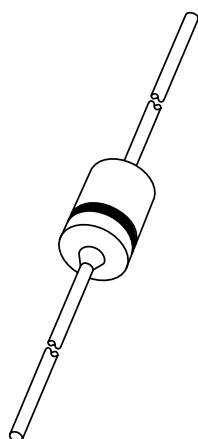


# DATA SHEET



## **BZX79 series** Voltage regulator diodes

Product specification  
Supersedes data of 1996 Apr 26

1999 May 25

## Voltage regulator diodes

## BZX79 series

## FEATURES

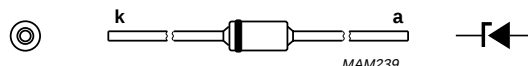
- Total power dissipation: max. 500 mW
- Three tolerance series:  $\pm 1\%$ ,  $\pm 2\%$ , and approx.  $\pm 5\%$
- Working voltage range: nom. 2.4 to 75 V (E24 range)
- Non-repetitive peak reverse power dissipation: max. 40 W.

## APPLICATIONS

- Low voltage stabilizers or voltage references.

## DESCRIPTION

Low-power voltage regulator diodes in hermetically sealed leaded glass SOD27 (DO-35) packages. The diodes are available in the normalized E24  $\pm 1\%$  (BZX79-A),  $\pm 2\%$  (BZX79-B), and approx.  $\pm 5\%$  (BZX79-C) tolerance range. The series consists of 37 types with nominal working voltages from 2.4 to 75 V.



The diodes are type branded.

Fig.1 Simplified outline (SOD27; DO-35) and symbol.

## LIMITING VALUES

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

| SYMBOL    | PARAMETER                                     | CONDITIONS                                                                       | MIN.                     | MAX. | UNIT       |
|-----------|-----------------------------------------------|----------------------------------------------------------------------------------|--------------------------|------|------------|
| $I_F$     | continuous forward current                    |                                                                                  | —                        | 250  | mA         |
| $I_{ZSM}$ | non-repetitive peak reverse current           | $t_p = 100 \mu s$ ; square wave;<br>$T_j = 25^\circ C$ prior to surge            | see Tables 1, 2, 3 and 4 |      |            |
| $P_{tot}$ | total power dissipation                       | $T_{amb} = 50^\circ C$ ; note 1                                                  | —                        | 400  | mW         |
|           |                                               | $T_{amb} = 50^\circ C$ ; note 2                                                  | —                        | 500  | mW         |
| $P_{ZSM}$ | non-repetitive peak reverse power dissipation | $t_p = 100 \mu s$ ; square wave;<br>$T_j = 25^\circ C$ prior to surge; see Fig.3 | —                        | 40   | W          |
| $T_{stg}$ | storage temperature                           |                                                                                  | −65                      | +200 | $^\circ C$ |
| $T_j$     | junction temperature                          |                                                                                  | −65                      | +200 | $^\circ C$ |

## Notes

1. Device mounted on a printed circuit-board without metallization pad; lead length max.
2. Tie-point temperature  $\leq 50^\circ C$ ; max. lead length 8 mm.

## Voltage regulator diodes

## BZX79 series

## ELECTRICAL CHARACTERISTICS

## Total BZX79-A, B and C series

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

| SYMBOL | PARAMETER           | CONDITIONS                       | MAX. | UNIT          |
|--------|---------------------|----------------------------------|------|---------------|
| $V_F$  | forward voltage     | $I_F = 10\text{ mA}$ ; see Fig.4 | 0.9  | V             |
| $I_R$  | reverse current     |                                  |      |               |
|        | BZX79-A/B/C2V4      | $V_R = 1\text{ V}$               | 50   | $\mu\text{A}$ |
|        | BZX79-A/B/C2V7      | $V_R = 1\text{ V}$               | 20   | $\mu\text{A}$ |
|        | BZX79-A/B/C3V0      | $V_R = 1\text{ V}$               | 10   | $\mu\text{A}$ |
|        | BZX79-A/B/C3V3      | $V_R = 1\text{ V}$               | 5    | $\mu\text{A}$ |
|        | BZX79-A/B/C3V6      | $V_R = 1\text{ V}$               | 5    | $\mu\text{A}$ |
|        | BZX79-A/B/C3V9      | $V_R = 1\text{ V}$               | 3    | $\mu\text{A}$ |
|        | BZX79-A/B/C4V3      | $V_R = 1\text{ V}$               | 3    | $\mu\text{A}$ |
|        | BZX79-A/B/C4V7      | $V_R = 2\text{ V}$               | 3    | $\mu\text{A}$ |
|        | BZX79-A/B/C5V1      | $V_R = 2\text{ V}$               | 2    | $\mu\text{A}$ |
|        | BZX79-A/B/C5V6      | $V_R = 2\text{ V}$               | 1    | $\mu\text{A}$ |
|        | BZX79-A/B/C6V2      | $V_R = 4\text{ V}$               | 3    | $\mu\text{A}$ |
|        | BZX79-A/B/C6V8      | $V_R = 4\text{ V}$               | 2    | $\mu\text{A}$ |
|        | BZX79-A/B/C7V5      | $V_R = 5\text{ V}$               | 1    | $\mu\text{A}$ |
|        | BZX79-A/B/C8V2      | $V_R = 5\text{ V}$               | 700  | nA            |
|        | BZX79-A/B/C9V1      | $V_R = 6\text{ V}$               | 500  | nA            |
|        | BZX79-A/B/C10       | $V_R = 7\text{ V}$               | 200  | nA            |
|        | BZX79-A/B/C11       | $V_R = 8\text{ V}$               | 100  | nA            |
|        | BZX79-A/B/C12       | $V_R = 8\text{ V}$               | 100  | nA            |
|        | BZX79-A/B/C13       | $V_R = 8\text{ V}$               | 100  | nA            |
|        | BZX79-A/B/C15 to 75 | $V_R = 0.7V_{Znom}$              | 50   | nA            |

