

## Features

- Very Sharp Breakdown Characteristics
- Very Tight Tolerance on  $V_Z$
- Ideally Suited for Automated Assembly Processes
- Very Low Leakage Current
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

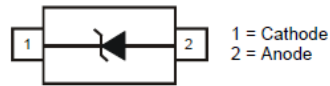
## Mechanical Data

- Case: SOD-323
- Case Material: Molded Plastic; UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe; Solderable per MIL-STD-202, Method 208<sup>(e3)</sup>
- Polarity: Cathode Band
- Weight: 0.004 grams (Approximate)

SOD323



Top View



Device Schematic

## Ordering Information (Note 4)

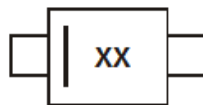
Part Number (Type Number)-7*	Case SOD-323	Packaging 3,000/Tape & Reel

\* Example: The part number for the 6.2 Volt device would be DDZ6V2BS-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](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>.

## Marking Information

SOD-323



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

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

Characteristic	Symbol	Value	Unit
Forward Voltage @ I <sub>F</sub> = 10mA	V <sub>F</sub>	0.9	V

**Thermal Characteristics**

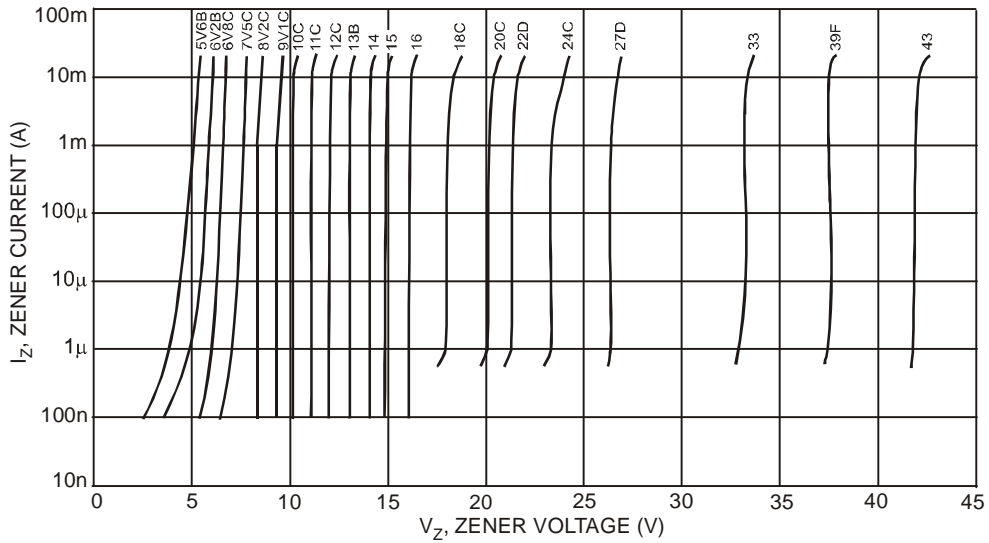
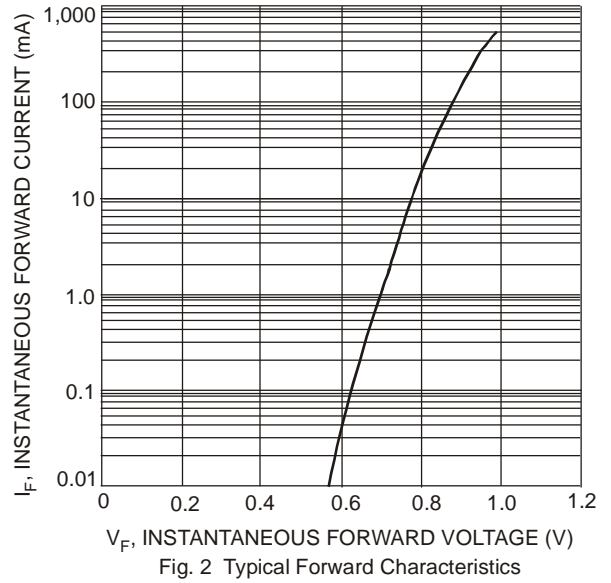
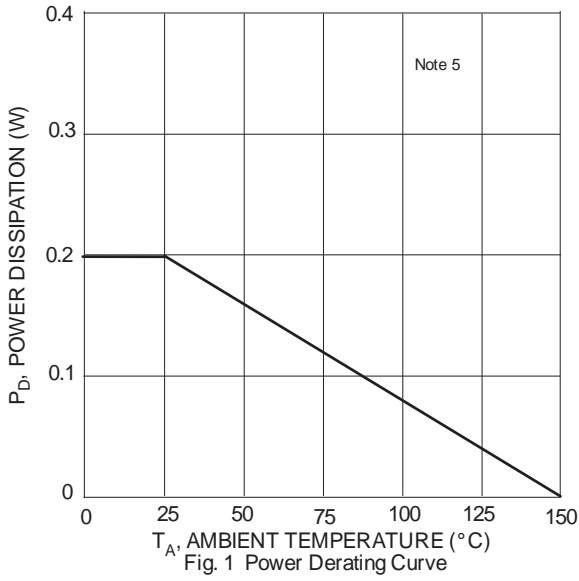
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	200	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	625	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

