

200mW 5% Zener Diodes

FEATURES

- Wide zener voltage range selection: 2.7V to 75V
- V_z Tolerance Selection of $\pm 5\%$
- Surface device type mounting
- Moisture sensitivity level: level 1, per J-STD-020
- RoHS Compliant

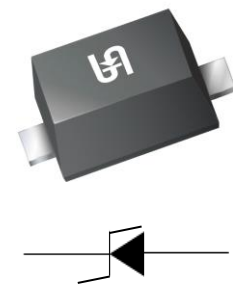
APPLICATIONS

- Constant Voltage control

MECHANICAL DATA

- Case: SOD-523F
- Molding compound: UL flammability classification rating 94V-0
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 1A whisker test
- Polarity: Indicated by cathode band
- Weight: 1.47 mg (approximately)

| KEY PARAMETERS | | |
|-----------------------|------------|--------------------|
| PARAMETER | VALUE | UNIT |
| V_z | 2.7-75 | V |
| Test current I_{zT} | 5 | mA |
| P_D | 200 | mW |
| T_J Max. | 150 | $^{\circ}\text{C}$ |
| Package | SOD-523F | |
| Configuration | Single die | |



| ABSOLUTE MAXIMUM RATINGS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted) | | | |
|---|-----------|-----------|--------------------|
| PARAMETER | SYMBOL | VALUE | UNIT |
| Power dissipation | P_D | 200 | mW |
| Junction temperature range | T_J | -65 ~ 150 | $^{\circ}\text{C}$ |
| Storage temperature range | T_{STG} | -65 ~ 150 | $^{\circ}\text{C}$ |

| THERMAL PERFORMANCE | | | |
|--|-----------------|-----|-----------------------------|
| PARAMETER | SYMBOL | TYP | UNIT |
| Junction-to-ambient thermal resistance | $R_{\theta JA}$ | 625 | $^{\circ}\text{C}/\text{W}$ |

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

| PART NUMBER | MARKING CODE | ZENER VOLTAGE | | | TEST CURRENT | REGULAR IMPEDANCE | | TEST CURRENT | LEAKAGE CURRENT | |
|-------------|--------------|----------------|------|------|--------------|-------------------|-------------------|--------------|-----------------|-----|
| | | $V_Z @ I_{ZT}$ | | | I_{ZT} | $Z_{ZT} @ I_{ZT}$ | $Z_{ZK} @ I_{ZK}$ | I_{ZK} | $I_R @ V_R$ | |
| | | V | | | mA | Ω | Ω | mA | μA | V |
| | | Min. | Nom. | Max. | | Max. | Max. | | Max. | |
| BZT52C2V7K | A8 | 2.5 | 2.7 | 2.9 | 5 | 100 | 1000 | 1 | 120 | 1 |
| BZT52C3V0K | B8 | 2.8 | 3 | 3.2 | 5 | 100 | 1000 | 1 | 50 | 1 |
| BZT52C3V3K | C8 | 3.1 | 3.3 | 3.5 | 5 | 95 | 1000 | 1 | 20 | 1 |
| BZT52C3V6K | D8 | 3.4 | 3.6 | 3.8 | 5 | 90 | 1000 | 1 | 10 | 1 |
| BZT52C3V9K | E8 | 3.7 | 3.9 | 4.1 | 5 | 90 | 1000 | 1 | 5 | 1 |
| BZT52C4V3K | F8 | 4 | 4.3 | 4.6 | 5 | 90 | 1000 | 1 | 5 | 1 |
| BZT52C4V7K | G8 | 4.4 | 4.7 | 5 | 5 | 80 | 800 | 1 | 2 | 1 |
| BZT52C5V1K | H8 | 4.8 | 5.1 | 5.4 | 5 | 60 | 500 | 1 | 2 | 1.5 |
| BZT52C5V6K | I8 | 5.2 | 5.6 | 6 | 5 | 40 | 200 | 1 | 1 | 2.5 |
| BZT52C6V2K | J8 | 5.8 | 6.2 | 6.6 | 5 | 10 | 100 | 1 | 1 | 3 |
| BZT52C6V8K | K8 | 6.4 | 6.8 | 7.2 | 5 | 15 | 160 | 1 | 0.5 | 3.5 |
| BZT52C7V5K | L8 | 7 | 7.5 | 7.9 | 5 | 15 | 160 | 1 | 0.5 | 4 |
| BZT52C8V2K | M8 | 7.7 | 8.2 | 8.7 | 5 | 15 | 160 | 1 | 0.5 | 5 |
| BZT52C9V1K | N8 | 8.5 | 9.1 | 9.6 | 5 | 15 | 160 | 1 | 0.5 | 6 |
| BZT52C10K | O8 | 9.4 | 10 | 10.6 | 5 | 20 | 160 | 1 | 0.1 | 7 |
| BZT52C11K | P8 | 10.4 | 11 | 11.6 | 5 | 20 | 160 | 1 | 0.1 | 8 |
| BZT52C12K | Q8 | 11.4 | 12 | 12.7 | 5 | 25 | 80 | 1 | 0.1 | 9 |
| BZT52C13K | R8 | 12.4 | 13 | 14.1 | 5 | 30 | 80 | 1 | 0.1 | 10 |
| BZT52C15K | S8 | 14.3 | 15 | 15.8 | 5 | 30 | 80 | 1 | 0.1 | 11 |
| BZT52C16K | T8 | 15.3 | 16 | 17.1 | 5 | 40 | 80 | 1 | 0.1 | 12 |
| BZT52C18K | U8 | 16.8 | 18 | 19.1 | 5 | 45 | 80 | 1 | 0.1 | 13 |
| BZT52C20K | V8 | 18.8 | 20 | 21.2 | 5 | 55 | 100 | 1 | 0.1 | 15 |
| BZT52C22K | W8 | 20.8 | 22 | 23.3 | 5 | 55 | 100 | 1 | 0.1 | 17 |
| BZT52C24K | X8 | 22.8 | 24 | 25.6 | 5 | 70 | 120 | 1 | 0.1 | 19 |
| BZT52C27K | Y8 | 25.1 | 27 | 28.9 | 5 | 80 | 300 | 1 | 0.1 | 21 |
| BZT52C30K | Z8 | 28 | 30 | 32 | 5 | 80 | 300 | 1 | 0.1 | 23 |
| BZT52C33K | A9 | 31 | 33 | 35 | 5 | 80 | 300 | 1 | 0.1 | 25 |
| BZT52C36K | B9 | 34 | 36 | 38 | 5 | 90 | 500 | 1 | 0.1 | 27 |
| BZT52C39K | C9 | 37 | 39 | 41 | 5 | 130 | 500 | 1 | 2 | 30 |
| BZT52C43K | D9 | 40 | 43 | 46 | 5 | 150 | 500 | 1 | 2 | 33 |
| BZT52C47K | E9 | 44 | 47 | 50 | 5 | 170 | 500 | 1 | 2 | 36 |
| BZT52C51K | F9 | 48 | 51 | 54 | 5 | 180 | 500 | 1 | 1 | 39 |
| BZT52C56K | G9 | 52 | 56 | 60 | 5 | 200 | 500 | 1 | 1 | 43 |
| BZT52C62K | H9 | 58 | 62 | 66 | 5 | 215 | 500 | 1 | 0.2 | 47 |
| BZT52C68K | I9 | 64 | 68 | 72 | 5 | 240 | 500 | 1 | 0.2 | 52 |
| BZT52C75K | J9 | 70 | 75 | 79 | 5 | 255 | 500 | 1 | 0.2 | 57 |

