VOLTAGE REGULATOR DIODES

Silicon planar voltage regulator diodes in hermetically sealed DO-41 glass envelopes intended for stabilization purposes. The series covers the normalized E24 (± 5%) range of nominal working voltages ranging from 3,6 V to 75 V.

QUICK REFERENCE DATA

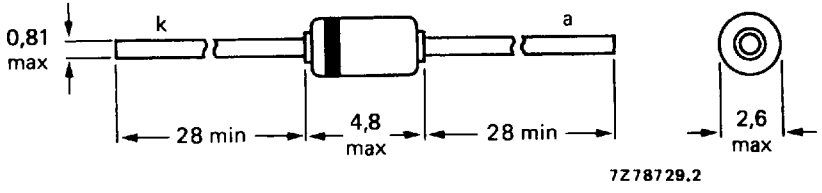
Working voltage range	V_Z	nom.	3,6 to 75 V
Total power dissipation	P_{tot}	max.	1,3 W*
Non-repetitive peak reverse power dissipation t_p = 100 μs; T_j = 25 °C	P_{ZSM}	max.	60 W
Junction temperature	T_j	max.	200 °C
Thermal resistance from junction to tie-point	$R_{th\ j\text{-}tp}$	=	110 K/W*

* If leads are kept at T_{tp} = 55 °C at 4 mm from body.

MECHANICAL DATA

Dimensions in mm

Fig. 1 DO-41 (SOD-66).



Cathode indicated by coloured band.
The diodes are type-branded.

Products approved to CECC 50 005-010.

RATINGS

Limiting values in accordance with the Absolute Maximum System (IEC 134)

Working current (d.c.)	I_Z	limited by $P_{tot\ max}$	
Non-repetitive peak reverse current t_p = 10 ms; half sine-wave; T_{amb} = 25 °C	I_{ZSM}	see table below	
Repetitive peak forward current	I_{FRM}	max. 250	mA
Total power dissipation (see also Fig. 2)	P_{tot}	max. 1,30 max. 1	W* W**
Non-repetitive peak reverse power dissipation t_p = 100 μs; T_j = 25 °C	P_{ZSM}	max. 60	W
Storage temperature	T_{stg}	−65 to + 200	°C
Junction temperature	T_j	max. 200	°C

THERMAL RESISTANCE

From junction to tie-point	$R_{th\ j\text{-}tp}$	= 110	K/W*
From junction to ambient mounted on a printed-circuit board	$R_{th\ j\text{-}a}$	= 175	K/W**

BZV85–. . . .	Non-repetitive peak reverse current I_{ZSM} (mA) max.
C3V6	2000
C3V9	1950
C4V3	1850
C4V7	1800
C5V1	1750
C5V6	1700
C6V2	1620
C6V8	1550
C7V5	1500
C8V2	1400
C9V1	1340
C10	1200
C11	1100
C12	1000
C13	900
C15	760
C16	700

BZV85–. . .	Non-repetitive peak reverse current I_{ZSM} (mA) max.
C18	600
C20	540
C22	500
C24	450
C27	400
C30	380
C33	350
C36	320
C39	296
C43	270
C47	246
C51	226
C56	208
C62	186
C68	171
C75	161

* If the temperature of the leads at 4 mm from the body are kept up to T_{tp} = 55 °C.

** Measured in still air up to T_{amb} = 25 °C and mounted on printed-circuit board with lead length of 10 mm and print copper area of 1 cm^2 per lead.

