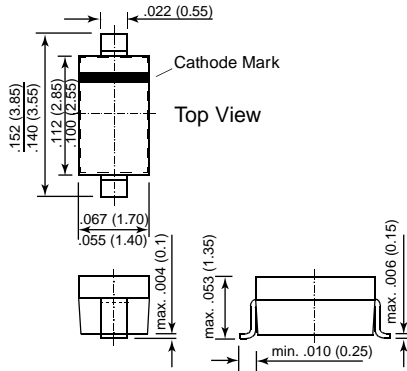


# BZT52-C2V4 THRU BZT52-C75

## ZENER DIODES

### SOD-123



Dimensions are in inches and (millimeters)

### 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 tolerances and other Zener voltages are available upon request.
- ◆ These diodes are also available in other case styles and other configurations including: the SOT-23 case with type designation BZX84 series, the dual zener diode common anode configuration in the SOT-23 case with type designation AZ23 series and the dual zener diode common cathode configuration in the SOT-23 case with type designation DZ23 series.



### MECHANICAL DATA

**Case:** SOD-123 Plastic Case

**Weight:** approx. 0.01 g

### MAXIMUM RATINGS

Ratings at 25°C ambient temperature unless otherwise specified.

	SYMBOL	VALUE	UNIT
Zener Current (see Table "Characteristics")			
Power Dissipation at $T_{amb} = 25^\circ\text{C}$	$P_{tot}$	410 <sup>(1)</sup>	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_s$	- 65 to +150	$^\circ\text{C}$

	SYMBOL	MIN.	TYP.	MAX.	UNIT
Thermal Resistance Junction to Ambient Air	$R_{\theta JA}$	-	-	300 <sup>(2)</sup>	$^\circ\text{C/W}$

