BZX55 Series

Zener Diodes
Zener Voltage Range: 0.8, 2.4 to 200 Volts Power Dissipation: 500mW

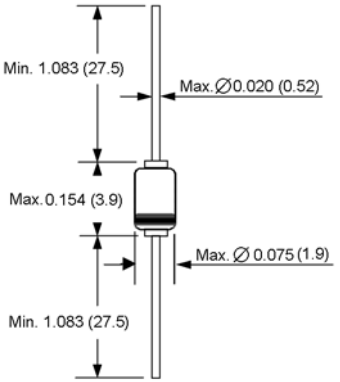
Features

- Silicon Planar Power Zener Diodes.
- The Zener voltages are graded according to the international E 24 standard. Standard Zener voltage tolerance is ±5%. Replace suffix "C" with "B" for ±2% tolerance. Other voltage tolerances and other Zener voltages are available upon request.

DO-204AH (DO-35 Glass)

Mechanical Data

- Case: DO-35 Glass Case
- Weight: approx. 0.13g



Dimensions in inches and (millimeters)

Maximum Ratings and Thermal Characteristics

(T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Zener current (see Table "Characteristics")			
Power dissipation at T_{amb}=25°C	P_{tot}	500 (1)	mW
Thermal resistance junction to ambient air	$R_{\theta JA}$	300 (1)	°C/W
Junction temperature	T_j	175	°C
Storage temperature range	T_S	-55 to +175	°C

Notes: 1. Valid provided that leads at a distance of 3/8" from case are kept at ambient temperature.

