

ZENER DIODES

Vz RANGE: 1.0, 3.6 - 220V
POWER DISSIPATION: 2.0 W

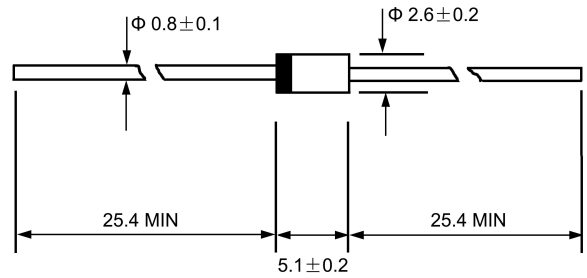
FEATURES

- ◇ Silicon planar power zener diodes
- ◇ For use in stabilizing and clipping circuits with high power rating.
- ◇ The zener voltages are graded according to the international E 24 standard. smaller voltage tolerances are available upon request.

MECHANICAL DATA

- ◇ Case: DO-41, plastic case
- ◇ Terminals: solderable per MIL-STD-202, method 208
- ◇ Polarity: cathode band
- ◇ Marking: type number
- ◇ Approx. weight: 0.34 grams.

DO - 41



Dimensions in millimeters

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 Tamb=25°C	P _{tot}	2.0 ⁽¹⁾	W
Thermal resistance junction to ambient air	R _{OJA}	60 ⁽¹⁾	°C/W
Junction temperature	T _J	150	°C
Storage temperature range	T _s	-55---+150	°C

NOTES: (1) Valid provided that leads are kept at ambient temperature at a distance of 10mm from case .

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ELECTRICAL CHARACTERISTICS (T_A=25°C)

Type	Nominal zener voltage	Test current	Resistance	Zener voltage	Reverse voltage	Maximum regulator current
	V _Z @ I _{ZT}	I _{ZT}	I _{ZT} f=1kHz	α _{VZ}	I _R =1μA	I _{ZM}
	V	mA	Ω	%/°C	V	mA
ZY1 ⁽³⁾	.71---.82	100	0.5(<1)	-26 --- -16	-	1500
ZY3.6	3.4---3.8	100	4(<7)	-7 --- +2	-	439
ZY3.9	3.7---4.1	100	4(<7)	-7 --- +3	-	391
ZY4.7	4.4---5.0	100	4(<7)	-7 --- +4	-	360
ZY5.1	4.8---5.4	100	2(<5)	-6 --- +5	-	333
ZY5.6	5.2---6.0	100	1(<3)	-3 --- +5	> 1.0	300
ZY6.2	5.8---6.6	100	1(<2)	-1 --- +6	> 1.5	273
ZY6.8	6.4---7.2	100	1(<2)	0 --- +7	> 2	250
ZY7.5	7.0---7.9	100	1(<2)	0 --- +7	> 2	228
ZY8.2	7.7---8.7	100	1(<2)	+3 --- +8	> 3.5	207
ZY9.1	8.5---9.6	50	2(<4)	+3 --- +8	> 3.5	188
ZY10	9.4---10.6	50	2(<4)	+5 --- +9	> 5	170
ZY11	10.4---11.6	50	3(<6)	+5 --- +10	> 5	155
ZY12	11.4---12.7	50	4(<7)	+5 --- +10	> 7	142
ZY13	12.4---14.1	50	5(<9)	+5 --- +10	> 7	128
ZY15	13.8---15.8	50	5(<10)	+5 --- +10	> 10	115
ZY16	15.3---17.1	25	6(<12)	+6 --- +11	> 10	105
ZY18	16.8---19.1	25	6(<15)	+6 --- +11	> 10	94
ZY20	18.8---21.2	25	6(<15)	+6 --- +11	> 10	85
ZY22	20.8---23.3	25	6(<15)	+6 --- +11	> 12	77
ZY24	22.8---25.6	25	7(<15)	+6 --- +11	> 12	70
ZY27	25.1---28.9	25	7(<15)	+6 --- +11	> 14	62
ZY30	28---32	25	8(<15)	+6 --- +11	> 14	56
ZY33	31---35	25	8(<15)	+6 --- +11	> 17	51
ZY36	34---38	10	16(<40)	+6 --- +11	> 17	47
ZY39	37---41	10	20(<40)	+6 --- +11	> 20	44
ZY43	40---46	10	24(<45)	+7 --- +12	> 20	39
ZY47	44---50	10	24(<45)	+7 --- +12	> 24	36
ZY51	48---54	10	25(<60)	+7 --- +12	> 24	33
ZY56	52---60	10	25(<60)	+7 --- +12	> 28	30
ZY62	58---66	10	25(<80)	+8 --- +13	> 28	27
ZY68	64---72	10	25(<80)	+8 --- +13	> 34	25
ZY75	70---79	10	30(<100)	+8 --- +13	> 34	23
ZY82	77---88	10	30(<100)	+8 --- +13	> 41	20
ZY91	85---96	5	40(<200)	+9 --- +13	> 41	19
ZY100	94---106	5	60(<200)	+9 --- +13	> 50	17
ZY110	104---116	5	80(<250)	+9 --- +13	> 50	16
ZY120	114---127	5	80(<250)	+9 --- +13	> 60	14
ZY130	124---141	5	90(<300)	+9 --- +13	> 60	13
ZY150	138---156	5	100(<300)	+9 --- +13	> 75	12
ZY160	153---171	5	110(<350)	+9 --- +13	> 75	11
ZY180	168---191	5	120(<350)	+9 --- +13	> 90	9
ZY200	188---212	5	150(<350)	+9 --- +13	> 90	8
ZY220	207---233	5	150(< 350)	+9 --- +13	> 100	7

