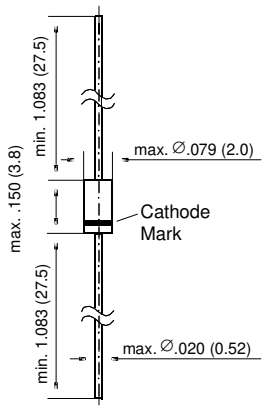
BZX79 SERIES

SILICON PLANAR ZENER DIODES

DO-35

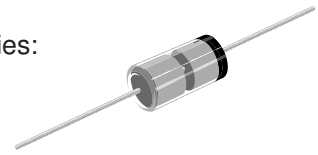


Dimensions in inches and (millimeters)

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

MECHANICAL DATA

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

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature 8unless otherwise specified

	SYMBOL	*VALUE*	*UNIT*
Zener Current (see Table "Characteristics")			
Power Dissipation at T_{amb} = 25°C	P_{tot}	500(1)	mW
Junction Temperature	T_j	-65 to 200	°C
Storage Temperature Range	T_S	-65 to + 200	°C
Continuous Forward Current	I_F	250	mA
Peak reverse power dissipation (non-repetitive) t_p=100ms, square wave	P_{ZSM}	40	Watts

Characteristics at Tamb = 25°C

	SYMBOL	*MIN.*	*TYP.*	*MAX.*	*UNIT*
Thermal Resistance Junction to Ambient Air	R_{thJA}	–	–	0.3(1)	°C/W
Forward Voltage at I_F = 10 mA	V_F	–	–	0.9	Volts

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

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ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Type y = B for ±2%Vz y = F for ±3%Vz y = C for ±5%Vz	Dynamic resistance		Temp coefficient of Zener Voltage at I_Z = 5 mA ∝ mvz %/K		Reverse leakage Current		Admissible Zener current(2)	Capacitance V_R =0 f=1 MHz	Non-Repetitive Peak Reverse Currrent at t_p = 100μs
	at I_Z = 5 mA f = 1 kHz	at I_Z = 1 mA f = 1 kHz			I_R nA	at V_R V	I_Z (mA)	(pF) max.	I_{ZSM} (A)
	r_{zj} Ω max.	r_{zj} Ω max	min.	max.					
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 – x33	80(3)	325(4)	+0.04(3)	+0.12	50	24	12	45	0.9
BZX79 – x36	90(3)	350(4)	+0.04(3)	+0.12	50	27	11	45	0.8
BZX79 – x39	130(3)	350(4)	+0.04(3)	+0.12	50	28	10	45	0.7
BZX79 – x43	150(3)	375(4)	+0.04(3)	+0.12	50	32	9.2	40	0.6
BZX79 – x47	170(3)	375(4)	+0.04(3)	+0.12	50	35	8.5	40	0.5
BZX79 – x51	180(3)	400(4)	+0.04(3)	+0.12	50	38	7.8	40	0.4
BZX79 – x56	200(3)	425(4)	typ. +0.1(3)		50	39	7.1	40	0.3
BZX79 – x62	215(3)	450(4)	typ. +0.1(3)		50	43	6.4	35	0.3
BZX79 – x68	240(3)	475(4)	typ. +0.1(3)		50	48	5.8	35	0.3
BZX79 – x75	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

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BZX79 SERIES

ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Type	Zener Voltage range[1] at Iz = 5 mA	
	Vz V	
±5% Tol.	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	Zener Voltage range[1] at Iz = 5 mA	
	Vz V	
±3% Tol.	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]