Electrical Characteristics

(T_A=25°C unless otherwise noted) **Maximum V_F=1.0V at I_F=100mA**

Type number y=C for ±5% y=B for ±2%	Dynamic resistance		Temp. coefficient of zener voltage at I_z=5mA αvz (% / °C)		Reverse leakage current			Admissible zener current (2)
	at I_Z=5mA f=1kHz r_{zj} (Ω)	at I_Z=1mA f=1kHz r_{zj} (Ω)	Min.	Max.	at T_{amb}=25°C I_R (nA)	at T_{amb}=150°C I_R (uA)	at V_R (Volts)	I_{ZM} (mA)
BZX55 - y0V8 (3)	< 8	< 600	- 0.25	-	-	-	-	-
BZX55 - y2V4	< 85	< 600	- 0.08	- 0.06	< 50000	< 100	1	145
BZX55 - y2V7	< 85	< 600	- 0.08	- 0.06	< 10000	< 50	1	135
BZX55 - y3V0	< 85	< 600	- 0.08	- 0.06	< 4000	< 40	1	125
BZX55 - y3V3	< 85	< 600	- 0.08	- 0.05	< 2000	< 40	1	115
BZX55 - y3V6	< 85	< 600	- 0.08	- 0.04	< 2000	< 40	1	105
BZX55 - y3V9	< 85	< 600	- 0.07	- 0.03	< 2000	< 40	1	95
BZX55 - y4V3	< 75	< 600	- 0.04	- 0.01	< 1000	< 20	1	90
BZX55 - y4V7	< 60	< 600	- 0.03	+ 0.01	< 500	< 10	1	85
BZX55 - y5V1	< 35	< 550	- 0.02	+ 0.05	< 100	< 2	1	80
BZX55 - y5V6	< 25	< 450	- 0.01	+ 0.06	< 100	< 2	1	70
BZX55 - y6V2	< 10	< 200	0	+ 0.07	< 100	< 2	2	64
BZX55 - y6V8	< 8	< 150	+ 0.01	+ 0.08	< 100	< 2	3	58
BZX55 - y7V5	< 7	< 50	+ 0.01	+ 0.09	< 100	< 2	5	53
BZX55 - y8V2	< 7	< 50	+ 0.01	+ 0.09	< 100	< 2	6.2	47
BZX55 - y9V1	< 10	< 50	+ 0.02	+ 0.10	< 100	< 2	6.8	43
BZX55 - y10	< 15	< 70	+ 0.03	+ 0.11	< 100	< 2	7.5	40
BZX55 - y11	< 20	< 70	+ 0.03	+ 0.11	< 100	< 2	8.2	36
BZX55 - y12	< 20	< 90	+ 0.03	+ 0.11	< 100	< 2	9.1	32
BZX55 - y13	< 26	< 110	+ 0.03	+ 0.11	< 100	< 2	10	29
BZX55 - y15	< 30	< 110	+ 0.03	+ 0.11	< 100	< 2	11	27
BZX55 - y16	< 40	< 170	+ 0.03	+ 0.11	< 100	< 2	12	24
BZX55 - y18	< 50	< 170	+ 0.03	+ 0.11	< 100	< 2	13	21
BZX55 - y20	< 55	< 220	+ 0.03	+ 0.11	< 100	< 2	15	20
BZX55 - y22	< 55	< 220	+ 0.03	+ 0.11	< 100	< 2	16	18
BZX55 - y24	< 80	< 220	+ 0.04	+ 0.12	< 100	< 2	18	16
BZX55 - y27	< 80	< 220	+ 0.04	+ 0.12	< 100	< 2	20	14
BZX55 - y30	< 80	< 220	+ 0.04	+ 0.12	< 100	< 2	22	13
BZX55 - y33	< 80	< 220	+ 0.04	+ 0.12	< 100	< 2	24	12
BZX55 - y36	< 80	< 220	+ 0.04	+ 0.12	< 100	< 2	27	11
BZX55 - y39	< 90 (4)	< 500 (5)	+ 0.04	+ 0.12	< 100	< 5	30	10
BZX55 - y43	< 90 (4)	< 600 (5)	+ 0.04	+ 0.12	< 100	< 5	33	9.2
BZX55 - y47	< 110 (4)	< 700 (5)	+ 0.04	+ 0.12	< 100	< 5	36	8.5
BZX55 - y51	< 125 (4)	< 700 (5)	+ 0.04	+ 0.12	< 100	< 10	39	7.8
BZX55 - y56	< 135 (4)	< 1000 (5)	typ. +0.1 (4)		< 100	< 10	43	7.0
BZX55 - y62	< 150 (4)	< 1000 (5)	typ. +0.1 (4)		< 100	< 10	47	6.4
BZX55 - y68	< 200 (4)	< 1000 (5)	typ. +0.1 (4)		< 100	< 10	51	5.9
BZX55 - y75	< 250 (4)	< 1500 (5)	typ. +0.1 (4)		< 100	< 10	56	5.3
BZX55 - y82	< 300 (4)	< 2000 (5)	typ. +0.1 (4)		< 100	< 10	62	4.8
BZX55 - y91	< 450 (6)	< 5000 (7)	typ. +0.1 (4)		< 100	< 10	68	4.4
BZX55 - y100	< 450 (6)	< 5000 (7)	typ. +0.1 (4)		< 100	< 10	75	4.0
BZX55 - y110	< 600	< 5000	typ. +0.1 (4)		< 100	< 10	82	-
BZX55 - y120	< 800	< 5500	typ. +0.1 (4)		< 100	< 10	91	-
BZX55 - y130	< 950	< 6000	typ. +0.1 (4)		< 100	< 10	100	-
BZX55 - y150	< 1250	< 6500	typ. +0.1 (4)		< 100	< 10	110	-
BZX55 - y160	< 1400	< 7000	typ. +0.1 (4)		< 100	< 10	120	-
BZX55 - y180	< 1700	< 8500	typ. +0.1 (4)		< 100	< 10	130	-
BZX55 - y200	< 2000	< 10000	typ. +0.1 (4)		< 100	< 10	150	-

Notes: 1. Tested with pulses t_p=5 ms

2. Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case

3. The BZX55 - C0V8 is a silicon diode with operation in forward direction. Hence, the index of all parameters should be "F" instead of "Z". Connect the cathode lead to the negative pole.

