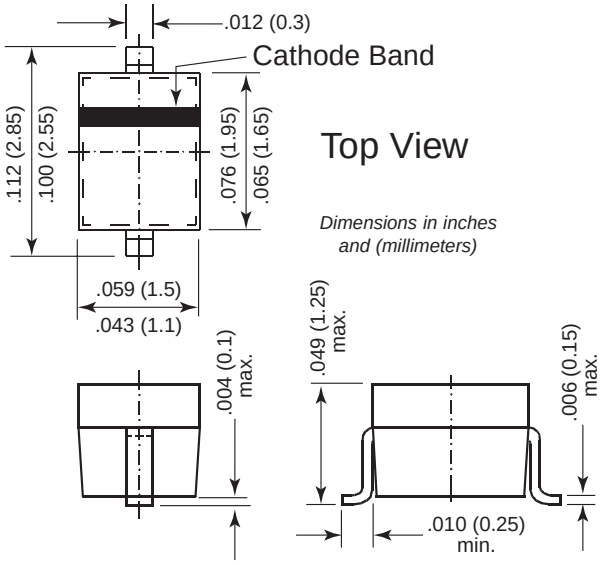
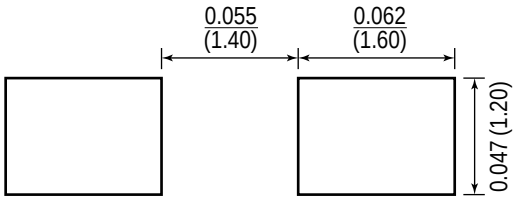
Zener Diodes

V_Z Range 2.4V to 75V
Power Dissipation 200mW

SOD-323



Mounting Pad Layout



Mechanical Data

Case: SOD-323 Plastic Package

Weight: Approx. 0.004g

Marking Code: See table on next page

Packaging Codes/Options:

D5 / 10K per 13” reel (8mm tape), 30K box
D6 / 3K per 7” reel (8mm tape), 30K box

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 “C” with “B” for ±2% tolerance. Other voltage tolerances and other Zener voltages are available upon request.

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

Parameter	Symbol	Limit	Unit
Zener Current	I_{ZM}	250	mA
Power Dissipation at T_{amb} = 25°C	P_{tot}	200(1)	mW
Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	650(2)	°C/W
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_S	–65 to +150	°C

Notes: (1) Device on fiberglass substrate
(2) Valid provided that electrodes are kept at ambient temperature

