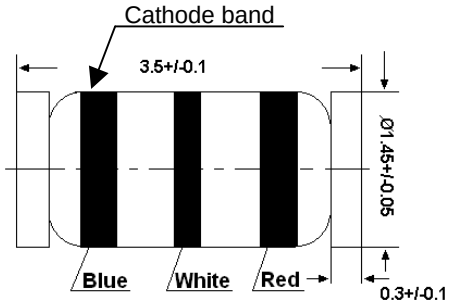
# BZV55 Series

## VOLTAGE REGULATOR DIODES

LL-34




**Glass case MiniMELF**
**Dimensions in mm**

Features

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

Applications

- Low-power voltage stabilizers or voltage references

Absolute Maximum Ratings ($T_a = 25^oC$)

| PARAMETER | | SYMBOL | MIN | MAX | UNIT |
|---|---|---|---|---|---|
| Total power dissipation | $T_{amb}$? 50? ;Note 1 | $P_{tot}$ | - | 400 | mW |
| | Tie-point? 50? ;Note 1 | | - | 500 | mW |
| Junction temperature | | $T_j$ | -65 | +200 | ? |
| Storage temperature | | $T_S$ | -65 | +200 | ? |
| Continuous forward current | | $I_F$ | - | 250 | mA |
| Non-repetitive peak reverse current<br>At $t_p$ = 100µs; square wave; $T_j$ = 25? prior to surge | | $I_{ZSM}$ | See tables 1 and 2 | | - |
| Non-repetitive peak reverse power dissipation<br>At $t_p$ = 100µs; square wave; $T_j$ = 25? prior to surge | | $P_{ZSM}$ | - | 40 | W |

Note:

1. Device mounted on a ceramic substrate of 10*10*0.6 mm

## ELECTRICAL CHARACTERISTICS
### Total BZV55-B and C Series

Tj = 25℃ unless otherwise specified.

| PARAMETER | SYMBOL | MAX | UNIT |
|---|---|---|---|
| Forward voltage at: $I_F$ = 10mA | $V_F$ | 0.9 | V |
| Reverse current | $I_R$ | | |
| BZV55-B/C2V4 at: $V_R$ = 1V | | 50 | μA |
| BZV55-B/C2V7 at: $V_R$ = 1V | | 20 | |
| BZV55-B/C3V0 at: $V_R$ = 1V | | 10 | |
| BZV55-B/C3V3 at: $V_R$ = 1V | | 5 | |
| BZV55-B/C3V6 at: $V_R$ = 1V | | 5 | |
| BZV55-B/C3V9 at: $V_R$ = 1V | | 3 | |
| BZV55-B/C4V3 at: $V_R$ = 1V | | 3 | |
| BZV55-B/C4V7 at: $V_R$ = 2V | | 3 | μA |
| BZV55-B/C5V1 at: $V_R$ = 2V | | 2 | |
| BZV55-B/C5V6 at: $V_R$ = 2V | | 1 | |
| BZV55-B/C6V2 at: $V_R$ = 4V | | 3 | μA |
| BZV55-B/C6V8 at: $V_R$ = 4V | | 2 | |
| BZV55-B/C7V5 at: $V_R$ = 5V | | 1 | μA |
| BZV55-B/C8V2 at: $V_R$ = 5V | | 700 | nA |
| BZV55-B/C9V1 at: $V_R$ = 6V | | 500 | nA |
| BZV55-B/C10 at: $V_R$ = 7V | | 200 | nA |
| BZV55-B/C11 at: $V_R$ = 8V | | 100 | nA |
| BZV55-B/C12 at: $V_R$ = 8V | | 100 | |
| BZV55-B/C13 at: $V_R$ = 8V | | 100 | |
| BZV55-B/C15 to 75 at: $V_R = 0.7V_{Znom}$ | | 50 | nA |

1). Tested with pulses tp = 20 ms.

## Table 1 Per type BZV55-B/C2V4 to B/C24

Tj = 25℃ unless otherwise specified.