## Voltage regulator diodes

## BZX79 series

**Table 1** Per type BZX79-A/B2V4 to A/B24 $T_j = 25\text{ }^{\circ}\text{C}$  unless otherwise specified.

| BZX79-<br>A or B<br>XXX | WORKING VOLTAGE<br>$V_Z$ (V)<br>at $I_{Z\text{test}} = 5\text{ mA}$ |       |                    |       | DIFFERENTIAL RESISTANCE<br>$r_{\text{dif}}$ ( $\Omega$ ) |      |                                     |      | TEMP. COEFF.<br>$S_Z$ (mV/K)<br>at $I_{Z\text{test}} = 5\text{ mA}$<br>(see Figs 5 and 6) |      |      | DIODE CAP.<br>$C_d$ (pF)<br>at $f = 1\text{ MHz}$ ;<br>$V_R = 0\text{ V}$ | NON-REPETITIVE PEAK<br>REVERSE CURRENT<br>$I_{ZSM}$ (A)<br>at $t_p = 100\text{ }\mu\text{s}$ ; $T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$ |
|-------------------------|---------------------------------------------------------------------|-------|--------------------|-------|----------------------------------------------------------|------|-------------------------------------|------|-------------------------------------------------------------------------------------------|------|------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                         | Tol. $\pm 1\%$ (A)                                                  |       | Tol. $\pm 2\%$ (B) |       | at $I_{Z\text{test}} = 1\text{ mA}$                      |      | at $I_{Z\text{test}} = 5\text{ mA}$ |      | MIN.                                                                                      | TYP. | MAX. | MAX.                                                                      | MAX.                                                                                                                                         |
|                         | MIN.                                                                | MAX.  | MIN.               | MAX.  | TYP.                                                     | MAX. | TYP.                                | MAX. |                                                                                           |      |      |                                                                           |                                                                                                                                              |
| 2V4                     | 2.37                                                                | 2.43  | 2.35               | 2.45  | 275                                                      | 600  | 70                                  | 100  | -3.5                                                                                      | -1.6 | 0    | 450                                                                       | 6.0                                                                                                                                          |
| 2V7                     | 2.67                                                                | 2.73  | 2.65               | 2.75  | 300                                                      | 600  | 75                                  | 100  | -3.5                                                                                      | -2.0 | 0    | 450                                                                       | 6.0                                                                                                                                          |
| 3V0                     | 2.97                                                                | 3.03  | 2.94               | 3.06  | 325                                                      | 600  | 80                                  | 95   | -3.5                                                                                      | -2.1 | 0    | 450                                                                       | 6.0                                                                                                                                          |
| 3V3                     | 3.26                                                                | 3.34  | 3.23               | 3.37  | 350                                                      | 600  | 85                                  | 95   | -3.5                                                                                      | -2.4 | 0    | 450                                                                       | 6.0                                                                                                                                          |
| 3V6                     | 3.56                                                                | 3.64  | 3.53               | 3.67  | 375                                                      | 600  | 85                                  | 90   | -3.5                                                                                      | -2.4 | 0    | 450                                                                       | 6.0                                                                                                                                          |
| 3V9                     | 3.86                                                                | 3.94  | 3.82               | 3.98  | 400                                                      | 600  | 85                                  | 90   | -3.5                                                                                      | -2.5 | 0    | 450                                                                       | 6.0                                                                                                                                          |
| 4V3                     | 4.25                                                                | 4.35  | 4.21               | 4.39  | 410                                                      | 600  | 80                                  | 90   | -3.5                                                                                      | -2.5 | 0    | 450                                                                       | 6.0                                                                                                                                          |
| 4V7                     | 4.65                                                                | 4.75  | 4.61               | 4.79  | 425                                                      | 500  | 50                                  | 80   | -3.5                                                                                      | -1.4 | 0.2  | 300                                                                       | 6.0                                                                                                                                          |
| 5V1                     | 5.04                                                                | 5.16  | 5.00               | 5.20  | 400                                                      | 480  | 40                                  | 60   | -2.7                                                                                      | -0.8 | 1.2  | 300                                                                       | 6.0                                                                                                                                          |
| 5V6                     | 5.54                                                                | 5.66  | 5.49               | 5.71  | 80                                                       | 400  | 15                                  | 40   | -2.0                                                                                      | 1.2  | 2.5  | 300                                                                       | 6.0                                                                                                                                          |
| 6V2                     | 6.13                                                                | 6.27  | 6.08               | 6.32  | 40                                                       | 150  | 6                                   | 10   | 0.4                                                                                       | 2.3  | 3.7  | 200                                                                       | 6.0                                                                                                                                          |
