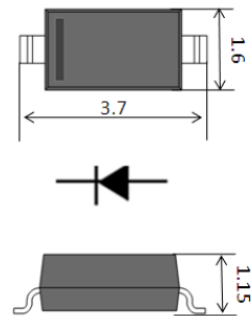


**Features**

- Constant Voltage control
- Wide Voltage Range Selection 2.4V to 47V
- RoHS compliant/Green EMC
- Meets MSL level 1, Per J-STD-020, LF maximum peak of 260°C
- Matte Tin(Sn) Lead finish
- Cathode Band/Device marking  
Refer to table list
- Complies with the standards of AEC-Q101


**SOD-123**

**Maximum Ratings (Ta=25°C)**

| Symbol           | Parameter                                    | Value                          | Units |
|------------------|--|--------------------------------|-------|
| P <sub>D</sub>   | Power Dissipation at TL = 75°C (Note 1)      | 350                            | mW    |
| P <sub>D</sub>   | Power Dissipation at TA= 25°C (Note 2)       | 500                            | mW    |
| T <sub>J</sub>   | Junction Temperature                         | 150                            | °C    |
| T <sub>STG</sub> | Storage Temperature                          | -55 to +125                    | °C    |
| I <sub>ZM</sub>  | Maximum Regulator Current                    | P <sub>D</sub> /V <sub>Z</sub> | mA    |
| R <sub>θJA</sub> | Thermal Resistance from Junction to Ambient  | 357                            | °C/W  |
| V <sub>F</sub>   | Maximum Instantaneous Forward Voltage at 1mA | 0.9                            | V     |

Note: 1. Mounted on ceramic substrate with 25mm<sup>2</sup>copper pads.  
 2. Mounted on ceramic substrate with 40mm<sup>2</sup>copper pads.

**Electrical Characteristics (T =25°C unless otherwise noted)**

| Type Number  | Device Marking | V <sub>Z</sub> (V) (Note 1) |        |        | I <sub>ZT</sub><br>mA | Z <sub>ZT</sub> @I <sub>ZT</sub> | Z <sub>ZK</sub> @I <sub>ZK</sub> | I <sub>ZK</sub><br>(mA) | I <sub>R</sub><br>(uA) | V <sub>R</sub><br>(V) |
|--------------|----------------|-----------------------------|--------|--------|-----------------------|----------------------------------|----------------------------------|-------------------------|------------------------|-----------------------|
|              |                | Nom(V)                      | Min(V) | Max(V) |                       |                                  |                                  |                         |                        |                       |
| SZT52B2V4-AT | 2WX            | 2.4                         | 2.35   | 2.45   | 5                     | 100                              | 600                              | 1.0                     | 50                     | 1.0                   |
| SZT52B2V7-AT | 2W1            | 2.7                         | 2.65   | 2.75   | 5                     | 100                              | 600                              | 1.0                     | 20                     | 1.0                   |
| SZT52B3V0-AT | 2W2            | 3.0                         | 2.94   | 3.06   | 5                     | 95                               | 600                              | 1.0                     | 10                     | 1.0                   |
| SZT52B3V3-AT | 2W3            | 3.3                         | 3.23   | 3.37   | 5                     | 95                               | 600                              | 1.0                     | 5                      | 1.0                   |
| SZT52B3V6-AT | 2W4            | 3.6                         | 3.53   | 3.67   | 5                     | 90                               | 600                              | 1.0                     | 5                      | 1.0                   |
| SZT52B3V9-AT | 2W5            | 3.9                         | 3.82   | 3.98   | 5                     | 90                               | 600                              | 1.0                     | 3                      | 1.0                   |
| SZT52B4V3-AT | 2W6            | 4.3                         | 4.21   | 4.39   | 5                     | 90                               | 600                              | 1.0                     | 3                      | 1.0                   |
| SZT52B4V7-AT | 2W7            | 4.7                         | 4.61   | 4.79   | 5                     | 80                               | 500                              | 1.0                     | 3                      | 2.0                   |
| SZT52B5V1-AT | 2W8            | 5.1                         | 5.00   | 5.20   | 5                     | 60                               | 480                              | 1.0                     | 2                      | 2.0                   |
| SZT52B5V6-AT | 2W9            | 5.6                         | 5.49   | 5.71   | 5                     | 40                               | 400                              | 1.0                     | 1                      | 2.0                   |
| SZT52B6V2-AT | 2WA            | 6.2                         | 6.08   | 6.32   | 5                     | 10                               | 150                              | 1.0                     | 3                      | 4.0                   |
| SZT52B6V8-AT | 2WB            | 6.8                         | 6.66   | 6.94   | 5                     | 15                               | 80                               | 1.0                     | 2                      | 4.0                   |
| SZT52B7V5-AT | 2WC            | 7.5                         | 7.35   | 7.65   | 5                     | 15                               | 80                               | 1.0                     | 1                      | 5.0                   |
| SZT52B8V2-AT | 2WD            | 8.2                         | 8.04   | 8.36   | 5                     | 15                               | 80                               | 1.0                     | 0.7                    | 5.0                   |