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

Type y = C for ± 5% V_Z y = B for ± 2% V_Z	Marking	Dynamic Resistance at I_{ZT1} r_{zj} (Ω)	Temp. Coefficient of Zener Voltage at I_{ZT1} α_{VZ} (10^{-4}/°C)	Test Current I_{ZT1} (mA)	Dynamic Resistance at I_{ZT2} r_{zj} (Ω)	Test Current I_{ZT2} (mA)	Reverse Leakage Current at I_R (μA)	Reverse Leakage Current at V_R (V)
BZX384-y2V4	W1	70 (≤100)	–9.0 … –4.0	5	275	1.0	50.0	1.0
BZX384-y2V7	W2	75 (≤100)	–9.0 … –4.0	5	300 (≤600)	1.0	20.0	1.0
BZX384-y3	W3	80 (≤95)	–9.0 … –3.0	5	325 (≤600)	1.0	10.0	1.0
BZX384-y3V3	W4	85 (≤95)	–8.0 … –3.0	5	350 (≤600)	1.0	5.00	1.0
BZX384-y3V6	W5	85 (≤90)	–8.0 … –3.0	5	375 (≤600)	1.0	5.00	1.0
BZX384-y3V9	W6	85 (≤90)	–7.0 … –3.0	5	400 (≤600)	1.0	3.00	1.0
BZX384-y4V3	W7	80 (≤90)	–6.0 … –1.0	5	410 (≤600)	1.0	3.00	1.0
BZX384-y4V7	W8	50 (≤80)	–5.0 … +2.0	5	425 (≤500)	1.0	3.00	2.0
BZX384-y5V1	W9	40 (≤60)	–3.0 … +4.0	5	400 (≤480)	1.0	2.00	2.0
BZX384-y5V6	WA	15 (≤40)	–2.0 … +6.0	5	80 (≤400)	1.0	1.00	2.0
BZX384-y6V2	WB	6.0 (≤10)	–1.0 … +7.0	5	40 (≤150)	1.0	3.00	4.0
BZX384-y6V8	WC	6.0 (≤15)	+2.0 … +7.0	5	30 (≤80)	1.0	2.00	4.0
BZX384-y7V5	WD	6.0 (≤15)	+3.0 … +7.0	5	30 (≤80)	1.0	1.00	5.0
BZX384-y8V2	WE	6.0 (≤15)	+4.0 … +7.0	5	40 (≤80)	1.0	0.70	5.0
BZX384-y9V1	WF	6.0 (≤15)	+5.0 … +8.0	5	40 (≤100)	1.0	0.50	6.0
BZX384-y10	WG	8.0 (≤20)	+5.0 … +8.0	5	50 (≤150)	1.0	0.20	7.0
BZX384-y11	WH	10 (≤20)	+5.0 … +9.0	5	50 (≤150)	1.0	0.10	8.0
BZX384-y12	WI	10 (≤25)	+6.0 … +9.0	5	50 (≤150)	1.0	0.10	8.0
BZX384-y13	WK	10 (≤30)	+7.0 … +9.0	5	50 (≤170)	1.0	0.10	8.0
BZX384-y15	WL	10 (≤30)	+7.0 … +9.0	5	50 (≤200)	1.0	0.05	$0.7V_{Znom.}$
BZX384-y16	WM	10 (≤40)	+8.0 … +9.5	5	50 (≤200)	1.0	0.05	$0.7V_{Znom.}$
BZX384-y18	WN	10 (≤45)	+8.0 … +9.5	5	50 (≤225)	1.0	0.05	$0.7V_{Znom.}$
BZX384-y20	WO	15 (≤55)	+8.0 … +10	5	60 (≤225)	1.0	0.05	$0.7V_{Znom.}$
BZX384-y22	WP	20 (≤55)	+8.0 … +10	5	60 (≤250)	1.0	0.05	$0.7V_{Znom.}$
BZX384-y24	WR	25 (≤70)	+8.0 … +10	5	60 (≤250)	1.0	0.05	$0.7V_{Znom.}$
BZX384-y27	WS	25 (≤80)	+8.0 … +10	2	65 (≤300)	0.5	0.05	$0.7V_{Znom.}$
BZX384-y30	WT	30 (≤80)	+8.0 … +10	2	70 (≤300)	0.5	0.05	$0.7V_{Znom.}$
BZX384-y33	WU	35 (≤80)	+8.0 … +10	2	75 (≤325)	0.5	0.05	$0.7V_{Znom.}$
BZX384-y36	WW	35 (≤90)	+8.0 … +10	2	80 (≤350)	0.5	0.05	$0.7V_{Znom.}$
BZX384-y39	WX	40 (≤130)	+10.0 … +12	2	80 (≤350)	0.5	0.05	$0.7V_{Znom.}$
BZX384-y43	WY	45 (≤150)	+10.0 … +12	2	85 (≤375)	0.5	0.05	$0.7V_{Znom.}$
BZX384-y47	WZ	50 (≤170)	+10.0 … +12	2	85 (≤375)	0.5	0.05	$0.7V_{Znom.}$
BZX384-y51	X1	60 (≤180)	+10.0 … +12	2	85 (≤400)	0.5	0.05	$0.7V_{Znom.}$
BZX384-y56	X2	70 (≤200)	+9.0 … +11	2	100 (≤425)	0.5	0.05	$0.7V_{Znom.}$
BZX384-y62	X3	80 (≤215)	+9.0 … +12	2	100 (≤450)	0.5	0.05	$0.7V_{Znom.}$
BZX384-y68	X4	90 (≤240)	+10.0 … +12	2	150 (≤475)	0.5	0.05	$0.7V_{Znom.}$
BZX384-y75	X5	95 (≤255)	+10.0 … +12	2	170 (≤500)	0.5	0.05	$0.7V_{Znom.}$