| 6V8                     | 6.73                                                                | 6.87  | 6.66               | 6.94  | 30                                                       | 80   | 6                                   | 15   | 1.2                                                                                       | 3.0  | 4.5  | 200                                                                       | 6.0                                                                                                                                          |
| 7V5                     | 7.42                                                                | 7.58  | 7.35               | 7.65  | 30                                                       | 80   | 6                                   | 15   | 2.5                                                                                       | 4.0  | 5.3  | 150                                                                       | 4.0                                                                                                                                          |
| 8V2                     | 8.11                                                                | 8.29  | 8.04               | 8.36  | 40                                                       | 80   | 6                                   | 15   | 3.2                                                                                       | 4.6  | 6.2  | 150                                                                       | 4.0                                                                                                                                          |
| 9V1                     | 9.00                                                                | 9.20  | 8.92               | 9.28  | 40                                                       | 100  | 6                                   | 15   | 3.8                                                                                       | 5.5  | 7.0  | 150                                                                       | 3.0                                                                                                                                          |
| 10                      | 9.90                                                                | 10.10 | 9.80               | 10.20 | 50                                                       | 150  | 8                                   | 20   | 4.5                                                                                       | 6.4  | 8.0  | 90                                                                        | 3.0                                                                                                                                          |
| 11                      | 10.89                                                               | 11.11 | 10.80              | 11.20 | 50                                                       | 150  | 10                                  | 20   | 5.4                                                                                       | 7.4  | 9.0  | 85                                                                        | 2.5                                                                                                                                          |
| 12                      | 11.88                                                               | 12.12 | 11.80              | 12.20 | 50                                                       | 150  | 10                                  | 25   | 6.0                                                                                       | 8.4  | 10.0 | 85                                                                        | 2.5                                                                                                                                          |
| 13                      | 12.87                                                               | 13.13 | 12.70              | 13.30 | 50                                                       | 170  | 10                                  | 30   | 7.0                                                                                       | 9.4  | 11.0 | 80                                                                        | 2.5                                                                                                                                          |
| 15                      | 14.85                                                               | 15.15 | 14.70              | 15.30 | 50                                                       | 200  | 10                                  | 30   | 9.2                                                                                       | 11.4 | 13.0 | 75                                                                        | 2.0                                                                                                                                          |
| 16                      | 15.84                                                               | 16.16 | 15.70              | 16.30 | 50                                                       | 200  | 10                                  | 40   | 10.4                                                                                      | 12.4 | 14.0 | 75                                                                        | 1.5                                                                                                                                          |
| 18                      | 17.82                                                               | 18.18 | 17.60              | 18.40 | 50                                                       | 225  | 10                                  | 45   | 12.4                                                                                      | 14.4 | 16.0 | 70                                                                        | 1.5                                                                                                                                          |
| 20                      | 19.80                                                               | 20.20 | 19.60              | 20.40 | 60                                                       | 225  | 15                                  | 55   | 14.4                                                                                      | 16.4 | 18.0 | 60                                                                        | 1.5                                                                                                                                          |
| 22                      | 21.78                                                               | 22.22 | 21.60              | 22.40 | 60                                                       | 250  | 20                                  | 55   | 16.4                                                                                      | 18.4 | 20.0 | 60                                                                        | 1.25                                                                                                                                         |
| 24                      | 23.76                                                               | 24.24 | 23.50              | 24.50 | 60                                                       | 250  | 25                                  | 70   | 18.4                                                                                      | 20.4 | 22.0 | 55                                                                        | 1.25                                                                                                                                         |