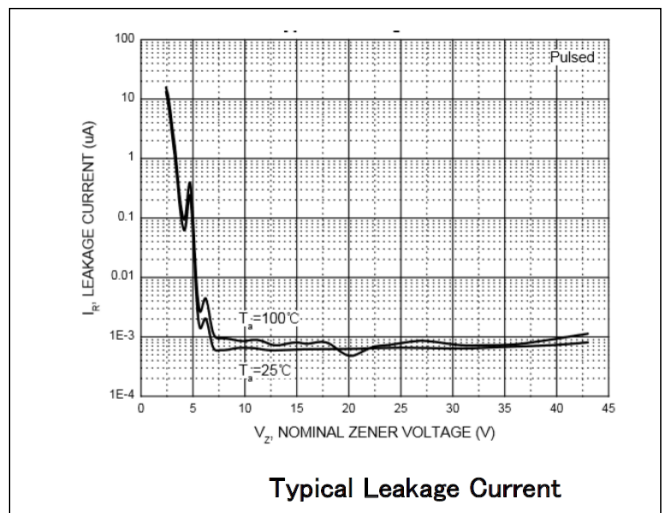
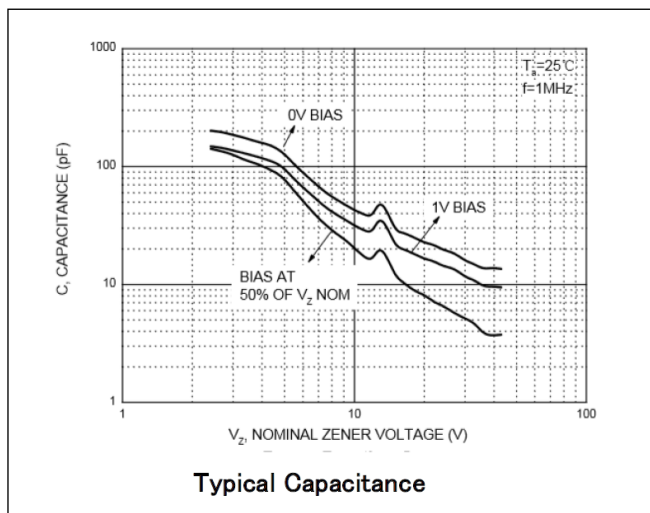
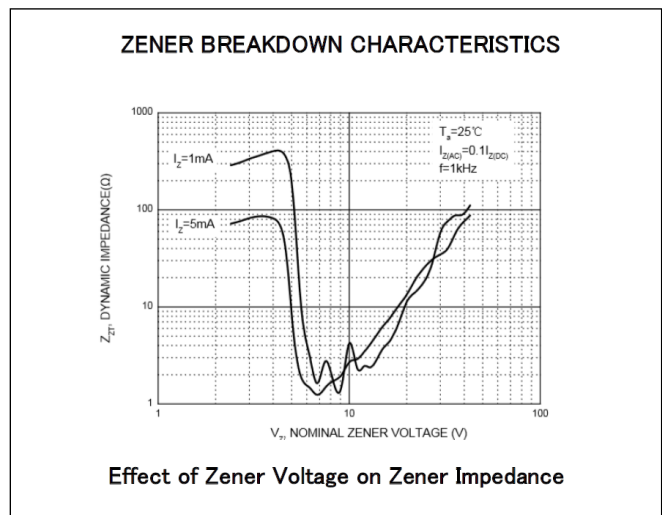
