BZX79 Series

Zener Diodes

V_Z Range: 2.4 to 75 Volts Power Dissipation: 500mW

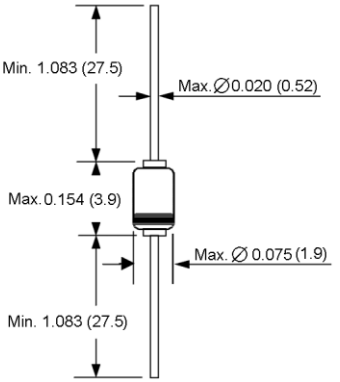
Features

- The Zener voltages are graded according to the international E 24 standard. Higher Zener voltages and 1% tolerance available on request.
- Diodes available in these tolerance series: ±2% BZX79-B, ±3% BZX79-F, ±5% BZX79-C.

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=25ºC unless otherwise noted)

Parameter	Symbol	Value	Unit
Zener current see table "Characteristics"			
Power dissipation at T_{amb}=25ºC	P_{tot}	500 (1)	mW
Junction temperature	T_j	-65 to +200	ºC
Storage temperature range	T_S	-65 to +200	ºC
Continuous forward current	I_F	250	mA
Thermal resistance junction to ambient air	$R_{\theta JA}$	0.3 (1)	ºC/mW
Peak reverse power dissipation (non-repetitive) t_p=100us square wave	P_{ZSM}	40	W

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

Electrical Characteristics

(T_A=25°C unless otherwise noted) **Maximum V_F=0.9V at I_F=10mA**

Type number y=B for ±2% V_Z y=F for ±3% V_Z y=C for ±5% V_Z	Dynamic resistance		Temp. coefficient of zener voltage at I_Z=5mA αmvz (% / °C)		Reverse leakage current		Admissible zener current [2]	Capacitance V_R=0 f=1 MHz (pF) Max.	Non-Repetitive peak reverse current at t_p=100uS
	at I_Z=5mA f=1kHz r_{zj} (Ω) Max.	at I_Z=1mA f=1kHz r_{zj} (Ω) Max.	Min.	Max.	I_R (nA)	at V_R (Volts)	I_Z (mA)		I_{ZSM} (A)
BZX79 - y2V4	100	< 600	- 0.08	- 0.06	50,000	1	167	450	6.0
BZX79 - y2V7	100	< 600	- 0.08	- 0.06	20,000	1	135	450	6.0
BZX79 - y3V0	95	< 600	- 0.08	- 0.06	10,000	1	125	450	6.0
BZX79 - y3V3	95	< 600	- 0.08	- 0.05	5,000	1	115	450	6.0
BZX79 - y3V6	90	< 600	- 0.08	- 0.04	5,000	1	105	450	6.0
BZX79 - y3V9	90	< 600	- 0.07	- 0.03	3,000	1	95	450	6.0
BZX79 - y4V3	90	< 600	- 0.04	- 0.01	3,000	1	90	450	6.0
BZX79 - y4V7	80	500	- 0.03	+ 0.01	3,000	1	85	300	6.0
BZX79 - y5V1	60	480	- 0.02	+ 0.05	2,000	1	80	300	6.0
BZX79 - y5V6	40	400	- 0.01	+ 0.06	1,000	1	70	300	6.0
BZX79 - y6V2	10	150	0	+ 0.07	3,000	2	64	200	6.0
BZX79 - y6V8	15	80	+ 0.01	+ 0.08	2,000	3	58	200	6.0
BZX79 - y7V5	15	80	+0.01	+ 0.09	1,000	5	53	150	4.0
BZX79 - y8V2	15	80	+0.01	+ 0.09	700	6	47	150	4.0
BZX79 - y9V1	15	100	+ 0.02	+ 0.10	500	7	43	150	3.0
BZX79 - y10	20	150	+ 0.03	+ 0.11	200	7.5	40	90	3.0
BZX79 - y11	20	150	+ 0.03	+ 0.11	100	8.5	36	85	2.5
BZX79 - y12	25	150	+ 0.03	+ 0.11	100	9	32	85	2.5
BZX79 - y13	30	170	+ 0.03	+ 0.11	100	10	29	80	2.5
BZX79 - y15	30	200	+ 0.03	+ 0.11	50	11	27	75	2.0
BZX79 - y16	40	200	+ 0.03	+ 0.11	50	12	24	75	1.5
BZX79 - y18	45	225	+ 0.03	+ 0.11	50	14	21	70	1.5
BZX79 - y20	55	225	+ 0.03	+ 0.11	50	15	20	60	1.5
BZX79 - y22	55	250	+ 0.03	+ 0.11	50	17	18	60	1.3
BZX79 - y24	70	250	+ 0.04	+ 0.12	50	18	16	55	1.3
BZX79 - y27	80 [3]	300 [4]	+ 0.04 [3]	+ 0.12	50	20	14	50	1.0
BZX79 - y30	80 [3]	300 [4]	+ 0.04 [3]	+ 0.12	50	22	13	50	1.0
BZX79 - y33	80 [3]	325 [4]	+ 0.04 [3]	+ 0.12	50	24	12	45	0.9
BZX79 - y36	90 [3]	350 [4]	+ 0.04 [3]	+ 0.12	50	27	11	45	0.8
BZX79 - y39	130 [3]	350 [4]	+ 0.04 [3]	+ 0.12	50	28	10	45	0.7
BZX79 - y43	150 [3]	375 [4]	+ 0.04 [3]	+ 0.12	50	32	9.2	40	0.6
BZX79 - y47	170 [3]	375 [4]	+ 0.04 [3]	+ 0.12	50	35	8.5	40	0.5
BZX79 - y51	180 [3]	400 [4]	+ 0.04 [3]	+ 0.12	50	38	7.8	40	0.4
BZX79 - y56	200 [3]	425 [4]	typ. +0.1 [3]		50	39	7.1	40	0.3
BZX79 - y62	215 [3]	450 [4]	typ. +0.1 [3]		50	43	6.4	35	0.3
BZX79 - y68	240 [3]	475 [4]	typ. +0.1 [3]		50	48	5.8	35	0.3
BZX79 - y75	255 [3]	500 [4]	typ. +0.1 [3]		50	53	5.3	35	0.2