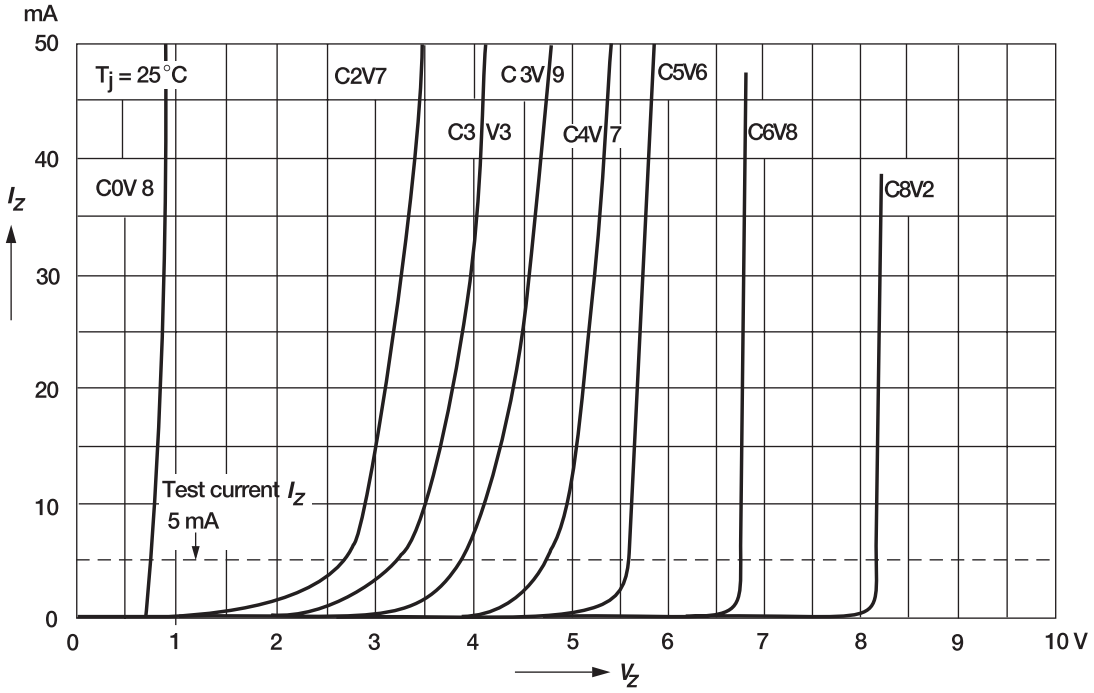
Type	Zener Voltage range[1] at Iz = 5 mA	
	Vz V	
±2% Tol.	min.	max.
BZX79 B2V4	2.35	2.45
BZX79 B2V7	2.65	2.75
BZX79B3V0	2.94	3.06
BZX79B3V3	3.23	3.37
BZX79 B3V6	3.53	3.67
BZX79B3V9	3.82	3.98
BZX79B4V3	4.21	4.39
BZX79B4V7	4.61	4.79
BZX79B5V1	5.00	5.20
BZX79 B5V6	5.49	5.71
BZX79B6V2	6.08	6.32
BZX79B6V8	6.66	6.94
BZX79B7V5	7.35	7.65
BZX79B8V2	8.04	8.36
BZX79B9V1	8.92	9.28
BZX79B10	9.80	10.20
BZX79B11	10.80	11.20
BZX79B12	11.80	12.20
BZX79B13	12.70	13.30
BZX79B15	14.70	15.30
BZX79B16	15.70	16.30
BZX79B18	17.60	18.40
BZX79B20	19.60	20.40
BZX79B22	21.60	22.40
BZX79B24	23.50	24.50
BZX79B27	26.50	27.50[3]
BZX79B30	29.40	30.60[3]
BZX79B33	32.30	33.70[3])
BZX79B36	35.30	36.70[3]
BZX79B39	38.20	39.80[3]
BZX79B43	42.10	43.90[3]
BZX79B47	46.10	47.90[3]
BZX79B51	50.00	52.00[3]
BZX79B56	54.90	57.10[3]
BZX79B62	60.80	63.20[3]
BZX79B68	66.60	69.40[3]
BZX79B75	73.50	76.50[3]

See BZX79-y table for all characteristics other than zener voltage range.

