

## SOD-123 Plastic-Encapsulate Zener Diode

### Features

- Low Zener Impedance
- Power Dissipation of 500mW
- High Stability and High Reliability
- P/N suffix V means AEC-Q101 qualified, e.g:BZT52B2V4V
- P/N suffix V means Halogen-free

### SOD-123



### Mechanical Data

- SOD-123 Small Outline Plastic Package
- Polarity: Color band denotes cathode end
- Mounting Position: Any

### Maximum Ratings & Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

| Parameters                | Symbol | Value             | Unit |
|---------------------------|--------|-------------------|------|
| Power Dissipation         | Pd     | 500 <sup>1)</sup> | mW   |
| Forward Voltage @IF=10mA  | Vf     | 0.9 <sup>2)</sup> | V    |
| Storage temperature range | Ts,Tj  | -65 to+150        | °C   |

1) Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>

2) Short duration test pulse used to minimize self-heating effect

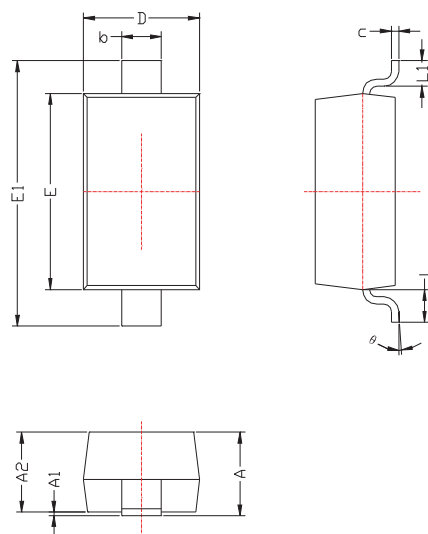
3) f=1KHz

### Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

| Device    | Marking | Zener Voltage Range |        |        |     | Maximum Zener Impedance |          |     | Maximum Reverse Current |     | Typical Temperature coefficient @ IZTC=mV/°C |      | Test Current IZTC |
|-----------|---------|---------------------|--------|--------|-----|-------------------------|----------|-----|-------------------------|-----|----------------------------------------------|------|-------------------|
|           |         | Vz@Izt              |        |        | Izt | Zzt @Izt                | Zzk @Izk | Izk | IR                      | VR  | Min                                          | Max  |                   |
|           |         | Nom(V)              | Min(V) | Max(V) | mA  | Ω                       |          | mA  | uA                      | V   |                                              |      | mA                |
| BZT52B2V4 | 2WX     | 2.4                 | 2.35   | 2.45   | 5   | 100                     | 600      | 1.0 | 50                      | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52B2V7 | 2W1     | 2.7                 | 2.65   | 2.75   | 5   | 100                     | 600      | 1.0 | 20                      | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52B3V0 | 2W2     | 3.0                 | 2.94   | 3.06   | 5   | 95                      | 600      | 1.0 | 10                      | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52B3V3 | 2W3     | 3.3                 | 3.23   | 3.37   | 5   | 95                      | 600      | 1.0 | 5                       | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52B3V6 | 2W4     | 3.6                 | 3.53   | 3.67   | 5   | 90                      | 600      | 1.0 | 5                       | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52B3V9 | 2W5     | 3.9                 | 3.82   | 3.98   | 5   | 90                      | 600      | 1.0 | 3                       | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52B4V3 | 2W6     | 4.3                 | 4.21   | 4.39   | 5   | 90                      | 600      | 1.0 | 3                       | 1.0 | -3.5                                         | 0    | 5                 |
| BZT52B4V7 | 2W7     | 4.7                 | 4.61   | 4.79   | 5   | 80                      | 500      | 1.0 | 3                       | 2.0 | -3.5                                         | 0.2  | 5                 |
| BZT52B5V1 | 2W8     | 5.1                 | 5.00   | 5.20   | 5   | 60                      | 480      | 1.0 | 2                       | 2.0 | -2.7                                         | 1.2  | 5                 |
| BZT52B5V6 | 2W9     | 5.6                 | 5.49   | 5.71   | 5   | 40                      | 400      | 1.0 | 1                       | 2.0 | -2.0                                         | 2.5  | 5                 |
| BZT52B6V2 | 2WA     | 6.2                 | 6.08   | 6.32   | 5   | 10                      | 150      | 1.0 | 3                       | 4.0 | 0.4                                          | 3.7  | 5                 |
| BZT52B6V8 | 2WB     | 6.8                 | 6.66   | 6.94   | 5   | 15                      | 80       | 1.0 | 2                       | 4.0 | 1.2                                          | 4.5  | 5                 |
| BZT52B7V5 | 2WC     | 7.5                 | 7.35   | 7.65   | 5   | 15                      | 80       | 1.0 | 1                       | 5.0 | 2.5                                          | 5.3  | 5                 |
| BZT52B8V2 | 2WD     | 8.2                 | 8.04   | 8.36   | 5   | 15                      | 80       | 1.0 | 0.7                     | 5.0 | 3.2                                          | 6.2  | 5                 |
| BZT52B9V1 | 2WE     | 9.1                 | 8.92   | 9.28   | 5   | 15                      | 100      | 1.0 | 0.5                     | 6.0 | 3.8                                          | 7.0  | 5                 |
| BZT52B10  | 2WF     | 10                  | 9.80   | 10.20  | 5   | 20                      | 150      | 1.0 | 0.2                     | 7.0 | 4.5                                          | 8.0  | 5                 |
| BZT52B11  | 2WG     | 11                  | 10.78  | 11.22  | 5   | 20                      | 150      | 1.0 | 0.1                     | 8.0 | 5.4                                          | 9.0  | 5                 |
| BZT52B12  | 2WH     | 12                  | 11.76  | 12.24  | 5   | 25                      | 150      | 1.0 | 0.1                     | 8.0 | 6.0                                          | 10.0 | 5                 |
| BZT52B13  | 2WI     | 13                  | 12.74  | 13.26  | 5   | 30                      | 170      | 1.0 | 0.1                     | 8.0 | 7.0                                          | 11.0 | 5                 |