#### NOTES:

(1) Diode on Ceramic Substrate 0.7mm; 2.5mm<sup>2</sup> area

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

# BZT52-C2V4 THRU BZT52-C75

## ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

Type	Zener Voltage <sup>(1)</sup> at I <sub>Z</sub> = 5 mA V <sub>Z</sub> V	Dynamic Resistance		Temp. Coeff. of Zener Voltage at I <sub>Z</sub> = 5 mA $\alpha_{VZ} 10^{-4}/K$	Reverse Voltage at I <sub>R</sub> = 100 nA V <sub>R</sub> V	Admissible Zener current <sup>(4)</sup>	
		at I <sub>Z</sub> = 5 mA f = 1 kHz r <sub>Zj</sub> Ω	at I <sub>Z</sub> = 1 mA f = 1 kHz r <sub>Zj</sub> Ω			at T <sub>amb</sub> = 45°C I <sub>Z</sub> mA	at T <sub>amb</sub> = 25°C I <sub>Z</sub> mA
BZT52-C2V4	2.28 ... 2.56	85	600	typ. -1.8	-	-	-
BZT52-C2V7	2.5 ... 2.9	75 (< 83)	< 500	- 9 ... - 4	-	113	134
BZT52-C3	2.8 ... 3.2	80 (< 95)	< 500	- 9 ... - 3	-	98	118
BZT52-C3V3	3.1 ... 3.5	80 (< 95)	< 500	- 8 ... - 3	-	92	109
BZT52-C3V6	3.4 ... 3.8	80 (< 95)	< 500	- 8 ... - 3	-	85	100
BZT52-C3V9	3.7 ... 4.1	80 (< 95)	< 500	- 7 ... - 3	-	77	92
BZT52-C4V3	4.0 ... 4.6	80 (< 95)	< 500	- 6 ... - 1	-	71	84
BZT52-C4V7	4.4 ... 5.0	70 (< 78)	< 500	- 5 ... +2	-	64	76
BZT52-C5V1	4.8 ... 5.4	30 (< 60)	< 480	- 3 ... +4	> 0.8	56	67
BZT52-C5V6	5.2 ... 6.0	10 (< 40)	< 400	- 2 ... +6	> 1	50	59
BZT52-C6V2	5.8 ... 6.6	4.8 (< 10)	< 200	- 1 ... +7	> 2	45	54
BZT52-C6V8	6.4 ... 7.2	4.5 (< 8)	< 150	+2 ... +7	> 3	41	49
BZT52-C7V5	7.0 ... 7.9	4 (< 7)	< 50	+3 ... +7	> 5	37	44
BZT52-C8V2	7.7 ... 8.7	4.5 (< 7)	< 50	+4 ... +7	> 6	34	40
BZT52-C9V1	8.5 ... 9.6	4.8 (< 10)	< 50	+5 ... +8	> 7	30	36
BZT52-C10	9.4 ... 10.6	5.2 (< 15)	< 70	+5 ... +8	> 7.5	28	33
BZT52-C11	10.4 ... 11.6	6 (< 20)	< 70	+5 ... +9	> 8.5	25	30
BZT52-C12	11.4 ... 12.7	7 (< 20)	< 90	+6 ... +9	> 9	23	28
BZT52-C13	12.4 ... 14.1	9 (< 25)	< 110	+7 ... +9	> 10	21	25
BZT52-C15	13.8 ... 15.6	11 (< 30)	< 110	+7 ... +9	> 11	19	23
BZT52-C16	15.3 ... 17.1	13 (< 40)	< 170	+8 ... +9.5	> 12	17	20
BZT52-C18	16.8 ... 19.1	18 (< 50)	< 170	+8 ... +9.5	> 14	15	18
BZT52-C20	18.8 ... 21.2	20 (< 50)	< 220	+8 ... +10	> 15	14	17
BZT52-C22	20.8 ... 23.3	25 (< 55)	< 220	+8 ... +10	> 17	13	16
BZT52-C24	22.8 ... 25.6	28 (< 80)	< 220	+8 ... +10	> 18	11	13
BZT52-C27	25.1 ... 28.9	30 (< 80)	< 250	+8 ... +10	> 20	10	12
BZT52-C30	28 ... 32	35 (< 80)	< 250	+8 ... +10	> 22.5	9	10
BZT52-C33	31 ... 35	40 (< 80)	< 250	+8 ... +10	> 25	8	9
BZT52-C36	34 ... 38	40 (< 90)	< 250	+8 ... +10	> 27	8	9
BZT52-C39	37 ... 41	50 (< 90)	< 300	+10 ... +12	> 29	7	8
BZT52-C43	40 ... 46	60 (< 100)	< 700	+10 ... +12	> 32	6	7
BZT52-C47	44 ... 50	70 (< 100)	< 750	+10 ... +12	> 35	5	6
BZT52-C51	48 ... 54	70 (< 100)	< 750	+10 ... +12	> 38	5	6
BZT52-C56	52.0 ... 60.0 <sup>(2)</sup>	< 135 <sup>(2)</sup>	< 1000 <sup>(3)</sup>	typ. +10 <sup>(2)</sup>	-	-	-
BZT52-C62	58.0 ... 66.0 <sup>(2)</sup>	< 150 <sup>(2)</sup>	< 1000 <sup>(3)</sup>	typ. +10 <sup>(2)</sup>	-	-	-
BZT52-C68	64.0 ... 72.0 <sup>(2)</sup>	< 200 <sup>(2)</sup>	< 1000 <sup>(3)</sup>	typ. +10 <sup>(2)</sup>	-	-	-
BZT52-C75	70.0 ... 79.0 <sup>(2)</sup>	< 250 <sup>(2)</sup>	< 1500 <sup>(3)</sup>	typ. +10 <sup>(2)</sup>	-	-	-