Note: (1) Measured 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)
BZX384-C2V4	2.20	2.60	5
BZX384-C2V7	2.50	2.90	5
BZX384-C3	2.80	3.20	5
BZX384-C3V3	3.10	3.50	5
BZX384-C3V6	3.40	3.80	5
BZX384-C3V9	3.70	4.10	5
BZX384-C4V3	4.00	4.60	5
BZX384-C4V7	4.40	5.00	5
BZX384-C5V1	4.80	5.40	5
BZX384-C5V6	5.20	6.00	5
BZX384-C6V2	5.80	6.60	5
BZX384-C6V8	6.40	7.20	5
BZX384-C7V5	7.00	7.90	5
BZX384-C8V2	7.70	8.70	5
BZX384-C9V1	8.50	9.60	5
BZX384-C10	9.4	10.6	5
BZX384-C11	10.4	11.6	5
BZX384-C12	11.4	12.7	5
BZX384-C13	12.4	14.1	5
BZX384-C15	13.8	15.6	5
BZX384-C16	15.3	17.1	5
BZX384-C18	16.8	19.1	5
BZX384-C20	18.8	21.2	5
BZX384-C22	20.8	23.3	5
BZX384-C24	22.8	25.6	5
BZX384-C27	25.1	28.9	2
BZX384-C30	28.0	32.0	2
BZX384-C33	31.0	35.0	2
BZX384-C36	34.0	38.0	2
BZX384-C39	37.0	41.0	2
BZX384-C43	40.0	46.0	2
BZX384-C47	44.0	50.0	2
BZX384-C51	48.0	54.0	2
BZX384-C56	52.0	60.0	2
BZX384-C62	58.0	66.0	2
BZX384-C68	64.0	72.0	2
BZX384-C75	70.0	79.0	2

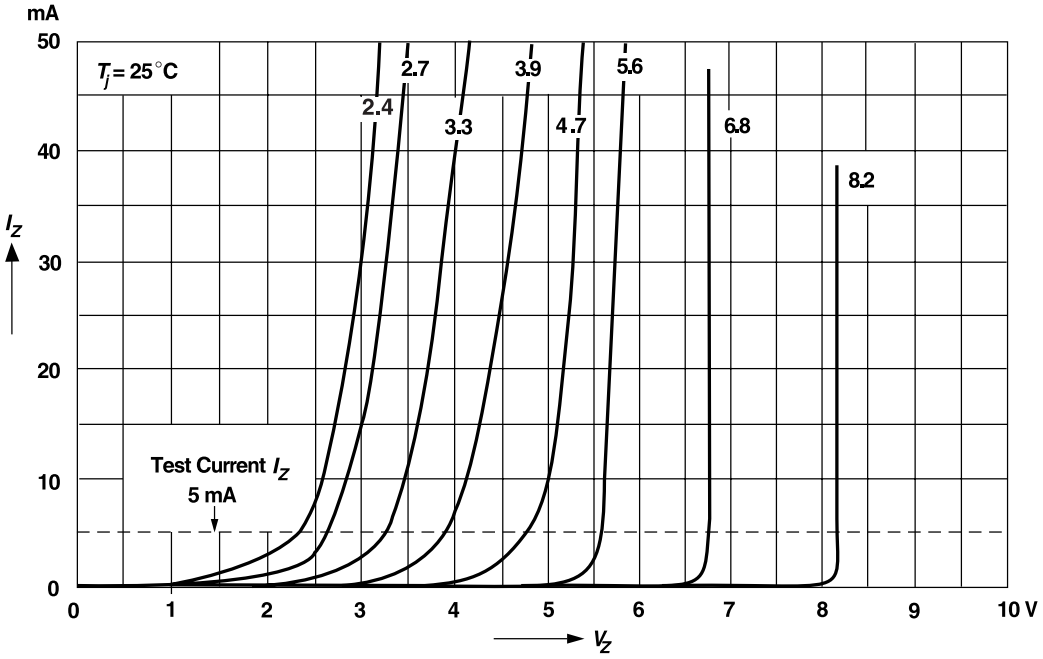
Type ± 2% Tol.	Zener Voltage range(1) at I_{ZT1} V_Z (V) min.	max.	Test Current I_{ZT1} (mA)
BZX384-B2V4	2.35	2.45	5
BZX384-B2V7	2.65	2.75	5
BZX384-B3	2.94	3.06	5
BZX384-B3V3	3.23	3.37	5
BZX384-B3V6	3.53	3.67	5
BZX384-B3V9	3.82	3.98	5
BZX384-B4V3	4.21	4.39	5
BZX384-B4V7	4.61	4.79	5
BZX384-B5V1	5.00	5.20	5
BZX384-B5V6	5.49	5.71	5
BZX384-B6V2	6.08	6.32	5
BZX384-B6V8	6.66	6.94	5
BZX384-B7V5	7.35	7.65	5
BZX384-B8V2	8.04	8.36	5
BZX384-B9V1	8.92	9.28	5
BZX384-B10	9.80	10.2	5
BZX384-B11	10.8	11.2	5
BZX384-B12	11.8	12.2	5
BZX384-B13	12.7	13.3	5
BZX384-B15	14.7	15.3	5
BZX384-B16	15.7	16.3	5
BZX384-B18	17.6	18.4	5
BZX384-B20	19.6	20.4	5
BZX384-B22	21.6	22.4	5
BZX384-B24	23.5	24.5	5
BZX384-B27	26.5	27.5	2
BZX384-B30	29.4	30.6	2
BZX384-B33	32.3	33.7	2
BZX384-B36	35.3	36.7	2
BZX384-B39	38.2	39.8	2
BZX384-B43	42.1	43.9	2
BZX384-B47	46.1	47.9	2
BZX384-B51	50.0	52.0	2
BZX384-B56	54.9	57.1	2
BZX384-B62	60.8	63.2	2
BZX384-B68	66.6	69.4	2
BZX384-B75	73.5	76.5	2

