

## Features

- ±2.0% Tolerance on Breakdown Voltage
- Small, Low Profile Surface Mount Package
- Flat Lead Package Design for Low Profile and High Power Dissipation
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The BZT585B2V4TQ - BZT585B43TQ is suitable for automotive applications requiring specific change control and is AEC-Q101 qualified, is PPAP capable, and is manufactured in IATF16949:2016 certified facilities.**
- <https://www.diodes.com/quality/product-definitions/>

## Mechanical Data

- Case: SOD523
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish—Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Weight: 0.001 grams (Approximate)



Top View

## Ordering Information (Note 4)

Part Number	Qualification	Case	Packaging
(Type Number)-7*	Automotive	SOD523	3000/Tape & Reel
(Type Number)-13*	Automotive	SOD523	10,000/Tape & Reel

\*For (Type Number), please see the Electrical Characteristics Table. Example: 6.2V Zener = BZT585B6V2TQ-7.

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> 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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



xx = Product Type Marking Code  
(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	V <sub>F</sub>	@ I <sub>F</sub> = 10mA	0.9
		@ I <sub>F</sub> = 100mA	1.1
Continuous Forward Current	I <sub>F</sub>	200	mA

**Thermal Characteristics**

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	350	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	357	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

Note: 5. Device mounted on FR-4 PCB with minimum recommended pad layout, as shown on our website at <http://www.diodes.com/package-outlines.html>.

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

Type Number	Marking Codes	Zener Voltage Range (Note 6)				Maximum Zener Impedance (Note 7)			Temperature Coefficient	Total Capacitance	Maximum Reverse Current (Note 6)	
		V <sub>Z</sub> @ I <sub>ZT</sub>			I <sub>ZT</sub>	Z <sub>ZT</sub> @ I <sub>ZT</sub>	Z <sub>ZK</sub> @ I <sub>ZK</sub>	I <sub>ZK</sub>			TC @ I <sub>ZT</sub>	C <sub>T</sub> @ f = 1MHz, V <sub>R</sub> = 0V
		Nom (V)	Min (V)	Max (V)	mA	Ω		mA	Typical (mV/°C)	Max (pF)	μA	V
BZT585B2V4TQ	3C	2.4	2.35	2.45	5	100	400	1	-1.3	450	50	1
BZT585B3V6TQ	3J	3.6	3.53	3.67	5	90	500	1	-1.9	390	5	1
BZT585B3V9TQ	3K	3.9	3.82	3.98	5	90	500	1	-1.9	370	3	1
BZT585B5V1TQ	3N	5.1	5.00	5.20	5	60	480	1	-0.5	300	2	2
BZT585B5V6TQ	3P	5.6	5.49	5.71	5	40	400	1	1.0	275	1	2
BZT585B6V2TQ	3S	6.2	6.08	6.32	5	10	150	1	2.2	250	3	4
BZT585B6V8TQ	3T	6.8	6.66	6.94	5	15	80	1	3.0	215	2	4
BZT585B7V5TQ	3U	7.5	7.35	7.65	5	10	80	1	3.8	170	1	5
BZT585B8V2TQ	3V	8.2	8.04	8.36	5	10	80	1	4.7	150	0.7	5
BZT585B9V1TQ	3X	9.1	8.92	9.28	5	10	100	1	5.8	120	0.5	6
BZT585B10TQ	3Y	10	9.80	10.20	5	10	150	1	7.0	110	0.2	7
BZT585B11TQ	3Z	11	10.78	11.22	5	10	150	1	8.2	110	0.1	8
BZT585B12TQ	4A	12	11.76	12.24	5	10	150	1	9.5	105	0.1	8
BZT585B13TQ	4B	13	12.74	13.26	5	10	170	1	10.7	105	0.1	8
BZT585B15TQ	4D	15	14.70	15.30	5	15	200	1	13.2	100	0.05	10.5
BZT585B16TQ	4E	16	15.68	16.32	5	40	200	1	14.4	90	0.05	11.2
BZT585B18TQ	4F	18	17.64	18.36	5	45	225	1	16.9	80	0.05	12.6
BZT585B20TQ	4G	20	19.60	20.40	5	55	225	1	19.4	70	0.05	14.0
BZT585B22TQ	4H	22	21.56	22.44	5	55	250	1	21.9	60	0.05	15.4
BZT585B24TQ	4J	24	23.52	24.48	5	70	250	1	24.4	55	0.05	16.8
BZT585B27TQ	4K	27	26.46	27.54	2	80	300	0.5	25.4	50	0.05	18.9
BZT585B30TQ	4M	30	29.40	30.60	2	80	300	0.5	31.1	50	0.05	21.0
BZT585B33TQ	4N	33	32.34	33.66	2	80	325	0.5	36.7	45	0.05	23.1
BZT585B36TQ	4P	36	35.28	36.72	2	90	350	0.5	42.4	45	0.05	25.2
BZT585B39TQ	4R	39	38.22	39.78	2	130	350	0.5	48.1	45	0.05	27.3
BZT585B43TQ	4S	43	42.14	43.86	2	150	375	0.5	55.7	40	0.05	30.1

Notes: 6. Short duration pulse test used to minimize self-heating effect.  
7. f = 1kHz.