CHARACTERISTICS

T_j = 25 °C

Forward voltage at I_F = 50 mA V_F < 1,0 V

BZV85–....	working voltage E24 (± 5%) V_Z (V) at I_{Ztest} min.	nom.	max.	test current I_{Ztest} (mA)	differential resistance r_{diff} (Ω) at I_{Ztest} max.	temperature coefficient S_Z(mV/K) at I_{Ztest} min.	max.	reverse current I_R (μA) at V_R max.	test voltage V_R (V)
C3V6	3,4	3,6	3,8	60	15	−3,5	−1,0	50	1,0
C3V9	3,7	3,9	4,1	60	15	−3,5	−1,0	10	1,0
C4V3	4,0	4,3	4,6	50	13	−2,7	0	5	1,0
C4V7	4,4	4,7	5,0	45	13	−2,0	0,7	3	1,0
C5V1	4,8	5,1	5,4	45	10	−0,5	2,2	3	2,0
C5V6	5,2	5,6	6,0	45	7	0	2,7	2	2,0
C6V2	5,8	6,2	6,6	35	4	0,6	3,6	2	3,0
C6V8	6,4	6,8	7,2	35	3,5	1,3	4,3	2	4,0
C7V5	7,0	7,5	7,9	35	3	2,5	5,5	1	4,5
C8V2	7,7	8,2	8,7	25	5	3,1	6,1	0,7	5,0
C9V1	8,5	9,1	9,6	25	5	3,8	7,2	0,7	6,5
C10	9,4	10	10,6	25	8	4,7	8,5	0,2	7,0
C11	10,4	11	11,6	20	10	5,3	9,3	0,2	7,7
C12	11,4	12	12,7	20	10	6,3	10,8	0,2	8,4
C13	12,4	13	14,1	20	10	7,4	12,0	0,2	9,1
C15	13,8	15	15,6	15	15	8,9	13,6	0,05	10,5
C16	15,3	16	17,1	15	15	10,7	15,4	0,05	11,0
C18	16,8	18	19,1	15	20	11,8	17,1	0,05	12,5
C20	18,8	20	21,2	10	24	13,6	19,1	0,05	14,0
C22	20,8	22	23,3	10	25	16,6	22,1	0,05	15,5
C24	22,8	24	25,6	10	30	18,3	24,3	0,05	17
C27	25,1	27	28,9	8	40	20,1	27,5	0,05	19
C30	28	30	32	8	45	22,4	32,0	0,05	21
C33	31	33	35	8	45	24,8	35,0	0,05	23
C36	34	36	38	8	50	27,2	39,9	0,05	25
C39	37	39	41	6	60	29,6	43,0	0,05	27
C43	40	43	46	6	75	34,0	48,3	0,05	30
C47	44	47	50	4	100	37,4	52,5	0,05	33
C51	48	51	54	4	125	40,8	56,5	0,05	36
C56	52	56	60	4	150	46,8	63,0	0,05	39
C62	58	62	66	4	175	52,2	72,5	0,05	43
C68	64	68	72	4	200	60,5	81,0	0,05	48
C75	70	75	80	4	225	66,5	88,0	0,05	53

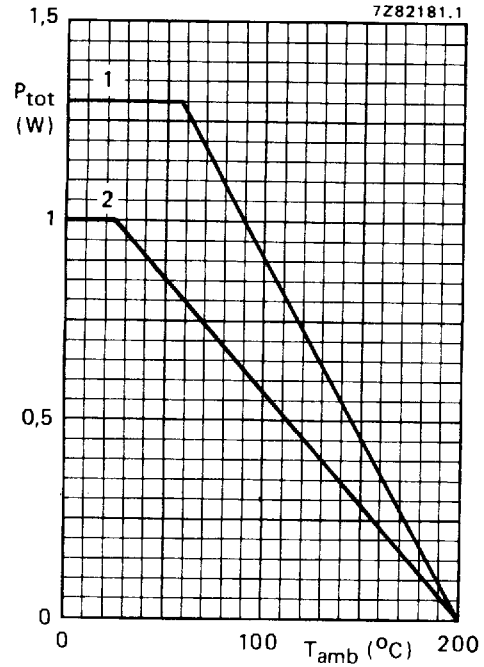


Fig. 2 Maximum permissible power dissipation versus ambient temperature.

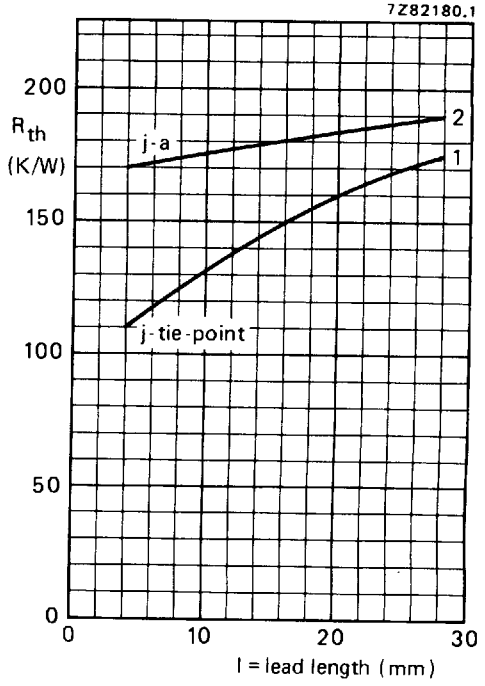
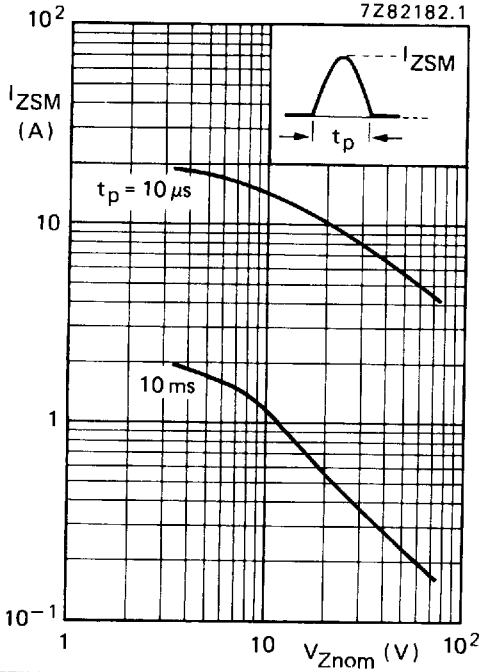