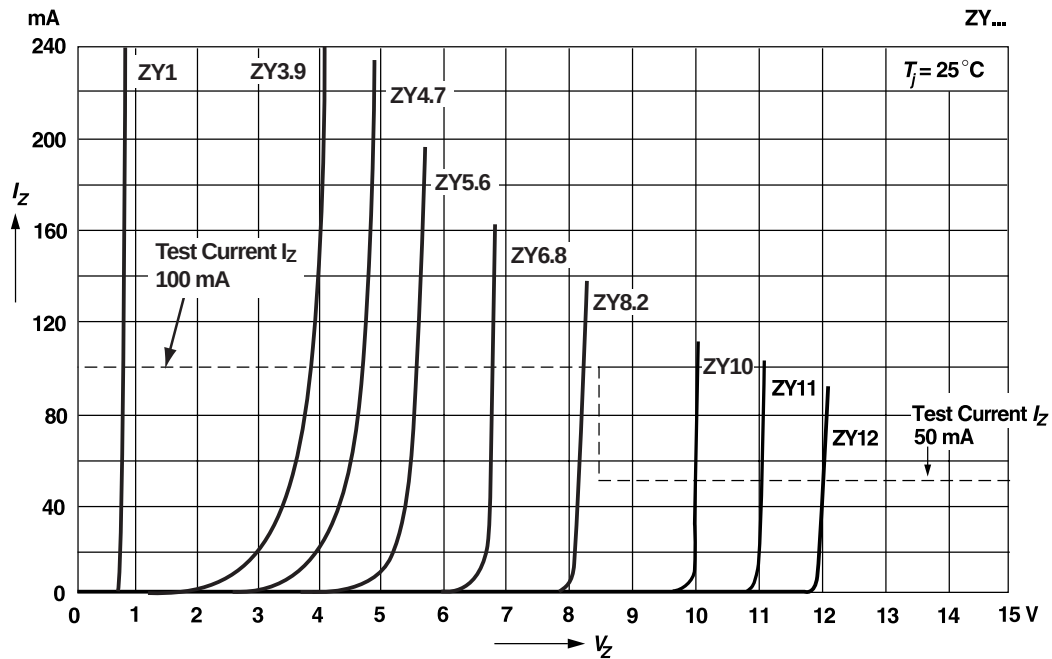
NOTE:(1)Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case
(2)Tested with pulses tp=5ms