4. at I_Z=2.5 mA

5. at I_Z=0.5 mA

6. at I_Z=1.0 mA

7. at I_Z=0.1 mA

Electrical Characteristics

(T_A=25°C unless otherwise noted) **Maximum V_F=1.0V at I_F=100mA**

Type number ±5% Tol.	Zener voltage range (1) at I_{ZT1} (mA) V_Z (Volts) Min.	Max.	Test current I_{ZT1} (mA)
BZX55-C0V8 (3)	0.73	0.83	5.0
BZX55-C2V4	2.28	2.56	5.0
BZX55-C2V7	2.50	2.90	5.0
BZX55-C3V0	2.80	3.20	5.0
BZX55-C3V3	3.10	3.50	5.0
BZX55-C3V6	3.40	3.90	5.0
BZX55-C3V9	3.70	4.10	5.0
BZX55-C4V3	4.00	4.60	5.0
BZX55-C4V7	4.40	5.00	5.0
BZX55-C5V1	4.80	5.40	5.0
BZX55-C5V6	5.20	6.00	5.0
BZX55-C6V2	5.80	6.60	5.0
BZX55-C6V8	6.40	7.20	5.0
BZX55-C7V5	7.00	7.90	5.0
BZX55-C8V2	7.70	8.70	5.0
BZX55-C9V1	8.50	9.60	5.0
BZX55-C10	9.40	10.6	5.0
BZX55-C11	10.4	11.6	5.0
BZX55-C12	11.4	12.7	5.0
BZX55-C13	12.4	14.1	5.0
BZX55-C15	13.8	15.6	5.0
BZX55-C16	15.3	17.1	5.0
BZX55-C18	16.8	19.1	5.0
BZX55-C20	18.8	21.2	5.0
BZX55-C22	20.8	23.3	5.0
BZX55-C24	22.8	25.6	5.0
BZX55-C27	25.1	28.9	5.0
BZX55-C30	28.0	32.0	5.0
BZX55-C33	31.0	35.0	5.0
BZX55-C36	34.0	38.0	5.0
BZX55-C39	37.0	41.0	2.5
BZX55-C43	40.0	46.0	2.5
BZX55-C47	44.0	50.0	2.5
BZX55-C51	48.0	54.0	2.5
BZX55-C56	52.0	60.0	2.5
BZX55-C62	58.0	66.0	2.5
BZX55-C68	64.0	72.0	2.5
BZX55-C75	70.0	80.0	2.5
BZX55-C82	77.0	87.0	2.5
BZX55-C91	85.0	96.0	1.0
BZX55-C100	94.0	106	1.0
BZX55-C110	104	116	1.0
BZX55-C120	114	127	1.0
BZX55-C130	124	141	1.0
BZX55-C150	138	156	1.0
BZX55-C160	153	171	1.0
BZX55-C180	168	191	1.0
BZX55-C200	188	212	1.0