Note: 5. Device mounted on FR-4 PC board with recommended pad layout which can be found on our website at <http://www.diodes.com/datasheets/ap02001.pdf>.

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

Type Number	Marking Code	Zener Voltage Range (Notes 6 & 7)			Maximum Zener Impedance (Note 8)			Maximum Reverse Current (Note 9)	
		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>	I <sub>R</sub>	@ V <sub>R</sub>
		Min (V)	Max (V)	mA	Ω		mA	μA	V
DDZ5V1BS	KM	4.94	5.20	20	17	480	1	5	1.5
DDZ5V6BS	KN	5.45	5.73	20	11	400	1	0.5	2.5
DDZ6V2BS	KO	5.96	6.27	20	7	150	1	0.5	4.0
DDZ6V8CS	YP	6.66	7.01	20	5	150	0.5	0.1	5.0
DDZ7V5CS	YQ	7.29	7.67	20	6	120	0.5	0.1	6.0
DDZ8V2CS	YR	8.03	8.45	20	8	120	0.5	0.1	6.5
DDZ9V1CS	YS	8.83	9.30	20	8	120	0.5	0.1	7.0
DDZ10CS	YT	9.70	10.20	20	8	120	0.5	0.1	8.0
DDZ11CS	YU	10.82	11.38	10	10	120	0.5	0.1	8.4
DDZ12CS	YV	11.74	12.35	10	12	110	0.5	0.1	9.1
DDZ13BS	KW	12.55	13.21	10	14	110	0.5	0.1	10.0
DDZ14S	GX	13.65	14.35	10	16	110	0.5	0.05	11.0
DDZ15S	GY	14.80	15.57	10	18	150	0.5	0.05	12.0
DDZ16S	YY	15.69	16.51	10	18	150	0.5	0.05	12.0
DDZ18CS	YZ	17.42	18.33	10	23	150	0.5	0.05	14.0
DDZ20CS	PJ	19.23	20.22	10	28	200	0.5	0.05	15.0
DDZ22DS	2K	21.52	22.63	5	30	200	0.5	0.05	17.0
DDZ24CS	PL	23.12	24.31	5	35	200	0.5	0.05	19.0
DDZ27DS	2M	26.29	27.64	5	45	250	0.5	0.05	21.0
DDZ30DS	2N	29.02	30.51	5	55	250	0.5	0.05	23.0
DDZ33S	RP	32.14	33.79	5	75	250	0.5	0.05	27.0
DDZ36S	ZQ	35.36	37.19	5	85	250	0.5	0.05	30.0
DDZ39FS	5Q	38.02	39.98	5	85	250	0.5	0.05	30.0
DDZ43S	ZR	42.14	43.86	5	90	—	—	0.05	33.0

- Notes:
- The zener voltage is measured 40ms after power is supplied.
  - For inquiries on tighter tolerances, or alternate nominal zener voltages, please contact your Diodes Inc. sales representative for availability and minimum order details.
  - f = 1kHz.
  - Short duration pulse test used to minimize self-heating effect.



