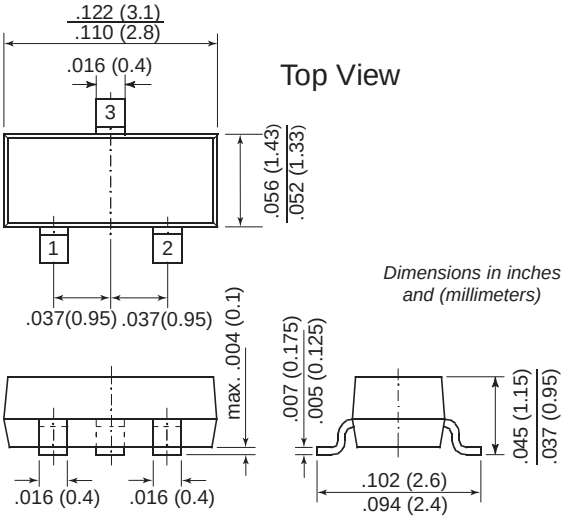
Dual Common-Anode Zener Diodes

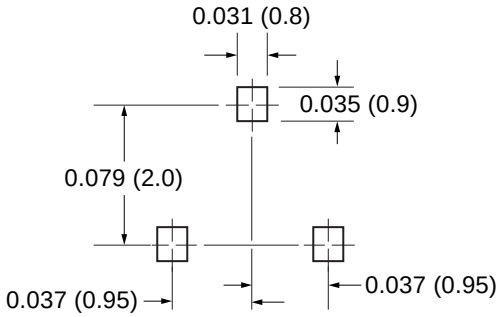
V_Z Range 2.7 to 51V
Power Dissipation 300mW

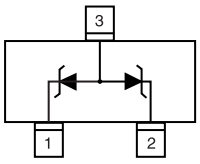
TO-236AB
(SOT-23)



Dimensions in inches and (millimeters)

Mounting Pad Layout





Features

- Dual Silicon Planar Zener Diodes, Common Anode
- The Zener voltages are graded according to the international E 24 standard. Standard Zener voltage tolerance is ±5%. Replace “C” with “B” for 2% tolerance. Other voltage tolerances and other Zener voltages are available upon request.
- The parameters are valid for both diodes in one case. ΔV_Z and Δr_{zj} of the two diodes in one case is ≤ 5%
- These diodes are also available in other case styles and configurations including: the dual diode common cathode configuration with type designation DZ23, the single diode SOT-23 case with the type designation BZX84C, and the single diode SOD-123 case with the type designation BZT52C.

Mechanical Data

Case: SOT-23 Plastic Package

Weight: Approx. 0.008g

Packaging Codes/Options:
E8/10K per 13” reel (8mm tape), 30K/box
E9/3K per 7” reel (8mm tape), 30K/box

Maximum Ratings and Thermal Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Power Dissipation at T_{amb} = 25°C	P_{tot}	300(1)	mW
Thermal Resistance Junction to Ambient Air	$R_{\Theta JA}$	420(1)	°C/W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	–65 to +150	°C

Note: (1) Device on fiberglass substrate, see layout.

Electrical Characteristics (T_A = 25°C unless otherwise noted)

