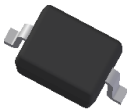
SURFACE MOUNT PRECISION ZENER DIODE

Features

- Small, Surface Mount Package
- Ideally suited for Automated Assembly Processes
- Very Sharp Breakdown Characteristics
- Very Tight Tolerance on Zener Breakdown Voltage
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: SOD323
- Case Material: UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.004 grams (approximate)



Top View

Ordering Information (Note 4)

Device	Packaging	Shipping
(Type Number)-7*	SOD323	3000/Tape & Reel
(Type Number)-13* (Note 5)	SOD323	10000/Tape & Reel

* For (Type Number), please see the Electrical Characteristics Table. Example: 6.2V Zener = UDZ6V2B-7.

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. 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. For packaging details, go to our website at http://www.diodes.com/products/packages.html
5. Devices are readily available on 13" reels for select voltages only. For other voltages, devices can be made available on 13" reels upon request. Please Contact your Diodes Inc. sales representative for additional details.

Marking Information

xx = Product Type Marking Code
(See Electrical Characteristics Table)

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Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	200	mW
Thermal Resistance Junction to Ambient Air (Note 6)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Type Number	Marking Code	Zener Voltage Range (Note 7)			Maximum Zener Impedance (Note 8)			Maximum Reverse Current (Note 7)	
		V_{ZT} @ I_{ZT}		I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	I_R	V_R
		Min (V)	Max (V)	mA	Ω		mA	uA	V
UDZ3V6B (Note 9)	B7	3.600	3.845	5	100	1000	1.0	10	1.0
UDZ3V9B (Note 9)	B8	3.890	4.160	5	100	1000	1.0	5	1.0
UDZ4V3B (Note 9)	B9	4.170	4.430	5	100	1000	1.0	5	1.0
UDZ4V7B (Note 9)	BA	4.550	4.750	5	100	800	0.5	2	1.0
UDZ5V1B (Note 9)	BB	4.980	5.200	5	80	500	0.5	2	1.5
UDZ5V6B	BC	5.490	5.730	5	60	200	0.5	1	2.5
UDZ6V2B	BD	6.060	6.330	5	60	100	0.5	1	3.0
UDZ6V8B	BE	6.650	6.930	5	40	60	0.5	0.5	3.5
UDZ7V5B (Note 9)	BF	7.280	7.600	5	30	60	0.5	0.5	4.0
UDZ8V2B	BG	8.020	8.360	5	30	60	0.5	0.5	5.0
UDZ9V1B	BH	8.850	9.230	5	30	60	0.5	0.5	6.0
UDZ10B	BI	9.770	10.210	5	30	60	0.5	0.1	7.0
UDZ11B	BJ	10.760	11.220	5	30	60	0.5	0.1	8.0
UDZ12B	BK	11.740	12.240	5	30	80	0.5	0.1	9.0
UDZ13B	BL	12.910	13.490	5	37	80	0.5	0.1	10.0
UDZ15B	BM	14.340	14.980	5	42	80	0.5	0.1	11.0

Notes:
6. Part mounted on FR-4 PC board with recommended pad layout, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
7. Short duration pulse test used to minimize self-heating effect.
8. The Zener impedances (Z_{ZT}, Z_{ZK}) are measured by superimposing a minute alternating current on the regulated current (IZ).
9. AEC-Q101 qualified

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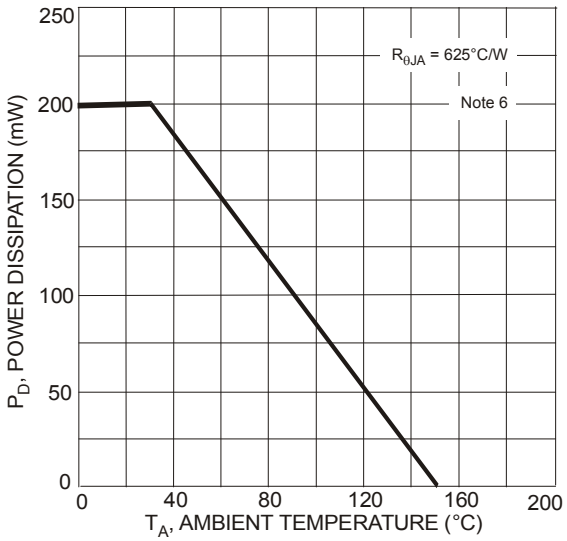