### NOTES:

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

(2) at I<sub>Z</sub> = 2.5 mA

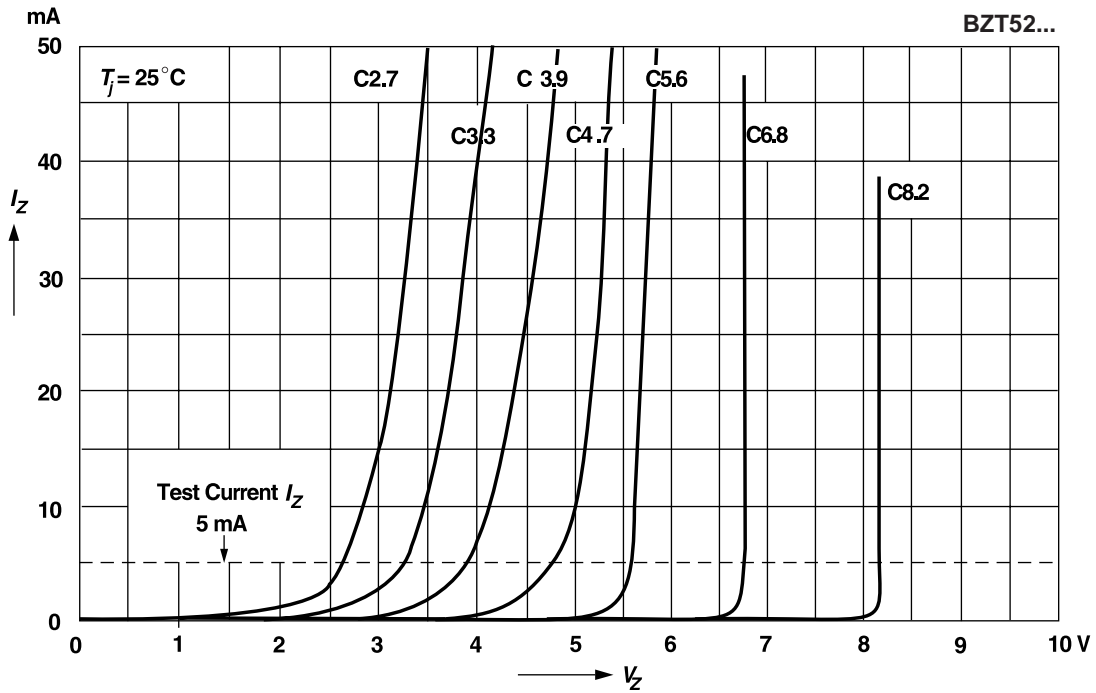
(3) at I<sub>Z</sub> = 0.5 mA

(4) Valid provided that electrodes are kept at ambient temperature

# RATINGS AND CHARACTERISTIC CURVES BZT52-C2V4 THRU BZT52-C75

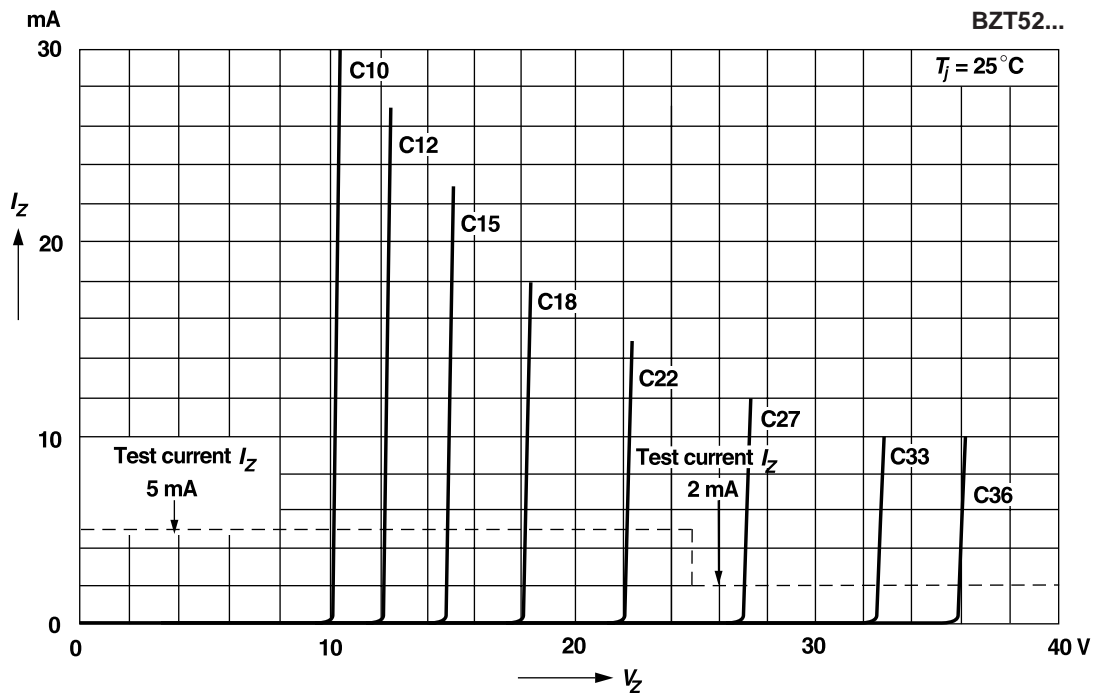