Type y = C for 5% y = B for 2%	Marking	Dynamic Resistance at I_Z = 5mA f = 1kHz r_{zj} (Ω)	Dynamic Resistance at I_Z = 1mA f = 1kHz r_{zj} (Ω)	Temp. Coeff. of Zener Voltage at I_Z = 5mA α_{VZ} (10^{-4}/°C)	Reverse Voltage at I_R = 100nA V_R (V)
AZ23-y2V7	D1	75 (<83)	<500	–9 … –4	–
AZ23-y3	D2	80 (<95)	<500	–9 … –3	–
AZ23-y3V3	D3	80 (<95)	<500	–8 … –3	–
AZ23-y3V6	D4	80 (<95)	<500	–8 … –3	–
AZ23-y3V9	D5	80 (<95)	<500	–7 … –3	–
AZ23-y4V3	D6	80 (<95)	<500	–6 … –1	–
AZ23-y4V7	D7	70 (<78)	<500	–5 … +2	–
AZ23-y5V1	D8	30 (<60)	<480	–3 … +4	>0.8
AZ23-y5V6	D9	10 (<40)	<400	–2 … +6	>1
AZ23-y6V2	D10	4.8 (<10)	<200	–1 … +7	>2
AZ23-y6V8	D11	4.5 (<8)	<150	+2 … +7	>3
AZ23-y7V5	D12	4 (<7)	<50	–3 … +7	>5
AZ23-y8V2	D13	4.5 (<7)	<50	+4 … +7	>6
AZ23-y9V1	D14	4.8 (<10)	<50	+5 … +8	>7
AZ23-y10	D15	5.2 (<15)	<70	+5 … +8	>7.5
AZ23-y11	D16	6 (<20)	<70	+5 … +9	>8.5
AZ23-y12	D17	7 (<20)	<90	+6 … +9	>9
AZ23-y13	D18	9 (<25)	<110	+7 … +9	>10
AZ23-y15	D19	11 (<30)	<110	+7 … +9	>11
AZ23-y16	D20	13 (<40)	<170	+8 … +9.5	>12
AZ23-y18	D21	18 (<50)	<170	+8 … +9.5	>14
AZ23-y20	D22	20 (<50)	<220	+8 … +10	>15
AZ23-y22	D23	25 (<55)	<220	+8 … +10	>17
AZ23-y24	D24	28 (<80)	<220	+8 … +10	>18
AZ23-y27	D25	30 (<80)	<250	+8 … +10	>20
AZ23-y30	D26	35 (<80)	<250	+8 … +10	>22.5
AZ23-y33	D27	40 (<80)	<250	+8 … +10	>25
AZ23-y36	D28	40 (<90)	<250	+8 … +10	>27
AZ23-y39	D29	50 (<90)	<300	+10 … +12	>29
AZ23-y43	D30	60 (<100)	<700	+10 … +12	>32
AZ23-y47	D31	70 (<100)	<750	+10 … +12	>35
AZ23-y51	D32	70 (<100)	<750	+10 … +12	>38

Note: (1) Tested with pulses t_p = 5ms

Electrical Characteristics (T_A = 25°C unless otherwise noted)

Type ± 5% Tol.	Zener Voltage range[1] at I_{ZT1} V_Z (V) min.	max.	Test Current I_{ZT1} (mA)
AZ23-C2V7	2.50	2.90	5
AZ23-C3	2.80	3.20	5
AZ23-C3V3	3.10	3.50	5
AZ23-C3V6	3.40	3.80	5
AZ23-C3V9	3.70	4.10	5
AZ23-C4V3	4.00	4.60	5
AZ23-C4V7	4.40	5.00	5
AZ23-C5V1	4.80	5.40	5
AZ23-C5V6	5.20	6.00	5
AZ23-C6V2	5.80	6.60	5
AZ23-C6V8	6.40	7.20	5
AZ23-C7V5	7.00	7.90	5
AZ23-C8V2	7.70	8.70	5
AZ23-C9V1	8.50	9.60	5
AZ23-C10	9.4	10.6	5
AZ23-C11	10.4	11.6	5
AZ23-C12	11.4	12.7	5
AZ23-C13	12.4	14.1	5
AZ23-C15	13.8	15.6	5
AZ23-C16	15.3	17.1	5
AZ23-C18	16.8	19.1	5
AZ23-C20	18.8	21.2	5
AZ23-C22	20.8	23.3	5
AZ23-C24	22.8	25.6	5
AZ23-C27	25.1	28.9	5
AZ23-C30	28.0	32.0	5
AZ23-C33	31.0	35.0	5
AZ23-C36	34.0	38.0	5
AZ23-C39	37.0	41.0	5
AZ23-C43	40.0	46.0	5
AZ23-C47	44.0	50.0	5
AZ23-C51	48.0	54.0	5