ELECTRICAL CHARACTERISTICS

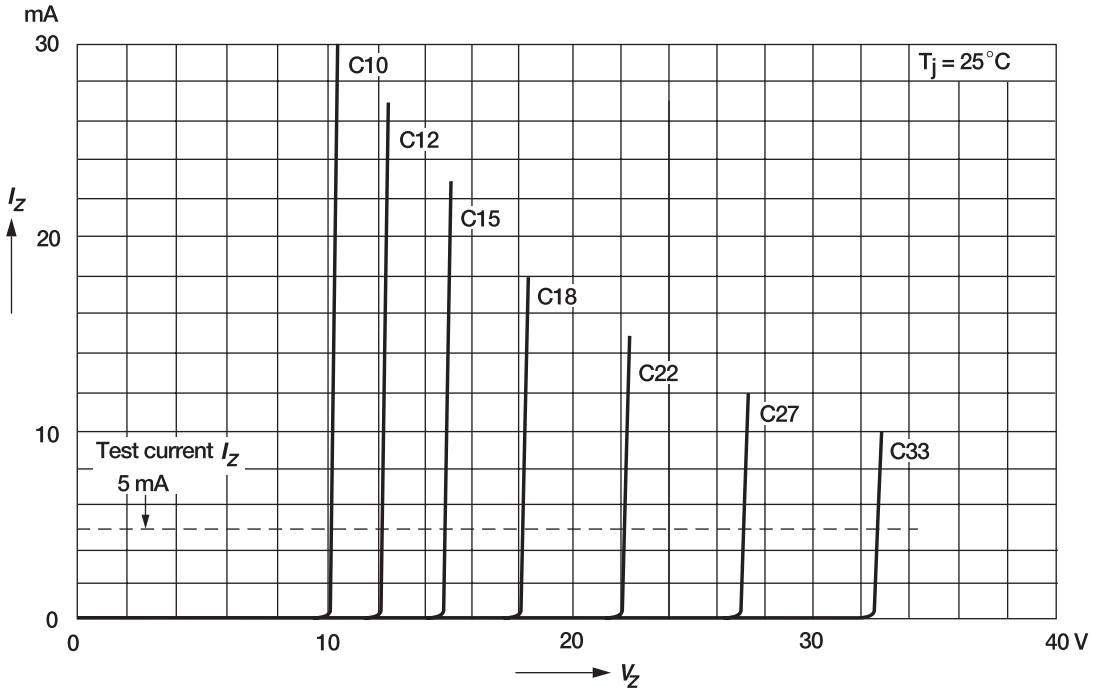
Breakdown characteristics

at T_j = constant (pulsed)



Breakdown characteristics

at T_j = constant (pulsed)



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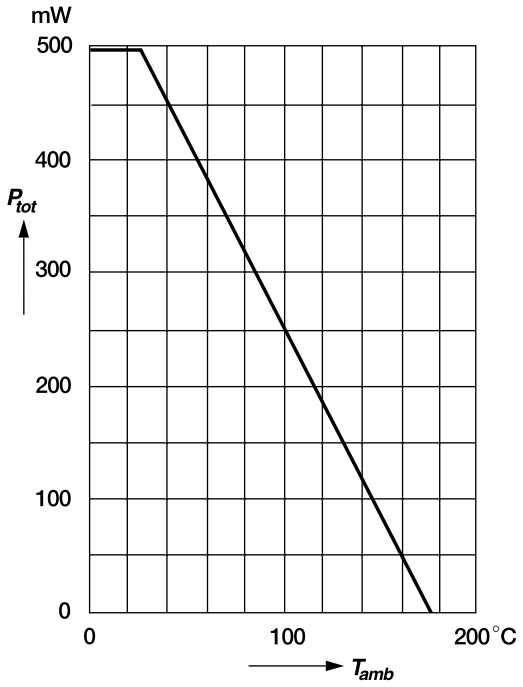
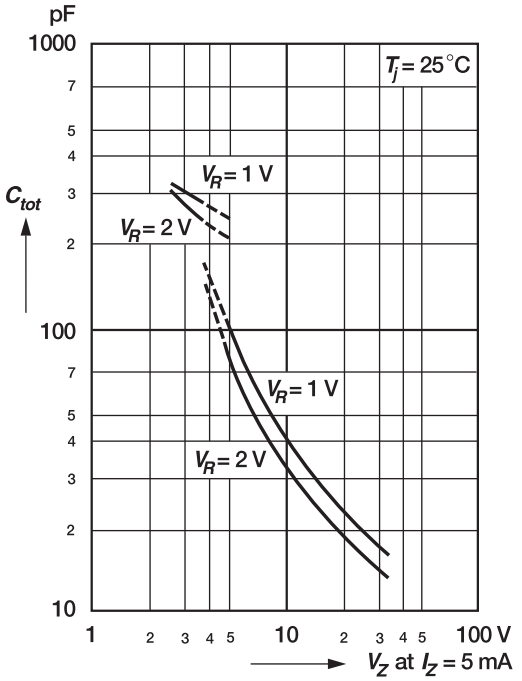
Admissible power dissipation versus ambient temperature