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

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

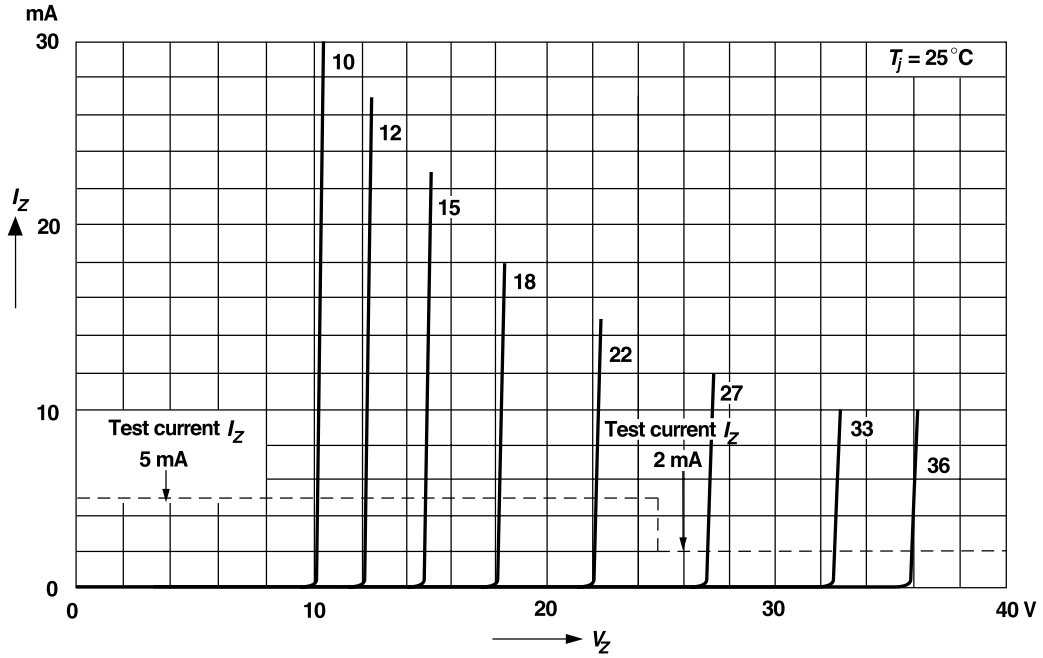
Breakdown characteristics

T_j = constant (pulsed)