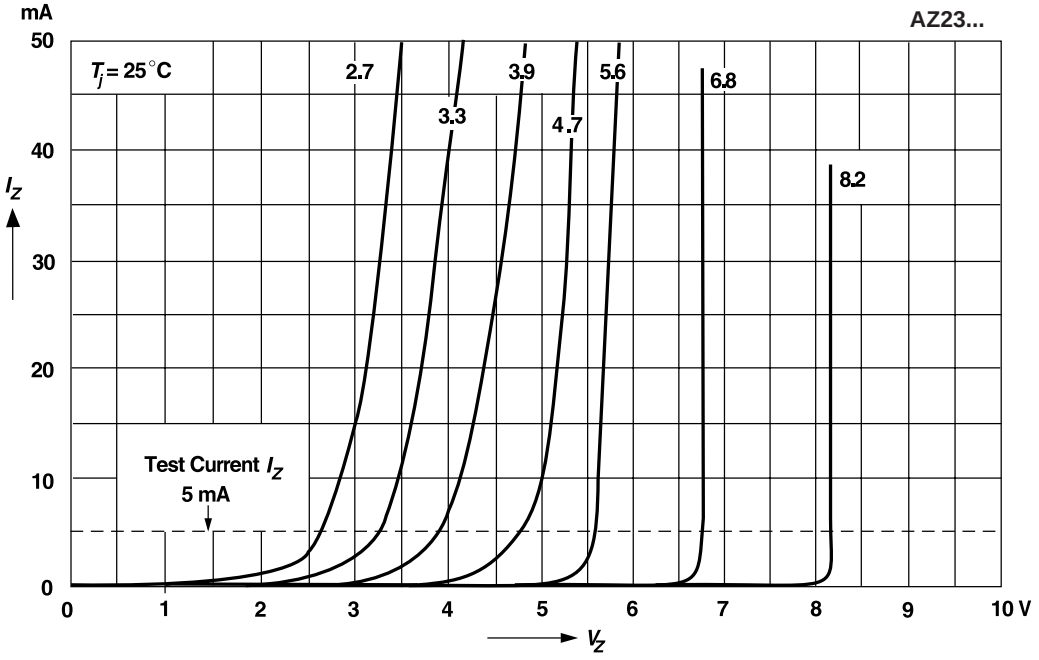
Type ± 2% Tol.	Zener Voltage range[1] at I_{ZT1} V_Z (V) min.	max.	Test Current I_{ZT1} (mA)
AZ23-B2V7	2.65	2.75	5
AZ23-B3	2.94	3.06	5
AZ23-B3V3	3.23	3.37	5
AZ23-B3V6	3.53	3.67	5
AZ23-B3V9	3.82	3.98	5
AZ23-B4V3	4.21	4.39	5
AZ23-B4V7	4.61	4.79	5
AZ23-B5V1	5.00	5.20	5
AZ23-B5V6	5.49	5.71	5
AZ23-B6V2	6.08	6.32	5
AZ23-B6V8	6.66	6.94	5
AZ23-B7V5	7.35	7.65	5
AZ23-B8V2	8.04	8.36	5
AZ23-B9V1	8.92	9.28	5
AZ23-B10	9.80	10.2	5
AZ23-B11	10.8	11.2	5
AZ23-B12	11.8	12.2	5
AZ23-B13	12.7	13.3	5
AZ23-B15	14.7	15.3	5
AZ23-B16	15.7	16.3	5
AZ23-B18	17.6	18.4	5
AZ23-B20	19.6	20.4	5
AZ23-B22	21.6	22.4	5
AZ23-B24	23.5	24.5	5
AZ23-B27	26.5	27.5	5
AZ23-B30	29.4	30.6	5
AZ23-B33	32.3	33.7	5
AZ23-B36	35.3	36.7	5
AZ23-B39	38.2	39.8	5
AZ23-B43	42.1	43.9	5
AZ23-B47	46.1	47.9	5
AZ23-B51	50.0	52.0	5