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

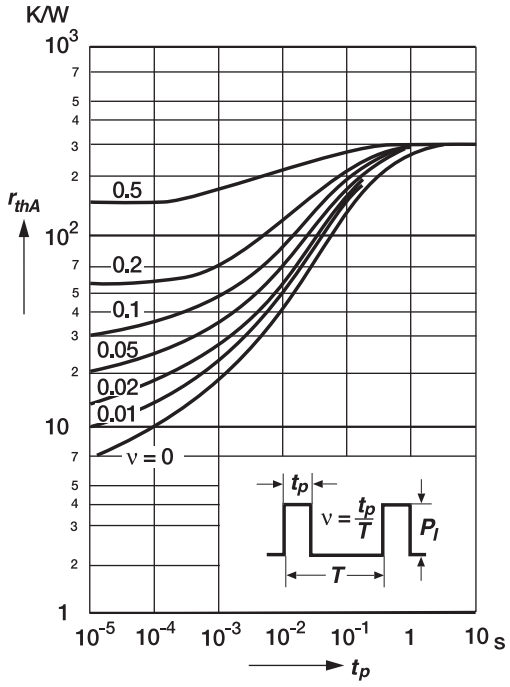


Capacitance versus Zener voltage

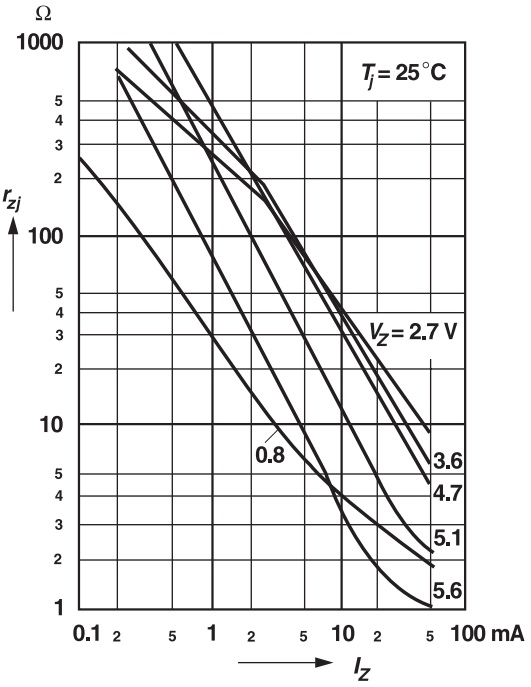


Pulse thermal resistance versus pulse duration

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



Dynamic resistance versus Zener current



