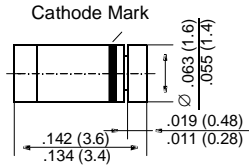


# BZV55 SERIES

## ZENER DIODES

### Mini-MELF



Dimensions are in inches and (millimeters)

### FEATURES

- ◆ Silicon Planar Power Zener Diodes
- ◆ For use as low voltage stabilizer or voltage reference.
- ◆ 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% BZV55-B, ±3% BZV55-F, ±5% BZV55-C.



### MECHANICAL DATA

**Case:** Mini-MELF Glass Case (SOD-80)

**Weight:** approx. 0.05 g

**Cathode band color:** Blue

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

	SYMBOL	VALUE	UNIT
Zener Current see Table "Characteristics"			
Power Dissipation at $T_{flange} = 50^{\circ}\text{C}$	$P_{tot}$	500	mW
Power Dissipation at $T_A = 50^{\circ}\text{C}$	$P_{tot}$	400 <sup>(1)</sup>	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 disipation (non-repetitive) $t_p=100\mu\text{s}$	$P_{ZSM}$	30 <sup>(2)</sup>	W

	SYMBOL	MIN.	TYP.	MAX.	UNIT
Thermal Resistance Junction to Ambient Air	$R_{thJA}$			0.38 <sup>(1)</sup>	K/mW
Thermal Resistance Junction to Lead	$R_{thJL}$			0.30	K/mW
Forward Voltage at $I_F = 10 \text{ mA}$	$V_F$			0.9	V

**NOTES:**

1) Mounted on ceramic substrate 10mm x 10mm x 0.6mm

2)  $T_j = 150^{\circ}\text{C}$

# BZV55 SERIES

## ELECTRICAL CHARACTERISTICS

(1) Valid provided that electrodes are kept at ambient temperature.

Type	Dynamic Resistance		Temp. coefficient of Zener Voltage		Reverse leakage current	
	at $I_z = 5 \text{ mA}$ $f = 1 \text{ kHz}$ $r_{zj} (\Omega)$ max.	at $I_z = 1 \text{ mA}$ $f = 1 \text{ kHz}$ $r_{zj} (\Omega)$ max.	at $I_z = 5 \text{ mA}$ $\alpha_{VZ} (\%/K)$		at $T_{amb} = 25^\circ\text{C}$	
			min.	max.	at $I_R (\mu\text{A})$	$V_R (V)$
BZV55-y2V4	100	600	-0.08	-0.06	50	1
BZV55-y2V7	100	600	-0.08	-0.06	20	1
BZV55-y3V0	95	600	-0.08	-0.06	10	1
BZV55-y3V3	95	600	-0.08	-0.05	5	1
BZV55-y3V6	90	600	-0.08	-0.04	5	1
BZV55-y3V9	90	600	-0.07	-0.03	3	1
BZV55-y4V3	90	600	-0.04	-0.01	3	1
BZV55-y4V7	80	500	-0.03	+0.01	3	2
BZV55-y5V1	60	480	-0.02	+0.05	2	2
BZV55-y5V6	40	400	-0.01	+0.06	1	2
BZV55-y6V2	10	150	0	+0.07	3	4
BZV55-y6V8	15	80	+0.01	+0.08	2	4
BZV55-y7V5	15	80	+0.01	+0.09	1	5
BZV55-y8V2	15	80	+0.01	+0.09	0.7	5
BZV55-y9V1	15	100	+0.02	+0.10	0.5	6
BZV55-y10	20	150	+0.03	+0.11	0.2	7
BZV55-y11	20	150	+0.03	+0.11	0.1	8
BZV55-y12	25	150	+0.03	+0.11	0.1	8
BZV55-y13	30	170	+0.03	+0.11	0.1	8
BZV55-y15	30	200	+0.03	+0.11	0.05	10
BZV55-y16	40	200	+0.03	+0.11	0.05	11
BZV55-y18	45	225	+0.03	+0.11	0.05	13
BZV55-y20	55	225	+0.03	+0.11	0.05	14
BZV55-y22	55	250	+0.03	+0.11	0.05	15
BZV55-y24	70	250	+0.04	+0.12	0.05	17
BZV55-y27	80(3)	300(4)	+0.04(3)	+0.12 (3)	0.05	19
BZV55-y30	80(3)	300(4)	+0.04(3)	+0.12 (3)	0.05	21
BZV55-y33	80(3)	325(4)	+0.04(3)	+0.12 (3)	0.05	23
BZV55-y36	90(3)	350(4)	+0.04(3)	+0.12 (3)	0.05	25
BZV55-y39	130(3)	350(4)	+0.04(3)	+0.12 (3)	0.05	27
BZV55-y43	150(3)	375(4)	+0.04(3)	+0.12 (3)	0.05	30
BZV55-y47	170(3)	375(4)	+0.04(3)	+0.12 (3)	0.05	33
BZV55-y51	180(3)	400(4)	+0.04(3)	+0.12 (3)	0.05	36
BZV55-y56	200(3)	425(4)		typ. +0.1(3)	0.05	39
BZV55-y62	215(3)	450(4)		typ. +0.1(3)	0.05	43
BZV55-y68	240(3)	475(4)		typ. +0.1(3)	0.05	48
BZV55-y75	255(3)	500(4)		typ. +0.1(3)	0.05	53