Type number ±2% Tol.	Zener voltage range (1) at I_{ZT1} (mA) V_Z (Volts) Min.	Max.	Test current I_{ZT1} (mA)
BZX55-B0V8 (3)	0.78	0.82	5.0
BZX55-B2V7	2.35	2.45	5.0
BZX55-B3	2.65	2.75	5.0
BZX55-B3V0	2.94	3.06	5.0
BZX55-B3V3	3.23	3.37	5.0
BZX55-B3V6	3.53	3.67	5.0
BZX55-B3V9	3.82	3.98	5.0
BZX55-B4V3	4.21	4.39	5.0
BZX55-B4V7	4.61	4.79	5.0
BZX55-B5V1	5.00	5.20	5.0
BZX55-B5V6	5.49	5.71	5.0
BZX55-B6V2	6.08	6.32	5.0
BZX55-B6V8	6.66	6.94	5.0
BZX55-B7V5	7.35	7.65	5.0
BZX55-B8V2	8.04	8.36	5.0
BZX55-B9V1	8.92	9.28	5.0
BZX55-B10	9.80	10.2	5.0
BZX55-B11	10.8	11.2	5.0
BZX55-B12	11.8	12.2	5.0
BZX55-B13	12.7	13.3	5.0
BZX55-B15	14.7	15.3	5.0
BZX55-B16	15.7	16.3	5.0
BZX55-B18	17.6	18.4	5.0
BZX55-B20	19.6	20.4	5.0
BZX55-B22	21.6	22.4	5.0
BZX55-B24	23.5	24.5	5.0
BZX55-B27	26.5	27.5	5.0
BZX55-B30	29.4	30.6	5.0
BZX55-B33	32.3	33.7	5.0
BZX55-B36	35.3	36.7	5.0
BZX55-B39	38.2	39.8	2.5
BZX55-B43	42.1	43.9	2.5
BZX55-B47	46.1	47.9	2.5
BZX55-B51	50.0	52.0	2.5
BZX55-B56	54.9	56.9	2.5
BZX55-B62	60.8	63.2	2.5
BZX55-B68	66.6	69.4	2.5
BZX55-B75	73.5	76.5	2.5
BZX55-B82	80.4	83.6	2.5
BZX55-B91	89.2	92.8	1.0
BZX55-B100	98.0	102	1.0
BZX55-B110	108	112	1.0
BZX55-B120	118	122	1.0
BZX55-B130	127	133	1.0
BZX55-B150	147	153	1.0
BZX55-B160	157	163	1.0
BZX55-B180	176	184	1.0
BZX55-B200	196	204	1.0

Notes: 1. Measured with pulses t_p=5 ms

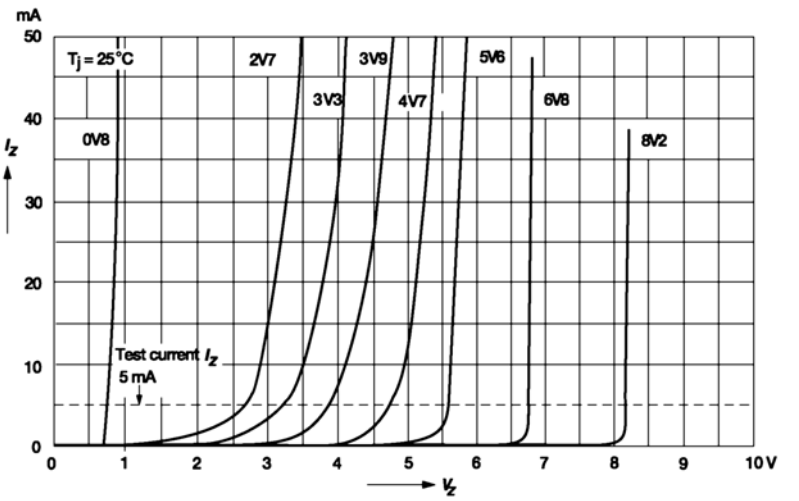
2. The BZX55 - C0V8 is a silicon diode with operation in forward direction. Hence, the index of all parameters should be "F" instead of "Z". Connect the cathode lead to the negative pole.

RATINGS AND CHARACTERISTIC CURVES

(T_A = 25°C unless otherwise noted)