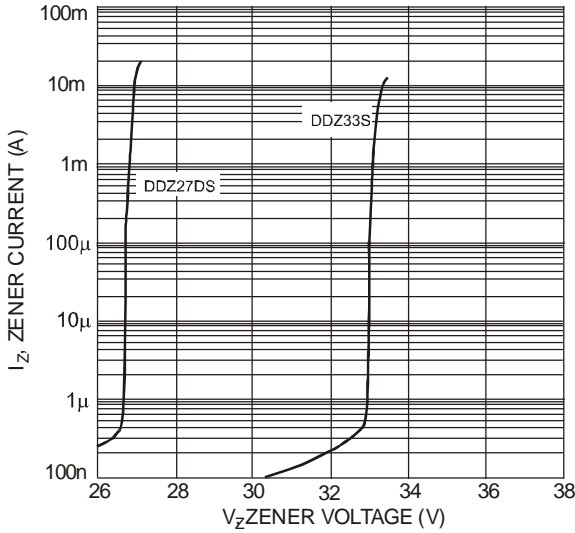


Fig. 4 Typical Zener Breakdown Characteristics, DDZ27DS - DDZ33S

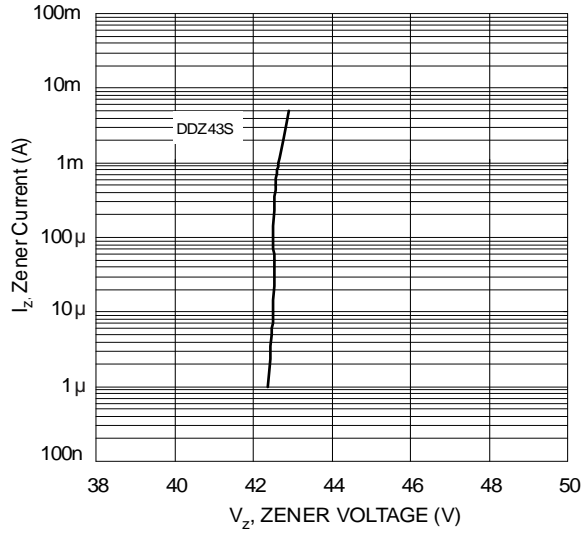


Fig. 5 Typical Zener Breakdown Characteristics, DDZ43S

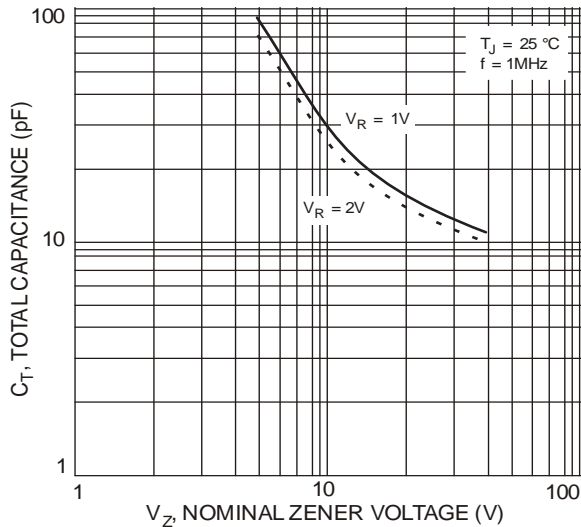


Fig. 6 Typical Total Capacitance vs. Nominal Zener Voltage

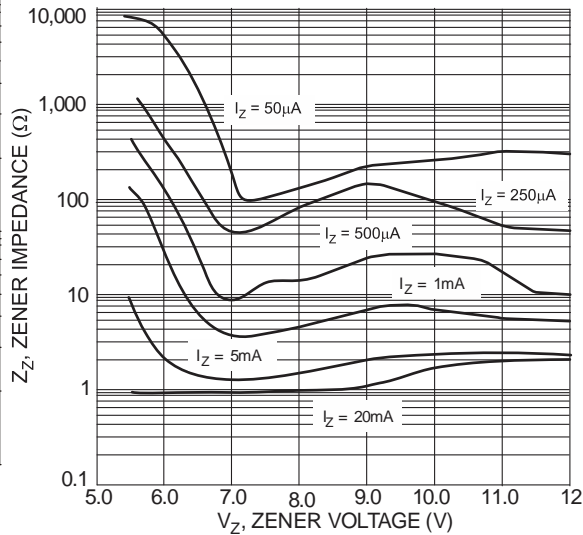


Fig. 7 Typical Zener Impedance Characteristics, DDZ5V6BS - DDZ12CS

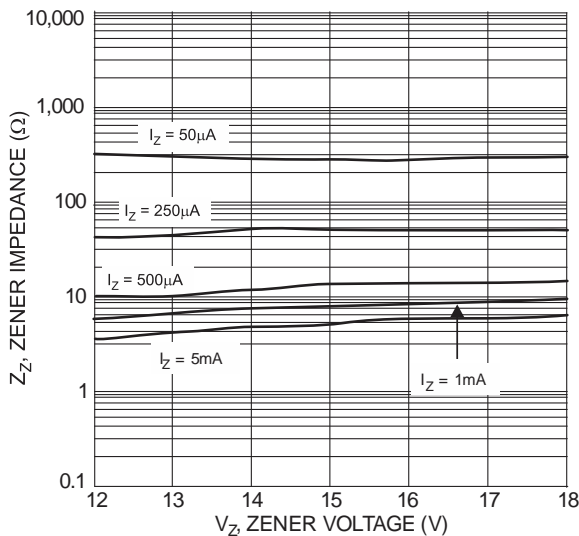