Fig. 3 Thermal resistance versus lead length.



Mounting methods (see Figs 2 and 3)

1. To tie-points (lead length = 4 mm in Fig. 2).
2. Mounted on a printed-circuit board (with lead length of 10 mm in Fig. 2) and print copper area of 1 cm^2 per lead.

Fig. 4 Half sine-wave; T_{amb} = 25 °C.

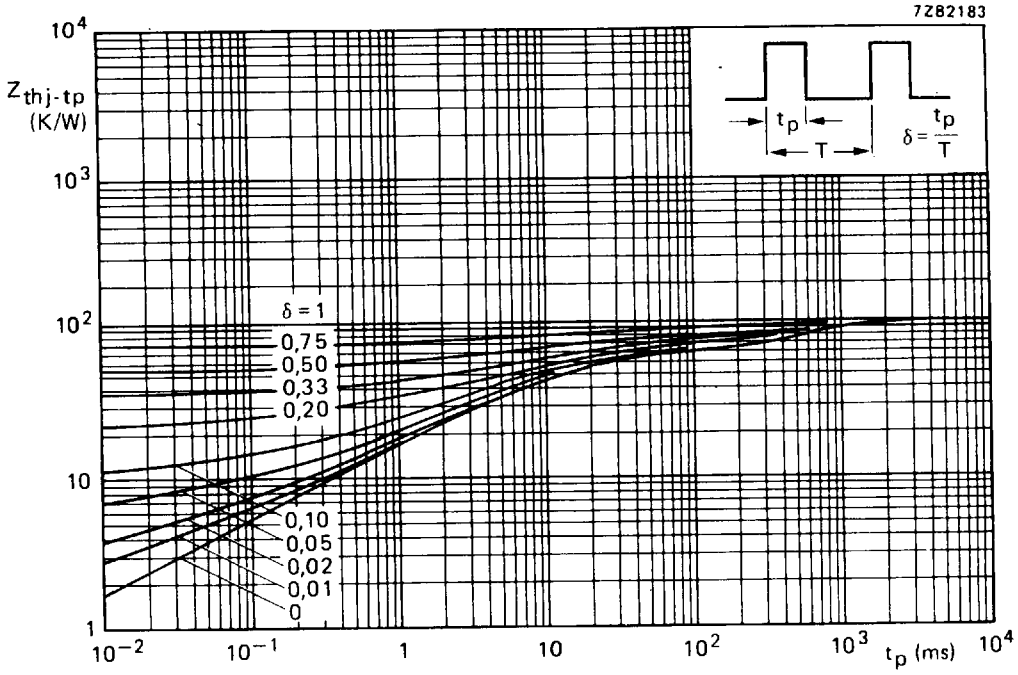


Fig. 5 Thermal impedance from junction to tie-point with a lead length of 4 mm.