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

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

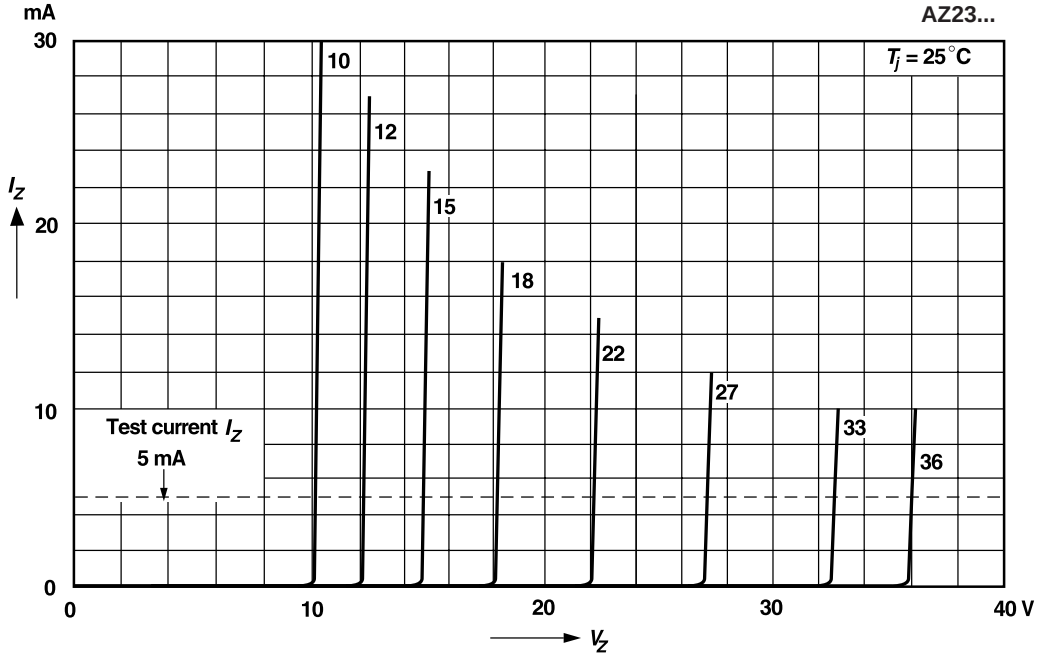
Breakdown characteristics

T_j = constant (pulsed)



Breakdown characteristics

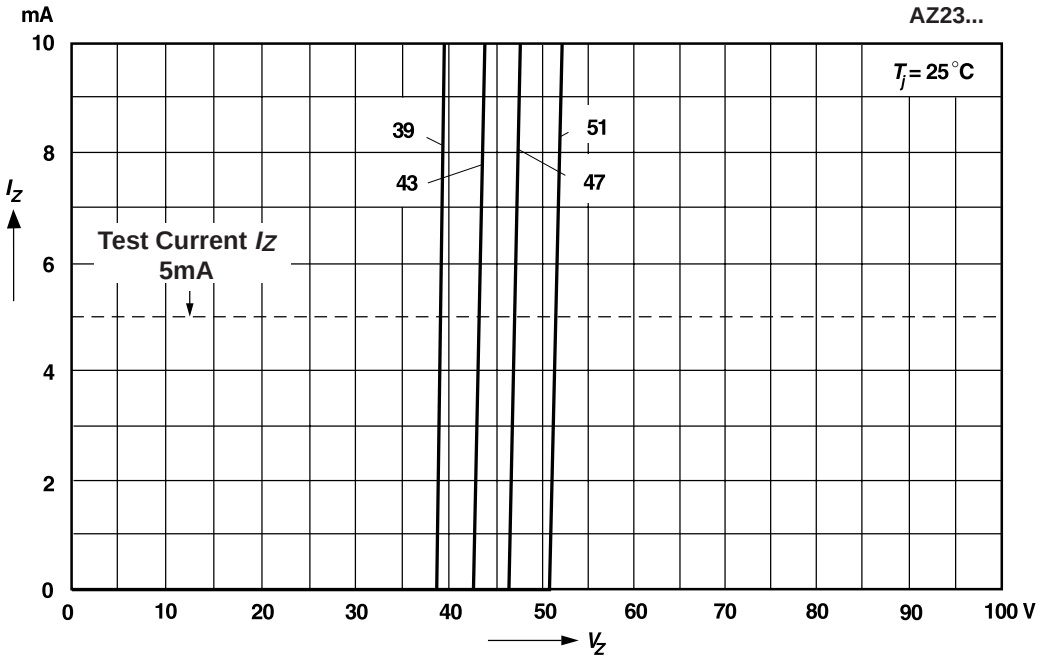
T_j = constant (pulsed)



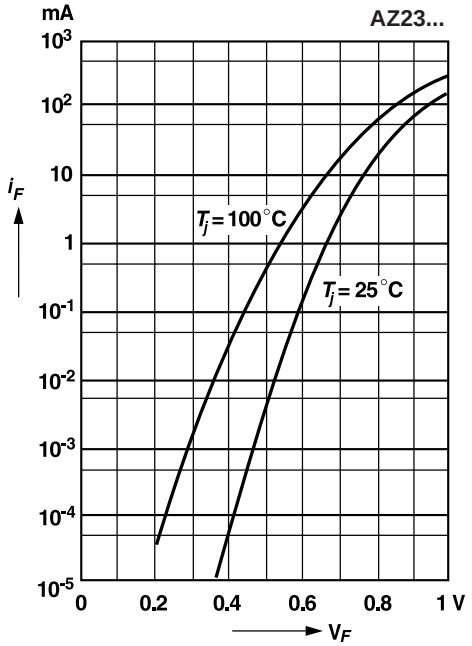
Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Breakdown characteristics

T_j = constant (pulsed)