| BZV55-B or C XXX | WORKING VOLTAGE $V_Z$ (V) at $I_{Ztest}$ = 5mA | | | | DIFFERENTIAL RESISTANCE $r_{dif}$ (Ω) | | | | TEMP. COEFF. $S_z$ (mV/K) at $I_{Ztest}$ = 5mA | | | DIODE CAP. $C_d$ (pF) at f=1MHz $V_R$ = 0V | NON-REPETITIVE PEAK REVERSE CURRENT $I_{ZSM}$ (A) At $t_p$ = 100µs $T_{amb}$ = 25℃ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tol. ±2%(B) | | Tol. approx. ±5%(C) | | at $I_{Ztest}$ = 1mA | | at $I_{Ztest}$ = 5mA | | | | | | |
| | MIN. | MAX. | MIN. | MAX. | TYP. | MAX. | TYP. | MAX. | MIN. | TYP. | MAX. | MAX. | MAX. |
| 2V4 | 2.35 | 2.45 | 2.2 | 2.6 | 275 | 600 | 70 | 100 | -3.5 | -1.6 | 0 | 450 | 6.0 |
| 2V7 | 2.65 | 2.75 | 2.5 | 2.9 | 300 | 600 | 75 | 100 | -3.5 | -2.0 | 0 | 450 | 6.0 |
| 3V0 | 2.94 | 3.06 | 2.8 | 3.2 | 325 | 600 | 80 | 95 | -3.5 | -2.1 | 0 | 450 | 6.0 |
| 3V3 | 3.23 | 3.37 | 3.1 | 3.5 | 350 | 600 | 85 | 95 | -3.5 | -2.4 | 0 | 450 | 6.0 |
| 3V6 | 3.53 | 3.67 | 3.4 | 3.8 | 375 | 600 | 85 | 90 | -3.5 | -2.4 | 0 | 450 | 6.0 |
| 3V9 | 3.82 | 3.98 | 3.7 | 4.1 | 400 | 600 | 85 | 90 | -3.5 | -2.5 | 0 | 450 | 6.0 |
| 4V3 | 4.21 | 4.39 | 4.0 | 4.6 | 410 | 600 | 80 | 90 | -3.5 | -2.5 | 0 | 450 | 6.0 |
| 4V7 | 4.61 | 4.79 | 4.4 | 5.0 | 425 | 500 | 50 | 80 | -3.5 | -1.4 | 0.2 | 300 | 6.0 |
| 5V1 | 5.00 | 5.20 | 4.8 | 5.4 | 400 | 480 | 40 | 60 | -2.7 | -0.8 | 1.2 | 300 | 6.0 |
| 5V6 | 5.49 | 5.71 | 5.2 | 6.0 | 80 | 400 | 15 | 40 | -2.0 | 1.2 | 2.5 | 300 | 6.0 |
| 6V2 | 6.08 | 6.32 | 5.8 | 6.6 | 40 | 150 | 6 | 10 | 0.4 | 2.3 | 3.7 | 200 | 6.0 |
| 6V8 | 6.66 | 6.94 | 6.4 | 7.2 | 30 | 80 | 6 | 15 | 1.2 | 3.0 | 4.5 | 200 | 6.0 |
| 7V5 | 7.35 | 7.65 | 7.0 | 7.9 | 30 | 80 | 6 | 15 | 2.5 | 4.0 | 5.3 | 150 | 4.0 |
| 8V2 | 8.04 | 8.36 | 7.7 | 8.7 | 40 | 80 | 6 | 15 | 3.2 | 4.6 | 6.2 | 150 | 4.0 |
| 9V1 | 8.92 | 9.28 | 8.5 | 9.6 | 40 | 100 | 6 | 15 | 3.8 | 5.5 | 7.0 | 150 | 3.0 |
| 10 | 9.80 | 10.20 | 9.4 | 10.6 | 50 | 150 | 8 | 20 | 4.5 | 6.4 | 8.0 | 90 | 3.0 |
| 11 | 10.80 | 11.20 | 10.4 | 11.6 | 50 | 150 | 10 | 20 | 5.4 | 7.4 | 9.0 | 85 | 2.5 |
| 12 | 11.80 | 12.20 | 11.4 | 12.7 | 50 | 150 | 10 | 25 | 6.0 | 8.4 | 10.0 | 85 | 2.5 |
| 13 | 12.70 | 13.30 | 12.4 | 14.1 | 50 | 170 | 10 | 30 | 7.0 | 9.4 | 11.0 | 80 | 2.5 |
| 15 | 14.70 | 15.30 | 13.8 | 15.6 | 50 | 200 | 10 | 30 | 9.2 | 11.4 | 13.0 | 75 | 2.0 |
| 16 | 15.70 | 16.30 | 15.3 | 17.1 | 50 | 200 | 10 | 40 | 10.4 | 12.4 | 14.0 | 75 | 1.5 |
| 18 | 17.60 | 18.40 | 16.8 | 19.1 | 50 | 225 | 10 | 45 | 12.4 | 14.4 | 16.0 | 70 | 1.5 |
| 20 | 19.60 | 20.40 | 18.8 | 21.2 | 60 | 225 | 15 | 55 | 14.4 | 16.4 | 18.0 | 60 | 1.5 |
| 22 | 21.60 | 22.40 | 20.8 | 23.3 | 60 | 250 | 20 | 55 | 16.4 | 18.4 | 20.0 | 60 | 1.25 |
| 24 | 23.50 | 24.50 | 22.8 | 25.6 | 60 | 250 | 25 | 70 | 18.4 | 20.4 | 22.0 | 55 | 1.25 |

1). Tested with pulses tp = 20 ms.