Breakdown characteristics

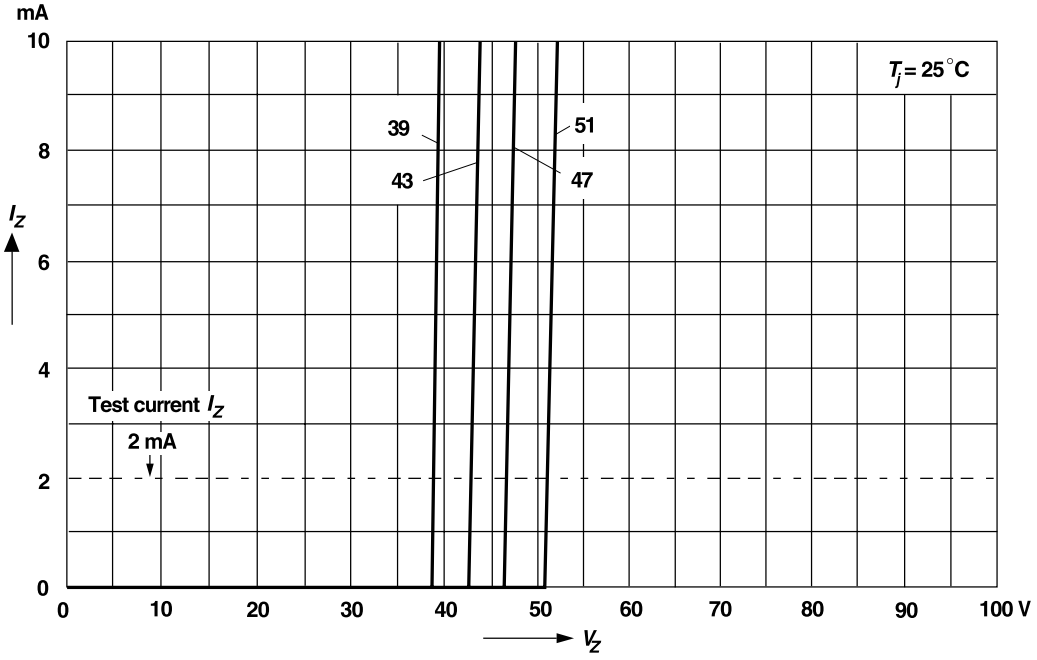
T_j = constant (pulsed)



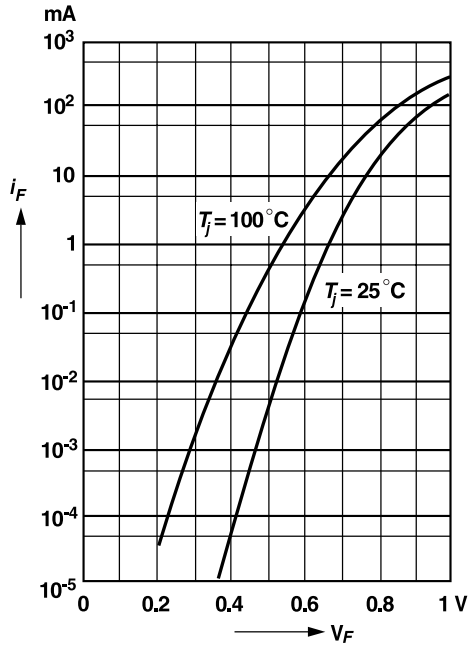
Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Breakdown characteristics

T_j = constant (pulsed)

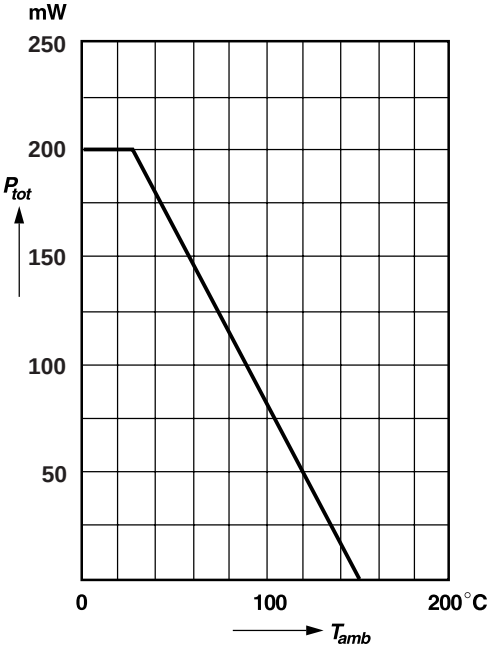


Forward characteristics



Admissible power dissipation versus ambient temperature

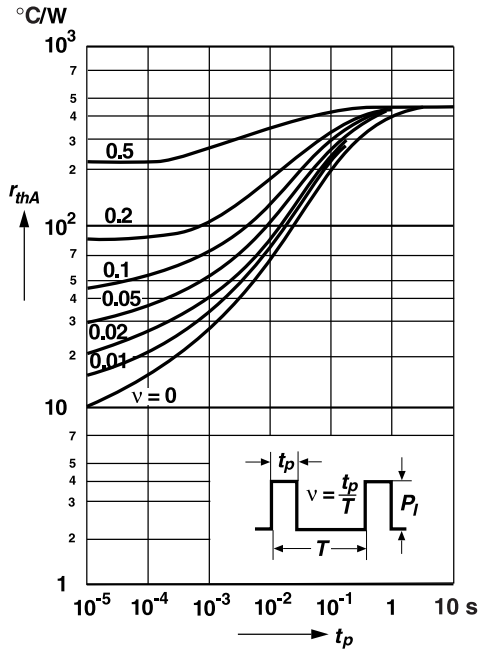
For conditions, see footnote in table "Absolute Maximum Ratings"