(1) Tested with pulses  $t_p = 5 \text{ ms}$ .

(2) Valid provided that electrodes are kept at ambient temperature.

(3) at  $I_z = 2.0 \text{ mA}$

(4) at  $I_z = 0.5 \text{ mA}$

y = Zener voltage tolerance designator

# BZV55 SERIES

## ELECTRICAL CHARACTERISTICS

(1) Valid provided that electrodes are kept at ambient temperature.

Type ±5% Tol.	Zener Voltage range(1) at I <sub>Z</sub> = 5 mA	
	V <sub>Z</sub> V min.	max.
BZV55-C2V4	2.20	2.60
BZV55-C2V7	2.50	2.90
BZV55-C3V0	2.80	3.20
BZV55-C3V3	3.10	3.50
BZV55-C3V6	3.40	3.80
BZV55-C3V9	3.70	4.10
BZV55-C4V3	4.00	4.60
BZV55-C4V7	4.40	5.00
BZV55-C5V1	4.80	5.40
BZV55-C5V6	5.20	6.00
BZV55-C6V2	5.80	6.60
BZV55-C6V8	6.40	7.20
BZV55-C7V5	7.00	7.90
BZV55-C8V2	7.70	8.70
BZV55-C9V1	8.50	9.60
BZV55-C10	9.40	10.60
BZV55-C11	10.40	11.60
BZV55-C12	11.40	12.70
BZV55-C13	12.40	14.10
BZV55-C15	13.80	15.60
BZV55-C16	15.30	17.10
BZV55-C18	16.80	19.10
BZV55-C20	18.80	21.20
BZV55-C22	20.80	23.30
BZV55-C24	22.80	25.60
BZV55-C27	25.10	28.90(3)
BZV55-C30	28.00	32.00(3)
BZV55-C33	31.00	35.00(3)
BZV55-C36	34.00	38.00(3)
BZV55-C39	37.00	41.00(3)
BZV55-C43	40.00	46.00(3)
BZV55-C47	44.00	50.00(3)
BZV55-C51	48.00	54.00(3)
BZV55-C56	52.00	60.00(3)
BZV55-C62	58.00	66.00(3)
BZV55-C68	64.00	72.00(3)
BZV55-C75	70.00	79.00(3)

Type ±3% Tol.	Zener Voltage range(1) at I <sub>Z</sub> = 5 mA	
	V <sub>Z</sub> V min.	max.
BZV55-F2V4	2.33	2.47
BZV55-F2V7	2.62	2.78
BZV55-F3V0	2.91	3.09
BZV55-F3V3	3.20	3.40
BZV55-F3V6	3.49	3.71
BZV55-F3V9	3.78	4.02
BZV55-F4V3	4.17	4.43
BZV55-F4V7	4.56	4.84
BZV55-F5V1	4.95	5.25
BZV55-F5V6	5.43	5.77
BZV55-F6V2	6.01	6.39
BZV55-F6V8	6.60	7.00
BZV55-F7V5	7.28	7.72
BZV55-F8V2	7.95	8.45
BZV55-F9V1	8.83	9.37
BZV55-F10	9.70	10.30
BZV55-F11	10.67	11.33
BZV55-F12	11.64	12.36
BZV55-F13	12.61	13.39
BZV55-F15	14.55	15.45
BZV55-F16	15.50	16.50
BZV55-F18	17.50	18.50
BZV55-F20	19.40	20.60
BZV55-F22	21.30	22.70
BZV55-F24	23.30	24.70
BZV55-F27	26.20	27.80(3)
BZV55-F30	29.10	30.90(3)
BZV55-F33	32.00	34.00(3)
BZV55-F36	34.90	37.10(3)
BZV55-F39	37.80	40.20(3)
BZV55-F43	41.70	44.30(3)
BZV55-F47	45.60	48.40(3)
BZV55-F51	49.50	52.50(3)
BZV55-F56	54.30	57.70(3)
BZV55-F62	60.10	63.90(3)
BZV55-F68	66.00	70.00(3)
BZV55-F75	72.80	77.20(3)