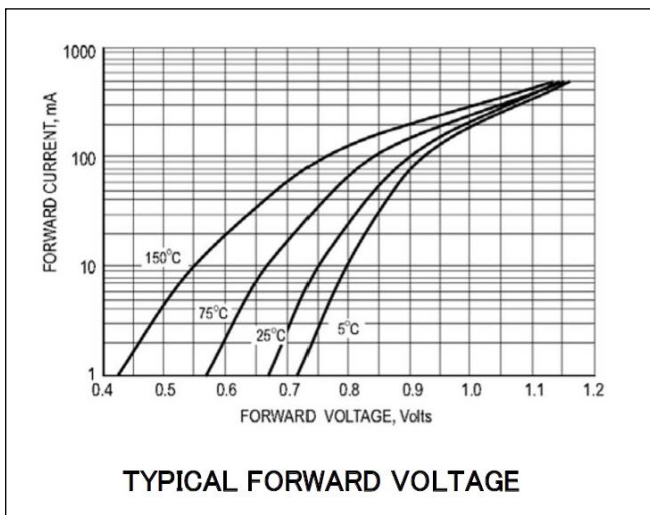
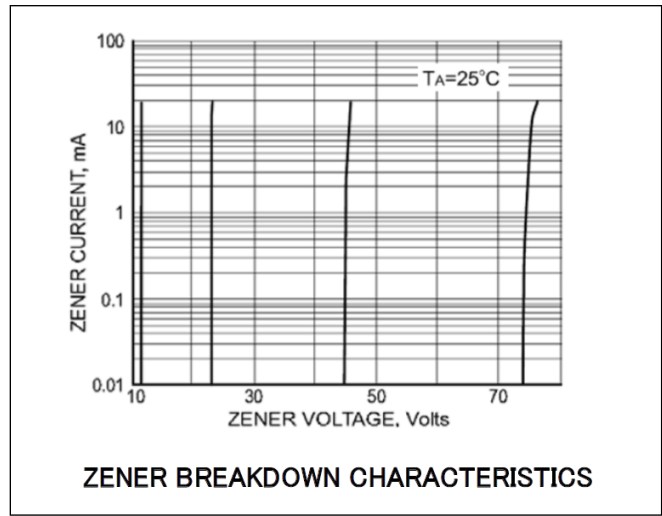
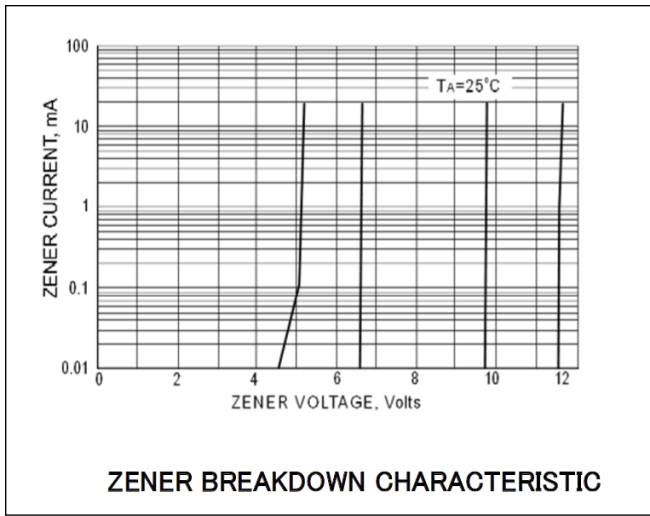