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Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

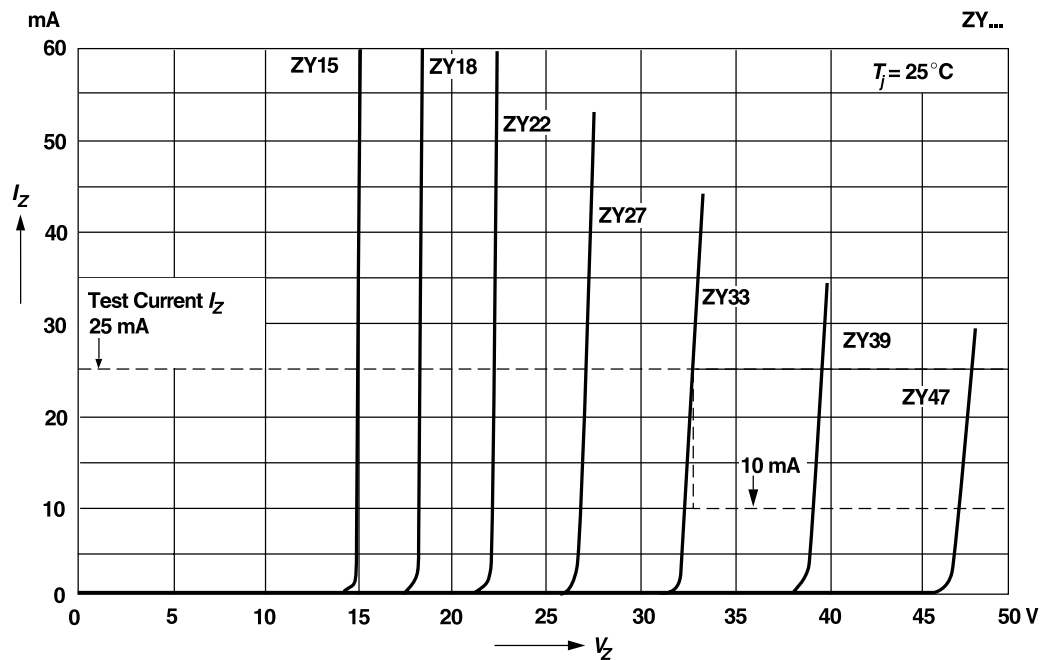
Breakdown characteristics

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



Breakdown characteristics

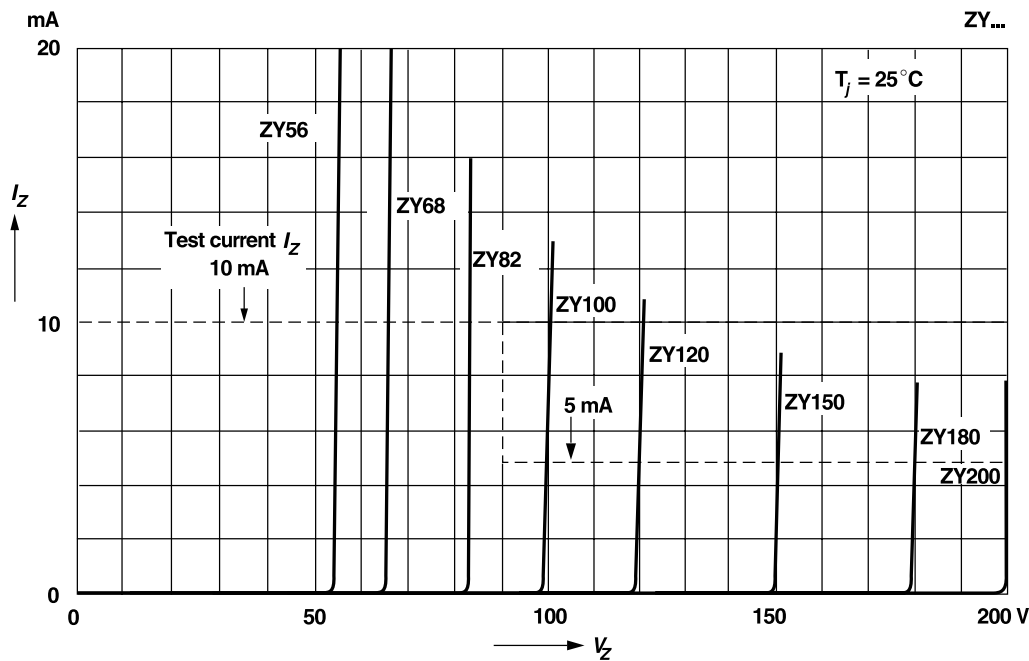
$T_j = \text{constant (pulsed)}$