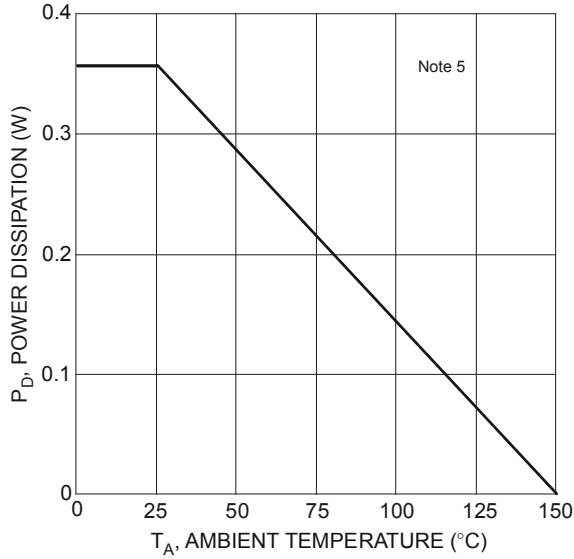


Figure 1 Power Derating Curve

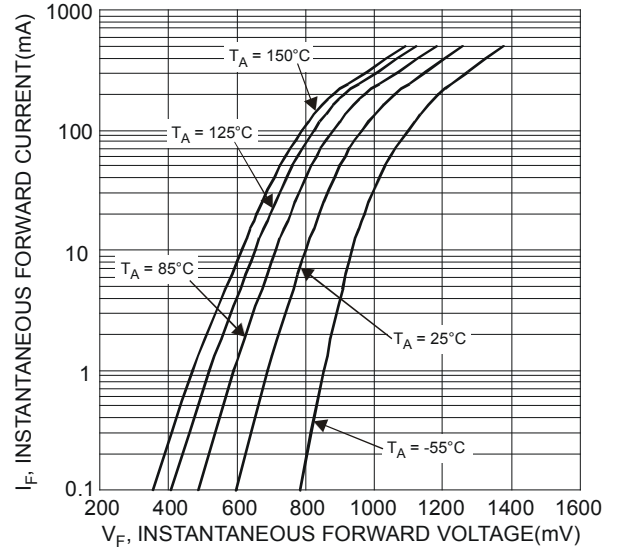


Figure 2 Typical Forward Characteristics

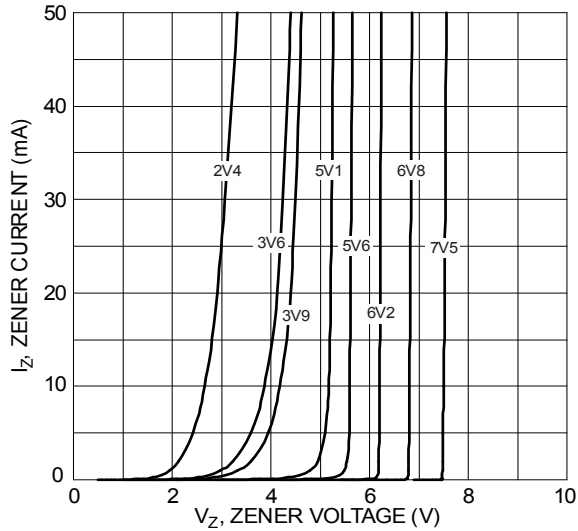


Figure 3 Typical Zener Breakdown Characteristics  
BZT585B2V4TQ - BZT585B7V5TQ

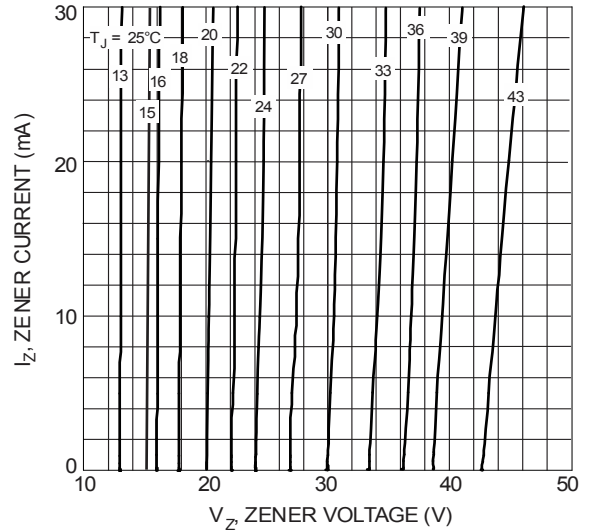
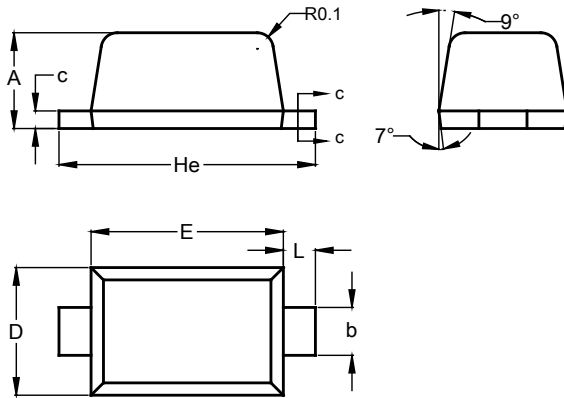


Figure 4 Typical Zener Breakdown Characteristics  
BZT585B13TQ - BZT585B43TQ

## Package Outline Dimensions

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

### SOD523

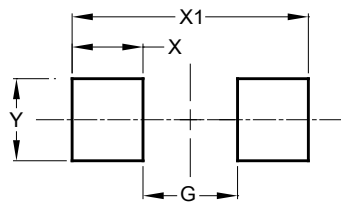


SOD523		
Dim	Min	Max
A	0.55	0.65
b	0.26	0.34
c	0.11	0.17
D	0.75	0.85
E	1.15	1.25
He	1.55	1.65
L	0.10	0.30
All Dimensions in mm		

## Suggested Pad Layout

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

### SOD523



Dimensions	Value (in mm)
G	0.80
X	0.60
X1	2.00
Y	0.70

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