Fig. 1 Power Derating Curve

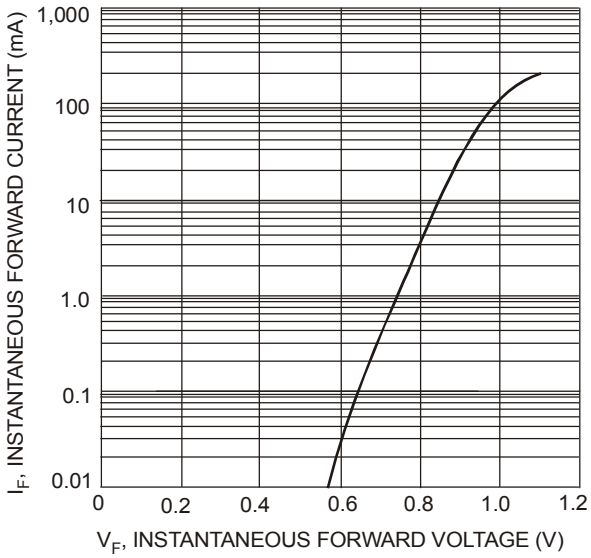

Fig. 2 Typical Forward Characteristics

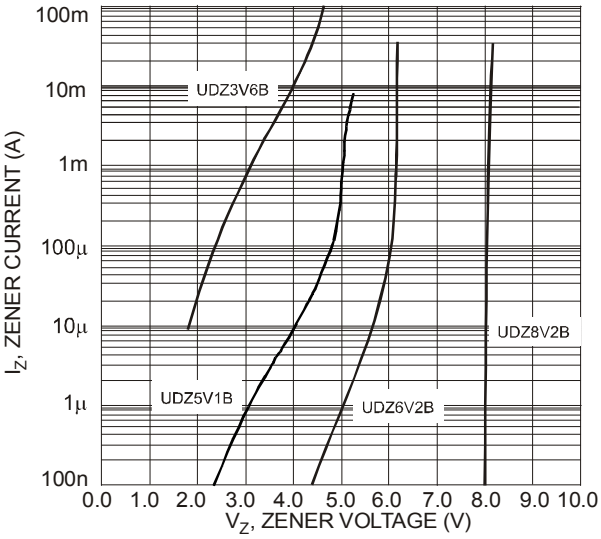

Fig. 3 Typical Zener Breakdown Characteristics, UDZ3V6B - UDZ8V2B

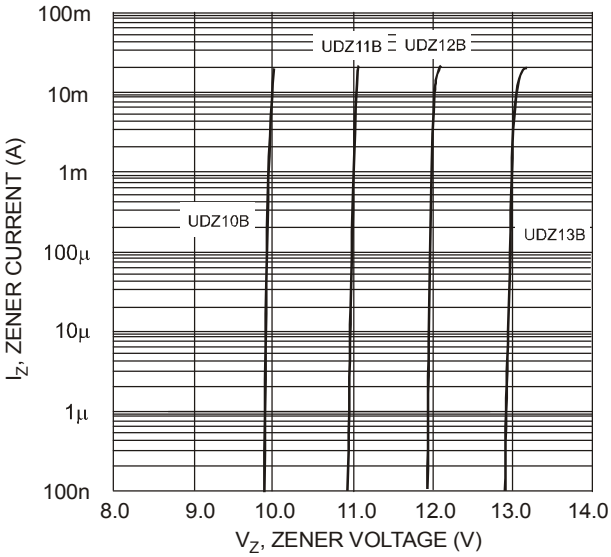

Fig. 4 Typical Zener Breakdown Characteristics, UDZ10B - UDZ13B

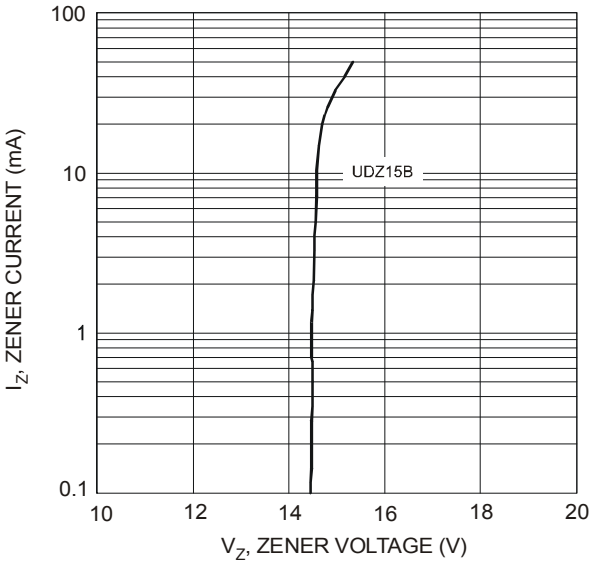

Fig. 5 Typical Zener Breakdown Characteristics, UDZ15B

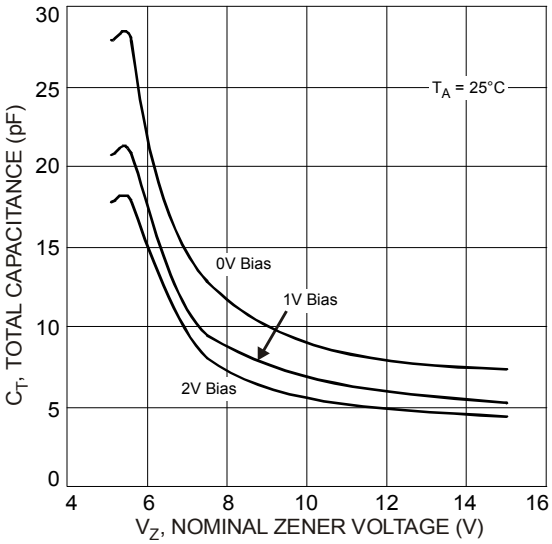

Fig. 6 Typical Total Capacitance vs. Nominal Zener Voltage

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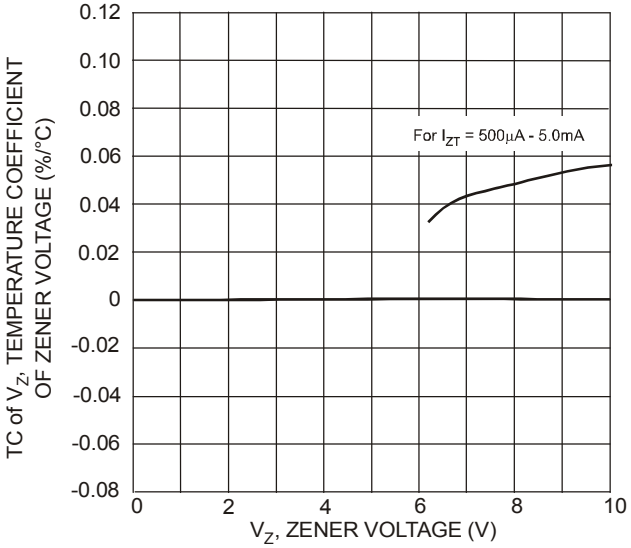


Fig. 7 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, UDZ6V2B-UDZ10B

