

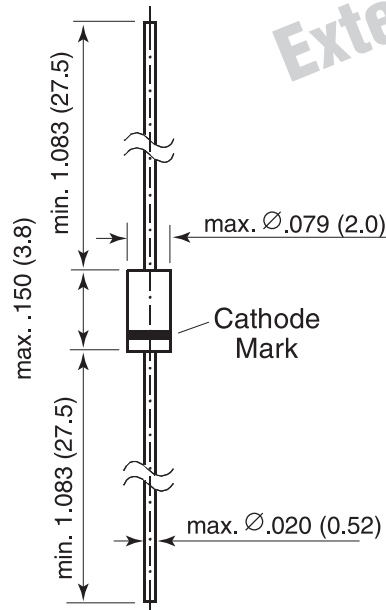
Zener Diodes

Vz Range 0.8, 2.4 to 100V

Power Dissipation 500mW



DO-204AH (DO-35 Glass)



Dimensions in inches and (millimeters)

Extended Voltage Range

Features

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

Mechanical Data

Case: DO-35 Glass Case

Weight: approx. 0.13g

Packaging Codes/Options:

D7/10K per 13" reel (52mm tape), 20K/box

D8/10K per Ammo tape (52mm tape), 20K/box

Maximum Ratings and Thermal Characteristics (TA = 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 _{θJA}	300 ⁽¹⁾	°C/W
Junction Temperature	T _j	175	°C
Storage Temperature Range	T _s	-55 to +175	°C

Note: (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 = 1.0 V at I_F = 100 mA

Type y = C for 5% y = B for 2%	Dynamic resistance		Temp. coefficient of Zener Voltage at I _Z = 5 mA		Reverse leakage current			Admissible Zener current ⁽²⁾ I _{ZM} (mA)
	at I _Z = 5 mA f = 1 kHz r _{Zj} (Ω)	at I _Z = 1 mA f = 1 kHz r _{Zj} (Ω)	α _{VZ} (%/°C)		at T _{amb} = 25°C I _R (nA)	at T _{amb} = 150°C I _R (μA)	at V _R (V)	
			min	max				
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

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–COV8 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 = 100 mA

Type ± 5% Tol.	Zener Voltage range ⁽¹⁾ at I _{ZT1} V _Z (V)		Test Current I _{ZT1} (mA)
	min.	max.	
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

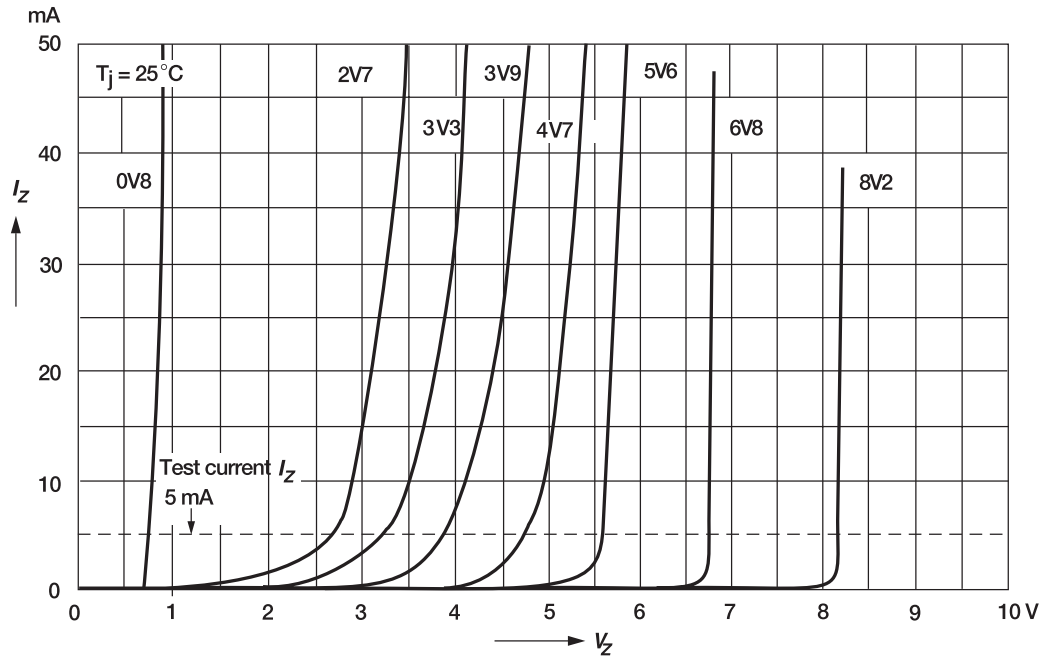
Type ± 2% Tol.	Zener Voltage range ⁽¹⁾ at I _{ZT1} V _Z (V)		Test Current I _{ZT1} (mA)
	min.	max.	
BZX55-B0V8 ⁽³⁾	0.78	0.82	5.0
BZX55-B2V7	2.35	2.45	5.0
BZX55-B3	2.65	2.75	5.0
BZX55-B3V0	2.94	3.06	5.0
BZX55-B3V3	3.23	3.37	5.0
BZX55-B3V6	3.53	3.67	5.0
BZX55-B3V9	3.82	3.98	5.0
BZX55-B4V3	4.21	4.39	5.0
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	57.1	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

Notes: (1) Measured with pulses t_p = 5 ms
(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.

Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

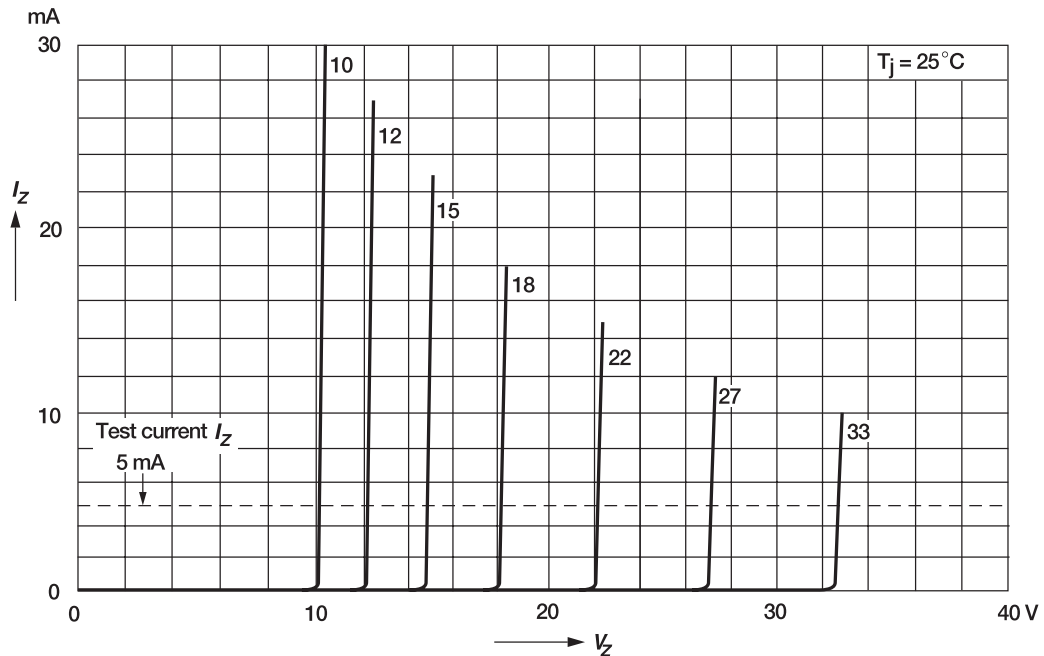
Breakdown characteristics

at $T_j = \text{constant}$ (pulsed)



Breakdown characteristics

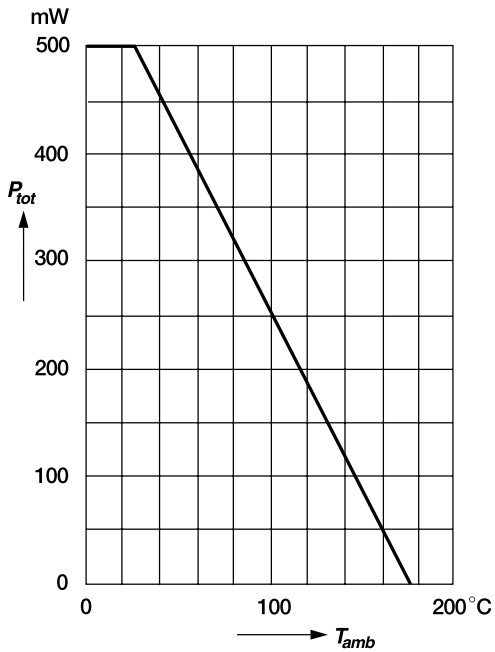
at $T_j = \text{constant}$ (pulsed)



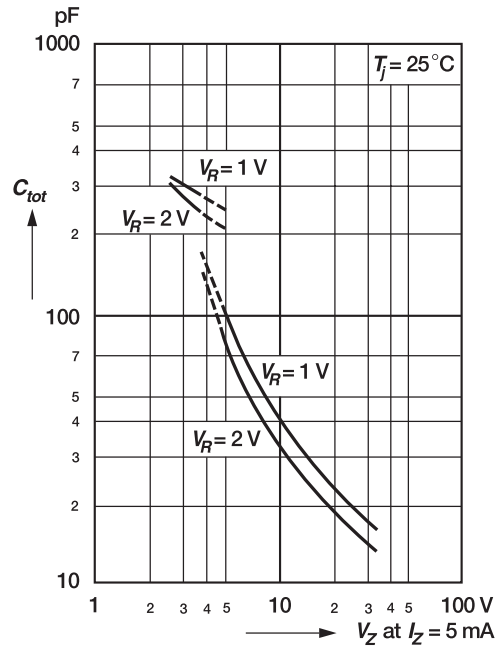
Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