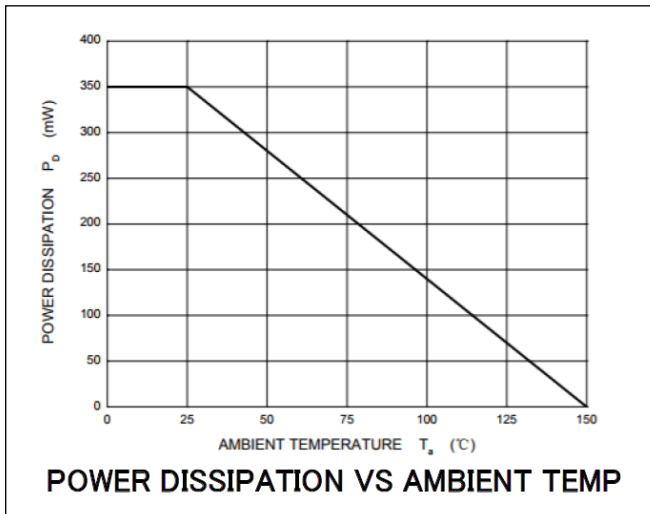
| Type Number  | Device Marking | Vz (V) (Note 1) |        |        | I <sub>ZT</sub><br>mA | Z <sub>zT</sub> @ I <sub>ZT</sub><br>Ω | Z <sub>zK</sub> @ I <sub>ZK</sub><br>Ω | I <sub>zk</sub><br>(mA) | I <sub>R</sub><br>(μA) | V <sub>R</sub><br>(V)<br>Max |
|--------------|----------------|-----------------|--------|--------|-----------------------|--|--|-------------------------|------------------------|------------------------------|
|              |                | Nom(V)          | Min(V) | Max(V) |                       |  |  |                         |                        |                              |
| SZT52B9V1-AT | 2WE            | 9.1             | 8.92   | 9.28   | 5                     | 15                                     | 100                                    | 1.0                     | 0.5                    | 6.0                          |
| SZT52B10-AT  | 2WF            | 10              | 9.80   | 10.20  | 5                     | 20                                     | 150                                    | 1.0                     | 0.2                    | 7.0                          |
| SZT52B11-AT  | 2WG            | 11              | 10.78  | 11.22  | 5                     | 20                                     | 150                                    | 1.0                     | 0.1                    | 8.0                          |
| SZT52B12-AT  | 2WH            | 12              | 11.76  | 12.24  | 5                     | 25                                     | 150                                    | 1.0                     | 0.1                    | 8.0                          |
| SZT52B13-AT  | 2WI            | 13              | 12.74  | 13.26  | 5                     | 30                                     | 170                                    | 1.0                     | 0.1                    | 8.0                          |
| SZT52B14-AT  | 2WY            | 14              | 13.72  | 14.28  | 5                     | 25                                     | 110                                    | 1.0                     | 0.1                    | 10.5                         |
| SZT52B15-AT  | 2WJ            | 15              | 14.70  | 15.30  | 5                     | 30                                     | 200                                    | 1.0                     | 0.1                    | 10.5                         |
| SZT52B16-AT  | 2WK            | 16              | 15.68  | 16.32  | 5                     | 40                                     | 200                                    | 1.0                     | 0.1                    | 11.2                         |
| SZT52B18-AT  | 2WL            | 18              | 17.64  | 18.36  | 5                     | 45                                     | 225                                    | 1.0                     | 0.1                    | 12.6                         |
| SZT52B20-AT  | 2WM            | 20              | 19.60  | 20.40  | 5                     | 55                                     | 225                                    | 1.0                     | 0.1                    | 14.0                         |
| SZT52B22-AT  | 2WN            | 22              | 21.56  | 22.44  | 5                     | 55                                     | 250                                    | 1.0                     | 0.1                    | 15.4                         |
| SZT52B24-AT  | 2WO            | 24              | 23.52  | 24.48  | 5                     | 70                                     | 250                                    | 1.0                     | 0.1                    | 16.8                         |
| SZT52B27-AT  | 2WP            | 27              | 26.46  | 27.54  | 2                     | 80                                     | 300                                    | 0.5                     | 0.1                    | 18.9                         |
| SZT52B30-AT  | 2WQ            | 30              | 29.40  | 30.60  | 2                     | 80                                     | 300                                    | 0.5                     | 0.1                    | 21.0                         |
| SZT52B33-AT  | 2WR            | 33              | 32.34  | 33.66  | 2                     | 80                                     | 325                                    | 0.5                     | 0.1                    | 23.1                         |
| SZT52B36-AT  | 2WS            | 36              | 35.28  | 36.72  | 2                     | 90                                     | 350                                    | 0.5                     | 0.1                    | 25.2                         |
| SZT52B39-AT  | 2WT            | 39              | 38.22  | 39.78  | 2                     | 130                                    | 350                                    | 0.5                     | 0.1                    | 27.3                         |
| SZT52B43-AT  | 2WU            | 43              | 42.14  | 43.86  | 2                     | 130                                    | 350                                    | 0.5                     | 0.1                    | 29.4                         |
| SZT52B47-AT  | 2WV            | 47              | 45.83  | 48.17  | 2                     | 170                                    | 1000                                   | 0.25                    | 0.1                    | 36                           |