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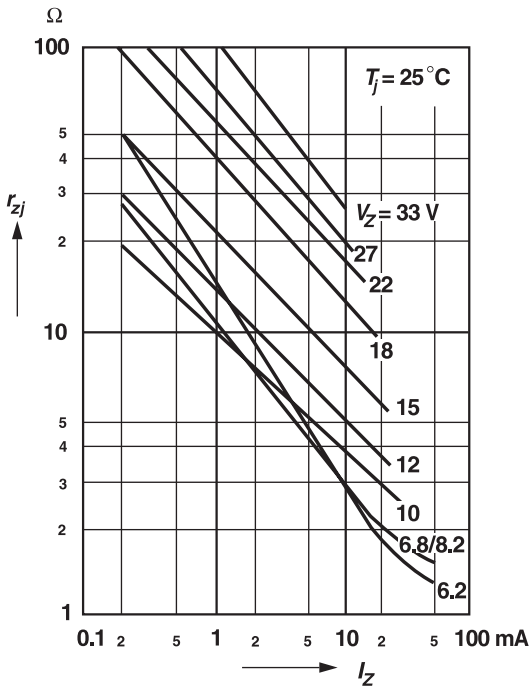
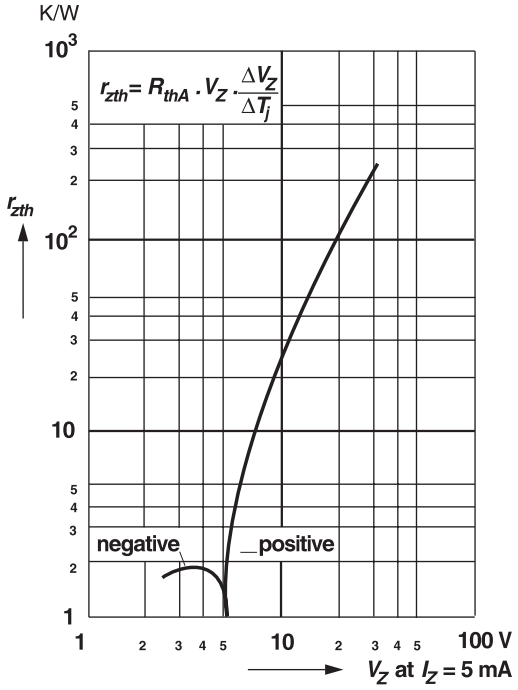
Dynamic resistance versus Zener current

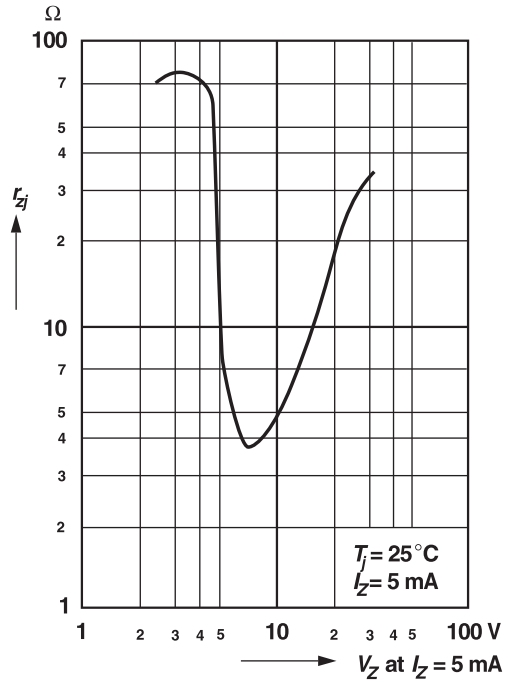


Thermal differential resistance versus Zener voltage

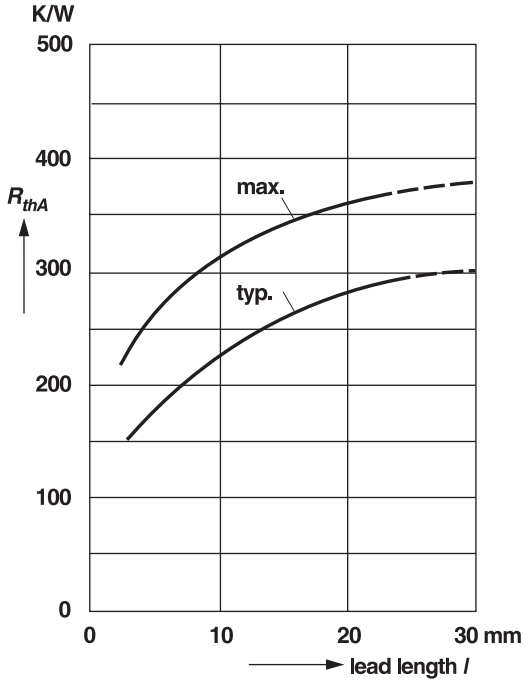
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