Admissible power dissipation versus ambient temperature

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

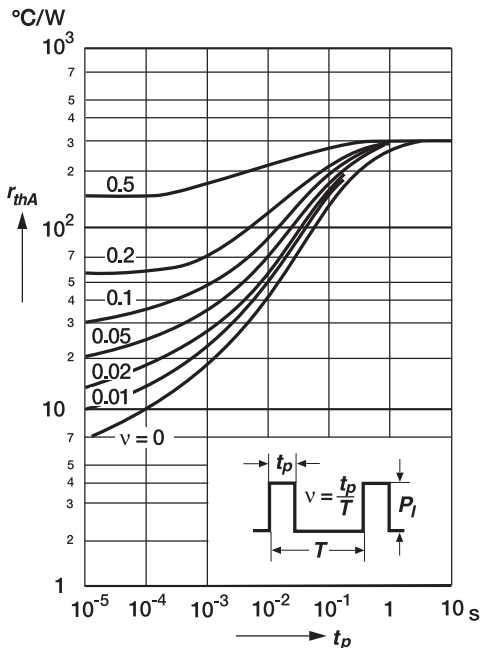


Capacitance versus Zener voltage

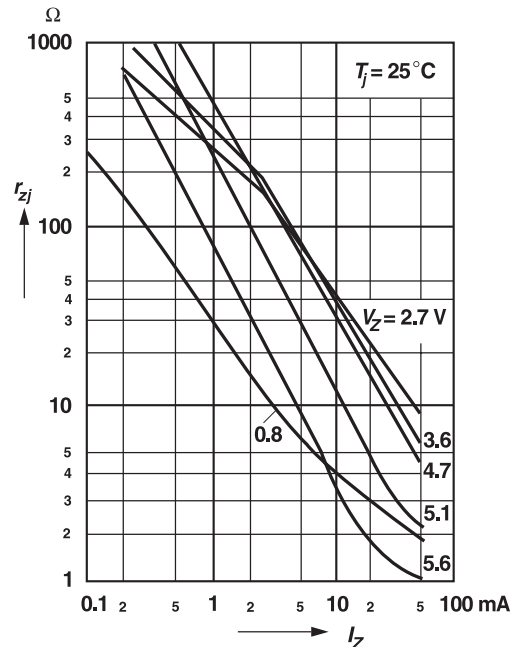


Pulse thermal resistance versus pulse duration

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

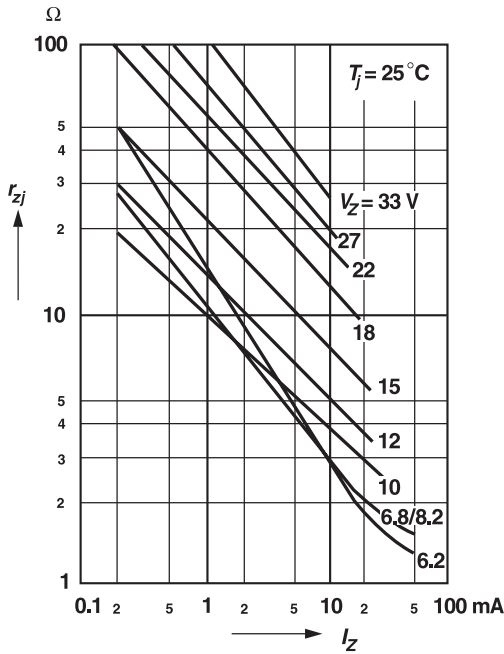


Dynamic resistance versus Zener current



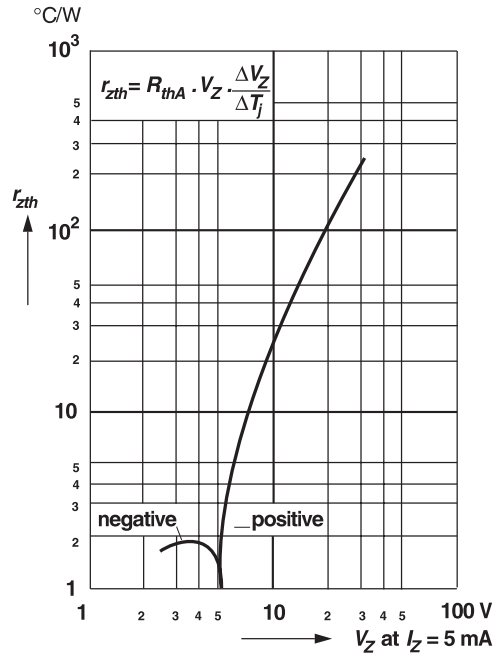
Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

