

Plastic-Encapsulate Zener Diode

2.4V ~ 43V, 200mW

BZT52BXXXS



SOD-323GW

SOD-323 GW
Surface Mount
Plastic Package
RoHS compliant

FEATURES:

1. Low Zener Impedance
2. 200mW; Power Dissipation of 200mW
3. High Stability and High Reliability

ABSOLUTE MAXIMUM RATINGS (Ta = 25 °C Unless otherwise specified)

PARAMETER	SYMBOL	VALUE	UNIT
Power Dissipation	Pd	200 ¹	mW
Forward Voltage @I _F =10mA	V _f	0.9 ²	V
Storage temperature range	T _s	-65 to +150	°C

Notes:

1. Device mounted on ceramic PCB: 7.6mm x 9.4mm x 0.87mm with pad areas 25mm²
2. Short duration test pulse used to minimize self-heating effect
3. f=1KHz

ELECTRICAL CHARACTERISTICS (at Ta = 25 °C Unless otherwise specified)

Device	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature coefficient @ I _{ZTC} (mV/°C)		Test Current I _{ZTC}
		V _z @ I _{zt}			I _{zt}	Z _{zt} @ I _{zt}	Z _{zk} @ I _{zk}	I _{zk}	I _R	V _R	I _{ZTC} (mV/°C)		
		V			mA	Ω		mA	uA	V	Min	Max	
		Nom	Min	Max									
BZT52B2V4S	2WX	2.4	2.35	2.45	5	100	600	1.0	50	1.0	-3.5	0	5
BZT52B2V7S	2W1	2.7	2.65	2.75	5	100	600	1.0	20	1.0	-3.5	0	5
BZT52B3V0S	2W2	3.0	2.94	3.06	5	95	600	1.0	10	1.0	-3.5	0	5
BZT52B3V3S	2W3	3.3	3.23	3.37	5	95	600	1.0	5	1.0	-3.5	0	5
BZT52B3V6S	2W4	3.6	3.53	3.67	5	90	600	1.0	5	1.0	-3.5	0	5
BZT52B3V9S	2W5	3.9	3.82	3.98	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V3S	2W6	4.3	4.21	4.39	5	90	600	1.0	3	1.0	-3.5	0	5
BZT52B4V7S	2W7	4.7	4.61	4.79	5	80	500	1.0	3	2.0	-3.5	0.2	5
BZT52B5V1S	2W8	5.1	5.00	5.20	5	60	480	1.0	2	2.0	-2.7	1.2	5

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Rev0_14042022ESW



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ELECTRICAL CHARACTERISTICS (at $T_a = 25\text{ }^\circ\text{C}$ Unless otherwise specified)