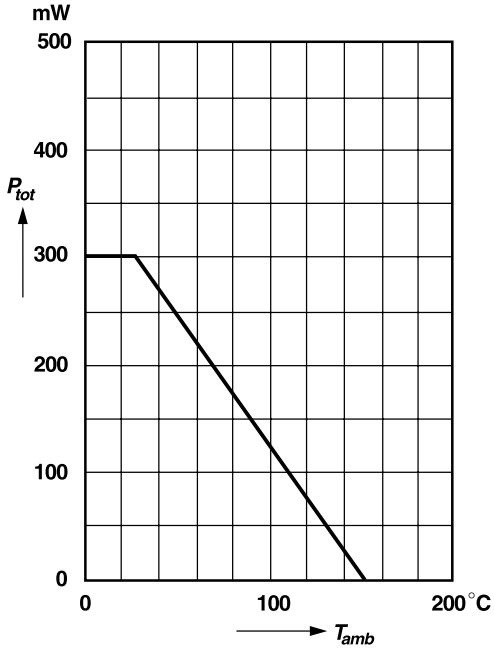
Forward characteristics



Admissible power dissipation versus ambient temperature

For conditions, see footnote in table "Absolute Maximum Ratings"

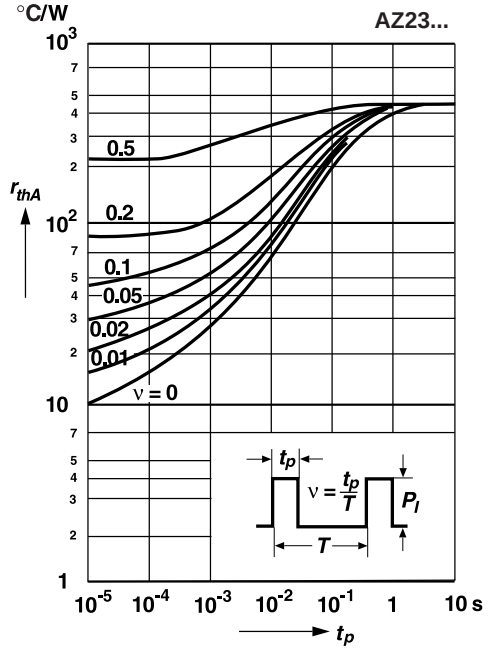
AZ23...



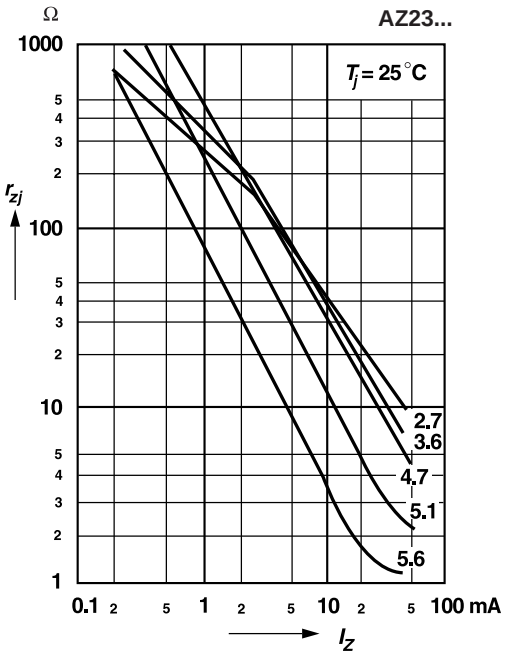
Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Pulse thermal resistance versus pulse duration

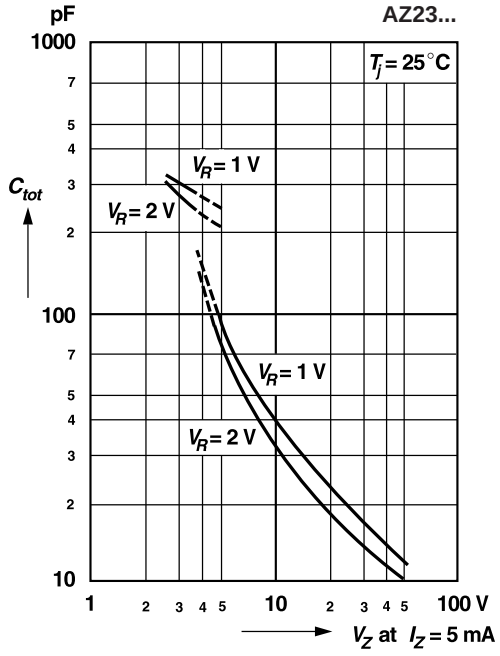
For conditions, see footnote in table "Absolute Maximum Ratings"