## Breakdown characteristics

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



## Breakdown characteristics

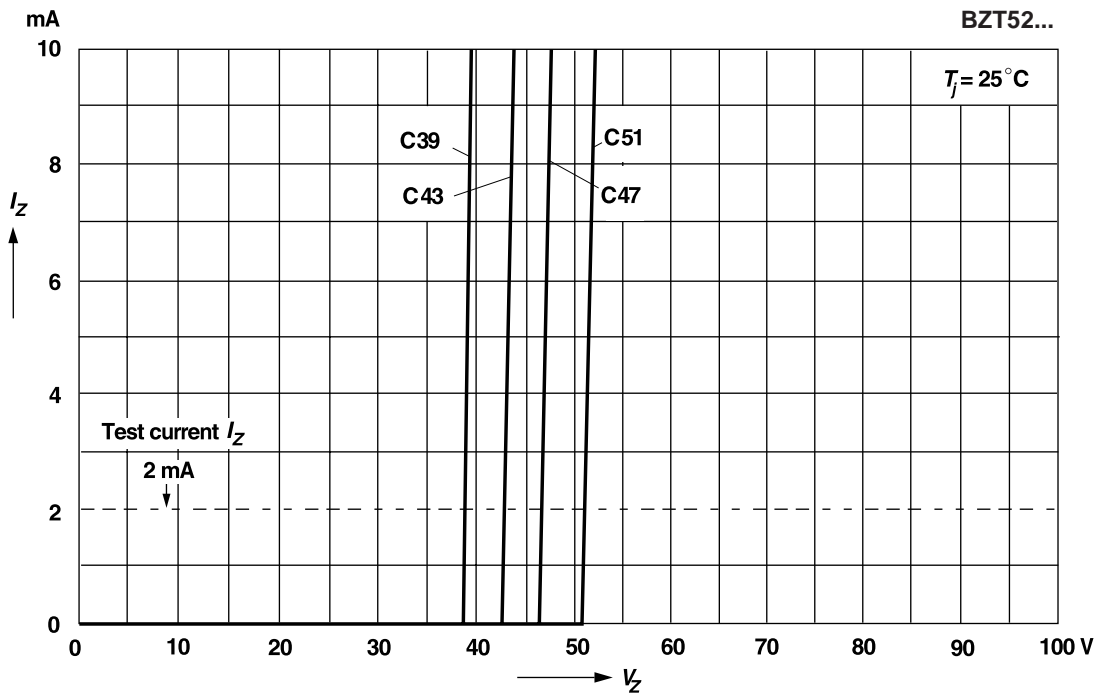
$T_j = \text{constant (pulsed)}$



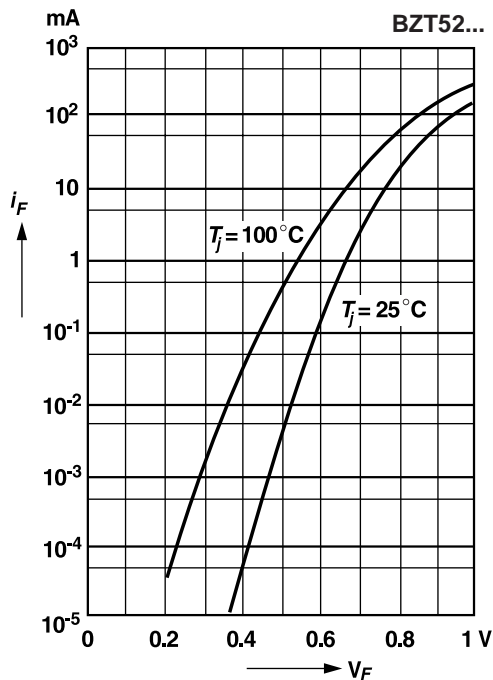
# RATINGS AND CHARACTERISTIC CURVES BZT52-C2V4 THRU BZT52-C75