Device	Marking	Zener Voltage Range				Maximum Zener Impedance			Maximum Reverse Current		Typical Temperature coefficient @ I_{ZTC} (mV/°C)		Test Current I_{ZTC}
		$V_z @ I_{zt}$			I_{zt}	Z_{zt} @ I_{zt}	Z_{zk} @ I_{zk}	I_{zk}	I_R	V_R	I_{ZTC} (mV/°C)		
		Nom (V)	Min (V)	Max (V)	mA	Ω	mA	μA	V	Min	Max	mA	
BZT52B5V6S	2W9	5.6	5.49	5.71	5	40	400	1.0	1	2.0	-2.0	2.5	5
BZT52B6V2S	2WA	6.2	6.08	6.32	5	10	150	1.0	3	4.0	0.4	3.7	5
BZT52B6V8S	2WB	6.8	6.66	6.94	5	15	80	1.0	2	4.0	1.2	4.5	5
BZT52B7V5S	2WC	7.5	7.35	7.65	5	15	80	1.0	1	5.0	2.5	5.3	5
BZT52B8V2S	2WD	8.2	8.04	8.36	5	15	80	1.0	0.7	5.0	3.2	6.2	5
BZT52B9V1S	2WE	9.1	8.92	9.28	5	15	100	1.0	0.5	6.0	3.8	7.0	5
BZT52B10S	2WF	10	9.80	10.20	5	20	150	1.0	0.2	7.0	4.5	8.0	5
BZT52B11S	2WG	11	10.78	11.22	5	20	150	1.0	0.1	8.0	5.4	9.0	5
BZT52B12S	2WH	12	11.76	12.24	5	25	150	1.0	0.1	8.0	6.0	10.0	5
BZT52B13S	2WI	13	12.74	13.26	5	30	170	1.0	0.1	8.0	7.0	11.0	5
BZT52B15S	2WJ	15	14.70	15.30	5	30	200	1.0	0.1	10.5	9.2	13.0	5
BZT52B16S	2WK	16	15.68	16.32	5	40	200	1.0	0.1	11.2	10.4	14.0	5
BZT52B18S	2WL	18	17.64	18.36	5	45	225	1.0	0.1	12.6	12.4	16.0	5
BZT52B20S	2WM	20	19.60	20.40	5	55	225	1.0	0.1	14.0	14.4	18.0	5
BZT52B22S	2WN	22	21.56	22.44	5	55	250	1.0	0.1	15.4	16.4	20.0	5
BZT52B24S	2WO	24	23.52	24.48	5	70	250	1.0	0.1	16.8	18.4	22.0	5
BZT52B27S	2WP	27	26.46	27.54	2	80	300	0.0	0.1	18.9	21.4	25.3	2
BZT52B30S	2WQ	30	29.40	30.60	2	80	300	0.5	0.1	21.0	24.4	29.4	2
BZT52B33S	2WR	33	32.34	33.66	2	80	325	0.5	0.1	23.1	27.4	33.4	2
BZT52B36S	2WS	36	35.28	36.72	2	90	350	0.5	0.1	25.2	30.4	37.4	2
BZT52B39S	2WT	39	38.22	39.78	2	130	350	0.5	0.1	27.3	33.4	41.2	2
BZT52B43S	2WU	43	41.16	43.84	2	100	700	1.0	0.1	32.0	10.0	12.0	5

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TYPICAL CHARACTERISTICS CURVES

Fig. 1. Breakdown characteristics at $T_j = \text{constant}$ (pulsed)

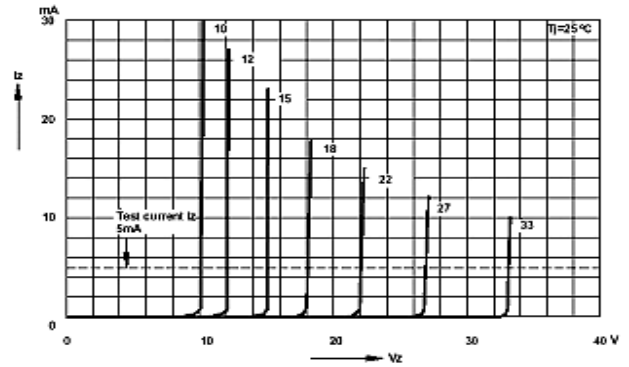
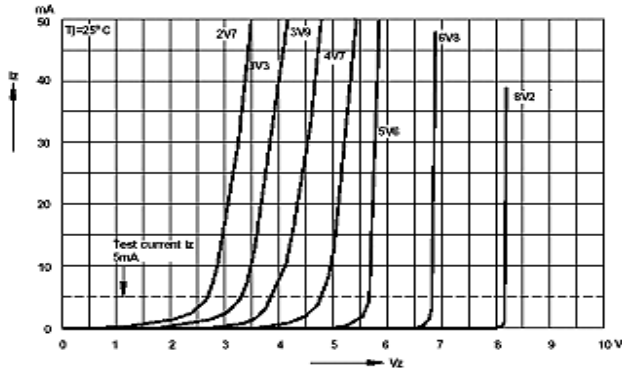