## Table 2 Per type BZV55-B/C27 to B/C75

Tj = 25℃ unless otherwise specified

| BZV55-B or C XXX | WORKING VOLTAGE $V_Z$ (V) at $I_{Ztest}$ = 2mA | | | | DIFFERENTIAL RESISTANCE $r_{dif}$ (Ω) | | | | TEMP. COEFF. $S_z$ (mV/K) at $I_{Ztest}$ = 2mA | | | DIODE CAP. $C_d$ (pF) at f=1MHz $V_R$ = 0V | NON-REPETITIVE PEAK REVERSE CURRENT $I_{ZSM}$ (A) At $t_p$ = 100µs $T_{amb}$ = 25℃ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tol. ±2%(B) | | Tol. approx. ±5%(C) | | at $I_{Ztest}$ = 0.5mA | | at $I_{Ztest}$ = 2mA | | | | | | |
| | MIN. | MAX. | MIN. | MAX. | TYP. | MAX. | TYP. | MAX. | MIN. | TYP. | MAX. | MAX. | MAX. |
| 27 | 26.50 | 27.50 | 25.1 | 28.9 | 65 | 300 | 25 | 80 | 21.4 | 23.4 | 25.3 | 50 | 1.0 |
| 30 | 29.40 | 30.60 | 28.0 | 32.0 | 70 | 300 | 30 | 80 | 24.4 | 26.6 | 29.4 | 50 | 1.0 |
| 33 | 32.30 | 33.70 | 31.0 | 35.0 | 75 | 325 | 35 | 80 | 27.4 | 29.7 | 33.4 | 45 | 0.9 |
| 36 | 35.30 | 36.70 | 34.0 | 38.0 | 80 | 350 | 35 | 90 | 30.4 | 33.0 | 37.4 | 45 | 0.8 |
| 39 | 38.20 | 39.80 | 37.0 | 41.0 | 80 | 350 | 40 | 130 | 33.4 | 36.4 | 41.2 | 45 | 0.7 |
| 43 | 42.10 | 43.90 | 40.0 | 46.0 | 85 | 375 | 45 | 150 | 37.6 | 41.2 | 46.6 | 40 | 0.6 |
| 47 | 46.10 | 47.90 | 44.0 | 50.0 | 85 | 375 | 50 | 170 | 42.0 | 46.1 | 51.8 | 40 | 0.5 |
| 51 | 50.00 | 52.00 | 48.0 | 54.0 | 90 | 400 | 60 | 180 | 46.6 | 51.0 | 57.2 | 40 | 0.4 |
| 56 | 54.90 | 57.10 | 52.0 | 60.0 | 100 | 425 | 70 | 200 | 52.2 | 57.0 | 63.8 | 40 | 0.3 |
| 62 | 60.80 | 63.20 | 58.0 | 66.0 | 120 | 450 | 80 | 215 | 58.8 | 64.4 | 71.6 | 35 | 0.3 |
| 68 | 66.60 | 69.40 | 64.0 | 72.0 | 150 | 475 | 90 | 240 | 65.6 | 71.7 | 79.8 | 35 | 0.25 |
| 75 | 73.50 | 76.50 | 70.0 | 79.0 | 170 | 500 | 95 | 255 | 73.4 | 80.2 | 88.6 | 35 | 0.2 |

1). Tested with pulses tp = 20 ms.

## THERMAL CHARACTERISTICS

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Thermal resistance from junction to tie-point | $R_{th\ j\text{-}tp}$ | 300 | K/W |
| Thermal resistance from junction to ambient (see note 1) | $R_{th\ j\text{-}a}$ | 380 | K/W |