Notes:

1. The Zener Voltage (V_z) is tested under pulse condition of 30ms
2. The device numbers listed have a standard tolerance on the normal zener voltage of $\pm 5\%$

| ORDERING INFORMATION | | |
|-------------------------------------|----------------|----------------|
| ORDERING CODE (Note 1, 2) | PACKAGE | PACKING |
| BZT52CxxxK RK | SOD-523F | 3K / 7" Reel |
| BZT52CxxxK RKG | SOD-523F | 3K / 7" Reel |
| BZT52CxxxK RJ | SOD-523F | 8K / 7" Reel |
| BZT52CxxxK RJG | SOD-523F | 8K / 7" Reel |

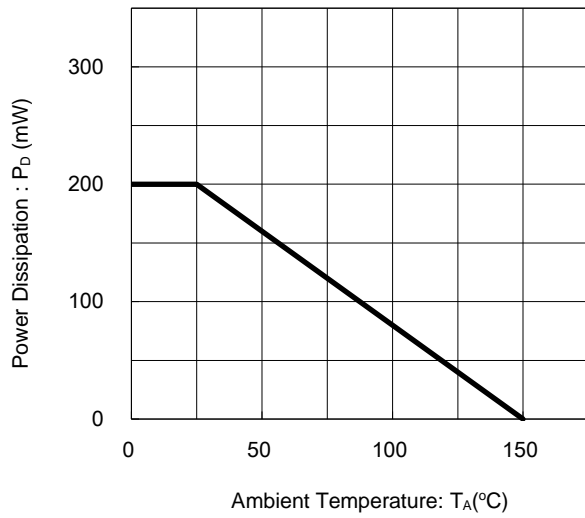
Note 1: "xxx" defines voltage from 2.7V (BZT52C2V7K) to 75V (BZT52C75K)

Note 2: "G" means green compound (Halogen free)