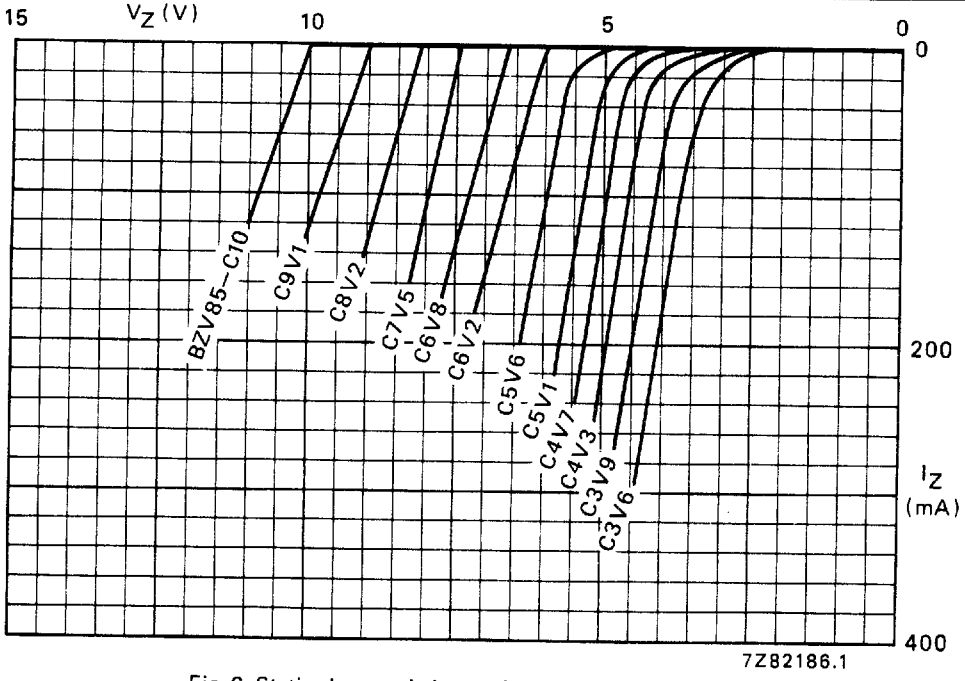


Fig. 6 Static characteristics; typical values; T_{amb} = 25 °C.

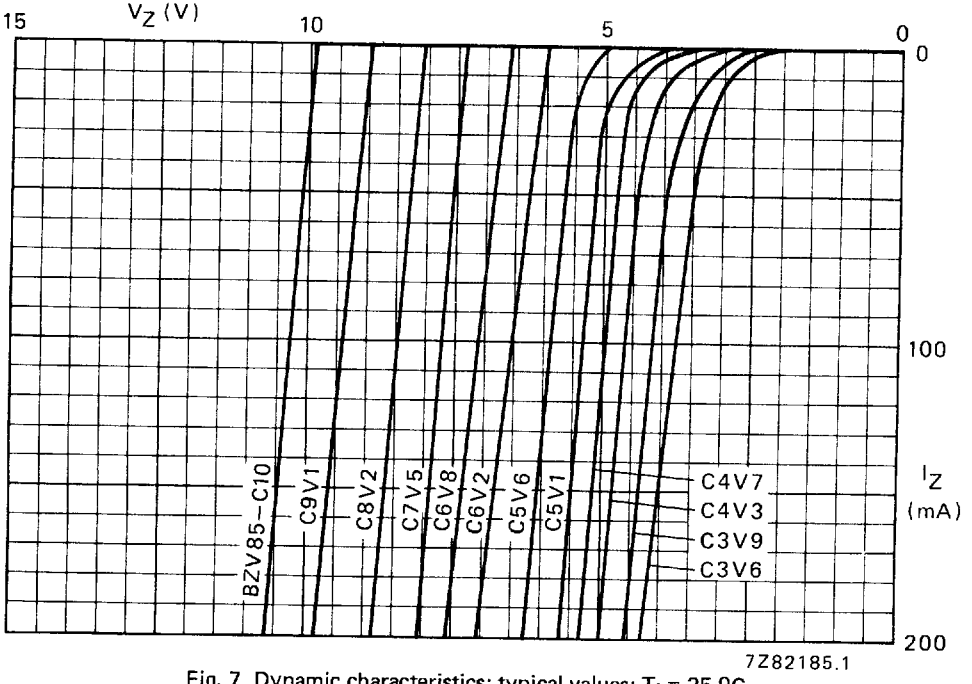


Fig. 7 Dynamic characteristics; typical values; T_j = 25 °C.