Ratings and Characteristic Curves ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)

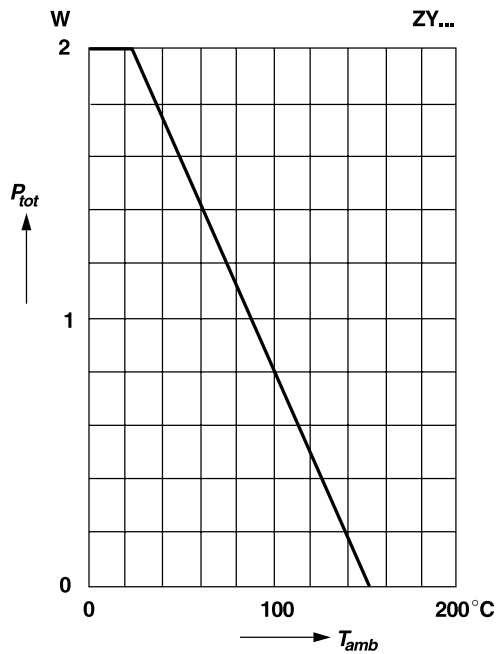
Breakdown characteristics

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

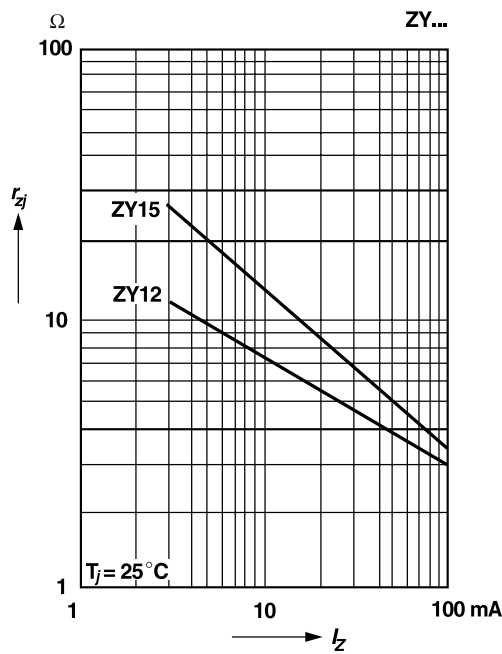


Admissible power dissipation versus ambient temperature

Valid provided that leads are kept at ambient temperature at a distance of 10 mm from case

