0.13 | 10           | 1.0                             | 47  |
| BZG03-C68  | C68          | 64              | 68   | 72   | 25                                        | 80   | 0.08                         | 0.13 | 10           | 1.0                             | 51  |
| BZG03-C75  | C75          | 70              | 75   | 79   | 30                                        | 100  | 0.08                         | 0.13 | 10           | 1.0                             | 56  |
| BZG03-C82  | C82          | 77              | 82   | 87   | 30                                        | 100  | 0.08                         | 0.13 | 10           | 1.0                             | 62  |
| BZG03-C91  | C91          | 85              | 91   | 96   | 60                                        | 200  | 0.09                         | 0.13 | 5            | 1.0                             | 68  |
| BZG03-C100 | C100         | 94              | 100  | 106  | 60                                        | 200  | 0.09                         | 0.13 | 5            | 1.0                             | 75  |
| BZG03-C110 | C110         | 104             | 110  | 116  | 80                                        | 250  | 0.09                         | 0.13 | 5            | 1.0                             | 82  |
| BZG03-C120 | C120         | 114             | 120  | 127  | 80                                        | 250  | 0.09                         | 0.13 | 5            | 1.0                             | 91  |
| BZG03-C130 | C130         | 124             | 130  | 141  | 110                                       | 300  | 0.09                         | 0.13 | 5            | 1.0                             | 100 |
| BZG03-C150 | C150         | 138             | 150  | 156  | 130                                       | 300  | 0.09                         | 0.13 | 5            | 1.0                             | 110 |
| BZG03-C160 | C160         | 153             | 160  | 171  | 150                                       | 350  | 0.09                         | 0.13 | 5            | 1.0                             | 120 |
| BZG03-C180 | C180         | 168             | 180  | 191  | 180                                       | 400  | 0.09                         | 0.13 | 5            | 1.0                             | 130 |
| BZG03-C200 | C200         | 188             | 200  | 212  | 200                                       | 500  | 0.09                         | 0.13 | 5            | 1.0                             | 150 |
| BZG03-C220 | C220         | 208             | 220  | 233  | 350                                       | 750  | 0.09                         | 0.13 | 2            | 1.0                             | 160 |
| BZG03-C240 | C240         | 228             | 240  | 256  | 400                                       | 850  | 0.09                         | 0.13 | 2            | 1.0                             | 180 |
| BZG03-C270 | C270         | 251             | 270  | 289  | 450                                       | 1000 | 0.09                         | 0.13 | 2            | 1.0                             | 200 |

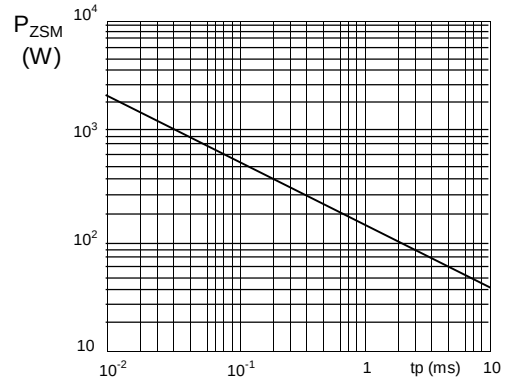
## RATING AND CHARACTERISTIC CURVES ( BZG03 Series )

**FIG.1 - Maximum total power dissipation as a function of temperature.**



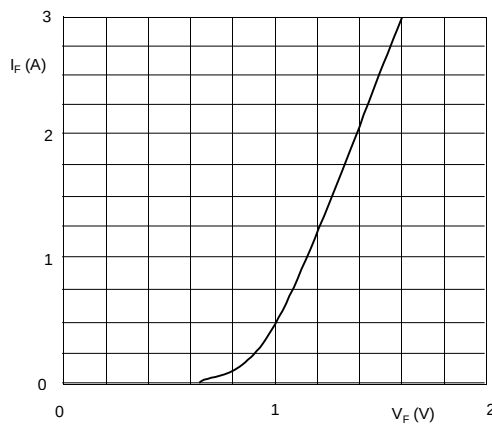
Solid line: tie-point temperature.  
Dotted line: ambient temperature; device mounted on an  $Al_2O_3$  PCB as shown in Fig.5.

**FIG.2 - Maximum non-repetitive peak reverse power dissipation as a function of pulse duration (square pulse).**



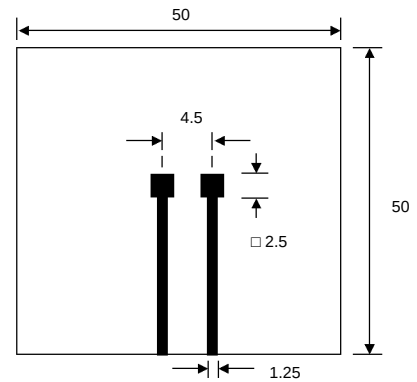
$T_j = 25$  °C prior to surge.

**FIG. 3 - Forward current as a function of forward voltage; typical values.**



$T_j = 25$  °C.

**FIG.4 - Printed-circuit board for surface mounting.**



Dimensions in mm.