Type ±2% Tol.	Zener Voltage range(1) at I <sub>Z</sub> = 5 mA	
	V <sub>Z</sub> V min.	max.
BZV55-B2V4	2.35	2.45
BZV55-B2V7	2.65	2.75
BZV55-B3V0	2.94	3.06
BZV55-B3V3	3.23	3.37
BZV55-B3V6	3.53	3.67
BZV55-B3V9	3.82	3.98
BZV55-B4V3	4.21	4.39
BZV55-B4V7	4.61	4.79
BZV55-B5V1	5.00	5.20
BZV55-B5V6	5.49	5.71
BZV55-B6V2	6.08	6.32
BZV55-B6V8	6.66	6.94
BZV55-B7V5	7.35	7.65
BZV55-B8V2	8.04	8.36
BZV55-B9V1	8.92	9.28
BZV55-B10	9.80	10.20
BZV55-B11	10.80	11.20
BZV55-B12	11.80	12.20
BZV55-B13	12.70	13.30
BZV55-B15	14.70	15.30
BZV55-B16	15.70	16.30
BZV55-B18	17.60	18.40
BZV55-B20	19.60	20.40
BZV55-B22	21.60	22.40
BZV55-B24	23.50	24.50
BZV55-B27	26.50	27.50(3)
BZV55-B30	29.40	30.60(3)
BZV55-B33	32.30	33.70(3)
BZV55-B36	35.30	36.70(3)
BZV55-B39	38.20	39.80(3)
BZV55-B43	42.10	43.90(3)
BZV55-B47	46.10	47.90(3)
BZV55-B51	50.00	52.00(3)
BZV55-B56	54.90	57.10(3)
BZV55-B62	60.80	63.20(3)
BZV55-B68	66.60	69.40(3)
BZV55-B75	73.50	76.50(3)

(1) Tested with pulses t<sub>p</sub> = 5 ms.