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. at I_Z=2.0 mA

4. at I_Z=0.5 mA

y = Zener voltage tolerance designator

Electrical Characteristics

(T_A=25°C unless otherwise noted) **Maximum V_F=0.9V at I_F=10mA**

Type number ±5% Tol.	Zener voltage range (1) at I_Z=5mA V_Z (Volts) Min.	Max.
BZX79-C2V4	2.20	2.60
BZX79-C2V7	2.50	2.90
BZX79-C3V0	2.80	3.20
BZX79-C3V3	3.10	3.50
BZX79-C3V6	3.40	3.80
BZX79-C3V9	3.70	4.10
BZX79-C4V3	4.00	4.60
BZX79-C4V7	4.40	5.00
BZX79-C5V1	4.80	5.40
BZX79-C5V6	5.20	6.00
BZX79-C6V2	5.80	6.60
BZX79-C6V8	6.40	7.20
BZX79-C7V5	7.00	7.90
BZX79-C8V2	7.70	8.70
BZX79-C9V1	8.50	9.60
BZX79-C10	9.40	10.60
BZX79-C11	10.40	11.60
BZX79-C12	11.40	12.70
BZX79-C13	12.40	14.10
BZX79-C15	13.80	15.60
BZX79-C16	15.30	17.10
BZX79-C18	16.80	19.10
BZX79-C20	18.80	21.20
BZX79-C22	20.80	23.30
BZX79-C24	22.80	25.60
BZX79-C27	25.10	28.90 (3)
BZX79-C30	28.00	32.00 (3)
BZX79-C33	31.00	35.00 (3)
BZX79-C36	34.00	38.00 (3)
BZX79-C39	37.00	41.00 (3)
BZX79-C43	40.00	46.00 (3)
BZX79-C47	44.00	50.00 (3)
BZX79-C51	48.00	54.00 (3)
BZX79-C56	52.00	60.00 (3)
BZX79-C62	58.00	66.00 (3)
BZX79-C68	64.00	72.00 (3)
BZX79-C75	70.00	79.00 (3)