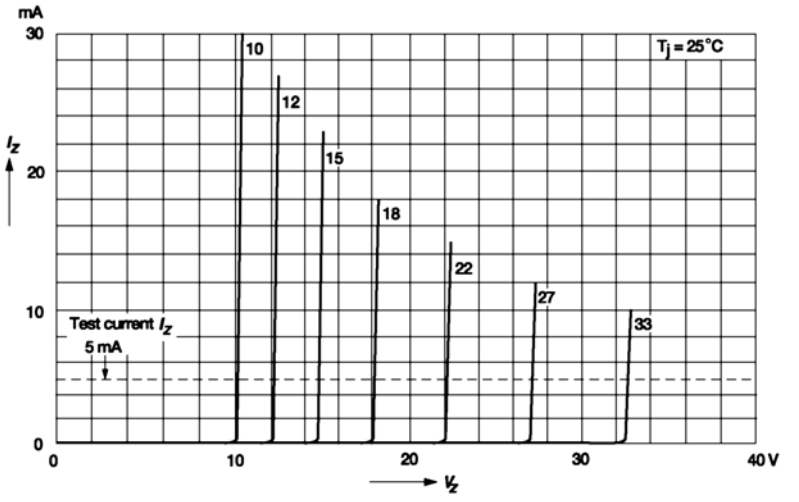
Breakdown characteristics

at T_j = constant (pulsed)



Breakdown characteristics

at T_j = constant (pulsed)

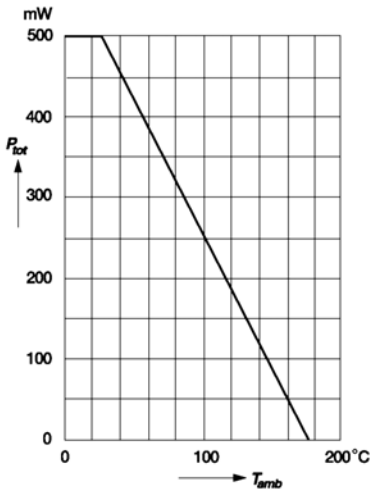


RATINGS AND CHARACTERISTIC CURVES

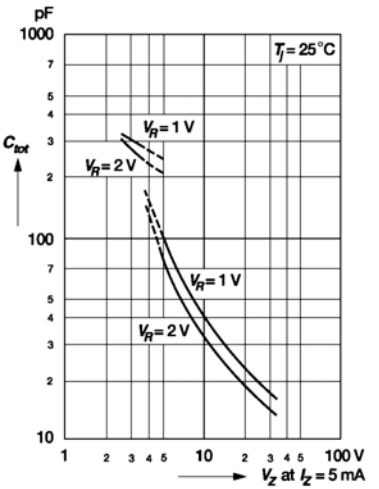
(T_A = 25°C unless otherwise noted)

Admissible power dissipation versus ambient temperature

Valid provided that leads are kept ambient temperature at a distance of 8 mm from case.