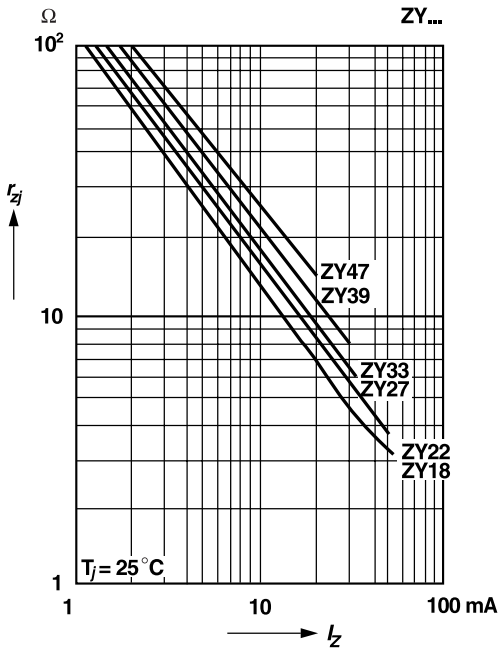


Dynamic resistance versus Zener current



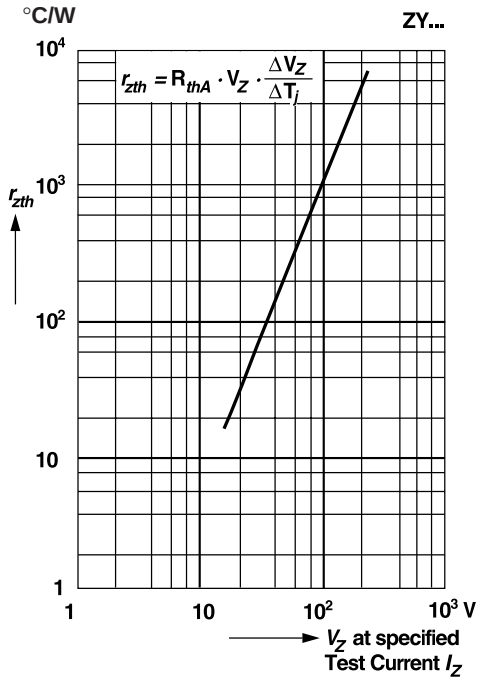
Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Dynamic resistance
versus Zener current

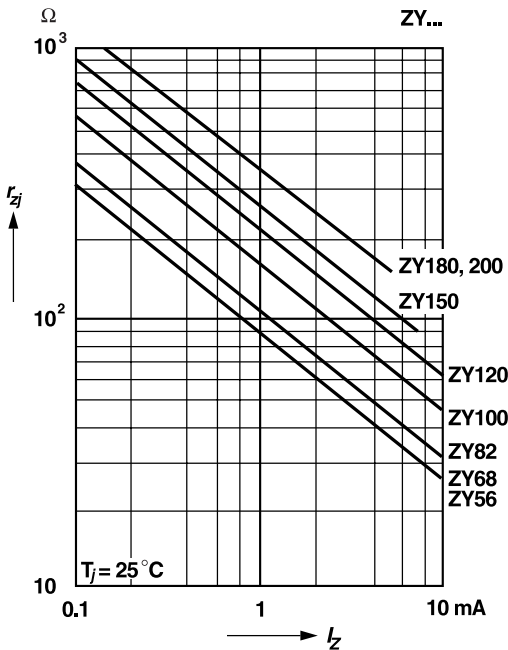


Thermal differential resistance
versus Zener voltage

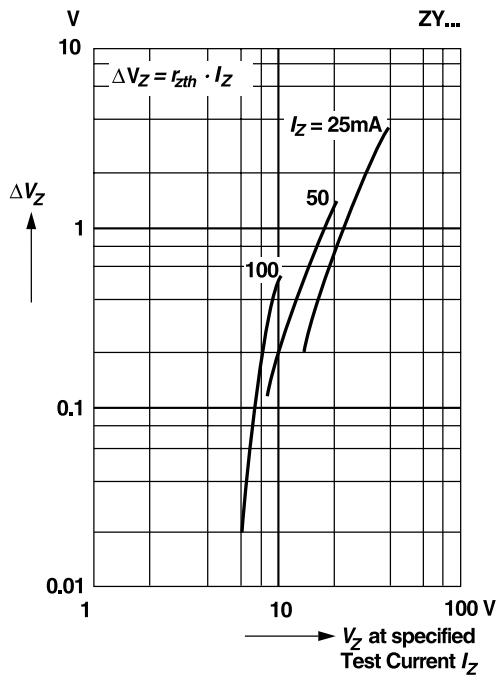
Valid provided that leads are kept at ambient temperature
at a distance of 10 mm from case