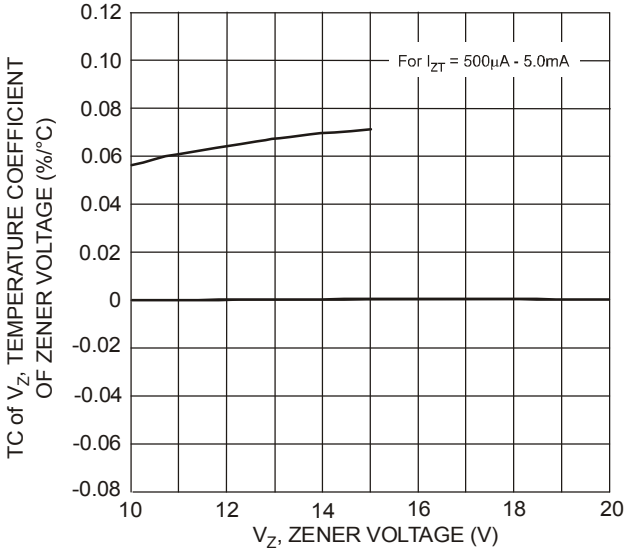
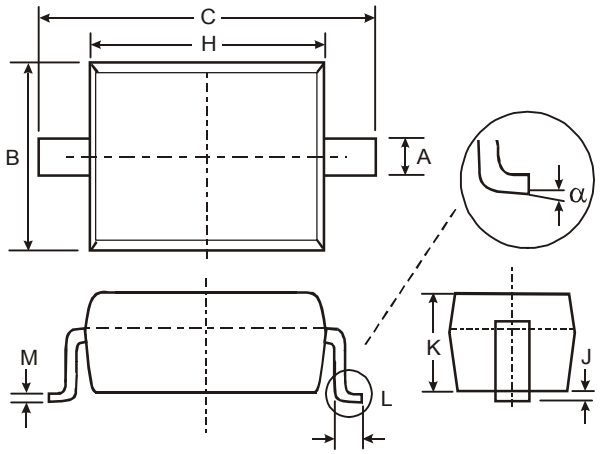


Fig. 8 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, UDZ10B-UDZ15B

Package Outline Dimensions

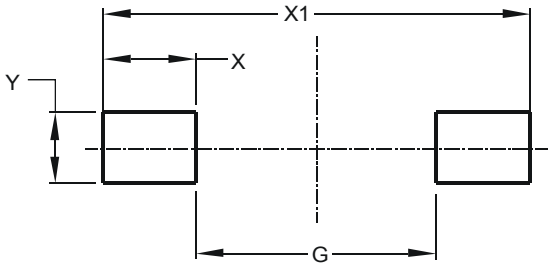
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



SOD323		
Dim	**Min**	**Max**
A	0.25	0.35
B	1.20	1.40
C	2.30	2.70
H	1.60	1.80
J	0.00	0.10
K	1.0	1.1
L	0.20	0.40
M	0.10	0.15
α	0°	8°
All Dimensions in mm		

Suggested Pad Layout

Please see AP02001 at http://www.diodes.com/datasheets/ap02001.pdf for the latest version.



Dimensions	Value (in mm)
G	1.520
X	0.590
X1	2.700
Y	0.450

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