## Breakdown characteristics

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



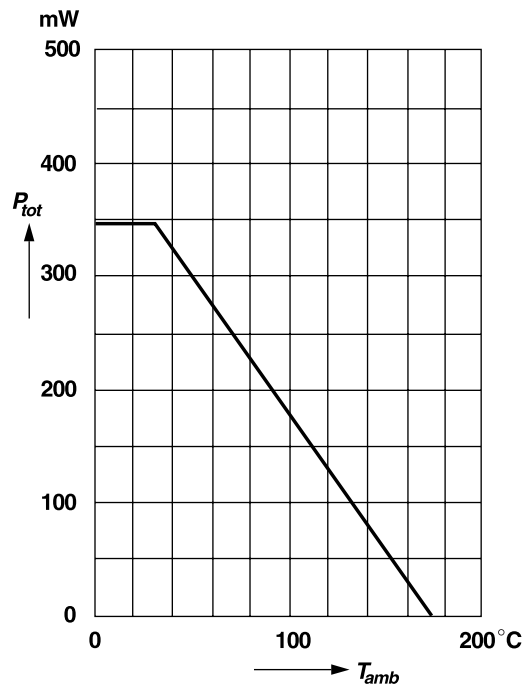
## Forward characteristics



## Admissible power dissipation versus ambient temperature

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

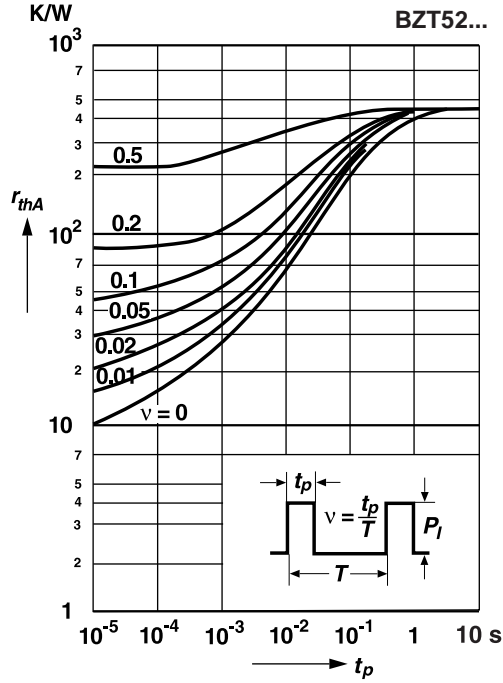
**BZT52...**



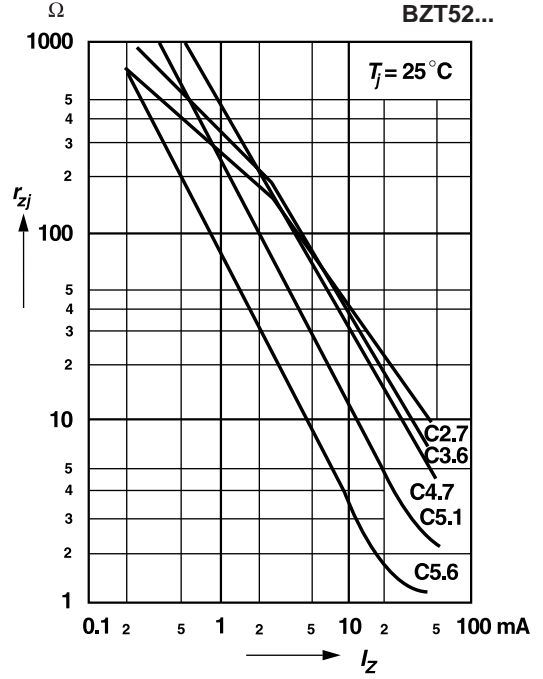
# RATINGS AND CHARACTERISTIC CURVES BZT52-C2V4 THRU BZT52-C75