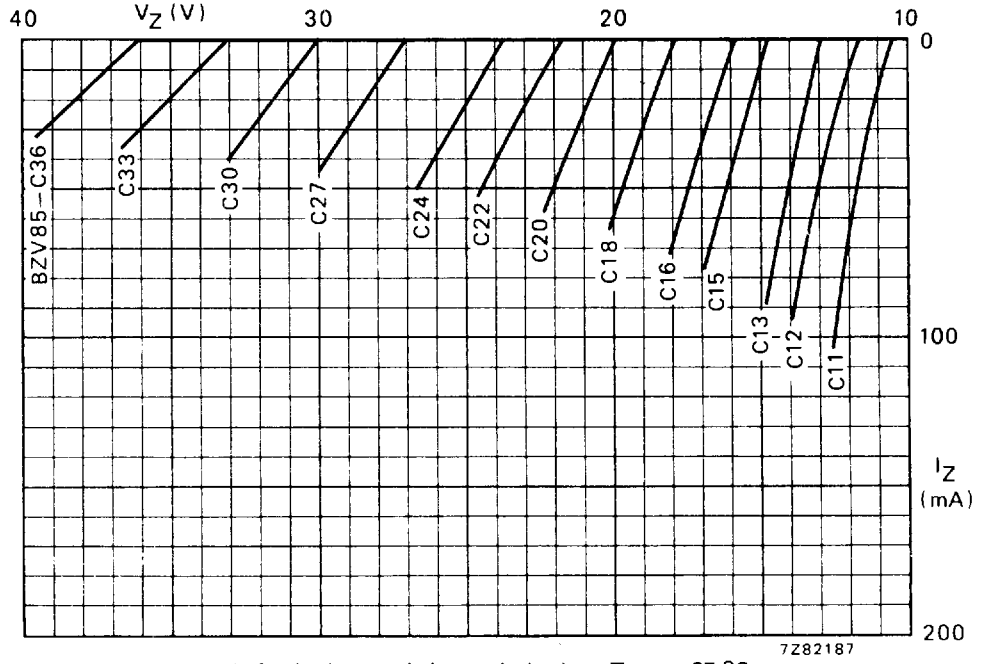


Fig. 8 Static characteristics; typical values; T_{amb} = 25 °C.

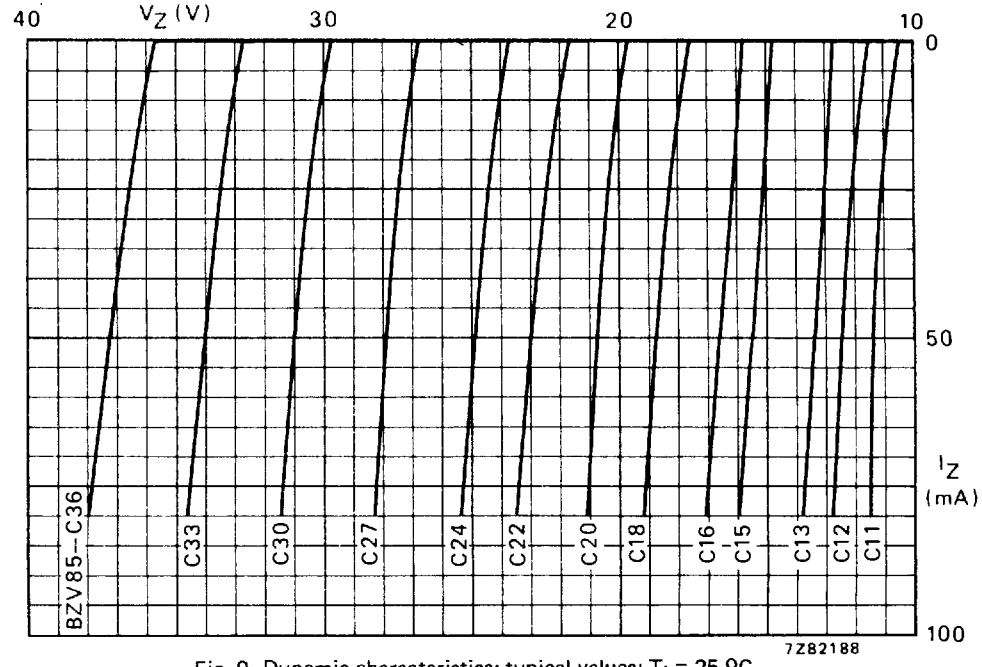


Fig. 9 Dynamic characteristics; typical values; T_j = 25 °C.