Dynamic resistance
versus Zener current

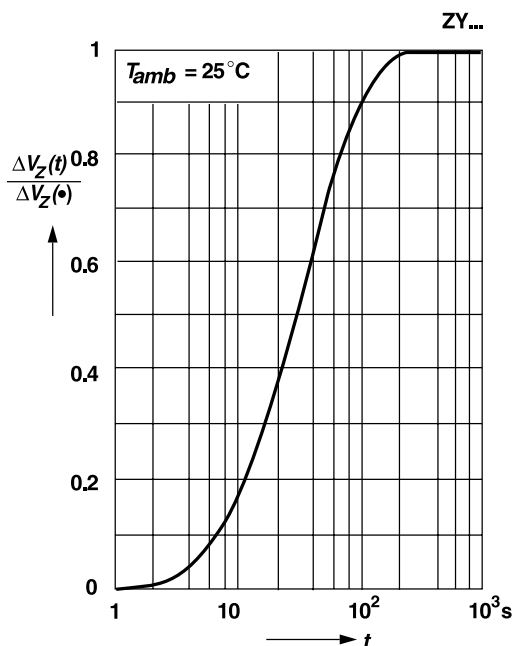


Change of Zener voltage from turn-on
up to the point of thermal equilibrium
versus Zener Voltage