## Pulse thermal resistance versus pulse duration

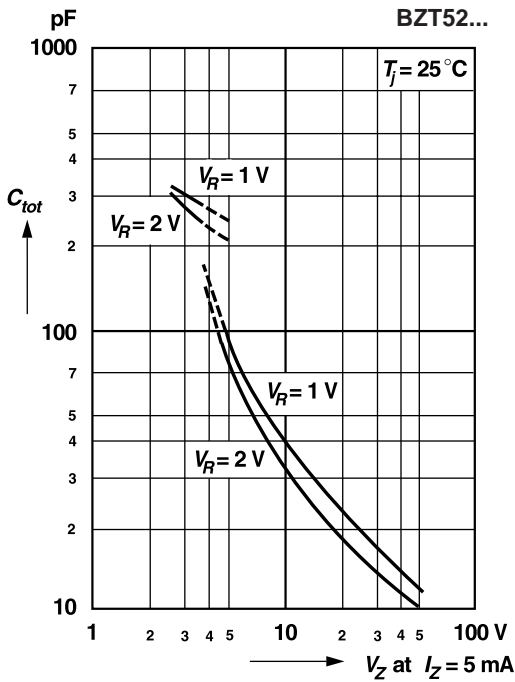
For conditions, see footnote in table "Absolute Maximum Ratings"



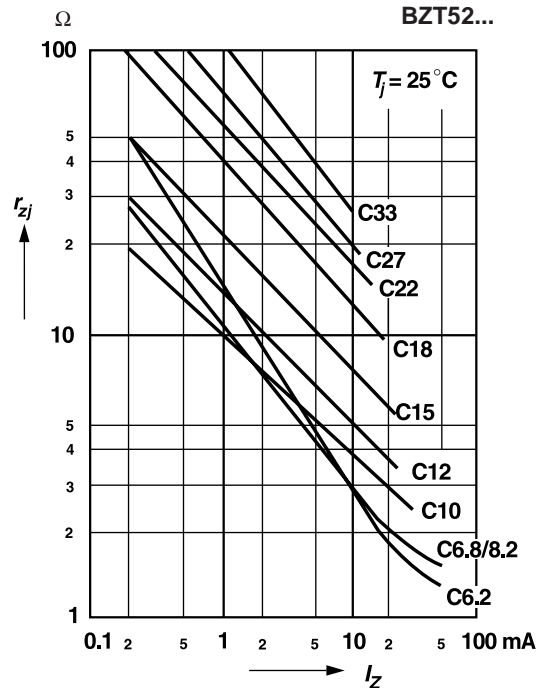
## Dynamic resistance versus Zener current



## Capacitance versus Zener voltage

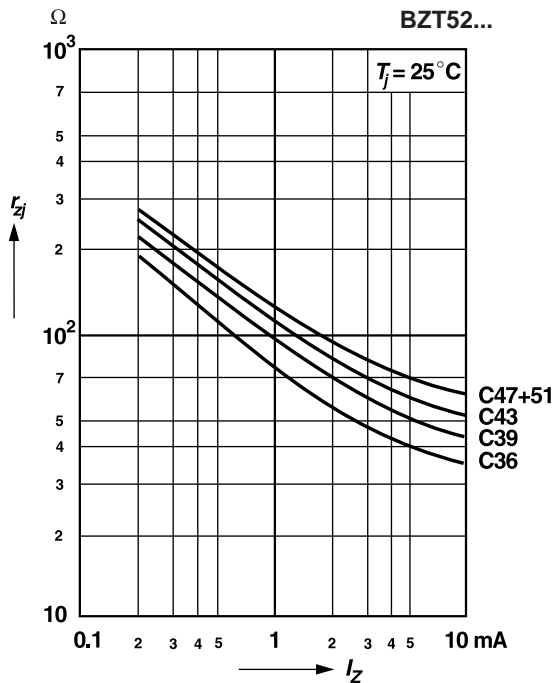


## Dynamic resistance versus Zener current



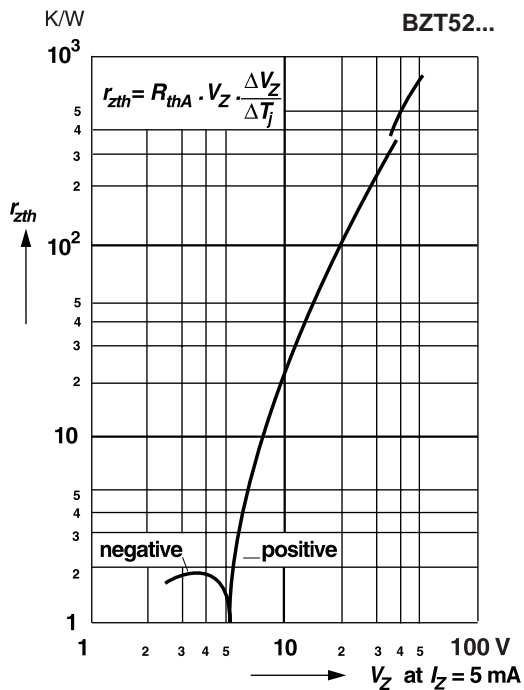
# RATINGS AND CHARACTERISTIC CURVES BZT52-C2V4 THRU BZT52-C75

