



# BZT52C2V0S - BZT52C39S SURFACE MOUNT ZENER DIODE

### **Features**

- Planar Die Construction
- Small Surface Mount Package
- Ideally Suited for Automated Assembly Processes
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Notes 3 & 4)
- Qualified to AEC-Q101 Standards for High Reliability

### **Mechanical Data**

- Case: SOD323
- Case Material: Molded Plastic.
  UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating).
  - Solderable per MIL-STD-202, Method 208 🕸
- Polarity: Cathode Band
- Weight: 0.0049 grams (Approximate)





Top View

## Ordering Information (Note 5)

Part Number	Qualification	Case	Packaging
(Type Number)-7-F*	Commercial	SOD323	3,000/Tape & Reel
(Type Number)Q-7-F*	Automotive	SOD323	3,000/Tape & Reel

\*Add "-7-F" to the appropriate type number in Electrical Characteristics Table, example: 6.2V Zener – BZT52C6V2S-7-F.

Notes: 1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.

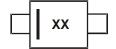
 See http://www.diodes.com/quality/lead\_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.

3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

4. Product manufactured with Date Code V9 (week 33, 2008) and newer are built with Green Molding Compound. Products manufactured prior to Date Code V9 are built with Non-Green Molding Compound and may contain Halogens or Sb<sub>2</sub>O<sub>3</sub> Fire Retardants.

5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

## **Marking Information**



XX = Product Type Marking Code for SAT (Shanghai Assembly / Test site) (See Electrical Characteristics Table)



 $\overline{X}X$  = Product Type Marking Code for CAT (Chengdu Assembly / Test site) (See Electrical Characteristics Table)



# Maximum Ratings (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load. For capacitance load, derate current by 20%.				
Characteristic		Symbol	Value	Unit
Forward Voltage (Note 6)	@I <sub>F</sub> = 10mA	V <sub>F</sub>	0.9	V

### **Thermal Characteristics**

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Characteristic	Symbol	Value	Unit
Power Dissipation (Note 7)	PD	200	mW
Thermal Resistance, Junction to Ambient Air (Note 7)	R <sub>θJA</sub>	625	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

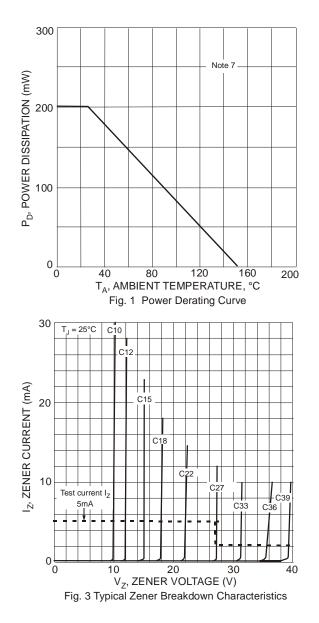
### Maximum Temperature Zener Voltage **Maximum Zener Impedance Reverse Current Coefficient of** Range (Note 4) f = 1kHz (Note 6) Zener Voltage Marking Type Number @I<sub>ZT =</sub> 5mA Code Vz @Izt Z<sub>ZT</sub> @I<sub>ZT</sub> ZZK @IZK @V<sub>R</sub> IZT Izĸ $I_R$ mV/°C Min (V) Max (V) v Min Max Nom (V) (mA) 0 mΑ uA BZT52C2V0S WY 2.0 1.91 2.09 100 600 1.0 150 1.0 -3.5 0 5 BZT52C2V4S WX 2.4 2.20 2.60 5 100 600 1.0 50 1.0 -3.5 0 BZT52C2V7S W1 2.7 2.5 2.9 5 100 600 1.0 20 1.0 -3.5 0 95 W2 2.8 BZT52C3V0S 3.0 3.2 5 1.0 10 1.0 600 -3.5 0 BZT52C3V3S W3 3.3 5 95 600 1.0 1.0 -3.5 0 3.1 3.5 5 BZT52C3V6S W4 3.6 3.8 5 90 600 1.0 5 1.0 -3.5 0 3.4 BZT52C3V9S W5 3.9 3.7 4.1 5 90 600 1.0 3 1.0 -3.5 0 BZT52C4V3S W6 4.3 4.0 4.6 5 90 1.0 1.0 3 -3.5 0 600 4.4 BZT52C4V7S W7 4.7 5 80 2 2.0 5.0 500 1.0 -3.5 0.2 BZT52C5V1S W8 5.1 4.8 5.4 5 60 480 1.0 1 2.0 -2.7 1.2 BZT52C5V6S W9 5.6 5.2 6.0 5 40 400 1.0 3 2.0 -2.0 2.5 BZT52C6V2S WA 6.2 5.8 6.6 5 10 150 1.0 2 4.0 0.4 3.7 WB 15 BZT52C6V8S 80 1.0 4.0 6.8 6.4 7.2 5 1 1.2 4.5 BZT52C7V5S WC 7.0 7.9 5 15 80 1.0 0.7 5.0 2.5 5.3 7.5 BZT52C8V2S WD 8.2 7.7 8.7 5 15 80 1.0 0.5 5.0 3.2 6.2 BZT52C9V1S WE 9.1 8.5 9.6 5 15 100 1.0 0.2 6.0 3.8 7.0 BZT52C10S WF 10 9.4 10.6 5 20 150 1.0 0.1 7.0 4.5 8.0 150 BZT52C11S WG 11 10.4 11.6 5 20 1.0 0.1 8.0 5.4 9.0 BZT52C12S WH 12 11.4 12.7 5 25 150 1.0 0.1 8.0 6.0 10.0 BZT52C13S WI 13 12.4 14.1 5 30 170 1.0 0.1 8.0 7.0 11.0 WJ BZT52C15S 15 13.8 15.6 5 30 200 1.0 10.5 9.2 0.1 13.0 BZT52C16S WK 16 15.3 17.1 5 40 200 1.0 0.1 11.2 10.4 \_\_\_\_ BZT52C18S WL 18 16.8 19.1 5 45 225 1.0 0.1 12.6 12.4 BZT52C20S WM 20 18.8 21.2 5 55 225 1.0 0.1 14.0 14.4 \_ 250 22 20.8 5 BZT52C22S WN 23.3 55 1.0 0.1 15.4 16.4 BZT52C24S WO 24 22.8 25.6 5 70 250 1.0 0.1 16.8 18.4 \_\_\_\_ BZT52C27S WP 27 25.1 28.9 2 80 300 0.5 0.1 18.9 21.4 \_ BZT52C30S WQ 30 28.0 32.0 2 80 300 0.5 0.1 21.0 24.4 \_ BZT52C33S WR 33 31.0 35.0 2 80 325 0.5 0.1 23.1 27.4 \_\_\_\_ WS 90 2 25.2 36 34.0 0.5 30.4 BZT52C36S 38.0 350 0.1 \_ BZT52C39S WT 39 37.0 41.0 2 130 350 0.5 0.1 27.3 33.4