Type number ±3% Tol.	Zener voltage range (1) at I_Z=5mA V_Z (Volts) Min.	Max.
BZX79-F2V4	2.33	2.47
BZX79-F2V7	2.62	2.78
BZX79-F3V0	2.91	3.09
BZX79-F3V3	3.20	3.40
BZX79-F3V6	3.49	3.71
BZX79-F3V9	3.78	4.02
BZX79-F4V3	4.17	4.43
BZX79-F4V7	4.56	4.84
BZX79-F5V1	4.95	5.25
BZX79-F5V6	5.43	5.77
BZX79-F6V2	6.01	6.39
BZX79-F6V8	6.60	7.00
BZX79-F7V5	7.28	7.72
BZX79-F8V2	7.95	8.45
BZX79-F9V1	8.83	9.37
BZX79-F10	9.70	10.30
BZX79-F11	10.67	11.33
BZX79-F12	11.64	12.36
BZX79-F13	12.61	13.39
BZX79-F15	14.55	15.45
BZX79-F16	15.50	16.50
BZX79-F18	17.50	18.50
BZX79-F20	19.40	20.60
BZX79-F22	21.30	22.70
BZX79-F24	23.30	24.70
BZX79-F27	26.20	27.80 (3)
BZX79-F30	29.10	30.90 (3)
BZX79-F33	32.00	34.00 (3)
BZX79-F36	34.90	37.10 (3)
BZX79-F39	37.80	40.20 (3)
BZX79-F43	41.70	44.30 (3)
BZX79-F47	45.60	48.40 (3)
BZX79-F51	49.50	52.50 (3)
BZX79-F56	54.30	57.70 (3)
BZX79-F62	60.10	63.90 (3)
BZX79-F68	66.00	70.00 (3)
BZX79-F75	72.80	77.20 (3)

Type number ±2% Tol.	Zener voltage range (1) at I_Z=5mA V_Z (Volts) Min.	Max.
BZX79-B2V4	2.35	2.45
BZX79-B2V7	2.65	2.75
BZX79-B3V0	2.94	3.06
BZX79-B3V3	3.23	3.37
BZX79-B3V6	3.53	3.67
BZX79-B3V9	3.82	3.98
BZX79-B4V3	4.21	4.39
BZX79-B4V7	4.61	4.79
BZX79-B5V1	5.00	5.20
BZX79-B5V6	5.49	5.71
BZX79-B6V2	6.08	6.32
BZX79-B6V8	6.66	6.94
BZX79-B7V5	7.35	7.65
BZX79-B8V2	8.04	8.36
BZX79-B9V1	8.92	9.28
BZX79-B10	9.80	10.20
BZX79-B11	10.80	11.20
BZX79-B12	11.80	12.20
BZX79-B13	12.70	13.30
BZX79-B15	14.70	15.30
BZX79-B16	15.70	16.30
BZX79-B18	17.60	18.40
BZX79-B20	19.60	20.40
BZX79-B22	21.60	22.40
BZX79-B24	23.50	24.50
BZX79-B27	26.50	27.50 (3)
BZX79-B30	29.40	30.60 (3)
BZX79-B33	32.30	33.70 (3)
BZX79-B36	35.30	36.70 (3)
BZX79-B39	38.20	39.80 (3)
BZX79-B43	42.10	43.90 (3)
BZX79-B47	46.10	47.90 (3)
BZX79-B51	50.00	52.00 (3)
BZX79-B56	54.90	57.10 (3)
BZX79-B62	60.80	63.20 (3)
BZX79-B68	66.60	69.40 (3)
BZX79-B75	73.50	76.50 (3)

Notes: 1. Tested with pulses t_p=5ms

2. Valid provided that electrodes are kept at ambient temperature

3. at I_Z=2.0 mA

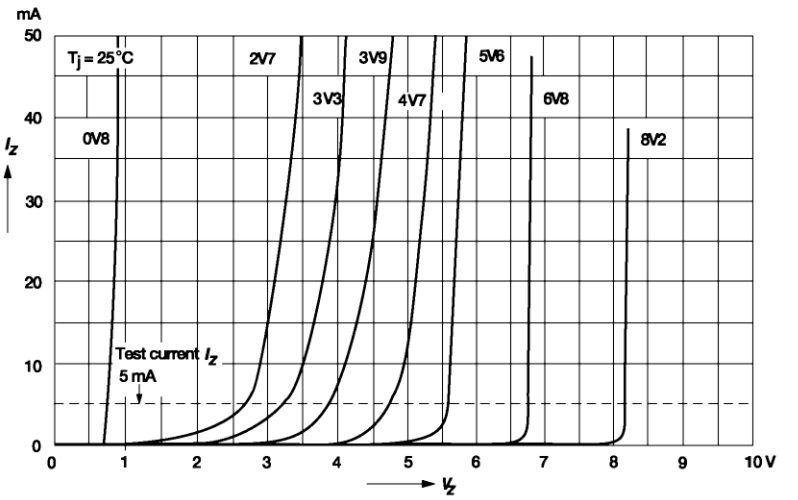
See BZV55-y table for all characteristics other than zener voltage range.

