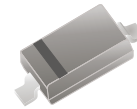


BZT52C2V0-HF Thru. BZT52C75-HF

RoHS Device
Halogen Free

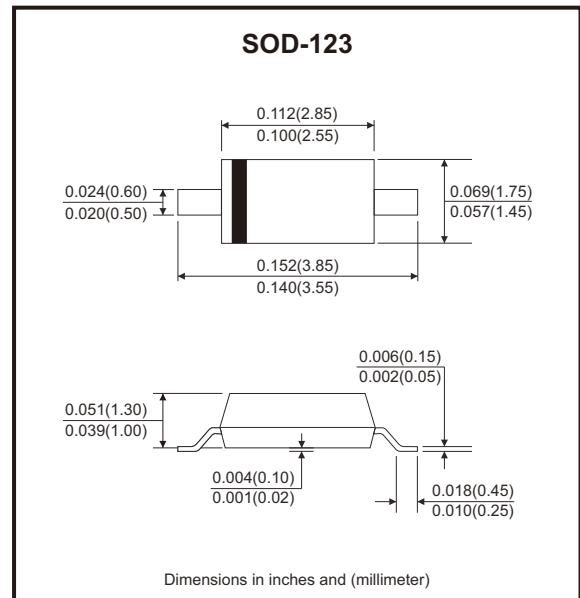


Features

- Large selection of zener voltages: 2V~75V.
- Tight voltage tolerance: $\pm 5\%$ for C-series.
- Ultra low-profile package well suited for automated assembly.
- MSL class 1 compatible.

Mechanical data

- Case: Molded plastic, SOD-123



Circuit Diagram



Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|-----------------|-------------|--------------------|
| Forward voltage @ $I_F=10\text{mA}$ | V_F | 0.9 | V |
| Power dissipation (collector) | P_C | 500 | mW |
| Thermal resistance, junction to ambient | $R_{\theta JA}$ | 250 | $^\circ\text{C/W}$ |
| Thermal resistance, junction to case | $R_{\theta JC}$ | 140 | $^\circ\text{C/W}$ |
| Junction temperature range | T_J | -55 to +150 | $^\circ\text{C}$ |
| Storage temperature range | T_{STG} | -65 to +150 | $^\circ\text{C}$ |

Note: 1. These ratings are limiting values above which the serviceability of the diodes may be impaired.

Electrical Characteristics (TA=25°C unless otherwise noted)