Fig. 8 Typical Zener Impedance Characteristics, DDZ12CS - DDZ18CS

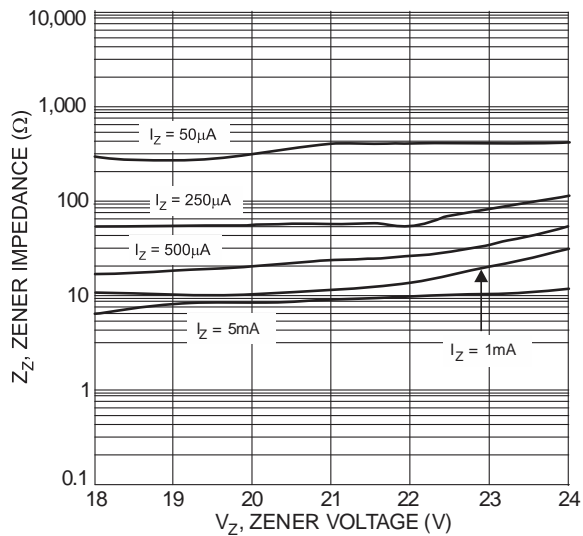


Fig. 9 Typical Zener Impedance Characteristics, DDZ18CS - DDZ24CS

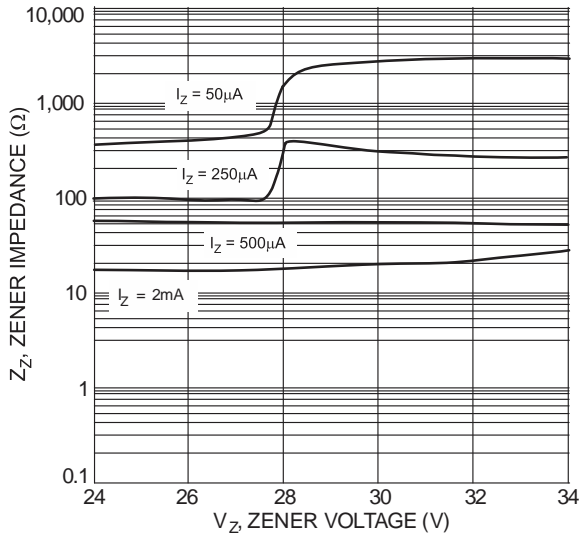


Fig. 10 Typical Zener Impedance Characteristics, DDZ24CS - DDZ33S

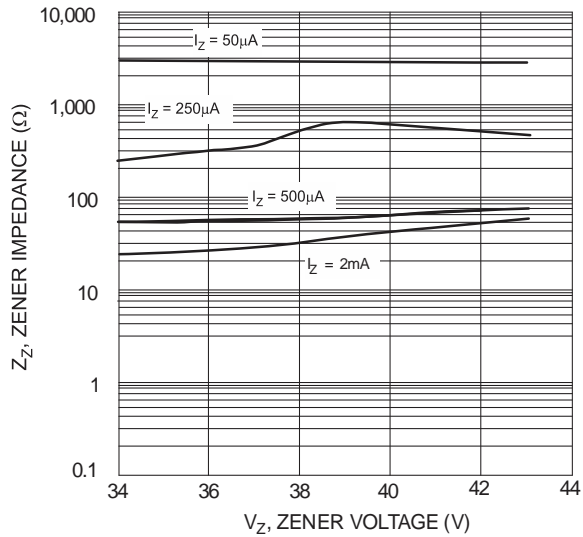


Fig. 11 Typical Zener Impedance Characteristics, DDZ36S - DDZ43S

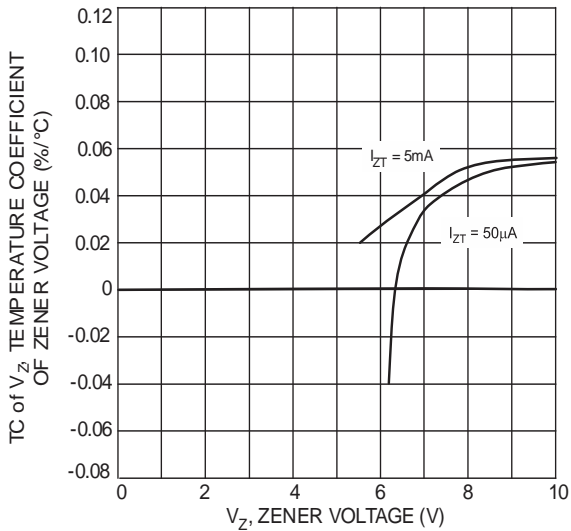