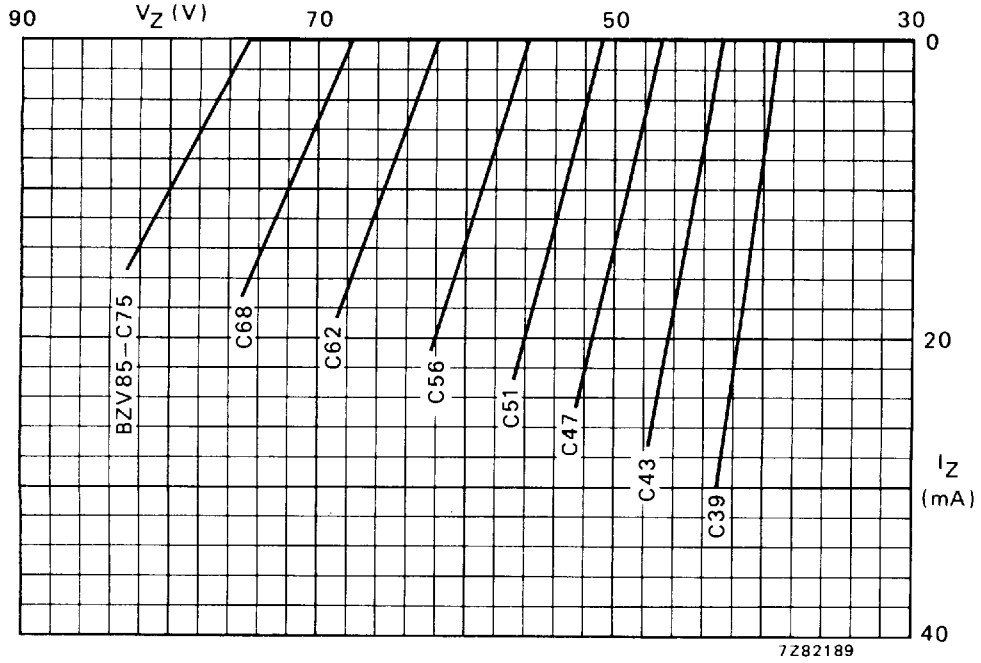


Fig. 10 Static characteristics; typical values; T_{amb} = 25 °C.

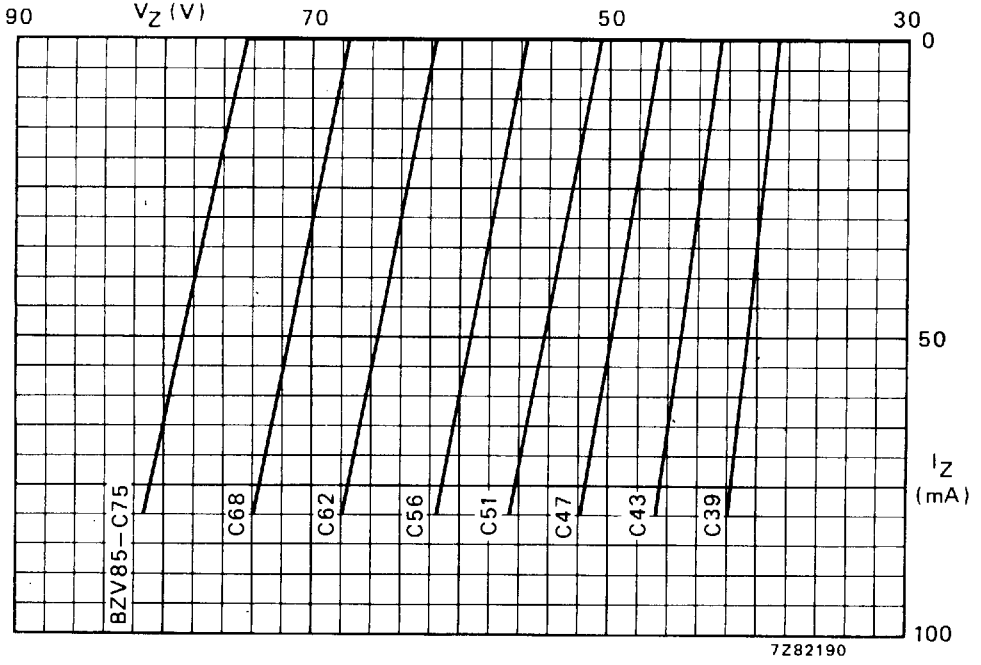


Fig. 11 Dynamic characteristics; typical values; T_j = 25 °C.