## Voltage regulator diodes

## BZX79 series

**Table 2** Per type BZX79-A/B27 to A/B75 $T_j = 25\text{ }^{\circ}\text{C}$  unless otherwise specified.

| BZX79-<br>A or B<br>XXX | WORKING VOLTAGE<br>$V_Z$ (V)<br>at $I_{Z\text{test}} = 2\text{ mA}$ |       |                    |       | DIFFERENTIAL RESISTANCE<br>$r_{\text{dif}}$ ( $\Omega$ ) |      |                                     |      | TEMP. COEFF.<br>$S_Z$ (mV/K)<br>at $I_{Z\text{test}} = 2\text{ mA}$<br>(see Figs 5 and 6) |      |      | DIODE CAP.<br>$C_d$ (pF)<br>at $f = 1\text{ MHz}$ ;<br>$V_R = 0\text{ V}$ | NON-REPETITIVE PEAK<br>REVERSE CURRENT<br>$I_{ZSM}$ (A)<br>at $t_p = 100\text{ }\mu\text{s}$ ; $T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$ |
|-------------------------|---------------------------------------------------------------------|-------|--------------------|-------|----------------------------------------------------------|------|-------------------------------------|------|-------------------------------------------------------------------------------------------|------|------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                         | Tol. $\pm 1\%$ (A)                                                  |       | Tol. $\pm 2\%$ (B) |       | at $I_{Z\text{test}} = 0.5\text{ mA}$                    |      | at $I_{Z\text{test}} = 2\text{ mA}$ |      | MIN.                                                                                      | TYP. | MAX. | MAX.                                                                      | MAX.                                                                                                                                         |
|                         | MIN.                                                                | MAX.  | MIN.               | MAX.  | TYP.                                                     | MAX. | TYP.                                | MAX. |                                                                                           |      |      |                                                                           |                                                                                                                                              |
| 27                      | 26.73                                                               | 27.27 | 26.50              | 27.50 | 65                                                       | 300  | 25                                  | 80   | 21.4                                                                                      | 23.4 | 25.3 | 50                                                                        | 1.0                                                                                                                                          |
| 30                      | 29.70                                                               | 30.30 | 29.40              | 30.60 | 70                                                       | 300  | 30                                  | 80   | 24.4                                                                                      | 26.6 | 29.4 | 50                                                                        | 1.0                                                                                                                                          |
| 33                      | 32.67                                                               | 33.33 | 32.30              | 33.70 | 75                                                       | 325  | 35                                  | 80   | 27.4                                                                                      | 29.7 | 33.4 | 45                                                                        | 0.9                                                                                                                                          |
| 36                      | 35.64                                                               | 36.36 | 35.30              | 36.70 | 80                                                       | 350  | 35                                  | 90   | 30.4                                                                                      | 33.0 | 37.4 | 45                                                                        | 0.8                                                                                                                                          |
| 39                      | 38.61                                                               | 39.39 | 38.20              | 39.80 | 80                                                       | 350  | 40                                  | 130  | 33.4                                                                                      | 36.4 | 41.2 | 45                                                                        | 0.7                                                                                                                                          |
| 43                      | 42.57                                                               | 43.43 | 42.10              | 43.90 | 85                                                       | 375  | 45                                  | 150  | 37.6                                                                                      | 41.2 | 46.6 | 40                                                                        | 0.6                                                                                                                                          |
| 47                      | 46.53                                                               | 47.47 | 46.10              | 47.90 | 85                                                       | 375  | 50                                  | 170  | 42.0                                                                                      | 46.1 | 51.8 | 40                                                                        | 0.5                                                                                                                                          |
| 51                      | 50.49                                                               | 51.51 | 50.00              | 52.00 | 90                                                       | 400  | 60                                  | 180  | 46.6                                                                                      | 51.0 | 57.2 | 40                                                                        | 0.4                                                                                                                                          |
| 56                      | 55.44                                                               | 56.56 | 54.90              | 57.10 | 100                                                      | 425  | 70                                  | 200  | 52.2                                                                                      | 57.0 | 63.8 | 40                                                                        | 0.3                                                                                                                                          |
| 62                      | 61.38                                                               | 62.62 | 60.80              | 63.20 | 120                                                      | 450  | 80                                  | 215  | 58.8                                                                                      | 64.4 | 71.6 | 35                                                                        | 0.3                                                                                                                                          |
| 68                      | 67.32                                                               | 68.68 | 66.60              | 69.40 | 150                                                      | 475  | 90                                  | 240  | 65.6                                                                                      | 71.7 | 79.8 | 35                                                                        | 0.25                                                                                                                                         |
| 75                      | 74.25                                                               | 75.75 | 73.50              | 76.50 | 170                                                      | 500  | 95                                  | 255  | 73.4                                                                                      | 80.2 | 88.6 | 35                                                                        | 0.2                                                                                                                                          |