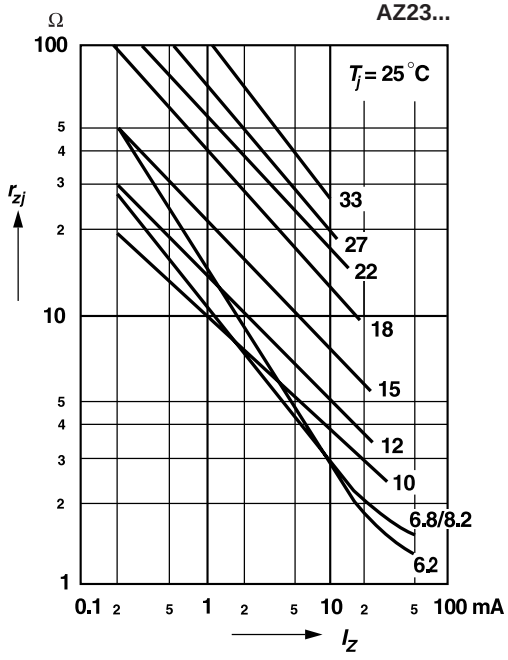
Dynamic resistance versus Zener current



Capacitance versus Zener voltage

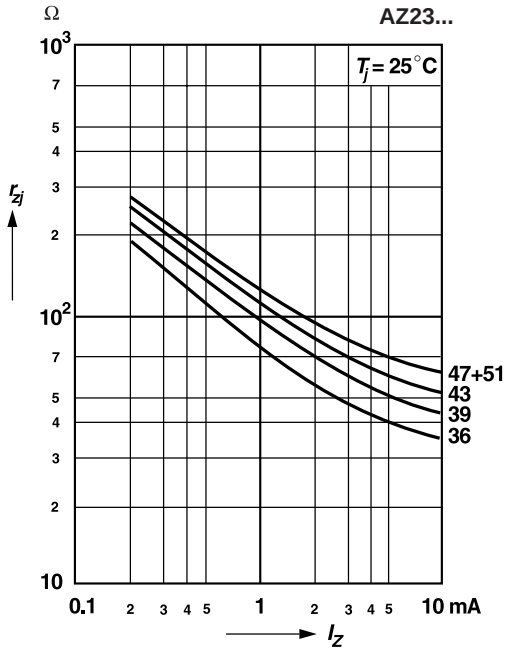


Dynamic resistance versus Zener current



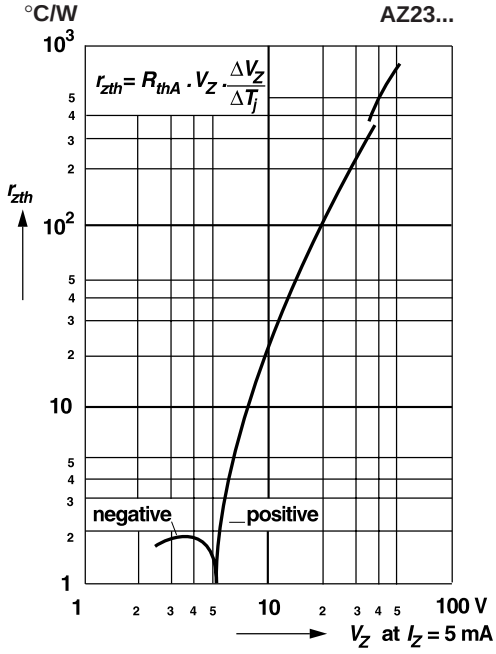
Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Dynamic resistance versus Zener current