Fig 2: Forward characteristics

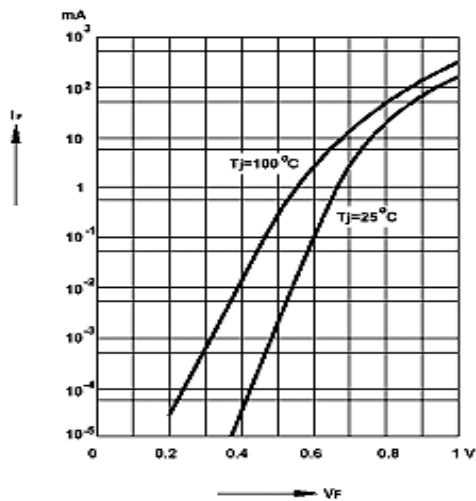


Fig 3: Pulse thermal resistance versus pulse duration

Fig 4: Admissible power dissipation versus ambient temperature

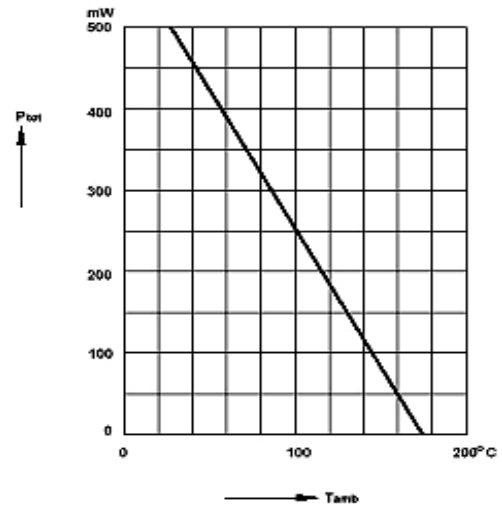
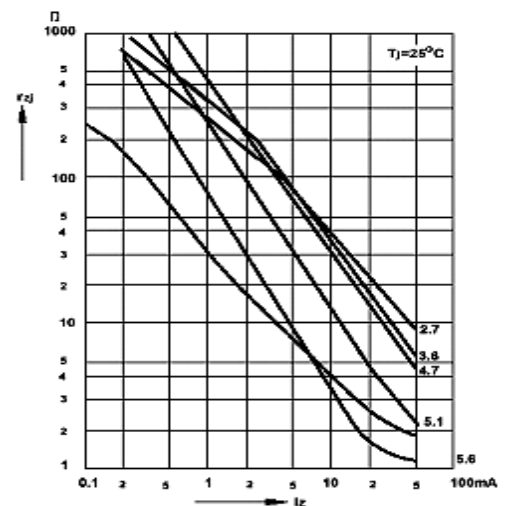
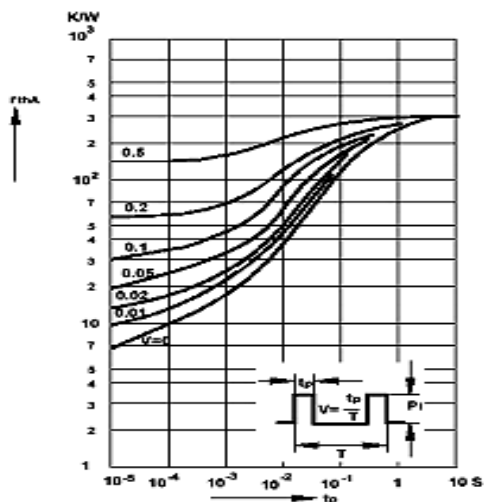