## Voltage regulator diodes

## BZX79 series

**Table 3** Per type BZX79-C2V4 to C24 $T_j = 25\text{ }^{\circ}\text{C}$  unless otherwise specified.

| BZX79<br>- C<br>XXX | WORKING VOLTAGE<br>V <sub>Z</sub> (V)<br>at I <sub>Ztest</sub> = 5 mA |      | DIFFERENTIAL RESISTANCE<br>r <sub>dif</sub> (Ω) |      |                              |      | TEMP. COEFF.<br>S <sub>Z</sub> (mV/K)<br>at I <sub>Ztest</sub> = 5 mA<br>(see Figs 5 and 6) |      |      | DIODE CAP.<br>C <sub>d</sub> (pF)<br>at f = 1 MHz;<br>V <sub>R</sub> = 0 V | NON-REPETITIVE PEAK<br>REVERSE CURRENT<br>I <sub>ZSM</sub> (A)<br>at t <sub>p</sub> = 100 μs; T <sub>amb</sub> = 25 °C |
|---------------------|-----------------------------------------------------------------------|------|-------------------------------------------------|------|------------------------------|------|---------------------------------------------------------------------------------------------|------|------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
|                     | Tol. approx. ±5% (C)                                                  |      | at I <sub>Ztest</sub> = 1 mA                    |      | at I <sub>Ztest</sub> = 5 mA |      | MIN.                                                                                        | TYP. | MAX. | MAX.                                                                       | MAX.                                                                                                                   |
|                     | MIN.                                                                  | MAX. | TYP.                                            | MAX. | TYP.                         | MAX. |                                                                                             |      |      |                                                                            |                                                                                                                        |
| 2V4                 | 2.2                                                                   | 2.6  | 275                                             | 600  | 70                           | 100  | −3.5                                                                                        | −1.6 | 0    | 450                                                                        | 6.0                                                                                                                    |
| 2V7                 | 2.5                                                                   | 2.9  | 300                                             | 600  | 75                           | 100  | −3.5                                                                                        | −2.0 | 0    | 450                                                                        | 6.0                                                                                                                    |
| 3V0                 | 2.8                                                                   | 3.2  | 325                                             | 600  | 80                           | 95   | −3.5                                                                                        | −2.1 | 0    | 450                                                                        | 6.0                                                                                                                    |
| 3V3                 | 3.1                                                                   | 3.5  | 350                                             | 600  | 85                           | 95   | −3.5                                                                                        | −2.4 | 0    | 450                                                                        | 6.0                                                                                                                    |
| 3V6                 | 3.4                                                                   | 3.8  | 375                                             | 600  | 85                           | 90   | −3.5                                                                                        | −2.4 | 0    | 450                                                                        | 6.0                                                                                                                    |
| 3V9                 | 3.7                                                                   | 4.1  | 400                                             | 600  | 85                           | 90   | −3.5                                                                                        | −2.5 | 0    | 450                                                                        | 6.0                                                                                                                    |
| 4V3                 | 4.0                                                                   | 4.6  | 410                                             | 600  | 80                           | 90   | −3.5                                                                                        | −2.5 | 0    | 450                                                                        | 6.0                                                                                                                    |
| 4V7                 | 4.4                                                                   | 5.0  | 425                                             | 500  | 50                           | 80   | −3.5                                                                                        | −1.4 | 0.2  | 300                                                                        | 6.0                                                                                                                    |
| 5V1                 | 4.8                                                                   | 5.4  | 400                                             | 480  | 40                           | 60   | −2.7                                                                                        | −0.8 | 1.2  | 300                                                                        | 6.0                                                                                                                    |
| 5V6                 | 5.2                                                                   | 6.0  | 80                                              | 400  | 15                           | 40   | −2.0                                                                                        | 1.2  | 2.5  | 300                                                                        | 6.0                                                                                                                    |
| 6V2                 | 5.8                                                                   | 6.6  | 40                                              | 150  | 6                            | 10   | 0.4                                                                                         | 2.3  | 3.7  | 200                                                                        | 6.0                                                                                                                    |
| 6V8                 | 6.4                                                                   | 7.2  | 30                                              | 80   | 6                            | 15   | 1.2                                                                                         | 3.0  | 4.5  | 200                                                                        | 6.0                                                                                                                    |
| 7V5                 | 7.0                                                                   | 7.9  | 30                                              | 80   | 6                            | 15   | 2.5                                                                                         | 4.0  | 5.3  | 150                                                                        | 4.0                                                                                                                    |
| 8V2                 | 7.7                                                                   | 8.7  | 40                                              | 80   | 6                            | 15   | 3.2                                                                                         | 4.6  | 6.2  | 150                                                                        | 4.0                                                                                                                    |
| 9V1                 | 8.5                                                                   | 9.6  | 40                                              | 100  | 6                            | 15   | 3.8                                                                                         | 5.5  | 7.0  | 150                                                                        | 3.0                                                                                                                    |
| 10                  | 9.4                                                                   | 10.6 | 50                                              | 150  | 8                            | 20   | 4.5                                                                                         | 6.4  | 8.0  | 90                                                                         | 3.0                                                                                                                    |
| 11                  | 10.4                                                                  | 11.6 | 50                                              | 150  | 10                           | 20   | 5.4                                                                                         | 7.4  | 9.0  | 85                                                                         | 2.5                                                                                                                    |
| 12                  | 11.4                                                                  | 12.7 | 50                                              | 150  | 10                           | 25   | 6.0                                                                                         | 8.4  | 10.0 | 85                                                                         | 2.5                                                                                                                    |
| 13                  | 12.4                                                                  | 14.1 | 50                                              | 170  | 10                           | 30   | 7.0                                                                                         | 9.4  | 11.0 | 80                                                                         | 2.5                                                                                                                    |
| 15                  | 13.8                                                                  | 15.6 | 50                                              | 200  | 10                           | 30   | 9.2                                                                                         | 11.4 | 13.0 | 75                                                                         | 2.0                                                                                                                    |
| 16                  | 15.3                                                                  | 17.1 | 50                                              | 200  | 10                           | 40   | 10.4                                                                                        | 12.4 | 14.0 | 75                                                                         | 1.5                                                                                                                    |
| 18                  | 16.8                                                                  | 19.1 | 50                                              | 225  | 10                           | 45   | 12.4                                                                                        | 14.4 | 16.0 | 70                                                                         | 1.5                                                                                                                    |
| 20                  | 18.8                                                                  | 21.2 | 60                                              | 225  | 15                           | 55   | 14.4                                                                                        | 16.4 | 18.0 | 60                                                                         | 1.5                                                                                                                    |
| 22                  | 20.8                                                                  | 23.3 | 60                                              | 250  | 20                           | 55   | 16.4                                                                                        | 18.4 | 20.0 | 60                                                                         | 1.25                                                                                                                   |
| 24                  | 22.8                                                                  | 25.6 | 60                                              | 250  | 25                           | 70   | 18.4                                                                                        | 20.4 | 22.0 | 55                                                                         | 1.25                                                                                                                   |