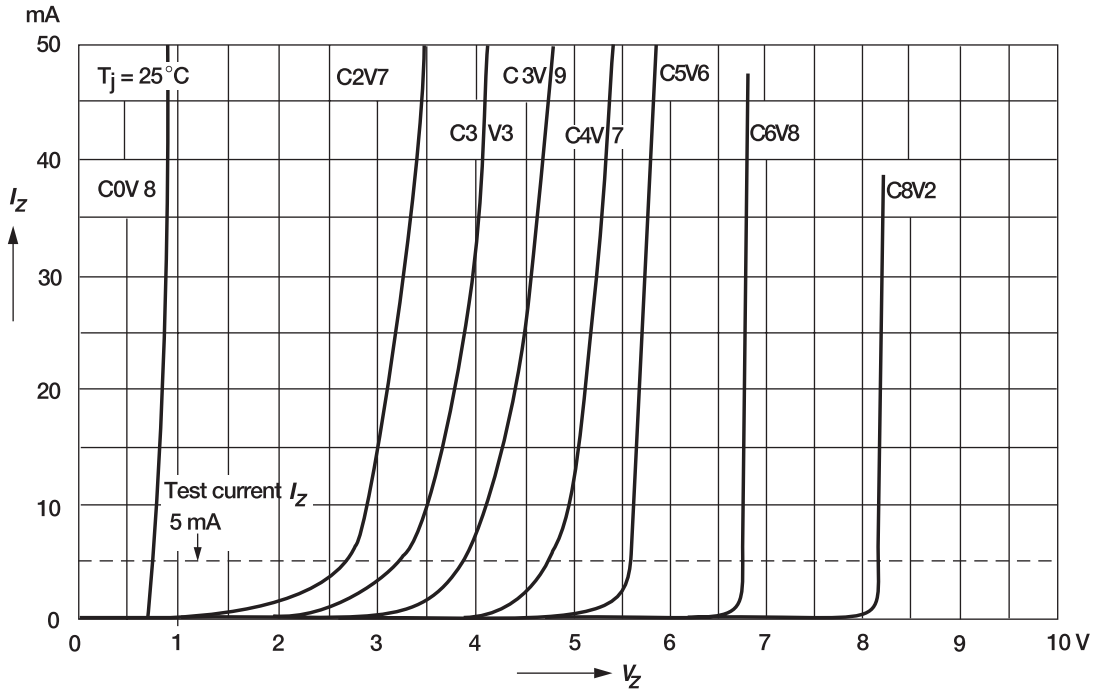
(3) I<sub>Z</sub> = 2 mA

See BZV55-y table for all characteristics other than zener voltage range.

# RATINGS AND CHARACTERISTIC CURVES BZV55 Series

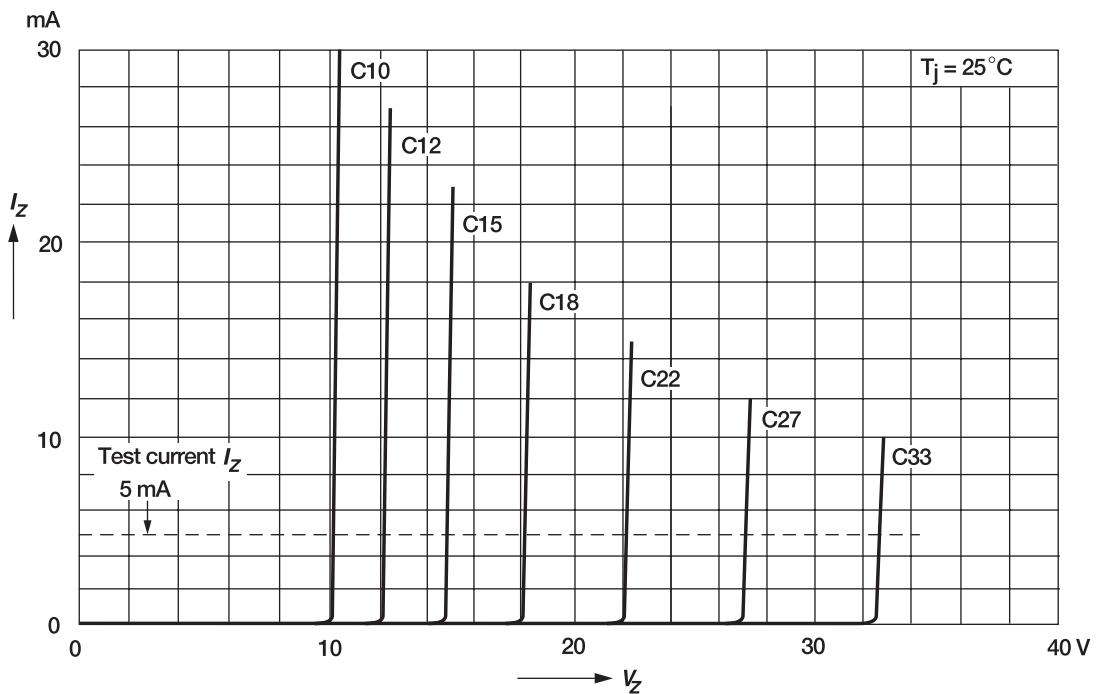
## Breakdown characteristics

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



## Breakdown characteristics

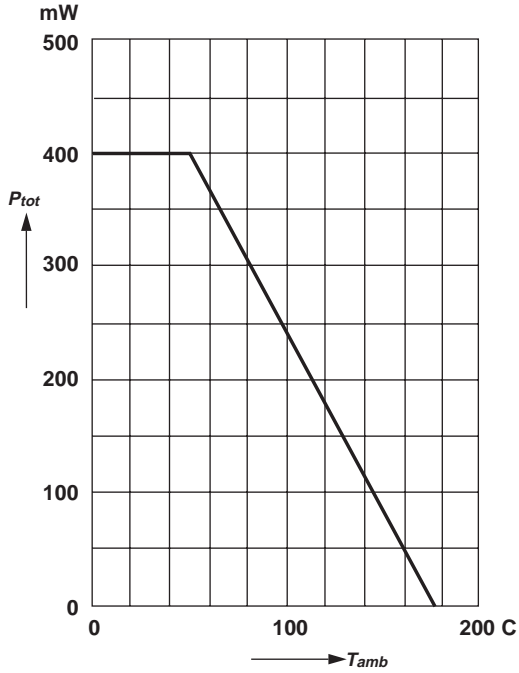
at  $T_j = \text{constant}$  (pulsed)