Dynamic resistance versus Zener current

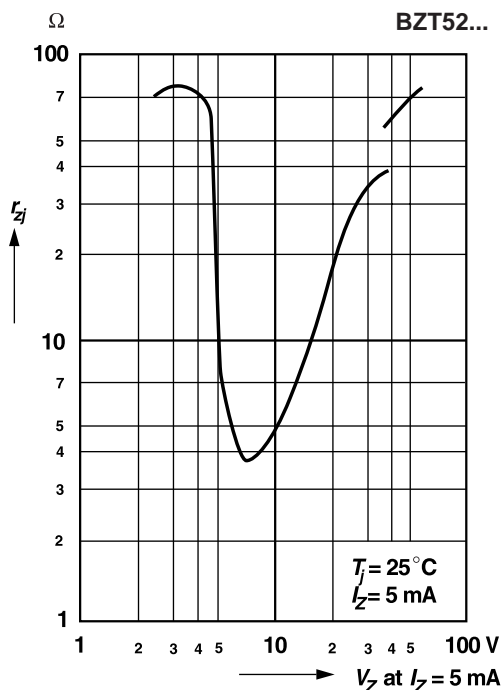


Thermal differential resistance versus Zener voltage

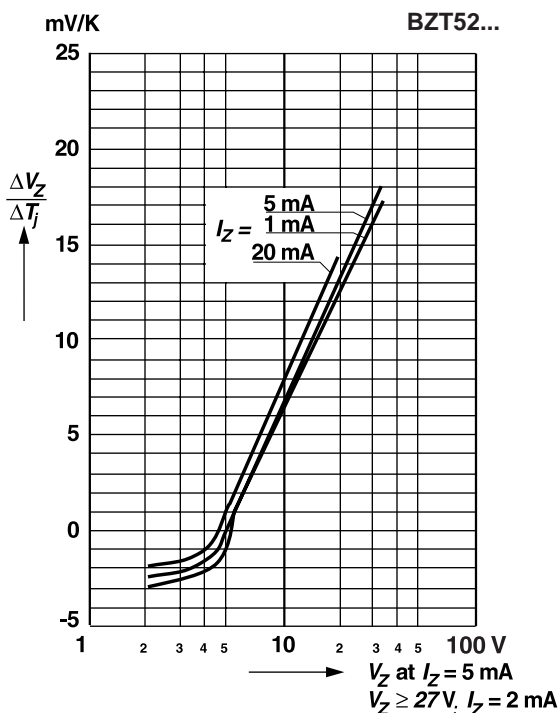
For conditions, see footnote in table "Absolute Maximum Ratings"