Voltage regulator diodes

BZX79 series

**Table 4** Per type BZX79-C27 to C75  
 $T_j = 25\text{ }^{\circ}\text{C}$  unless otherwise specified.

| BZX79<br>- C<br>XXX | WORKING<br>VOLTAGE<br>V <sub>Z</sub> (V)<br>at I <sub>Ztest</sub> = 2 mA |      | DIFFERENTIAL RESISTANCE<br>r <sub>dif</sub> (Ω) |      |                              |      | TEMP. COEFF.<br>S <sub>Z</sub> (mV/K)<br>at I <sub>Ztest</sub> = 2 mA<br>(see Figs 5 and 6) |      |      | DIODE CAP.<br>C <sub>d</sub> (pF)<br>at f = 1 MHz;<br>V <sub>R</sub> = 0 V | NON-REPETITIVE PEAK<br>REVERSE CURRENT<br>I <sub>ZSM</sub> (A)<br>at t <sub>p</sub> = 100 μs; T <sub>amb</sub> = 25 °C |
|---------------------|--------------------------------------------------------------------------|------|-------------------------------------------------|------|------------------------------|------|---------------------------------------------------------------------------------------------|------|------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
|                     | Tol.approx. ±5% (C)                                                      |      | at I <sub>Ztest</sub> = 0.5 mA                  |      | at I <sub>Ztest</sub> = 2 mA |      |                                                                                             |      |      |                                                                            |                                                                                                                        |
|                     | MIN.                                                                     | MAX. | TYP.                                            | MAX. | TYP.                         | MAX. | MIN.                                                                                        | TYP. | MAX. | MAX.                                                                       | MAX.                                                                                                                   |
| 27                  | 25.1                                                                     | 28.9 | 65                                              | 300  | 25                           | 80   | 21.4                                                                                        | 23.4 | 25.3 | 50                                                                         | 1.0                                                                                                                    |
| 30                  | 28.0                                                                     | 32.0 | 70                                              | 300  | 30                           | 80   | 24.4                                                                                        | 26.6 | 29.4 | 50                                                                         | 1.0                                                                                                                    |
| 33                  | 31.0                                                                     | 35.0 | 75                                              | 325  | 35                           | 80   | 27.4                                                                                        | 29.7 | 33.4 | 45                                                                         | 0.9                                                                                                                    |
| 36                  | 34.0                                                                     | 38.0 | 80                                              | 350  | 35                           | 90   | 30.4                                                                                        | 33.0 | 37.4 | 45                                                                         | 0.8                                                                                                                    |
| 39                  | 37.0                                                                     | 41.0 | 80                                              | 350  | 40                           | 130  | 33.4                                                                                        | 36.4 | 41.2 | 45                                                                         | 0.7                                                                                                                    |
| 43                  | 40.0                                                                     | 46.0 | 85                                              | 375  | 45                           | 150  | 37.6                                                                                        | 41.2 | 46.6 | 40                                                                         | 0.6                                                                                                                    |
| 47                  | 44.0                                                                     | 50.0 | 85                                              | 375  | 50                           | 170  | 42.0                                                                                        | 46.1 | 51.8 | 40                                                                         | 0.5                                                                                                                    |
| 51                  | 48.0                                                                     | 54.0 | 90                                              | 400  | 60                           | 180  | 46.6                                                                                        | 51.0 | 57.2 | 40                                                                         | 0.4                                                                                                                    |
| 56                  | 52.0                                                                     | 60.0 | 100                                             | 425  | 70                           | 200  | 52.2                                                                                        | 57.0 | 63.8 | 40                                                                         | 0.3                                                                                                                    |
| 62                  | 58.0                                                                     | 66.0 | 120                                             | 450  | 80                           | 215  | 58.8                                                                                        | 64.4 | 71.6 | 35                                                                         | 0.3                                                                                                                    |
| 68                  | 64.0                                                                     | 72.0 | 150                                             | 475  | 90                           | 240  | 65.6                                                                                        | 71.7 | 79.8 | 35                                                                         | 0.25                                                                                                                   |
| 75                  | 70.0                                                                     | 79.0 | 170                                             | 500  | 95                           | 255  | 73.4                                                                                        | 80.2 | 88.6 | 35                                                                         | 0.2                                                                                                                    |