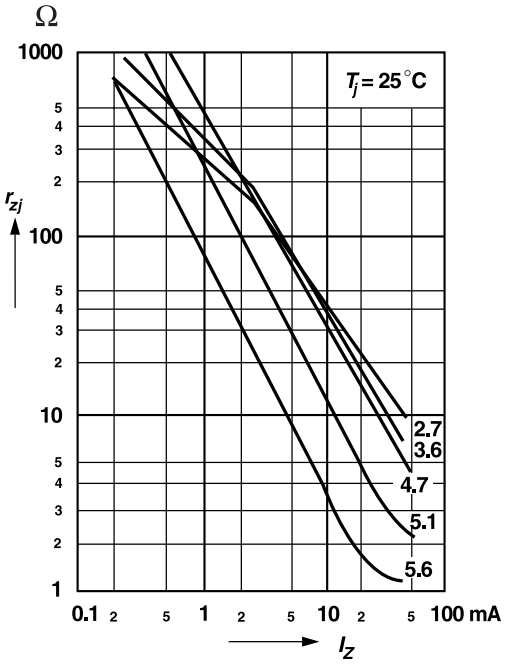
Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Pulse thermal resistance versus pulse duration

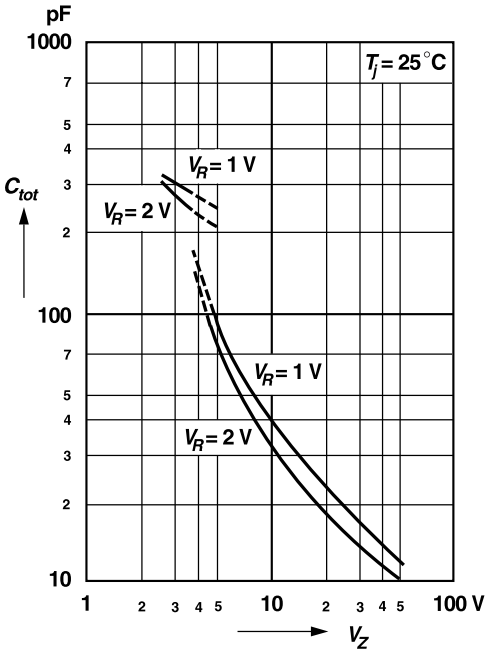
For conditions, see footnote in table "Absolute Maximum Ratings"