Fig 5: Dynamic resistance versus Zener current



TYPICAL CHARACTERISTICS CURVES

Fig 6: Capacitance versus Zener voltage

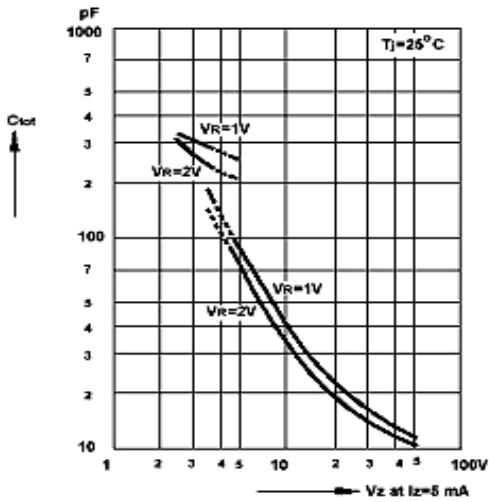


Fig 8: Dynamic resistance versus Zener current

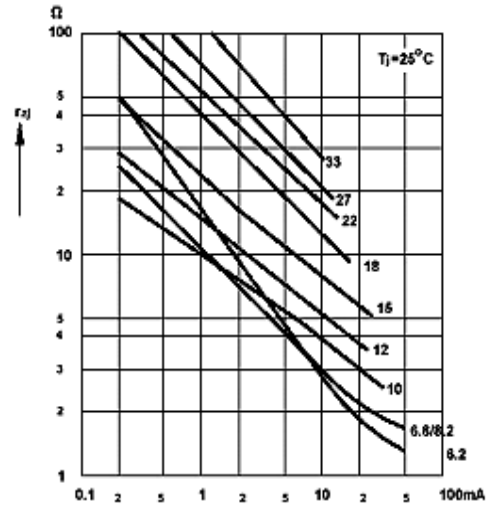


Fig 7: Dynamic resistance versus Zener current

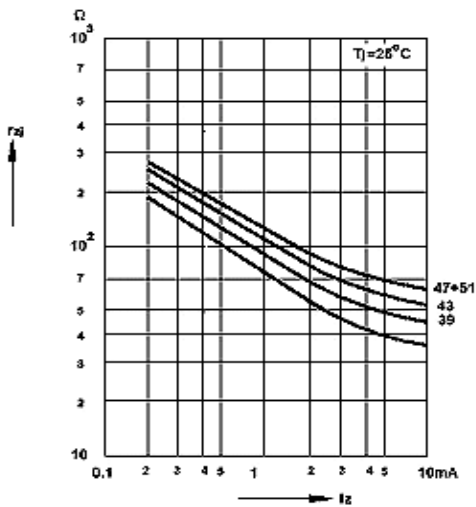
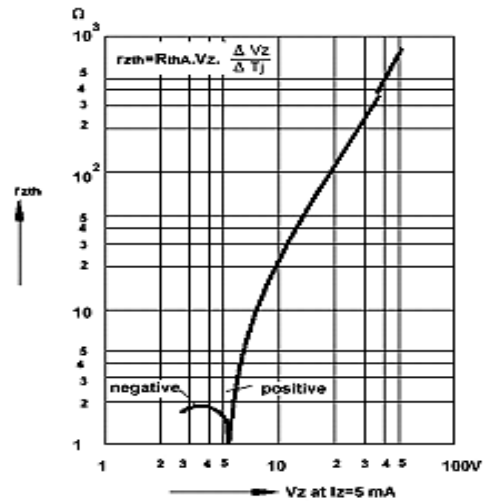