Voltage regulator diodes

BZX79 series

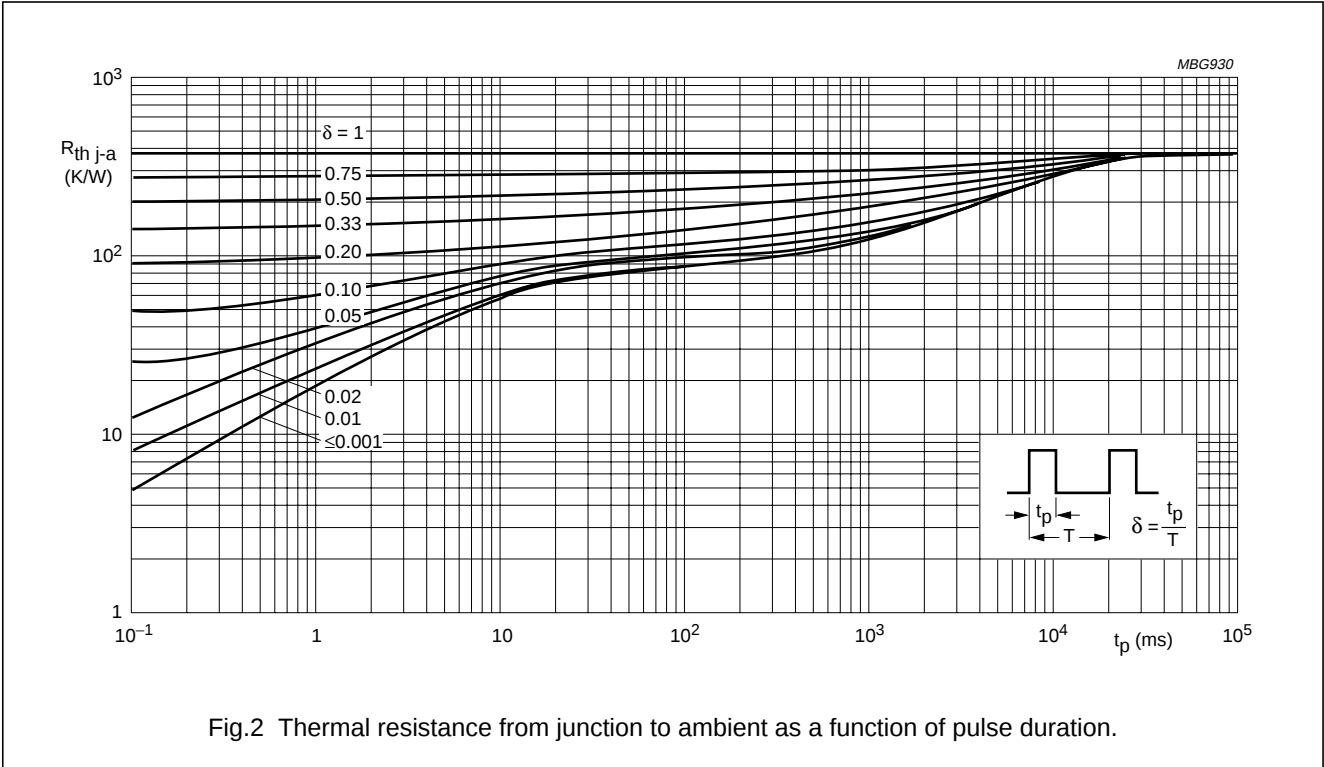
THERMAL CHARACTERISTICS

| SYMBOL         | PARAMETER                                     | CONDITIONS                             | VALUE | UNIT |
|----------------|-----------------------------------------------|----------------------------------------|-------|------|
| $R_{th\ j-tp}$ | thermal resistance from junction to tie-point | lead length 8 mm.                      | 300   | K/W  |
| $R_{th\ j-a}$  | thermal resistance from junction to ambient   | lead length max.; see Fig.2 and note 1 | 380   | K/W  |

Note

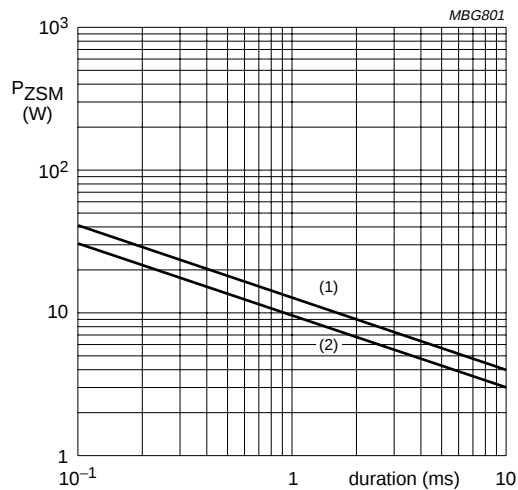
1. Device mounted on a printed circuit-board without metallization pad.

GRAPHICAL DATA



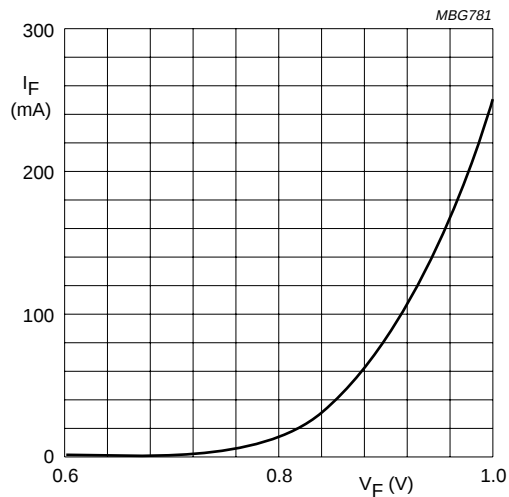
Voltage regulator diodes

BZX79 series



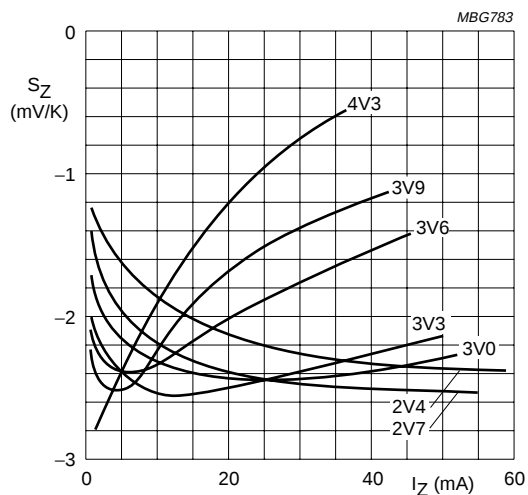
- (1)  $T_j = 25\text{ }^{\circ}\text{C}$  (prior to surge).
- (2)  $T_j = 150\text{ }^{\circ}\text{C}$  (prior to surge).

Fig.3 Maximum permissible non-repetitive peak reverse power dissipation versus duration.