RATINGS AND CHARACTERISTIC CURVES

(T_A = 25°C unless otherwise noted)

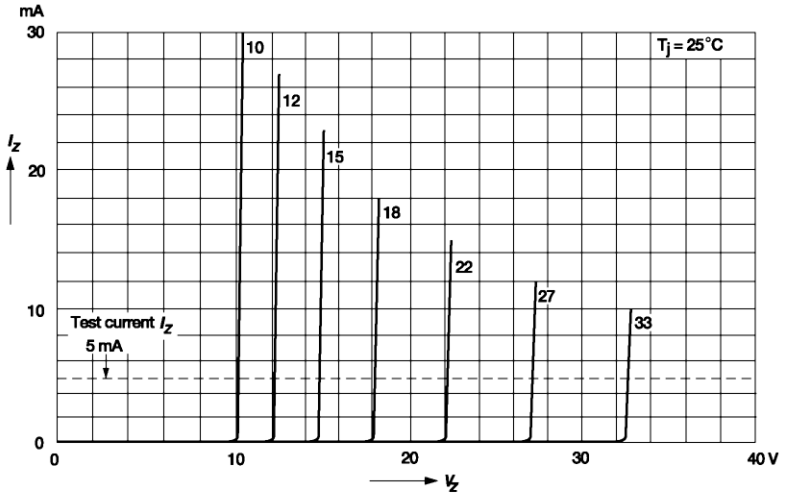
Breakdown characteristics

at T_j = constant (pulsed)



Breakdown characteristics

at T_j = constant (pulsed)

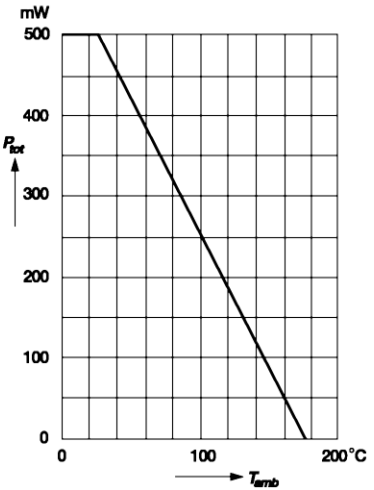


RATINGS AND CHARACTERISTIC CURVES

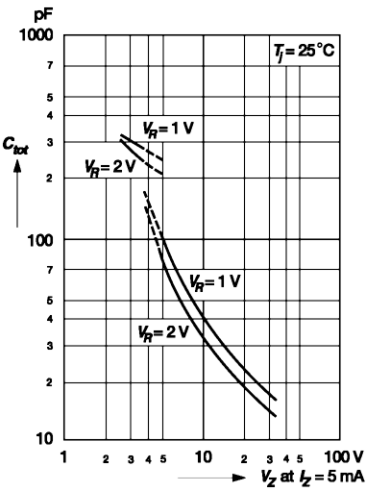
(T_A = 25°C unless otherwise noted)