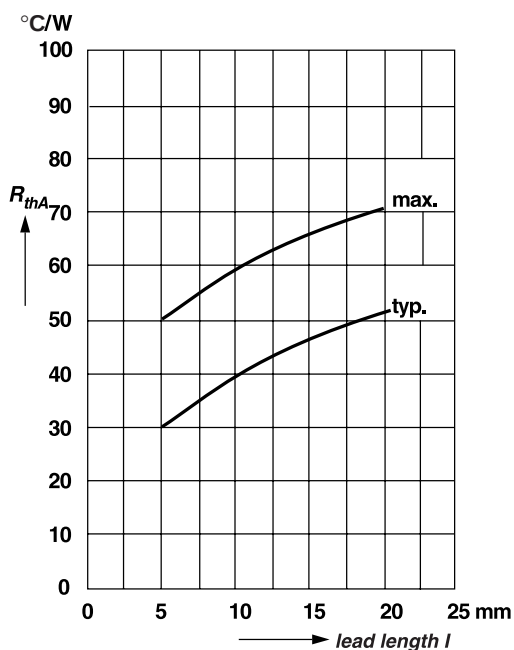


Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

**Relative change of Zener voltage
versus turn-on time**

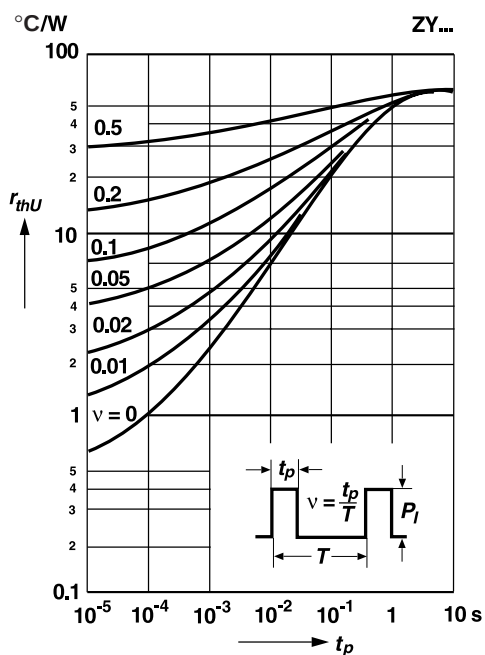


**Thermal resistance
versus lead length**



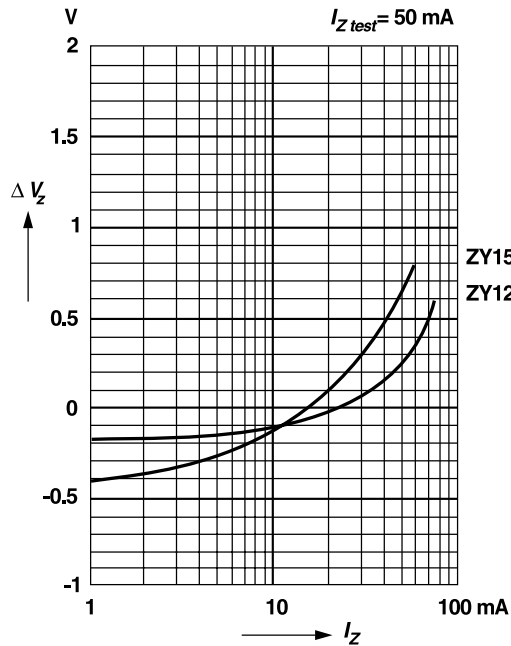
**Pulse thermal resistance
versus pulse duration**

Valid provided that leads are kept at ambient temperature
at a distance of 10 mm from case

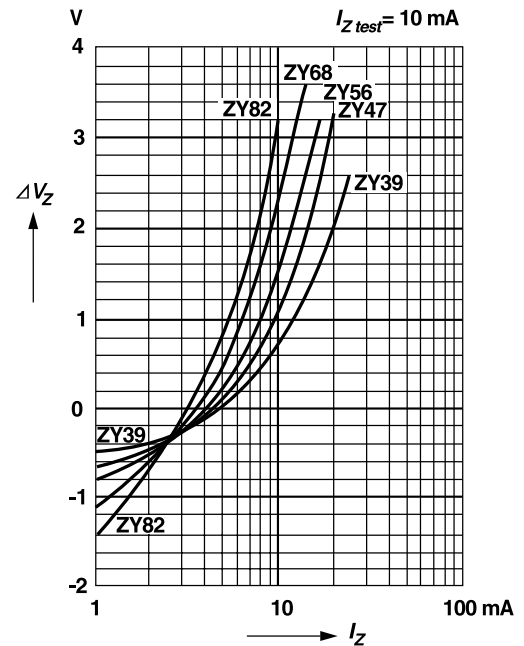


Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

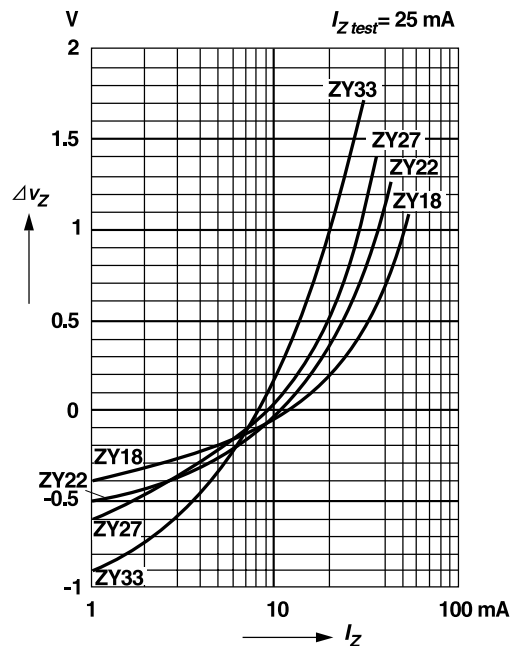
Difference between Zener voltage at test current pulses less than 1 s duration and Zener voltage at the point of thermal equilibrium versus Zener current



Difference between Zener voltage at test current pulses less than 1 s duration and Zener voltage at the point of thermal equilibrium versus Zener current



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