Fig. 12 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZ6V2BS-DDZ10CS

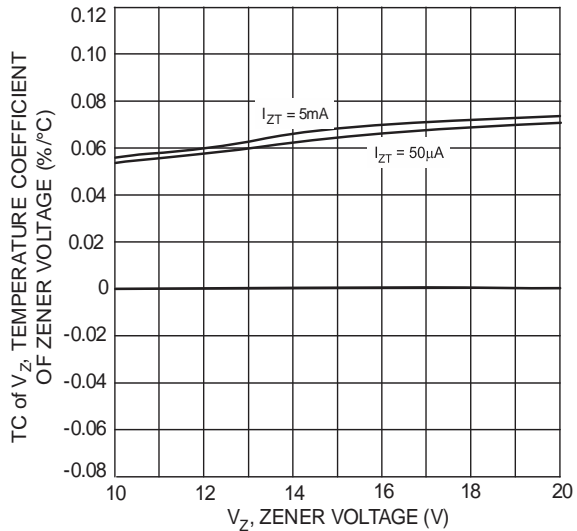


Fig. 13 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZ10CS-DDZ20CS

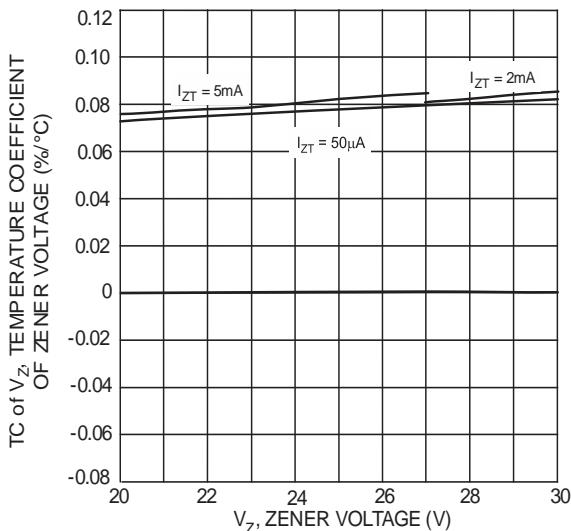


Fig. 14 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZ20CS-DDZ30DS

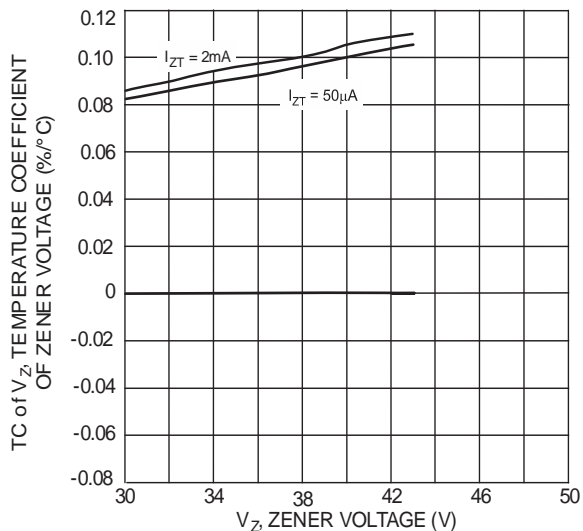
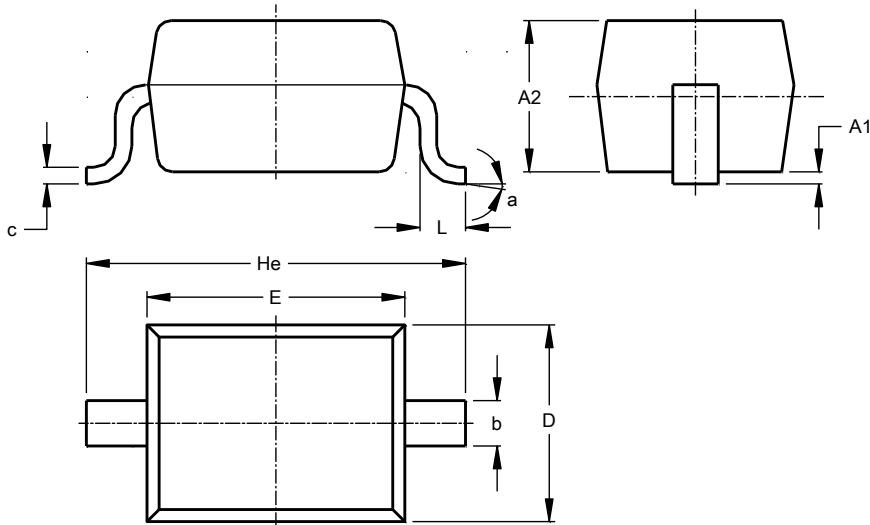


Fig. 15 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZ30DS-DDZ43S

**Package Outline Dimensions**

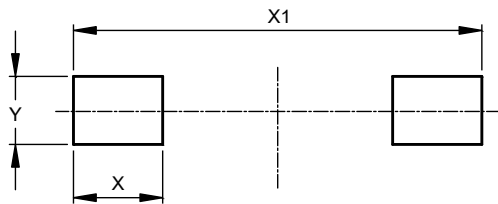
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



SOD323			
Dim	Min	Max	Typ
A1	--	0.10	0.05
A2	1.00	1.10	1.05
b	0.25	0.35	0.30
c	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
a	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)
X	0.590
X1	2.700
Y	0.450

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