| Device   | Marking | Zener Voltage Range |        |        |     | Maximum Zener Impedance |          |     | Maximum Reverse Current |      | Typical Temperature coefficient @ IZTC=mV/℃ |      | Test Current IZTC |
|----------|---------|---------------------|--------|--------|-----|-------------------------|----------|-----|-------------------------|------|---------------------------------------------|------|-------------------|
|          |         | Vz@Izt              |        |        | Izt | Zzt @Izt                | Zzk @Izk | Izk | IR                      | VR   | Min                                         | Max  |                   |
|          |         | Nom(V)              | Min(V) | Max(V) | mA  | Ω                       |          | mA  | uA                      | V    |                                             |      |                   |
| BZT52B15 | 2WJ     | 15                  | 14.70  | 15.30  | 5   | 30                      | 200      | 1.0 | 0.1                     | 10.5 | 9.2                                         | 13.0 | 5                 |
| BZT52B16 | 2WK     | 16                  | 15.68  | 16.32  | 5   | 40                      | 200      | 1.0 | 0.1                     | 11.2 | 10.4                                        | 14.0 | 5                 |
| BZT52B18 | 2WL     | 18                  | 17.64  | 18.36  | 5   | 45                      | 225      | 1.0 | 0.1                     | 12.6 | 12.4                                        | 16.0 | 5                 |
| BZT52B20 | 2WM     | 20                  | 19.60  | 20.40  | 5   | 55                      | 225      | 1.0 | 0.1                     | 14.0 | 14.4                                        | 18.0 | 5                 |
| BZT52B22 | 2WN     | 22                  | 21.56  | 22.44  | 5   | 55                      | 250      | 1.0 | 0.1                     | 15.4 | 16.4                                        | 20.0 | 5                 |
| BZT52B24 | 2WO     | 24                  | 23.52  | 24.48  | 5   | 70                      | 250      | 1.0 | 0.1                     | 16.8 | 18.4                                        | 22.0 | 5                 |
| BZT52B27 | 2WP     | 27                  | 26.46  | 27.54  | 2   | 80                      | 300      | 0.5 | 0.1                     | 18.9 | 21.4                                        | 25.3 | 2                 |
| BZT52B30 | 2WQ     | 30                  | 29.40  | 30.60  | 2   | 80                      | 300      | 0.5 | 0.1                     | 21.0 | 24.4                                        | 29.4 | 2                 |
| BZT52B33 | 2WR     | 33                  | 32.34  | 33.66  | 2   | 80                      | 325      | 0.5 | 0.1                     | 23.1 | 27.4                                        | 33.4 | 2                 |
| BZT52B36 | 2WS     | 36                  | 35.28  | 36.72  | 2   | 90                      | 350      | 0.5 | 0.1                     | 25.2 | 30.4                                        | 37.4 | 2                 |
| BZT52B39 | 2WT     | 39                  | 38.22  | 39.78  | 2   | 130                     | 350      | 0.5 | 0.1                     | 27.3 | 33.4                                        | 41.2 | 2                 |
| BZT52B43 | 2WU     | 43                  | 41.16  | 43.84  | 2   | 100                     | 700      | 1.0 | 0.1                     | 32.0 | 10.0                                        | 12.0 | 5                 |