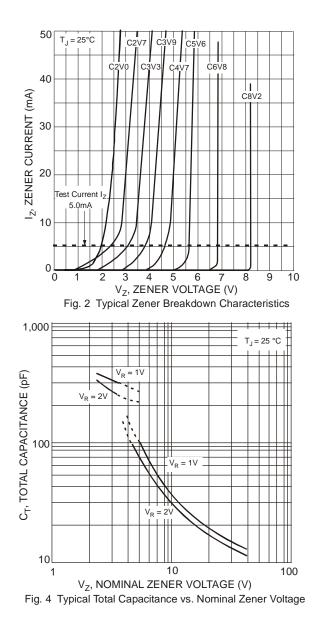
### Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Notes: 6. Short duration pulse test used to minimize self-heating effect.

7. Part mounted on FR-4 PC board with recommended pad layout, as per http://www.diodes.com/package-outlines.html.

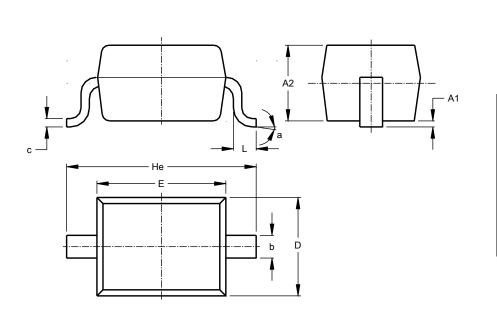








# **Package Outline Dimensions**



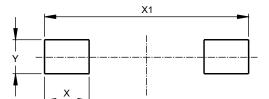
SOD323				
Dim	Min	Max	Тур	
A1		0.10	0.05	
A2	1.00	1.10	1.05	
b	0.25	0.35	0.30	
С	0.10	0.15	0.11	
D	1.20	1.40	1.30	
E	1.60	1.80	1.70	
He	2.30	2.70	2.50	
L	0.20	0.40	0.30	
а	0°	8º		
All Dimensions in mm				

## **Suggested Pad Layout**

Please see http://www.diodes.com/package-outlines.html for the latest version.

### SOD323

SOD323



Dimensions	Value (in mm)
Х	0.590
X1	2.700
Y	0.450

Please see http://www.diodes.com/package-outlines.html for the latest version.



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