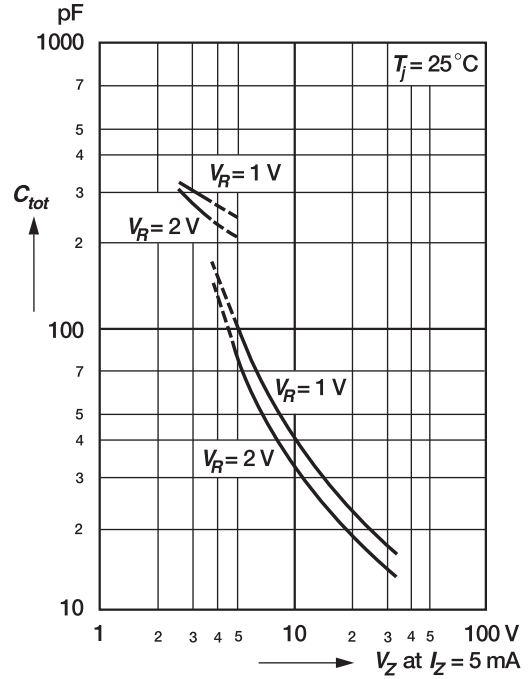
# RATINGS AND CHARACTERISTIC CURVES BZV55 Series

## Admissible power dissipation versus ambient temperature

Valid provided that leads are kept ambient temperature.