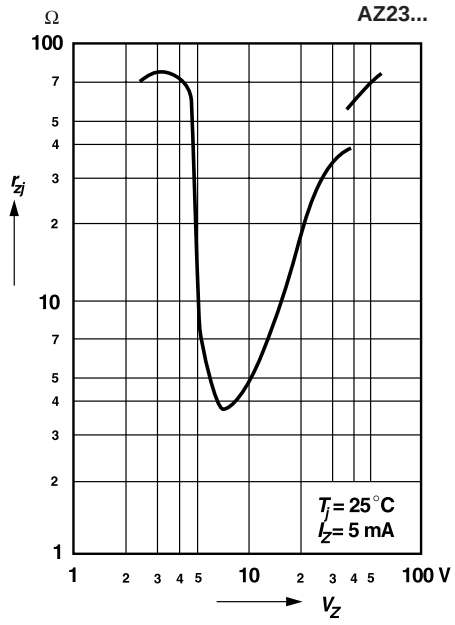


Thermal differential resistance versus Zener voltage

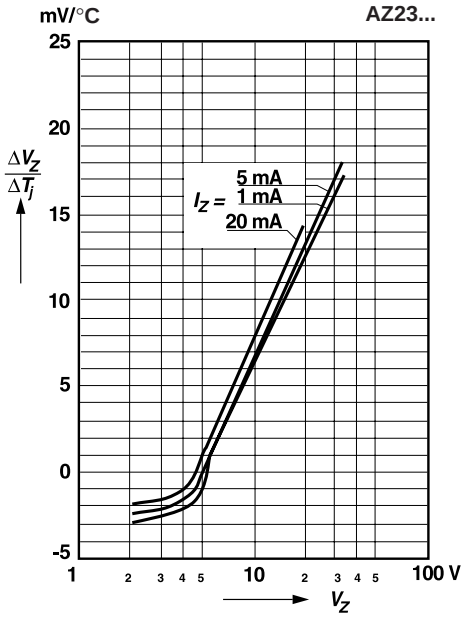
For conditions, see footnote in table "Absolute Maximum Ratings"



Dynamic resistance versus Zener voltage

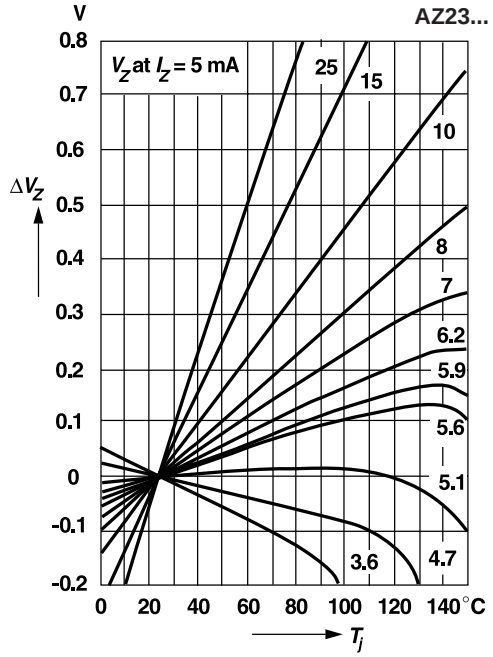


Temperature dependence of Zener voltage versus Zener voltage

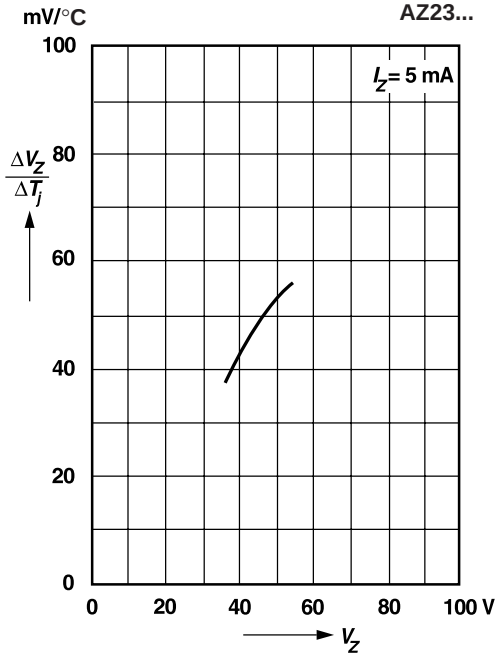


Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

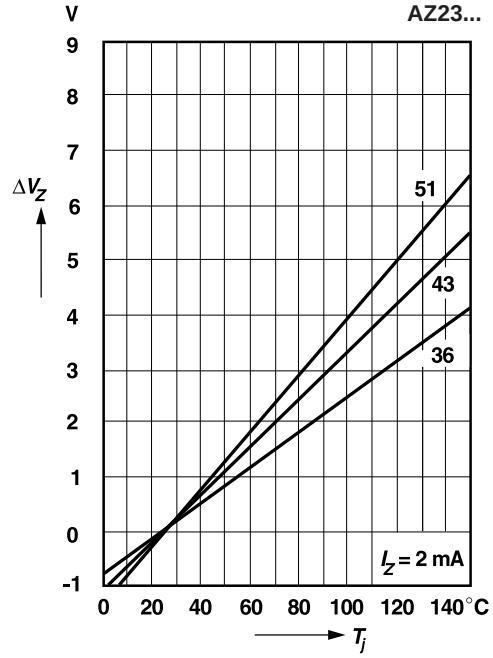
Change of Zener voltage versus junction temperature