Admissible power dissipation versus ambient temperature

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

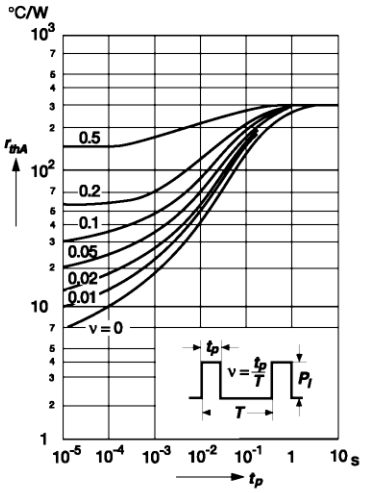


Capacitance versus Zener voltage

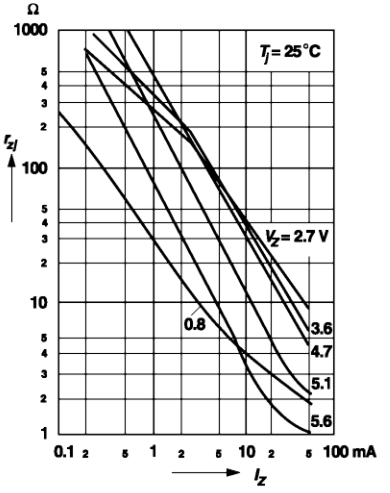


Pulse thermal resistance versus pulse duration

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



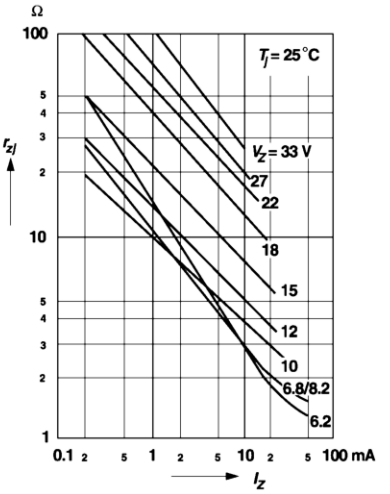
Dynamic resistance versus Zener current



RATINGS AND CHARACTERISTIC CURVES

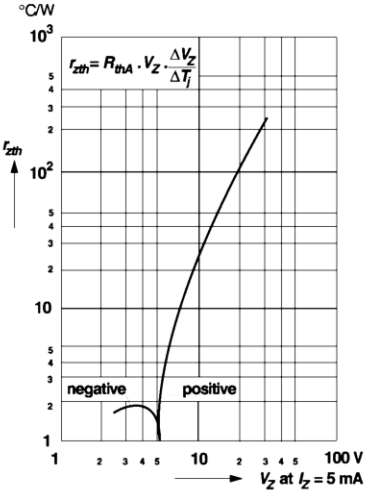
(T_A = 25°C unless otherwise noted)

Dynamic resistance versus Zener current

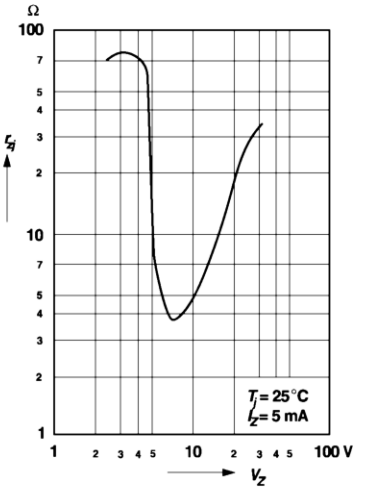


Thermal differential resistance versus Zener voltage

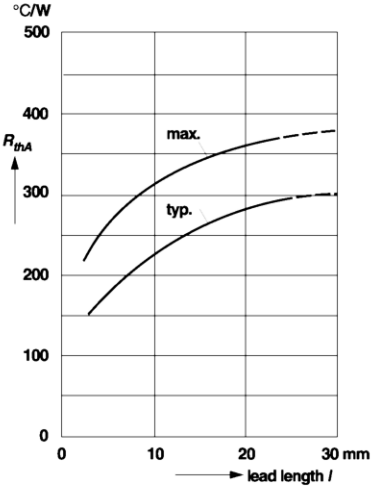
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



Dynamic resistance versus Zener voltage



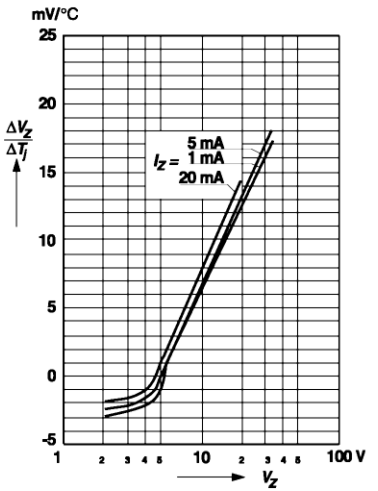
Thermal resistance versus lead length



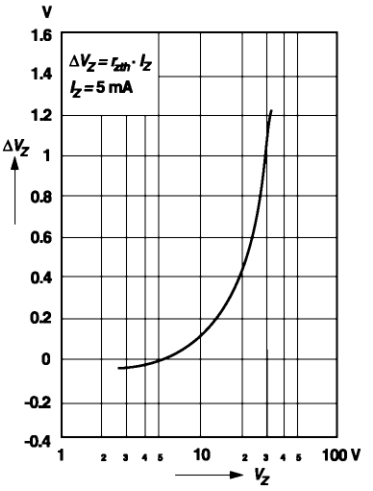
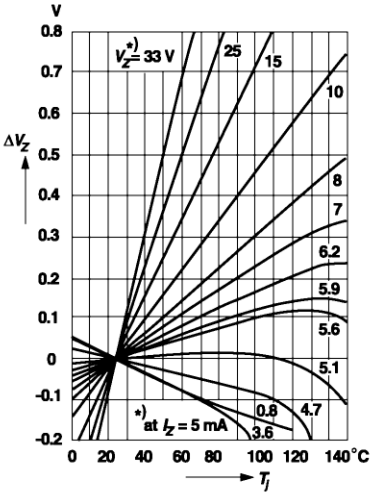
RATINGS AND CHARACTERISTIC CURVES

(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