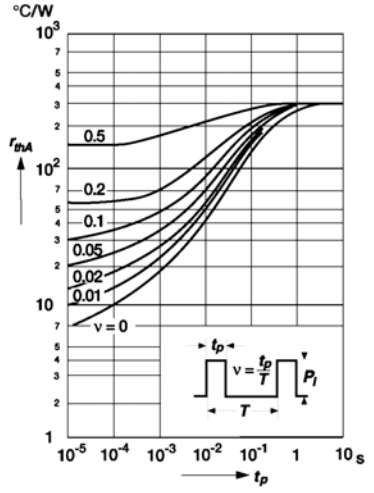


Capacitance versus Zener voltage

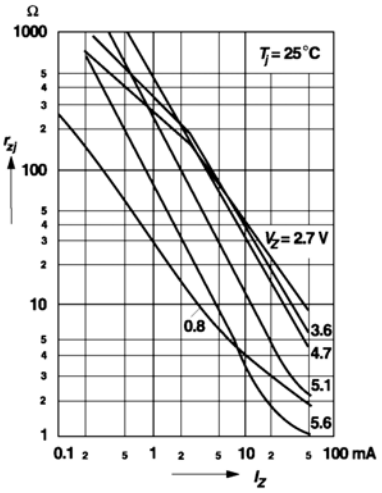


Pulse thermal resistance versus pulse duration

Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



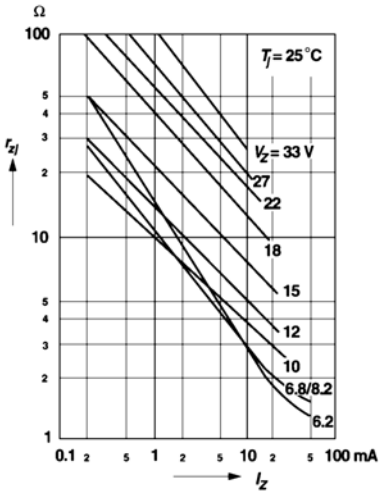
Dynamic resistance versus Zener current



RATINGS AND CHARACTERISTIC CURVES

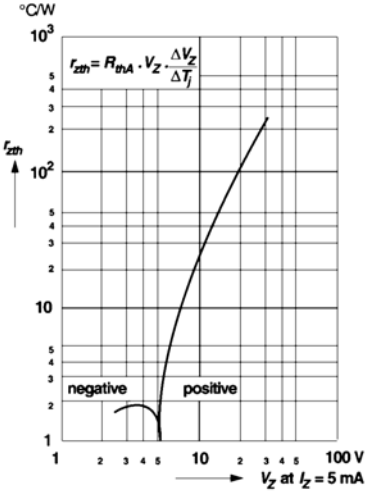
(T_A = 25°C unless otherwise noted)

Dynamic resistance versus Zener current

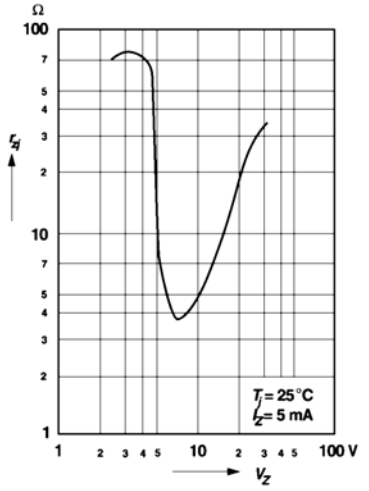


Thermal differential resistance versus Zener voltage

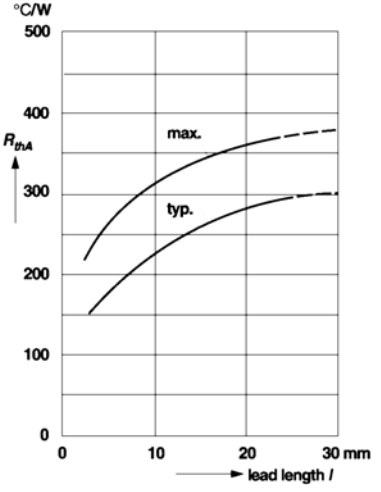
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



Dynamic resistance versus Zener voltage



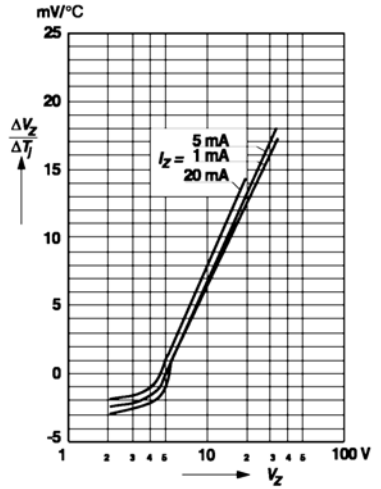
Thermal resistance versus lead length



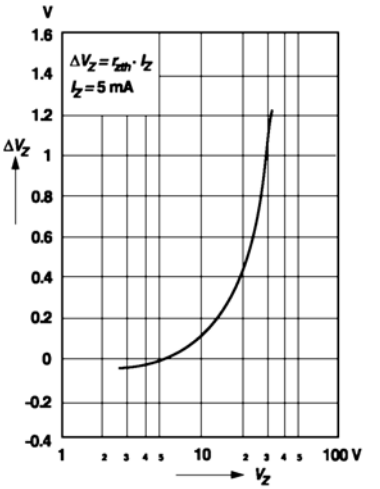
RATINGS AND CHARACTERISTIC CURVES

(T_A = 25°C unless otherwise noted)

Temperature dependence of Zener voltage versus Zener voltage



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



Change of Zener voltage versus junction temperature