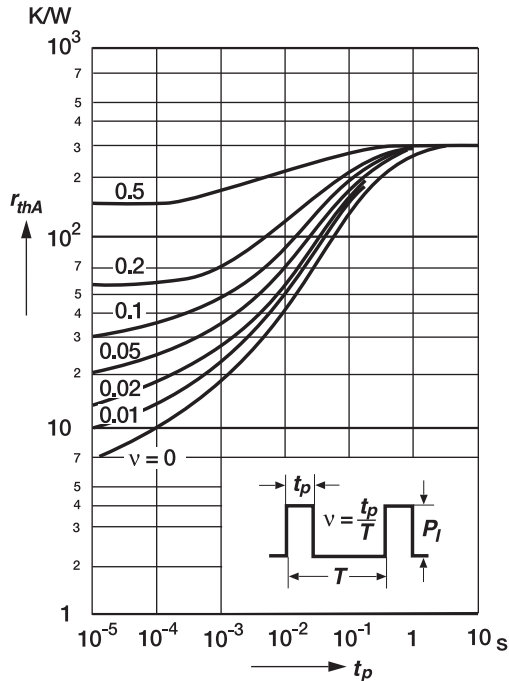


## Capacitance versus Zener voltage

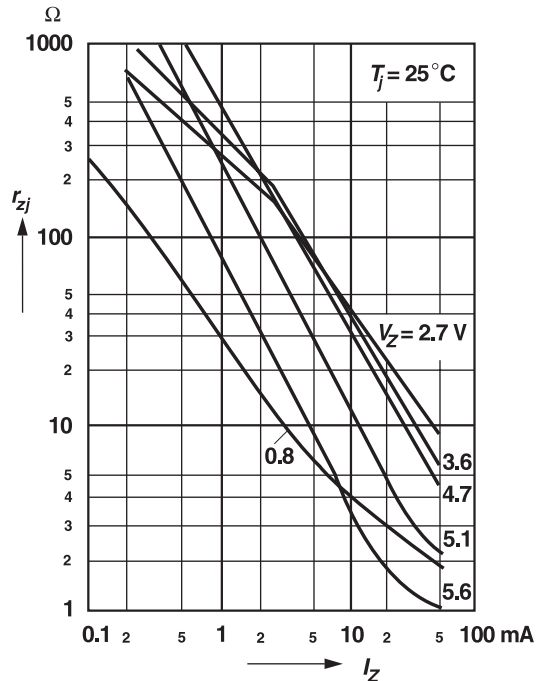


## Pulse thermal resistance versus pulse duration

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

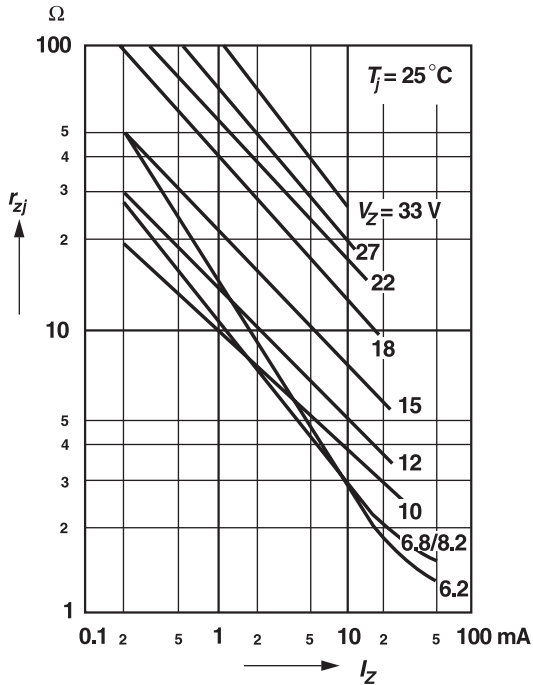


## Dynamic resistance versus Zener current



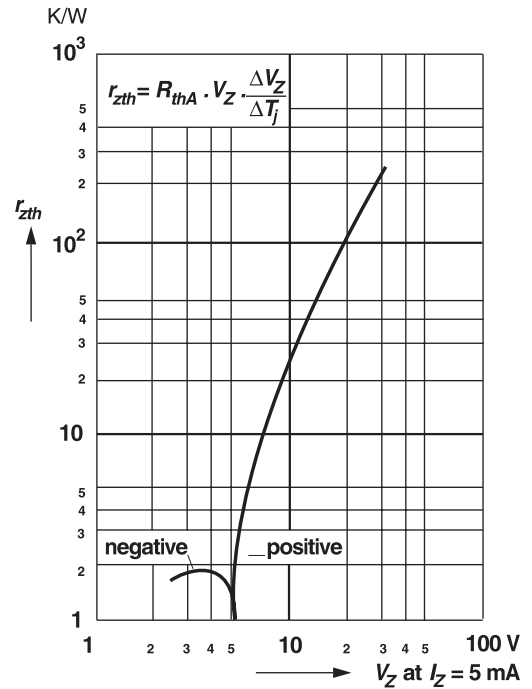
# RATINGS AND CHARACTERISTIC CURVES BZV55 Series

**Dynamic resistance versus Zener current**

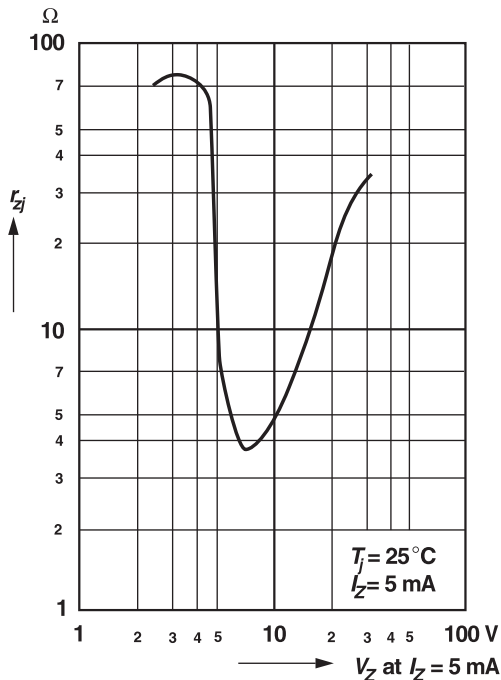


**Thermal differential resistance versus Zener voltage**

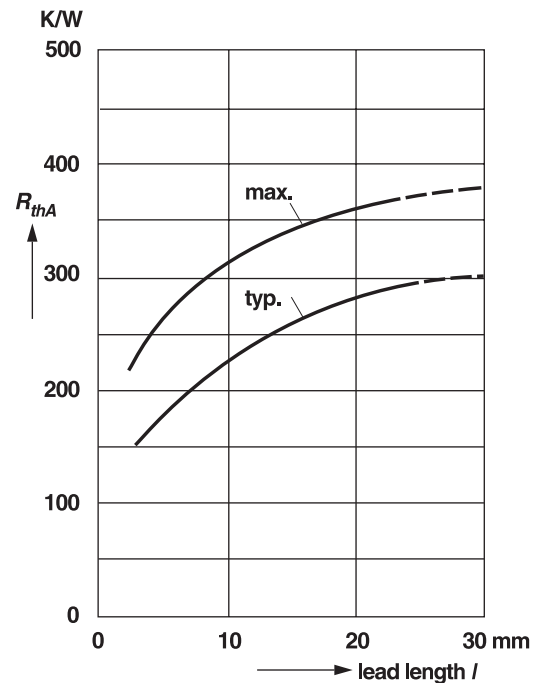
Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