CHARACTERISTICS CURVES

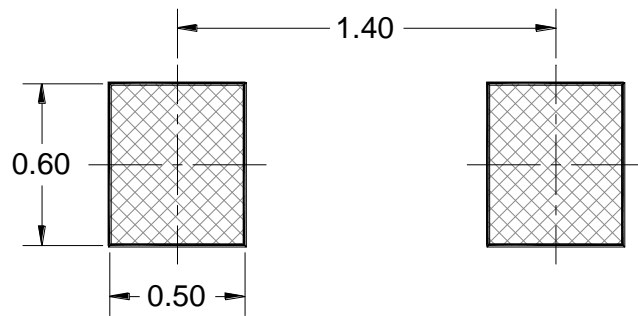
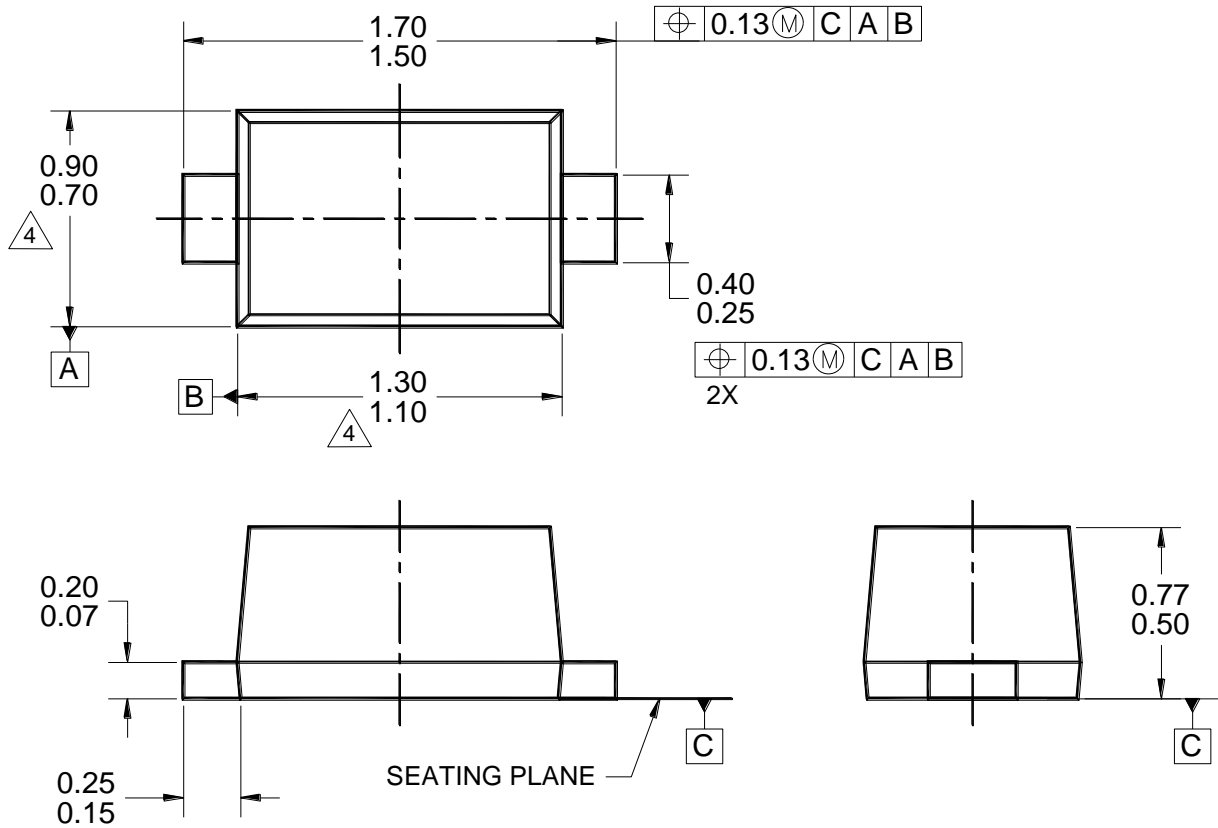
($T_A = 25^\circ\text{C}$ unless otherwise noted)

Fig. 1 Derating Curve

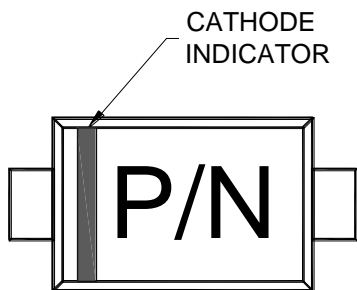


PACKAGE OUTLINE DIMENSIONS

SOD-523F



SUGGESTED PAD LAYOUT



MARKING DIAGRAM

P/N = MARKING CODE

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
3. PACKAGE OUTLINE REFERENCE: EIAJ ED-7500A, SC-79.
4. MOLDED PLASTIC BODY LATERAL DIMENSIONS DO NOT INCLUDE MOLD FLASH.
5. DWG NO. REF: HQ2SD07-SOD523F-047 REV A.

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