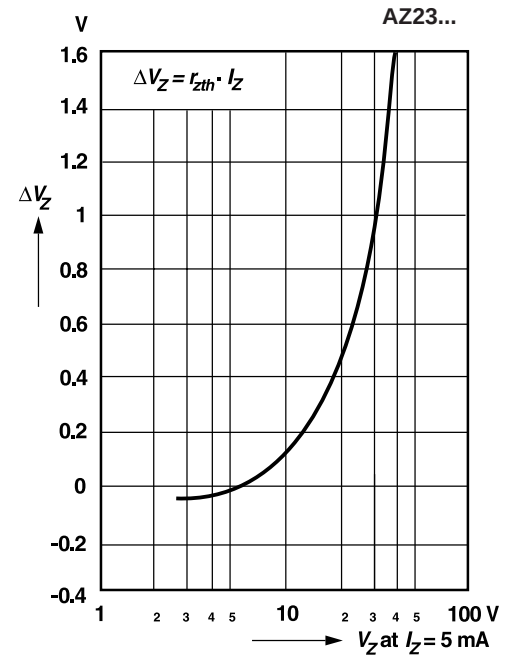
Temperature dependence of Zener voltage versus Zener voltage



Change of Zener voltage versus junction temperature

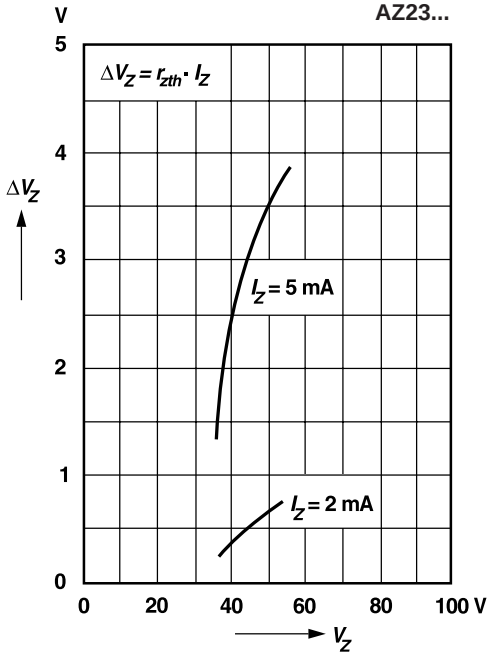


Change of Zener voltage from turn-on up to the point of thermal equilibrium versus Zener voltage



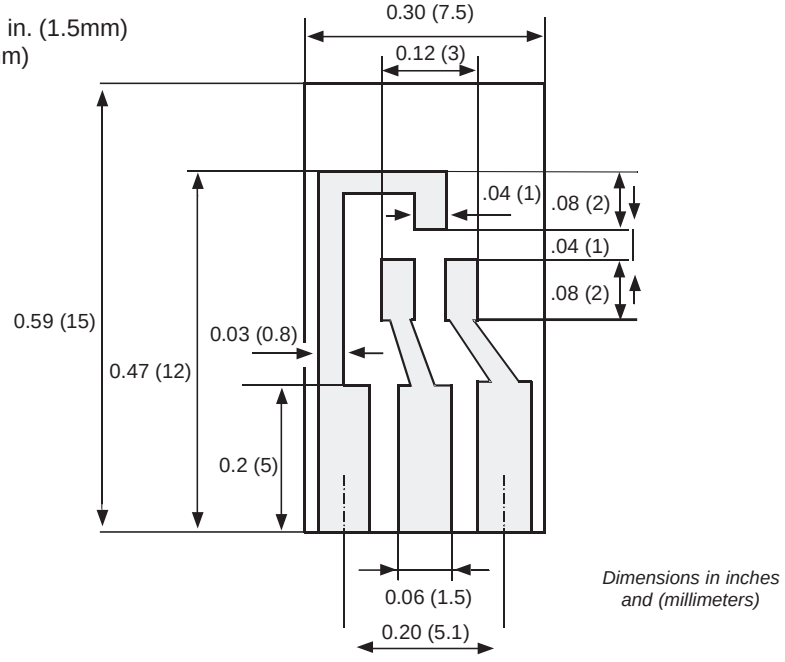
Ratings and Characteristic Curves (T_A = 25°C unless otherwise noted)

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



Layout for $R_{\Theta JA}$ test

Thickness: Fiberglass 0.059 in. (1.5mm)
Copper leads 0.012 in. (0.3mm)



Dimensions in inches and (millimeters)