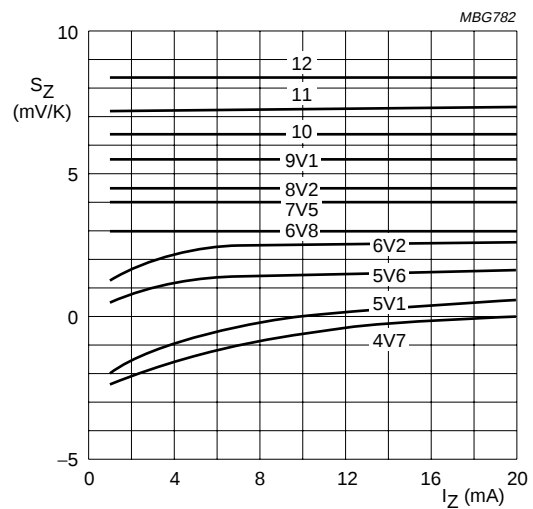
$T_j = 25\text{ }^{\circ}\text{C}$ .

Fig.4 Forward current as a function of forward voltage; typical values.



BZX79-A/B/C2V4 to A/B/C4V3.  
 $T_j = 25\text{ to }150\text{ }^{\circ}\text{C}$ .

Fig.5 Temperature coefficient as a function of working current; typical values.



BZX79-A/B/C4V7 to A/B/C12.  
 $T_j = 25\text{ to }150\text{ }^{\circ}\text{C}$ .

Fig.6 Temperature coefficient as a function of working current; typical values.

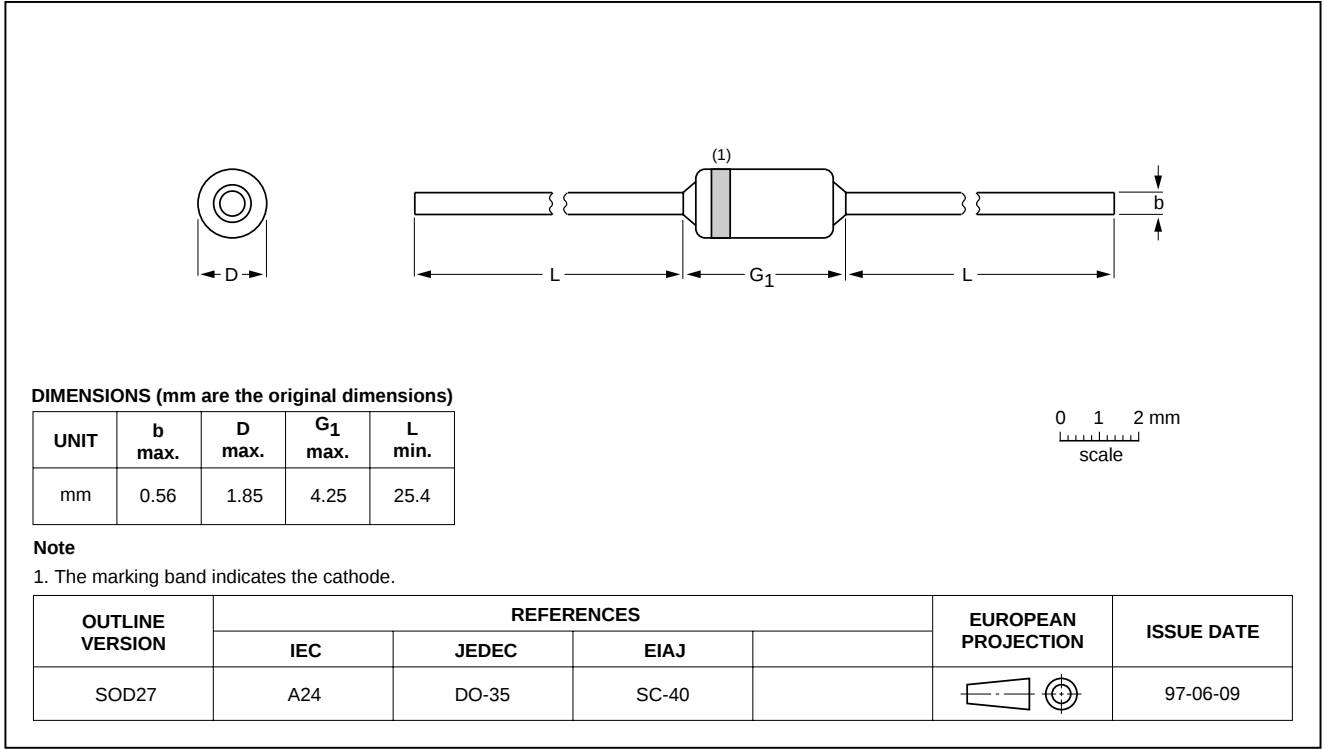
Voltage regulator diodes

BZX79 series

PACKAGE OUTLINE

Hermetically sealed glass package; axial leaded; 2 leads

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DEFINITIONS

|                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Data sheet status</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                       |
| 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.                                |
| <b>Limiting values</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                       |
| Limiting values given are in accordance with the Absolute Maximum Rating System (IEC 134). 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. |                                                                                       |
| <b>Application information</b>                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                       |
| Where application information is given, it is advisory and does not form part of the specification.                                                                                                                                                                                                                                                                                                                                                       |                                                                                       |

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## Voltage regulator diodes

## BZX79 series

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### NOTES

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