NOTE

**1.** Device mounted on a ceramic substrate of 10*10*0.6 mm.

**Graphical Data**

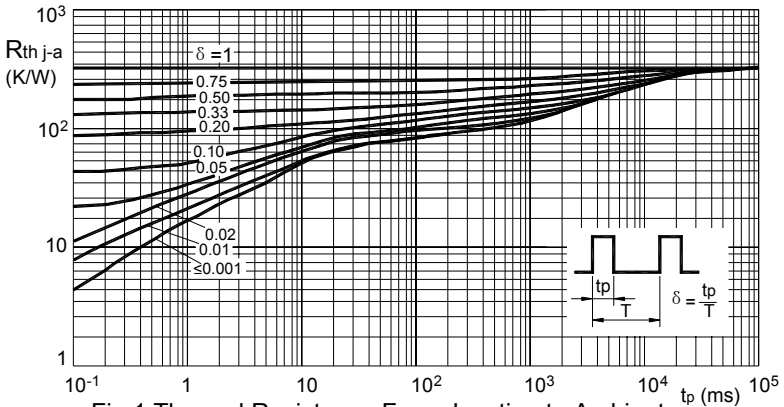
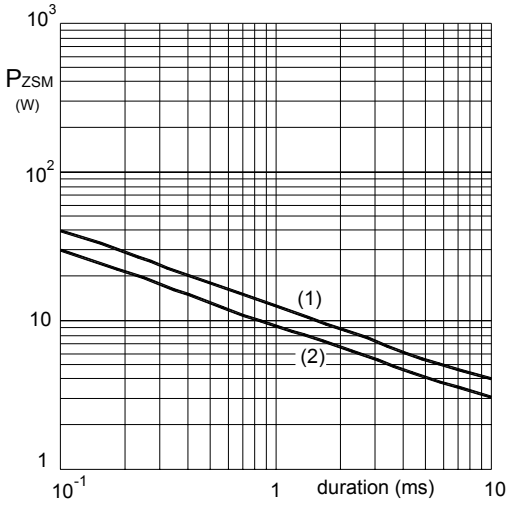
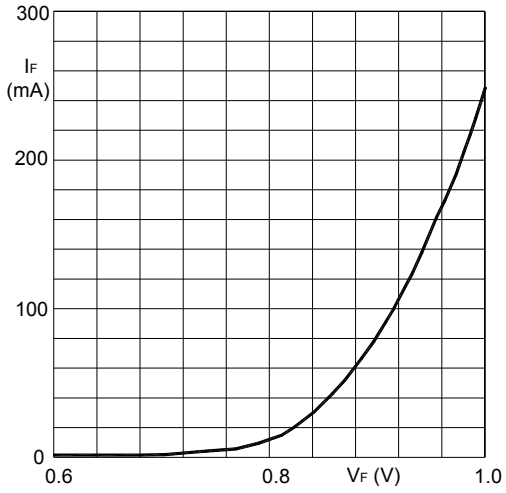



Fig.1 Thermal Resistance From Junction to Ambient as a Function of Pulse Duration.



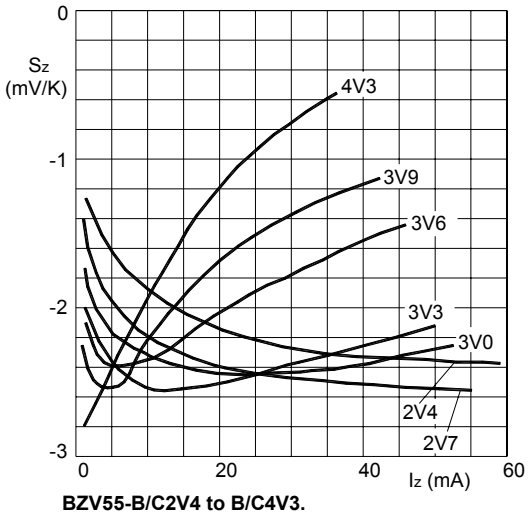

(1) $T_j$=25°C (prior to surge).
(2) $T_j$=150°C (prior to surge).

Fig. 2 Maximum Permissible Non-repetitive Peak Reverse Power Dissipation Versus Duration.



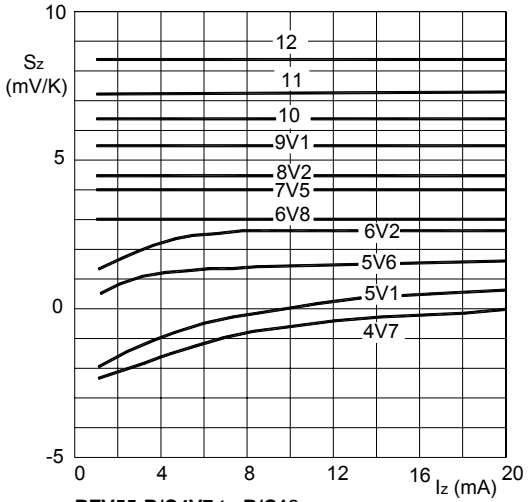

$T_j$=25°C

Fig. 3 Forward Current as a Function of Forward Voltage; Typical Values.




**BZV55-B/C2V4 to B/C4V3.**
$T_j$=25 to 150°C

Fig.4 Temperature Coefficient as a Function of Working Current; Typical Values.




**BZV55-B/C4V7 to B/C12.**
$T_j$=25 to 150°C

Fig.5 Temperature Coefficient as a Function of Working Current; Typical Values.