Fig 9: Thermal differential resistance versus Zener voltage



TYPICAL CHARACTERISTICS CURVES

Fig 10: Dynamic resistance versus Zener voltage

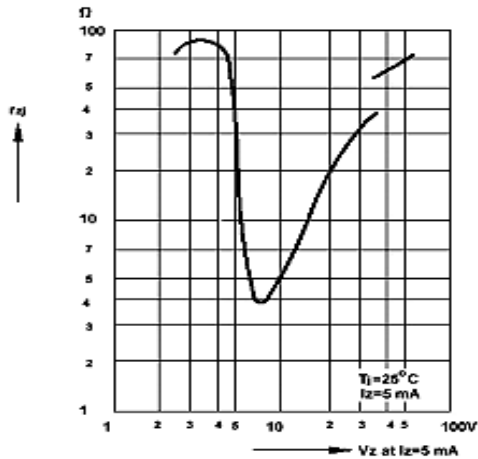


Fig 11: Temperature dependence of Zener voltage versus Zener voltage

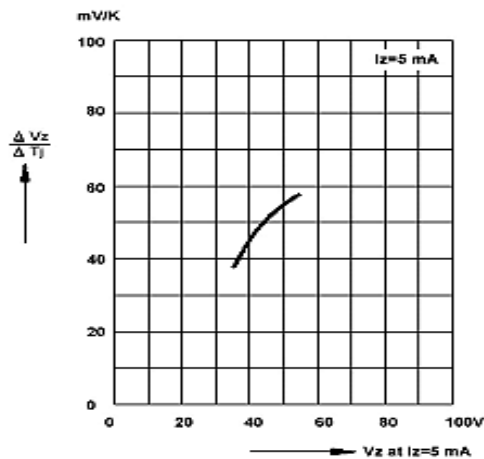


Fig 12: Change of Zener voltage versus junction temperature

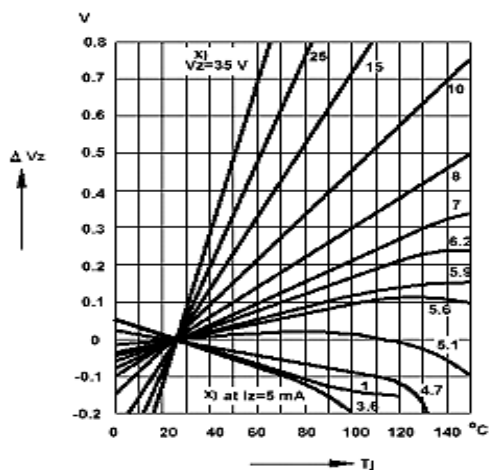


Fig 13: Temperature dependence of Zener voltage versus Zener voltage

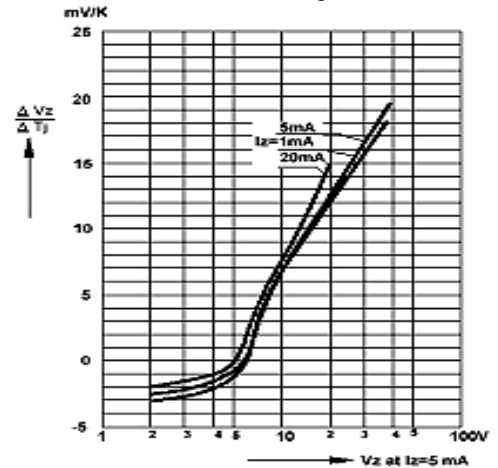


Fig 14: Change of Zener voltage versus junction temperature

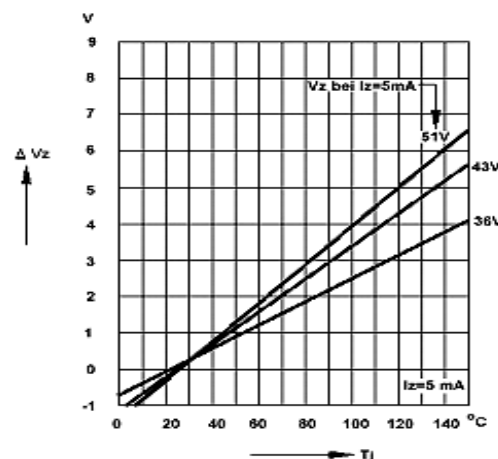
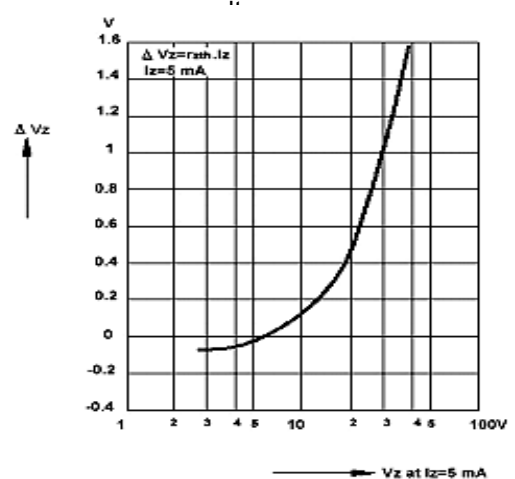
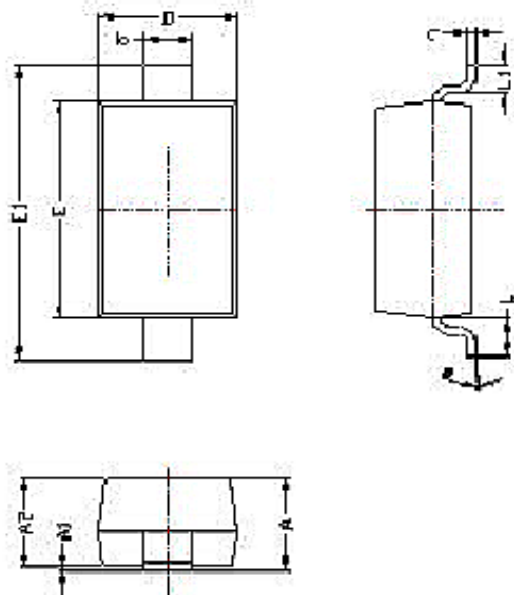