| Part Number | Zener Voltage | | | | Maximum Zener Impedance | | | Temperature Coefficient @ IZT | | Maximum Reverse Current | | Marking Code |
|--------------|---------------|--------|--------|------|-------------------------|---------|------|-------------------------------|------|-------------------------|------|--------------|
| | Vz @ IZT | | | IZT | ZzT@IZT | Zzk@Izk | Izk | Tc (mV/°C) | | IR @ VR | | |
| | Min(V) | Typ(V) | Max(V) | (mA) | (Ω) | (Ω) | (mA) | Min. | Max. | (μA) | (V) | |
| BZT52C2V0-HF | 1.90 | 2.0 | 2.10 | 5.0 | 100 | 600 | 1.0 | -3.5 | 0 | 150 | 1.0 | WY |
| BZT52C2V2-HF | 2.09 | 2.2 | 2.31 | 5.0 | 100 | 600 | 1.0 | -3.5 | 0 | 150 | 1.0 | 22• |
| BZT52C2V4-HF | 2.20 | 2.4 | 2.60 | 5.0 | 100 | 600 | 1.0 | -3.5 | 0 | 50 | 1.0 | WX |
| BZT52C2V7-HF | 2.50 | 2.7 | 2.90 | 5.0 | 100 | 600 | 1.0 | -3.5 | 0 | 20 | 1.0 | W1 |
| BZT52C3V0-HF | 2.80 | 3.0 | 3.20 | 5.0 | 95 | 600 | 1.0 | -3.5 | 0 | 10 | 1.0 | W2 |
| BZT52C3V3-HF | 3.10 | 3.3 | 3.50 | 5.0 | 95 | 600 | 1.0 | -3.5 | 0 | 5.0 | 1.0 | W3 |
| BZT52C3V6-HF | 3.40 | 3.6 | 3.80 | 5.0 | 90 | 600 | 1.0 | -3.5 | 0 | 5.0 | 1.0 | W4 |
| BZT52C3V9-HF | 3.70 | 3.9 | 4.10 | 5.0 | 90 | 600 | 1.0 | -3.5 | 0 | 3.0 | 1.0 | W5 |
| BZT52C4V3-HF | 4.00 | 4.3 | 4.60 | 5.0 | 90 | 600 | 1.0 | -3.5 | 0 | 3.0 | 1.0 | W6 |
| BZT52C4V7-HF | 4.40 | 4.7 | 5.00 | 5.0 | 80 | 500 | 1.0 | -3.5 | 0 | 3.0 | 2.0 | W7 |
| BZT52C5V1-HF | 4.80 | 5.1 | 5.40 | 5.0 | 60 | 480 | 1.0 | -2.7 | 1.2 | 2.0 | 2.0 | W8 |
| BZT52C5V6-HF | 5.20 | 5.6 | 6.00 | 5.0 | 40 | 400 | 1.0 | -2.0 | 2.5 | 1.0 | 2.0 | W9 |
| BZT52C6V2-HF | 5.80 | 6.2 | 6.60 | 5.0 | 10 | 150 | 1.0 | 0.4 | 3.7 | 3.0 | 4.0 | WA |
| BZT52C6V8-HF | 6.40 | 6.8 | 7.14 | 5.0 | 15 | 80 | 1.0 | 1.2 | 4.5 | 2.0 | 4.0 | WB |
| BZT52C7V5-HF | 7.00 | 7.5 | 7.90 | 5.0 | 15 | 80 | 1.0 | 2.5 | 5.3 | 1.0 | 5.0 | WC |
| BZT52C8V2-HF | 7.70 | 8.2 | 8.70 | 5.0 | 15 | 80 | 1.0 | 3.2 | 6.2 | 0.7 | 5.0 | WD |
| BZT52C9V1-HF | 8.50 | 9.1 | 9.60 | 5.0 | 15 | 100 | 1.0 | 3.8 | 7.0 | 0.5 | 6.0 | WE |
| BZT52C10-HF | 9.40 | 10 | 10.60 | 5.0 | 20 | 150 | 1.0 | 4.5 | 8.0 | 0.2 | 7.0 | WF |
| BZT52C11-HF | 10.40 | 11 | 11.60 | 5.0 | 20 | 150 | 1.0 | 5.4 | 9.0 | 0.1 | 8.0 | WG |
| BZT52C12-HF | 11.40 | 12 | 12.70 | 5.0 | 25 | 150 | 1.0 | 6.0 | 10.0 | 0.1 | 8.0 | WH |
| BZT52C13-HF | 12.40 | 13 | 14.10 | 5.0 | 30 | 170 | 1.0 | 7.0 | 11.0 | 0.1 | 8.0 | WI |
| BZT52C15-HF | 13.80 | 15 | 15.60 | 5.0 | 30 | 200 | 1.0 | 9.2 | 13.0 | 0.1 | 10.5 | WJ |
| BZT52C16-HF | 15.30 | 16 | 17.10 | 5.0 | 40 | 200 | 1.0 | 10.4 | 14.0 | 0.1 | 11.2 | WK |
| BZT52C18-HF | 16.80 | 18 | 19.10 | 5.0 | 45 | 225 | 1.0 | 12.4 | 16.0 | 0.1 | 12.6 | WL |
| BZT52C20-HF | 18.80 | 20 | 21.20 | 5.0 | 55 | 225 | 1.0 | 14.4 | 18.0 | 0.1 | 14.0 | WM |
| BZT52C22-HF | 20.80 | 22 | 23.30 | 5.0 | 55 | 250 | 1.0 | 16.4 | 20.0 | 0.1 | 15.4 | WN |
| BZT52C24-HF | 22.80 | 24 | 25.60 | 5.0 | 70 | 250 | 1.0 | 18.4 | 22.0 | 0.1 | 16.8 | WO |
| BZT52C27-HF | 25.10 | 27 | 28.90 | 2.0 | 80 | 300 | 0.5 | 21.4 | 25.3 | 0.1 | 18.9 | WP |
| BZT52C30-HF | 28.00 | 30 | 32.00 | 2.0 | 80 | 300 | 0.5 | 24.4 | 29.4 | 0.1 | 21.0 | WQ |
| BZT52C33-HF | 31.00 | 33 | 35.00 | 2.0 | 80 | 325 | 0.5 | 27.4 | 33.4 | 0.1 | 23.1 | WR |