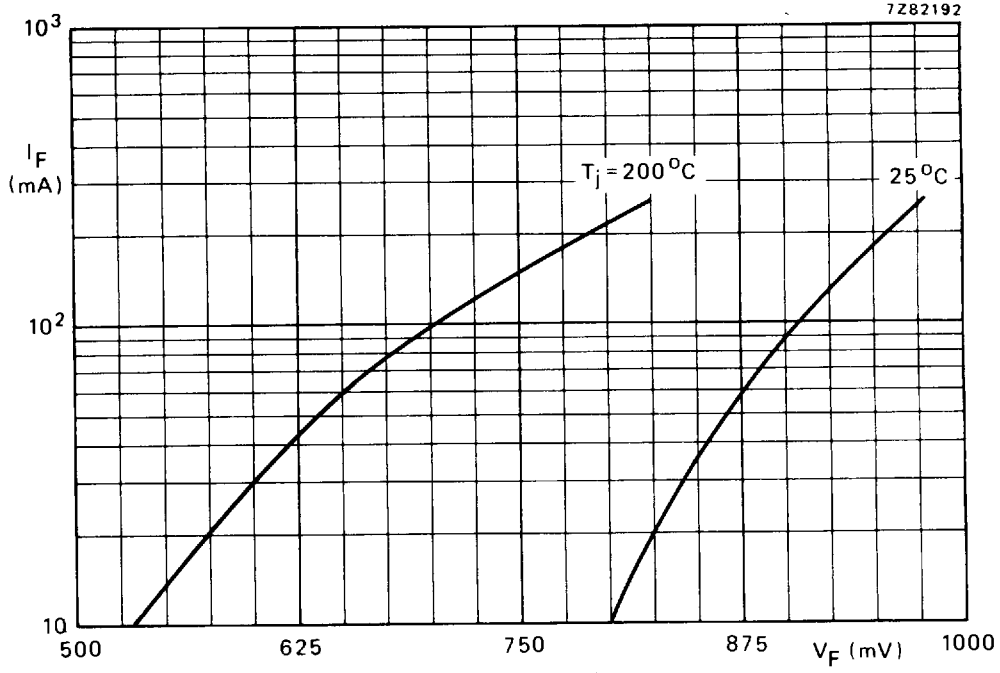


Fig. 12 Typical values.

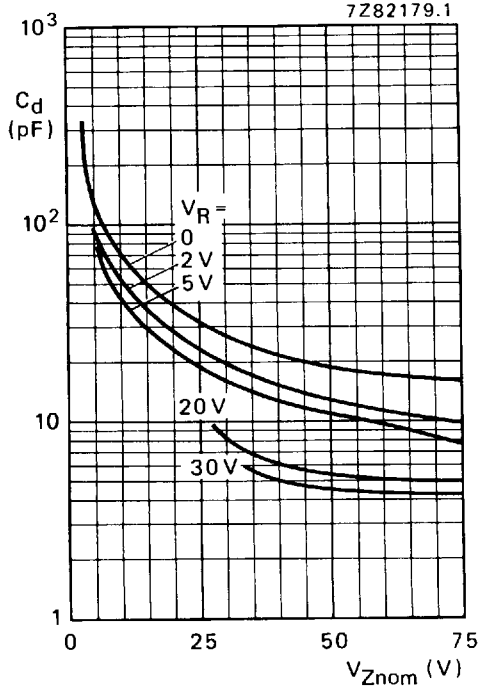


Fig. 13 f = 1 MHz; T_j = 25 °C; typical values.

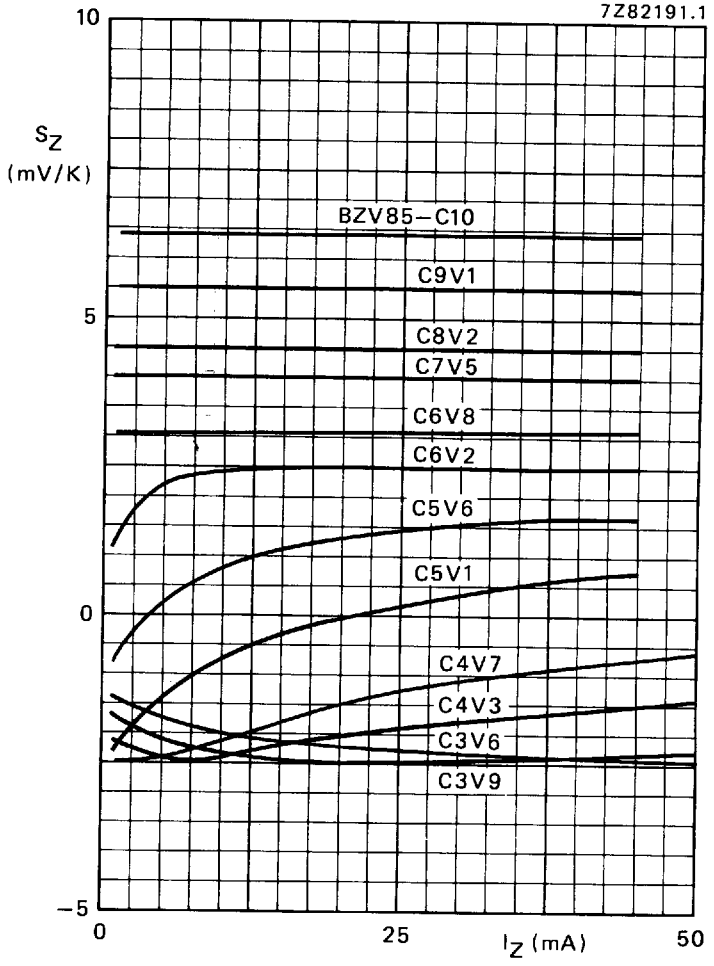


Fig. 14 T_j = 25 °C to 150 °C; typical values.

For types above 7,5 V the temperature coefficient is independent of current and can be read from the CHARACTERISTICS.