Fig 15: Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener



Package Details

SOD-323GW PACKAGE



SYMBOL	Dimensions	
	Min.	Max.
A	1.050	1.250
A1	0.000	0.100
A2	1.050	1.150
b	0.450	0.650
c	0.080	0.150
D	1.500	1.700
E	2.600	2.800
E1	3.550	3.850
L	0.500 Ref.	
L1	0.501 Ref.	
Θ	0.502 Ref.	

All dimensions are in mm

Mechanical Data

SOD-323 Small Outline Plastic Package

Polarity: Color band denotes cathode end

Mounting Position: Any



Recommended Product Storage Environment for Discrete Semiconductor Devices

This storage environment assumes that the Diodes and transistors are packed properly inside the original packing supplied by CDIL.

- Temperature 5 °C to 30 °C
- Humidity between 40 to 70 %RH
- Air should be clean.
- Avoid harmful gas or dust.
- Avoid outdoor exposure or storage in areas subject to rain or water spraying .
- Avoid storage in areas subject to corrosive gas or dust. Product shall not be stored in areas exposed to direct sunlight.
- Avoid rapid change of temperature.
- Avoid condensation.
- Mechanical stress such as vibration and impact shall be avoided.
- The product shall not be placed directly on the floor.
- The product shall be stored on a plane area. They should not be turned upside down. They should not be placed against the wall.

Shelf Life of CDIL Products

The shelf life of products is the period from product manufacture to shipment to customers. The product can be unconditionally shipped within this period. The period is defined as 2 years.

If products are stored longer than the shelf life of 2 years the products shall be subjected to quality check as per CDIL quality procedure.

The products are further warranted for another one year after the date of shipment subject to the above conditions in CDIL original packing.

Floor Life of CDIL Products and MSL Level

When the products are opened from the original packing, the floor life will start.

For this, the following JEDEC table may be referred:

JEDEC MSL Level		
Level	Time	Condition
1	Unlimited	≤30 °C / 85% RH
2	1 Year	≤30 °C / 60% RH
2a	4 Weeks	≤30 °C / 60% RH
3	168 Hours	≤30 °C / 60% RH
4	72 Hours	≤30 °C / 60% RH
5	48 Hours	≤30 °C / 60% RH
5a	24 Hours	≤30 °C / 60% RH
6	Time on Label(TOL)	≤30 °C / 60% RH



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Customer Notes

Component Disposal Instructions

1. CDIL Semiconductor Devices are RoHS compliant, customers are requested to please dispose as per prevailing Environmental Legislation of their Country.
2. In Europe, please dispose as per EU Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE).

Disclaimer

The product information and the selection guides facilitate selection of the CDIL's Semiconductor Device(s) best suited for application in your product(s) as per your requirement. It is recommended that you completely review our Data Sheet(s) so as to confirm that the Device(s) meet functionality parameters for your application. The information furnished in the Data Sheet and on the CDIL Web Site/CD are believed to be accurate and reliable. CDIL however, does not assume responsibility for inaccuracies or incomplete information. Furthermore, CDIL does not assume liability whatsoever, arising out of the application or use of any CDIL product; neither does it convey any license under its patent rights nor rights of others. These products are not designed for use in life saving/support appliances or systems. CDIL customers selling these products (either as individual Semiconductor Devices or incorporated in their end products), in any life saving/support appliances or systems or applications do so at their own risk and CDIL will not be responsible for any damages resulting from such sale(s).

CDIL strives for continuous improvement and reserves the right to change the specifications of its products without prior notice.



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