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Electrical Characteristics (TA=25°C unless otherwise noted)

| Part Number | Zener Voltage | | | Maximum Zener Impedance | | | Temperature Coefficient @ I _{ZT} T _c (mV/°C) | | Maximum Reverse Current I _R @ V _R | | Marking Code | |
|-------------|----------------------------------|--------|--------|-------------------------|----------------------------------|----------------------------------|---|------|---|-------|--------------|-----|
| | V _Z @ I _{ZT} | | | I _{ZT} | Z _{ZT} @I _{ZT} | Z _{ZK} @I _{ZK} | I _{ZK} | Min. | Max. | μA | | (V) |
| | Min(V) | Typ(V) | Max(V) | (mA) | (Ω) | (Ω) | (mA) | | | | | |
| BZT52C36-HF | 34.00 | 36 | 38.00 | 2.0 | 90 | 350 | 0.5 | 30.4 | 37.4 | 0.1 | 25.2 | WS |
| BZT52C39-HF | 37.00 | 39 | 41.00 | 2.0 | 130 | 350 | 0.5 | 33.4 | 41.2 | 0.1 | 27.3 | WT |
| BZT52C43-HF | 40.00 | 43 | 46.00 | 2.0 | 100 | 700 | 1.0 | 10.0 | 12.0 | 0.1 | 32.0 | WU |
| BZT52C47-HF | 44.00 | 47 | 50.00 | 2.0 | 100 | 750 | 1.0 | 10.0 | 12.0 | 0.1 | 35.0 | WV |
| BZT52C51-HF | 48.00 | 51 | 54.00 | 2.0 | 100 | 750 | 1.0 | 10.0 | 12.0 | 0.1 | 38.0 | WW |
| BZT52C56-HF | 53.20 | 56 | 58.80 | 2.0 | 200 | 400 | 0.5 | 10.0 | 12.0 | 0.045 | 39.2 | WX• |
| BZT52C62-HF | 58.90 | 62 | 65.10 | 2.0 | 215 | 423 | 0.5 | 10.0 | 12.0 | 0.045 | 43.4 | 6E |
| BZT52C68-HF | 64.60 | 68 | 71.40 | 2.0 | 240 | 447 | 0.5 | 10.0 | 12.0 | 0.045 | 47.6 | 6F |
| BZT52C75-HF | 71.25 | 75 | 78.75 | 2.0 | 255 | 470 | 0.5 | 10.0 | 12.0 | 0.045 | 52.5 | 6H |

Rating and Characteristic Curves (BZT52C2V0-HF Thru. BZT52C75-HF)