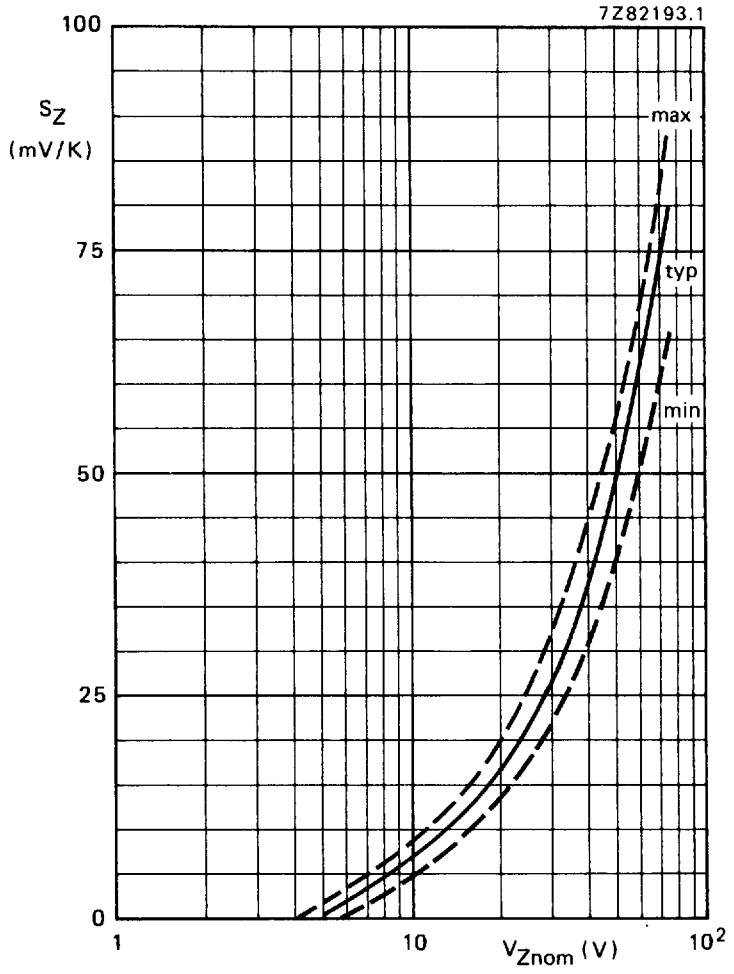


Fig. 15 $I_Z = I_{Ztest}$; T_j = 25 °C to 150 °C.

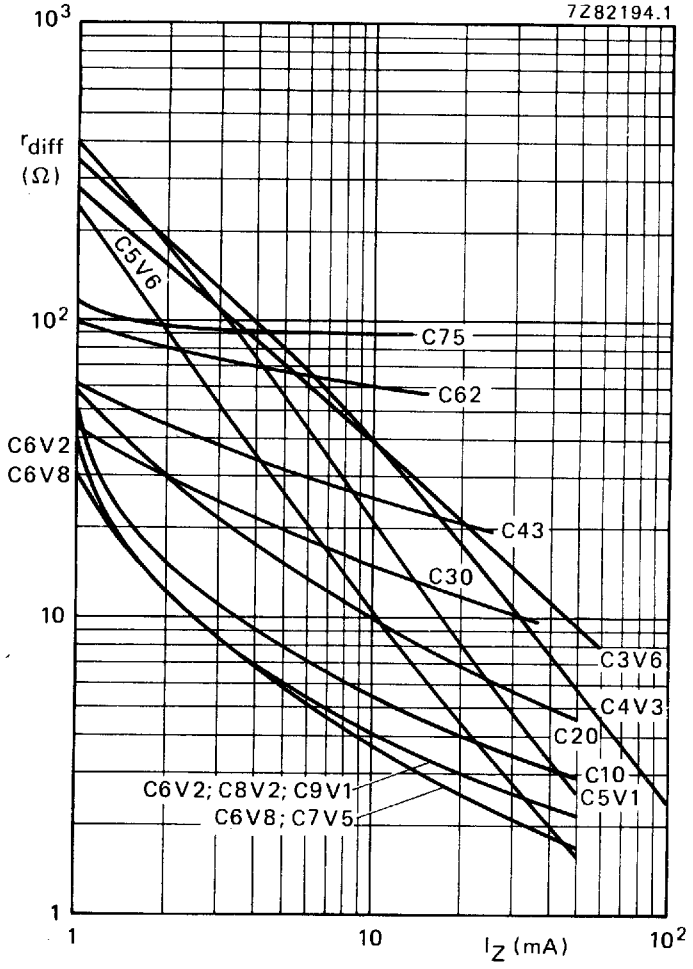


Fig. 16 f = 1 kHz; T_j = 25 °C; typical values.