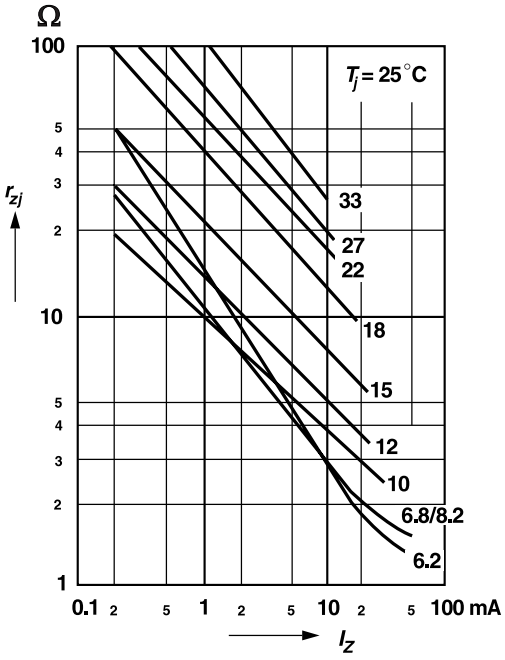
Dynamic resistance versus Zener current



Capacitance versus Zener voltage

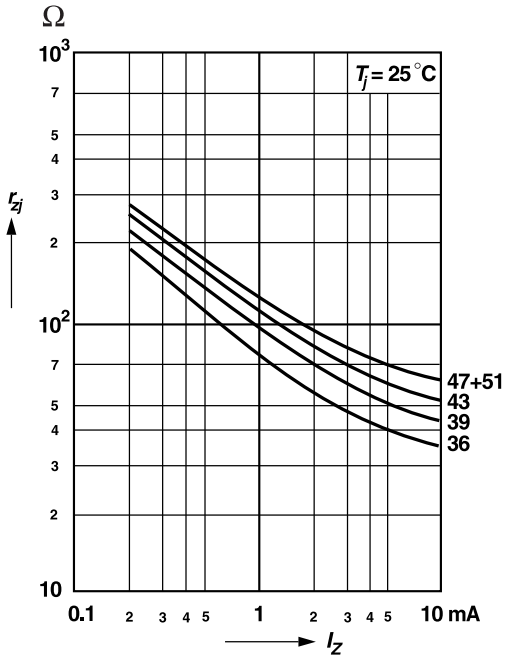


Dynamic resistance versus Zener current



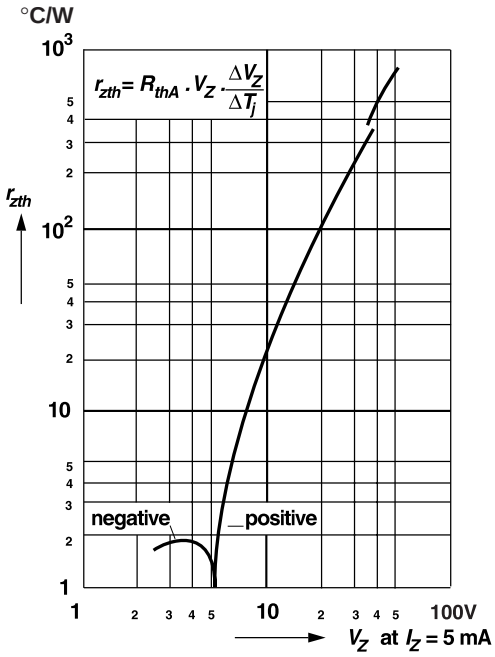
Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Dynamic resistance versus Zener current

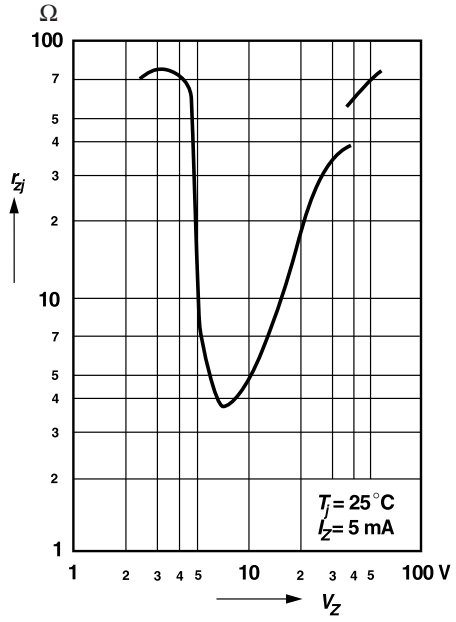


Thermal differential resistance versus Zener voltage

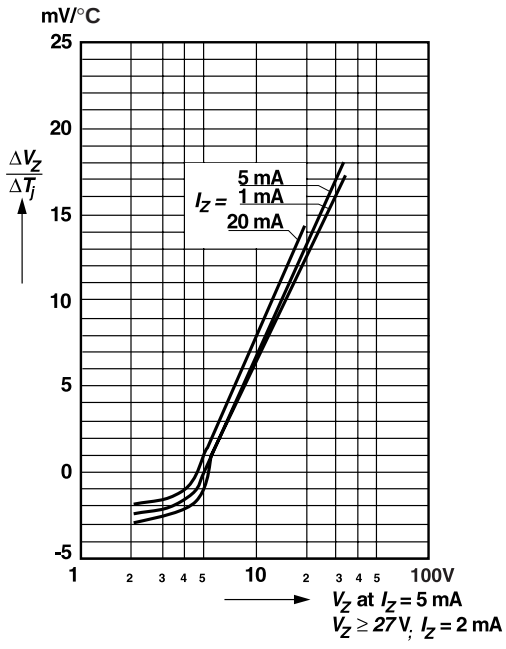
For conditions, see footnote in table "Absolute Maximum Ratings"