Fig.1 - Power Derating Curve

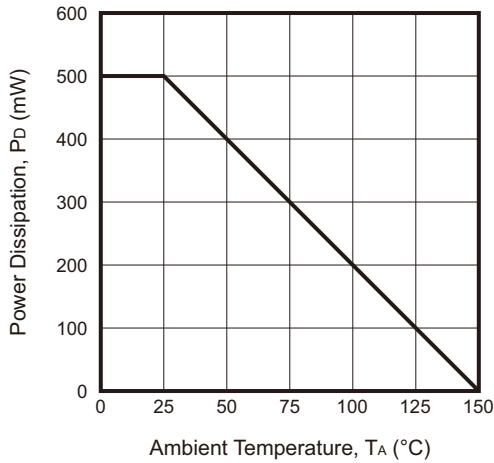


Fig.2 - Typical Zener Breakdown Characteristics

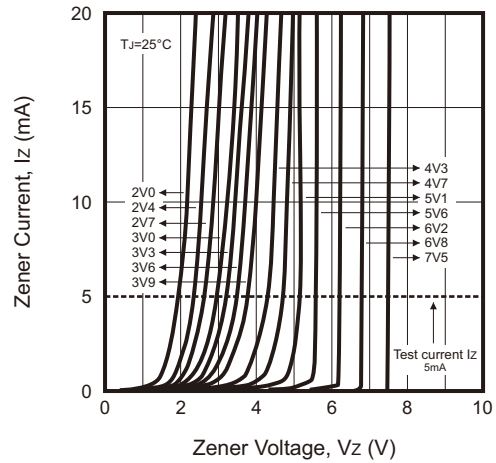


Fig.3 - Typical Zener Breakdown Characteristics

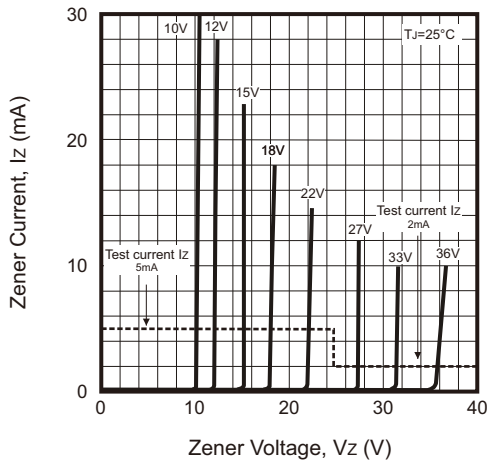


Fig.4 - Typical Zener Breakdown Characteristics

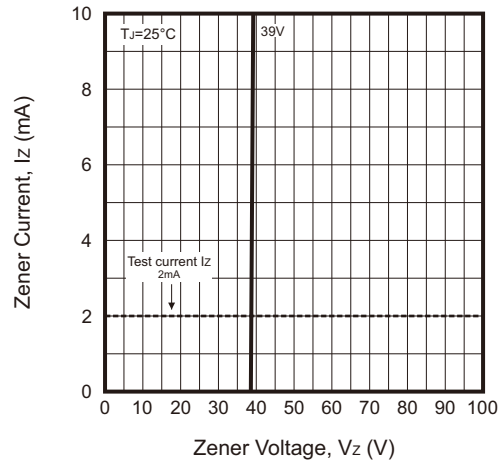


Fig.5 - Typical Temperature Coefficient of Zener Voltage

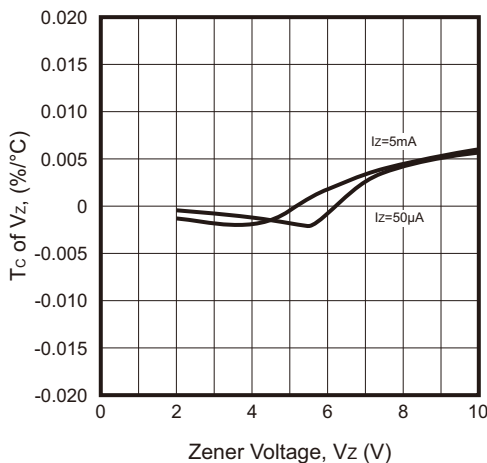
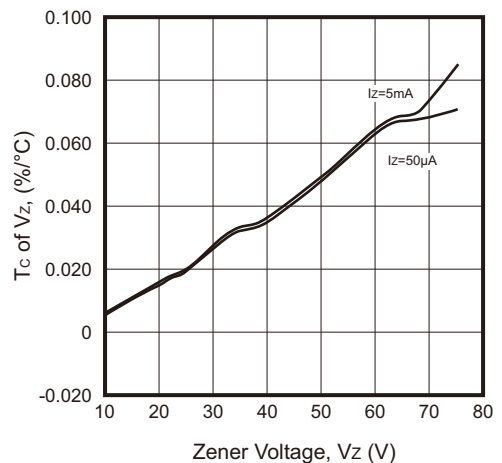


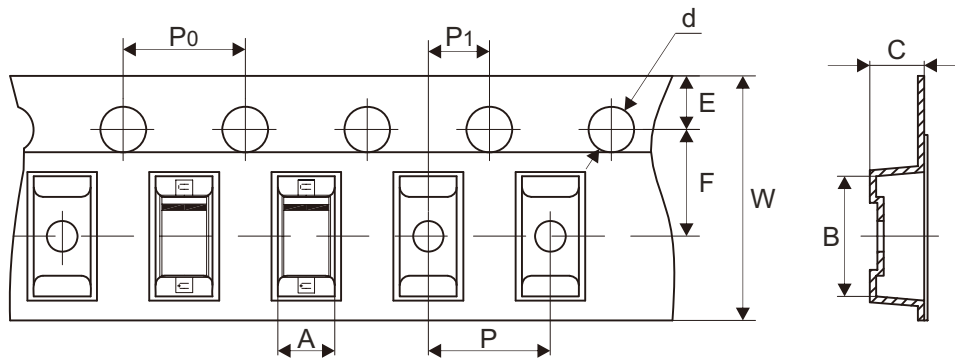
Fig.6 - Typical Temperature Coefficient of Zener Voltage



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REV:A

Reel Taping Specification



| SOD-123 | SYMBOL | A | B | C | d | D | D1 | D2 |
|---------|--------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | (mm) | 1.85 ± 0.10 | 3.94 ± 0.10 | 1.57 ± 0.10 | 1.55 ± 0.05 | 178.00 ± 1.00 | 54.00 ± 0.50 | 13.00 ± 0.50 |
| | (inch) | 0.073 ± 0.004 | 0.155 ± 0.004 | 0.062 ± 0.004 | 0.061 ± 0.002 | 7.008 ± 0.039 | 2.126 ± 0.020 | 0.512 ± 0.020 |

| SOD-123 | SYMBOL | E | F | P | P1 | P0 | W | W1 |
|---------|--------|---------------|---------------|---------------|---------------|---------------|--------------------------|---------------|
| | (mm) | 1.75 ± 0.10 | 3.50 ± 0.05 | 4.00 ± 0.10 | 2.00 ± 0.05 | 4.00 ± 0.10 | 8.00 + 0.30 - 0.10 | 9.50 ± 1.00 |
| | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.157 ± 0.004 | 0.315 + 0.012 - 0.004 | 0.374 ± 0.039 |

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