**Dynamic resistance versus Zener voltage**

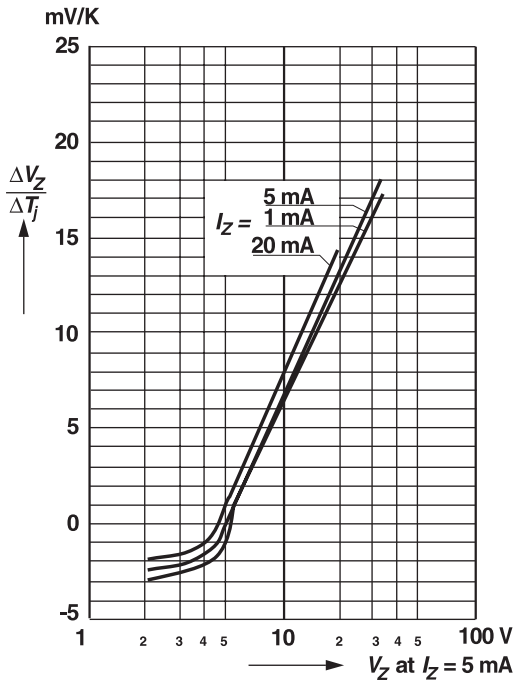


**Thermal resistance versus lead length**

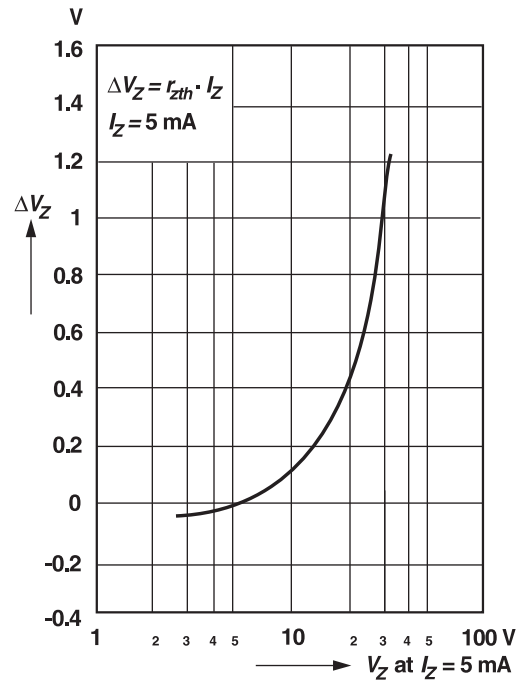


# RATINGS AND CHARACTERISTIC CURVES BZV55 Series

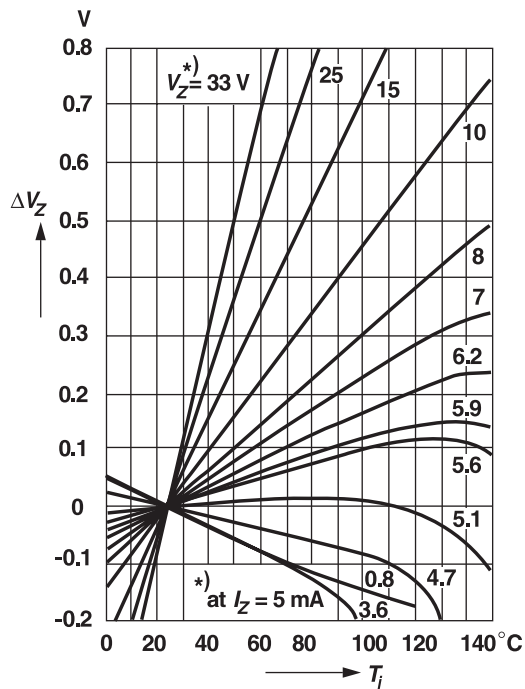
Temperature dependence of Zener voltage versus Zener voltage



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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