Dynamic resistance versus Zener voltage

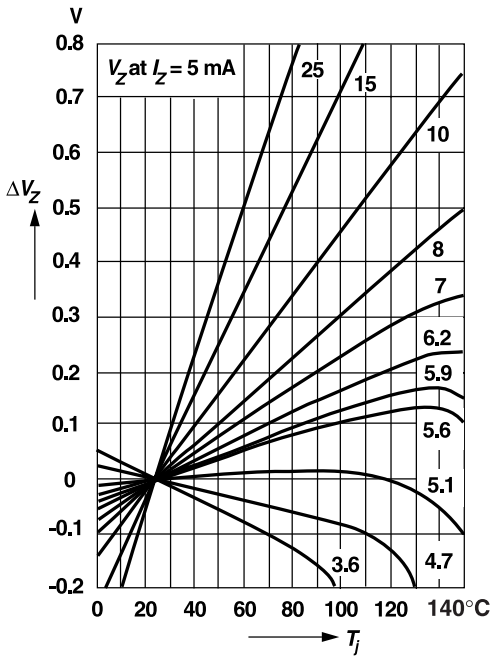


Temperature dependence of Zener voltage versus Zener voltage

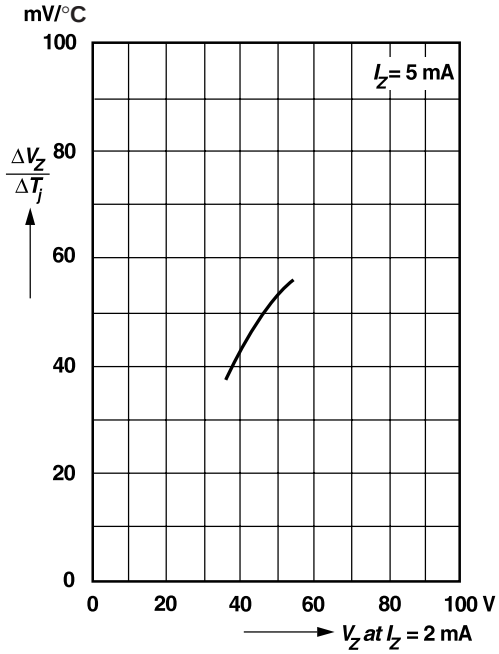


Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

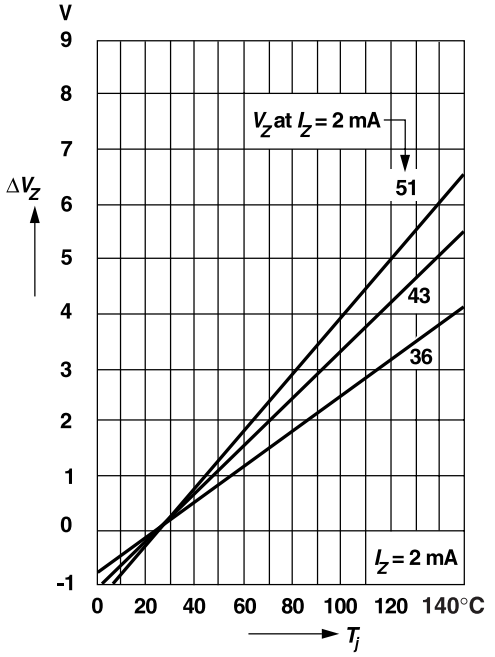
Change of Zener voltage versus junction temperature



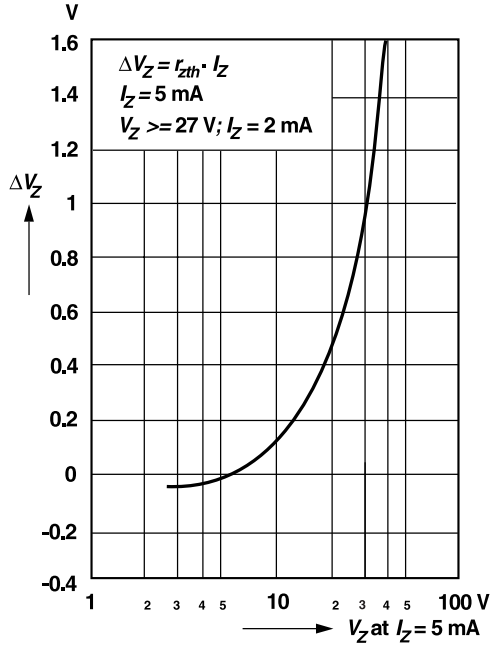
Temperature dependence of Zener voltage versus Zener voltage



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