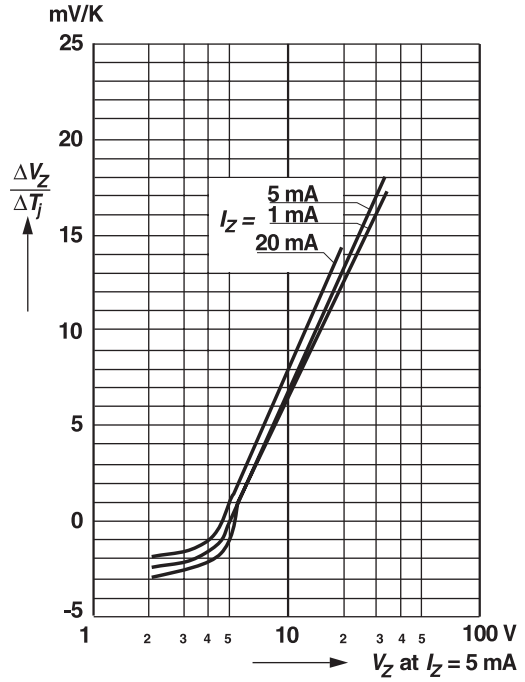
Dynamic resistance versus Zener voltage



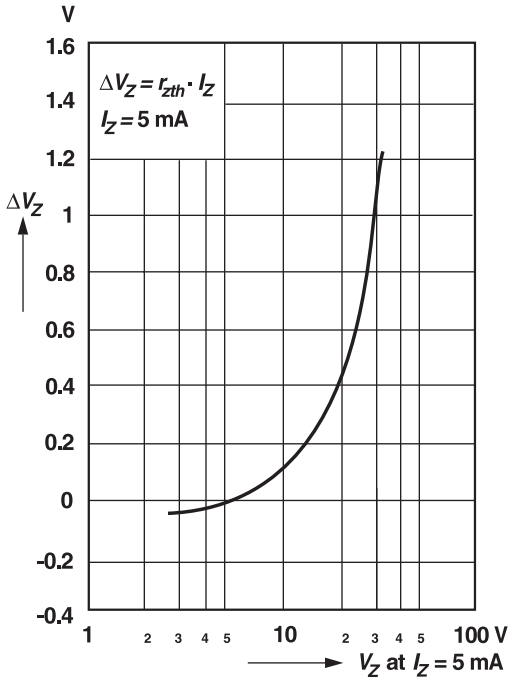
Thermal resistance versus lead length



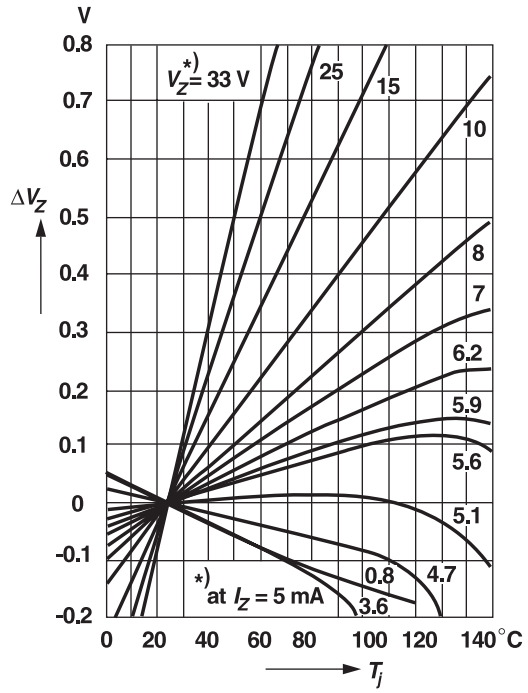
Temperature dependence of Zener voltage versus Zener voltage



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



Change of Zener voltage versus junction temperature



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