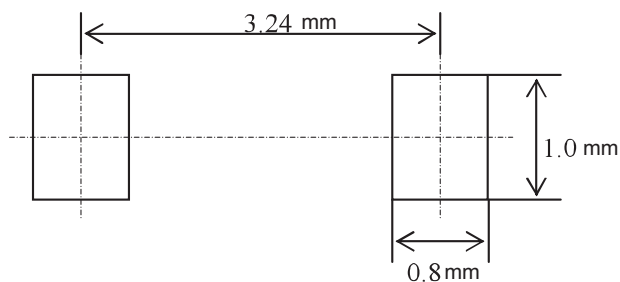
## SOD-123 PACKAGE OUTLINE Plastic surface mounted package



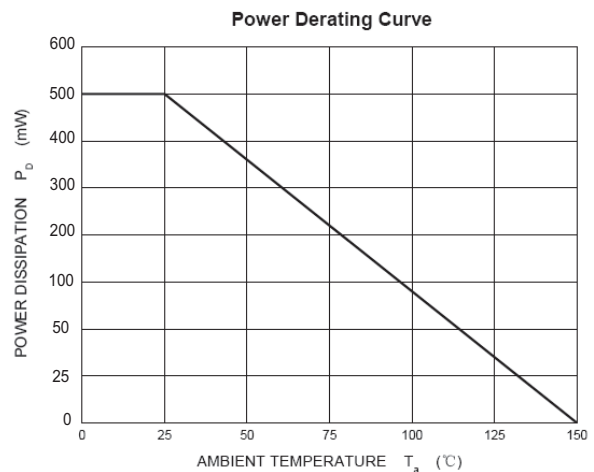
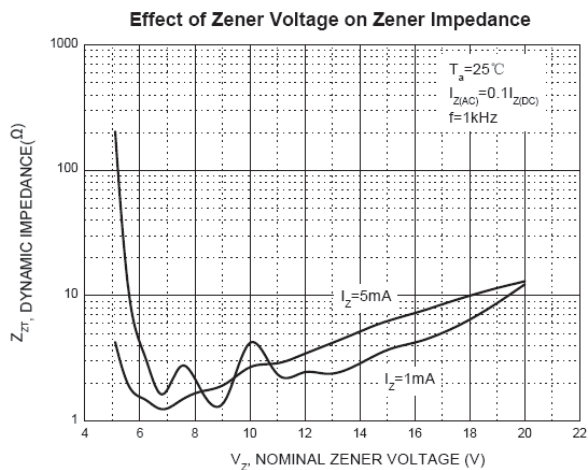
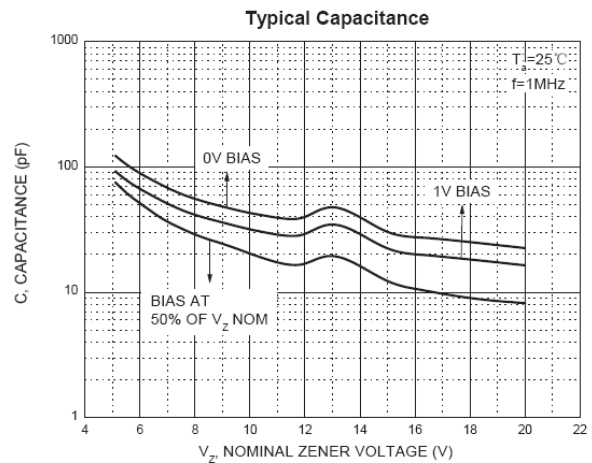
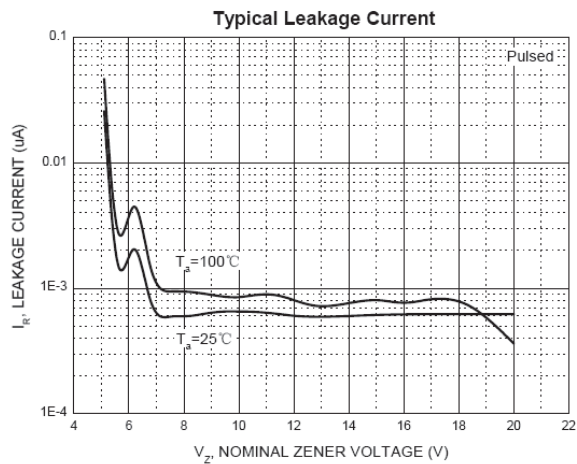
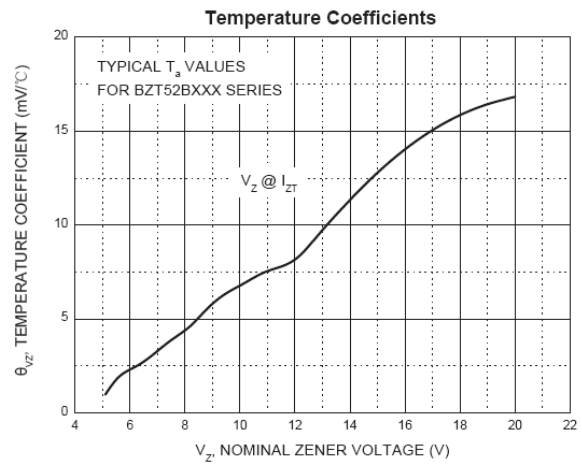
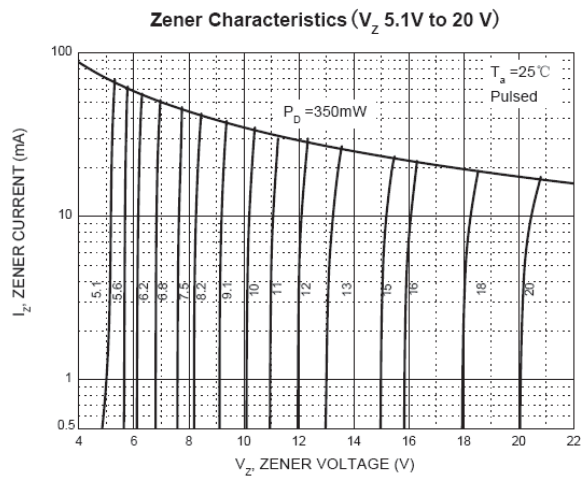
| SYMBOL   | DIMENSIONS |       |
|----------|------------|-------|
|          | MIN.       | MAX.  |
| A        | 1.050      | 1.250 |
| A1       | 0.000      | 0.100 |
| A2       | 1.050      | 1.150 |
| b        | 0.450      | 0.650 |
| c        | 0.080      | 0.150 |
| D        | 1.500      | 1.700 |
| E        | 2.600      | 2.800 |
| E1       | 3.550      | 3.850 |
| L        | 0.500REF   |       |
| L1       | 0.250      | 0.450 |
| $\theta$ | 0°         | 8°    |

### Precautions: PCB Design

Recommended land dimensions for SOD-123 diode. Electrode patterns for PCBs



## RATING AND CHARACTERISTICS CURVES (BZT52BXXX SERIES)



## PACKAGING OF DIODE

### REEL PACK

| PACKAGE | PACKING<br>CODE | REEL<br>( EA ) | COMPONENT<br>SPACE(mm) | TAPE SPACE<br>(mm) | REEL DIA<br>(mm) | CARTON SIZE<br>(mm) | EA PER<br>CARTON | GROSS<br>WEIGHT(Kg) |
|---------|-----------------|----------------|------------------------|--------------------|------------------|---------------------|------------------|---------------------|
| SOD-123 | -T              | 3,000          | ---                    | ---                | 178              | 438*438*220         | 180,000          | 9.00                |

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