Note1:Pulse Width=10ms



Typical Characteristics

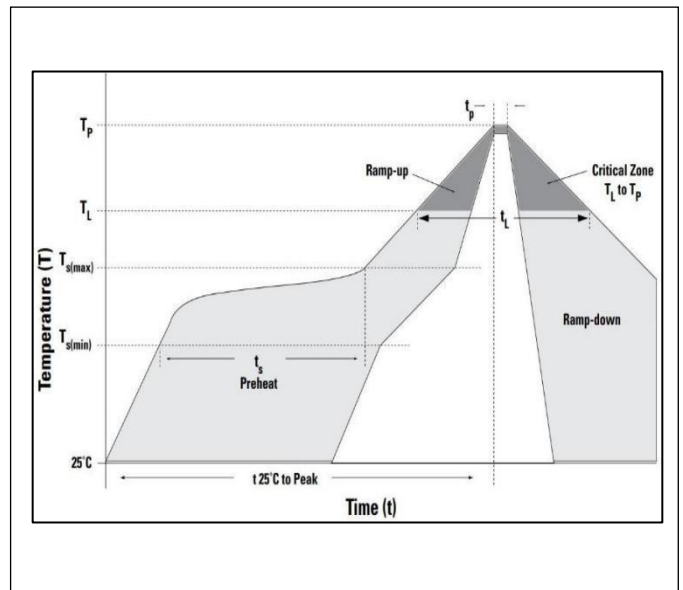




### Soldering Parameters

|  |                                    |                         |
|--|------------------------------------|-------------------------|
| Reflow Condition                                       |                                    | Lead-free assembly      |
| Pre Heat   | - Temperature Min ( $T_{s(min)}$ ) | 150°C                   |
|  | - Temperature Max ( $T_{s(max)}$ ) | 200°C                   |
|  | - Time (min to max) ( $t_s$ )      | 60 – 120 secs           |
| Average ramp up rate (Liquidus Temp ( $T_A$ ) to peak) |                                    | 3°C/second max          |
| $T_{s(max)}$ to $T_A$ - Ramp-up Rate                   |                                    | 3°C/second max          |
| Reflow   | - Temperature ( $T_A$ ) (Liquidus) | 217°C                   |
|  | - Time (min to max) ( $t_s$ )      | 60 – 150 seconds        |
| Peak Temperature ( $T_p$ )                             |                                    | 260 <sup>+0/-5</sup> °C |
| Time within 5°C of actual peak Temperature ( $t_p$ )   |                                    | 20 – 40 seconds         |
| Ramp-down Rate   |                                    | 6°C/second max          |
| Time 25°C to peak Temperature ( $T_p$ )                |                                    | 8 minutes Max.          |
| Do not exceed  |                                    | 260°C                   |

### Soldering profile

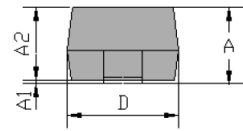
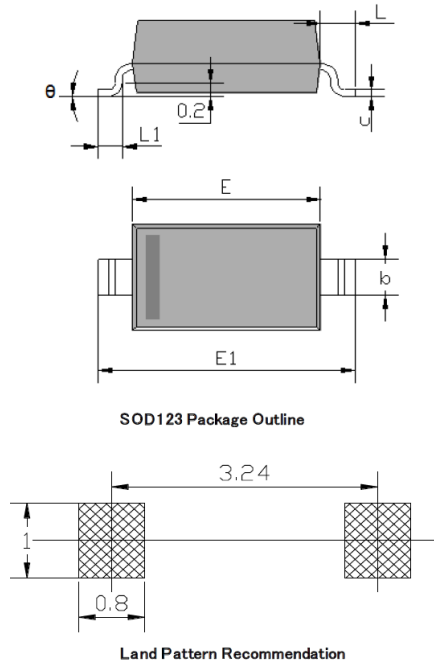


### Order Information

| Device           | Package | Shipping                        | Notes |
|------------------|---------|---------------------------------|-------|
| SZT52B-AT Series | SOD123  | Tape & Reel<br>3000pcs /7" Reel |       |

Package Dimensions

SOD-123



| Unit | A    | A1   | A2   | b    | c    | D    | E    | E1   | L             | L1   | $\theta$ |
|------|------|------|------|------|------|------|------|------|---------------|------|----------|
| Max. | 1.25 | 0.10 | 1.15 | 0.65 | 0.15 | 1.70 | 2.80 | 3.85 | 0.500<br>REF. | 0.45 | 8°       |
| Min. | 1.05 | 0.00 | 1.05 | 0.45 | 0.08 | 1.50 | 2.60 | 3.55 |               | 0.25 | 0°       |

- Note:
1. Halogen free,EMC
  2. Pb free solder
  3. Lead thickness includes solder plating
  4. Lead frame: A42
  5. Other Tolerance:  $\pm 0.05$
  6. Dimensions are exclusive of Burrs, Mold Flash and Tie Bar extrusions
  7. Unit: mm

Revision history of Specification

| Version | Change Items  | Effective Date |
|---------|---|----------------|
| 1.0     | Initial Release   | 13-Aug-2021    |
| 1.1     | Update Key Marking  | 10-Jul-2023    |
| 1.2     | Add MSL Level<br>Add Soldering Parameters<br>Add Soldering profile<br>Update PD (Power Dissipation) | 7-Apr-2024     |
| 1.3     | Add VF  | 9- Apr-2024    |

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