Dynamic resistance versus Zener voltage

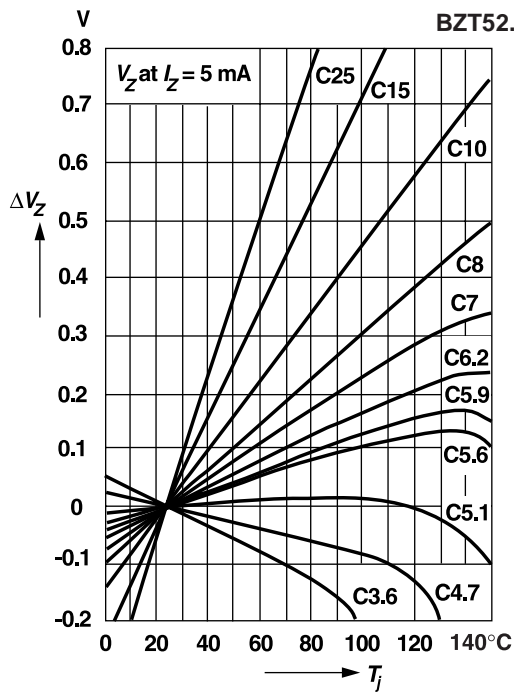


Temperature dependence of Zener voltage versus Zener voltage

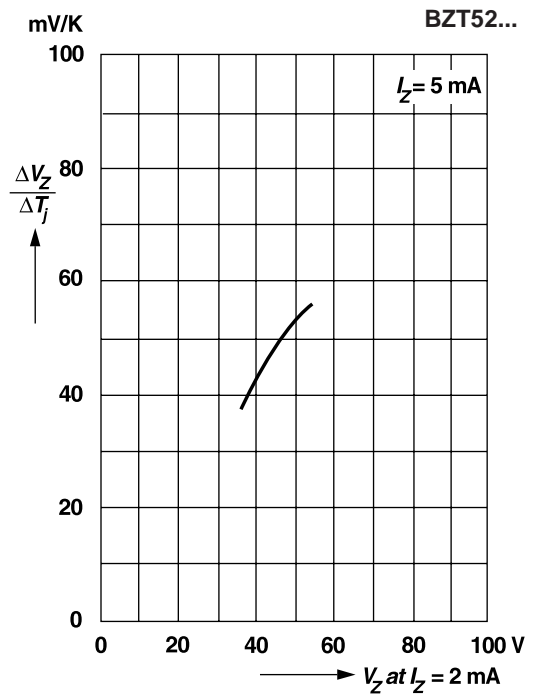


# RATINGS AND CHARACTERISTIC CURVES BZT52-C2V4 THRU BZT52-C75

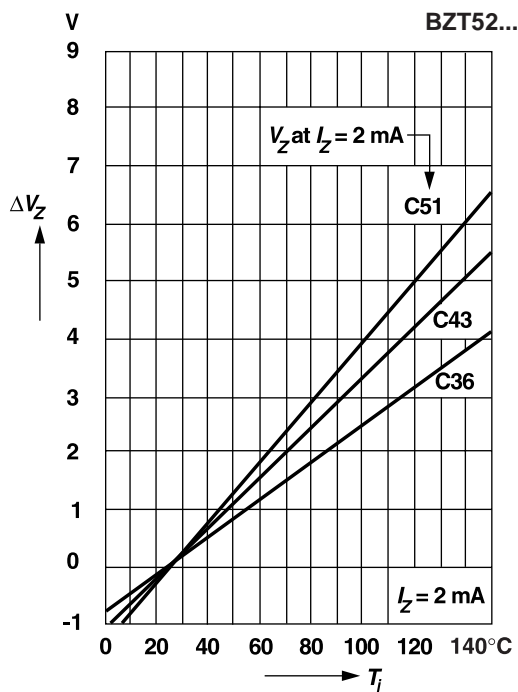
Change of Zener voltage versus junction temperature



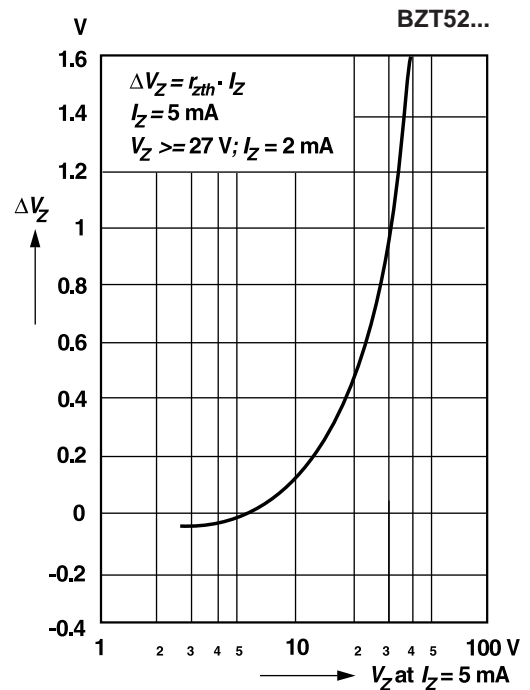
Temperature dependence of Zener voltage versus Zener voltage



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 BZT52-C2V4 THRU BZT52-C75

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