Dynamic resistance versus Zener current

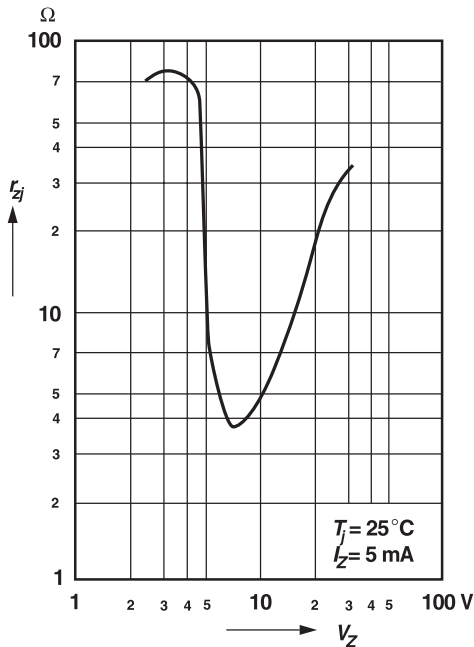


Thermal differential resistance versus Zener voltage

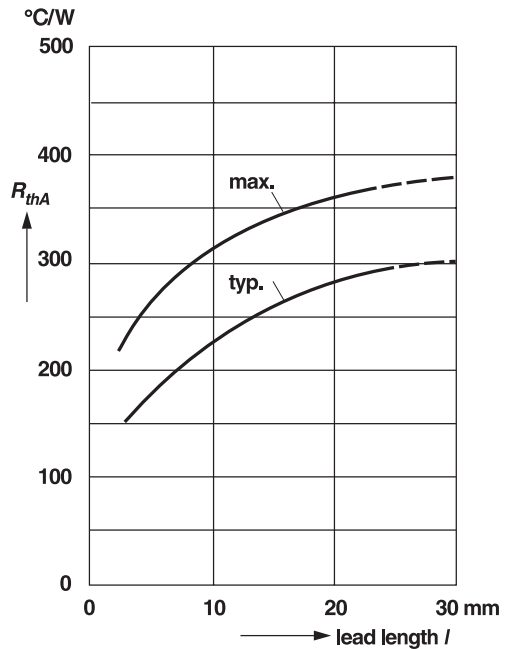
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



Dynamic resistance versus Zener voltage

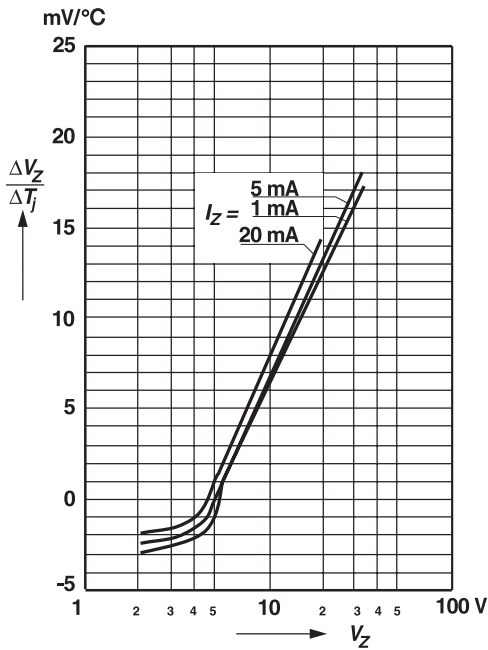


Thermal resistance versus lead length

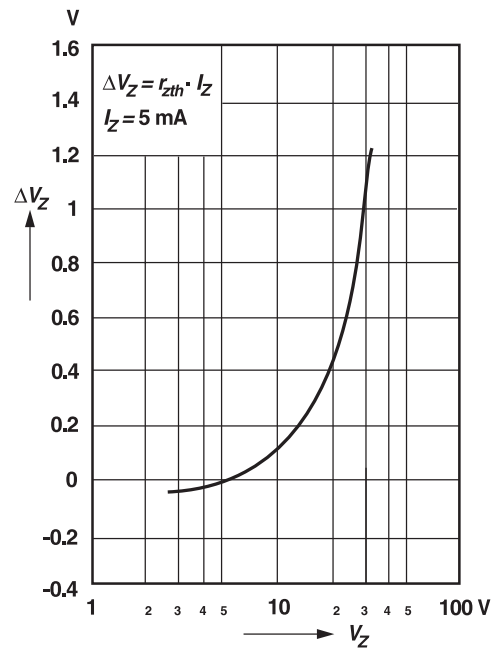


Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

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

