



# ZENER DIODE

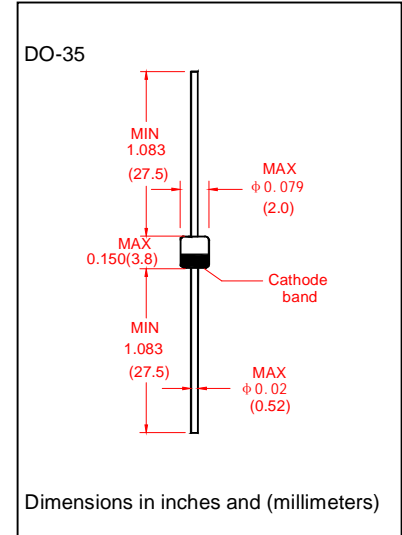
## MZ0.5GF SERIES

MZ0.5GE2V0-20 THRU MZ0.5GE75V-1.7  
MZ0.5GE2V THRU MZ0.5GE75V

### TECHHICAL SPECIFICATION

#### FEATURES

- Silicon Planar Power Zener Diodes
- Standard Zener Voltage Tolerance is  $\pm 5\%$
- DO-34 Glass Case
- High Reliability
- Weight: Approx. 0.12g



#### ABSOLUTE MAXIMUM RATINGS: ( $T_a=25^\circ\text{C}$ )

Parameter	Symbols	Limits	Unit
Power Dissipation at $T_{amb}=75^\circ\text{C}$	$P_{tot}$	500 <sup>(1)</sup>	mw
Maximum Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55~+150	$^\circ\text{C}$

	Symbols	Min	Typ	Max	Unit
Thermal Resistance Junction to Ambient Air	$R_{thJA}$	-	-	300 <sup>(1)</sup>	$^\circ\text{C}/\text{W}$
Forward Voltage at $I_F=100\text{mA}$	$V_F$	-	-	1.2	Volts

#### Notes

1. Valid provided that leads at a distance of 8mm from case are kept at ambient temperature :
2. Tested with pulse  $t_p=5\text{ms}$
3. Valid provided that leads are kept at ambient temperature at a distance of 8mm from case
4. Standard zener voltage tolerance is  $\pm 5\%$ . Add suffix "A" for  $\pm 10\%$  tolerance. Suffix "B" for  $\pm 2\%$  tolerance.
5. At  $I_z = 0.15\text{mA}$
6. At  $I_z = 0.125\text{mA}$ .



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### ELECTRICAL CHARACTERISTIC

Ratings at 25°C ambient temperature unless otherwise specified

Type	Device Marking Code	Zener Voltage <sup>(2)</sup> V <sub>Z(V)</sub> ( $\Delta V_Z \leq \pm 5\%$ ) <sup>(4)</sup>		Dynamic Resistance		Temp coeff of Zener Volotage $\alpha V_Z(\%/k)$	Reverse leakage current I <sub>R(MA)</sub>		Admissible Zener Current <sup>(3)</sup> I <sub>ZT(MA)</sub>
				f=1KHZ Z <sub>ZT</sub> ( $\Omega$ ) At I <sub>ZT</sub>	f=1KHZ I <sub>ZK</sub> =0.25Ma Z <sub>ZK</sub> ( $\Omega$ )		MAX	MIN	
		at I <sub>ZT(MA)</sub>	MAX	MIN	MAX				
MZO.5GF2V0-20	2V0-20	2.0	20	38	1500		150	0.5	205
MZO.5GF2V2-20	2V2-20	2.2	20	35	1500		150	0.5	192
MZO.5GF2V4-20	2V4-20	2.4	20	32	1200		100	0.7	189
MZO.5GF2V7-20	2V7-20	2.7	20	30	1300	-0.08...-0.06	75	0.7	165
MZO.5GF3V0-20	3V0-20	3.0	20	29	1600	-0.08...-0.06	50	1	152
MZO.5GF3V3-20	3V3-20	3.3	20	28	1600	-0.08...-0.05	25	1	138
MZO.5GF3V6-20	3V6-20	3.6	20	24	1700	-0.08...-0.04	15	1	126
MZO.5GF3V9-20	3V9-20	3.9	20	23	1900	-0.07...-0.03	10	1	115
MZO.5GF4V3-20	4V3-20	4.3	20	22	2000	-0.04...-0.01	5	1	106
MZO.5GF4V7-20	4V7-20	4.7	20	19	1900	-0.03...-0.01	5	2	97
MZO.5GF5V1-20	5V1-20	5.1	20	17	1600	-0.02...-0.05	5	2	89
MZO.5GF5V6-20	5V6-20	5.6	20	11	1600	-0.01...-0.06	5	3	81
MZO.5GF6V0-20	6V0-20	6.0	20	7	1600	-0.01...-0.07	5	3.5	76
MZO.5GF6V2-20	6V2-20	6.2	20	7	1000	-0...-0.07	5	4	73
MZO.5GF6V8-20	6V8-20	6.8	20	5	750	+0.01...+0.08	3	5	67
MZO.5GF7V5-20	7V5-20	7.5	20	6	500	+0.01...+0.09	3	6	61
MZO.5GF8V2-20	8V2-20	8.2	20	8	500	+0.01...+0.09	3	6.5	55
MZO.5GF8V7-20	8V7-20	8.7	20	8	600	+0.01...+0.10	3	6.5	52
MZO.5GF9V1-20	9V1-20	9.1	20	10	600	+0.02...+0.10	3	7	50
MZO.5GF10V-20	10V-20	10	20	17	600	+0.03...+0.11	3	8	45
MZO.5GF11V-20	11V-20	11	20	22	600	+0.03...+0.11	2	8.4	41
MZO.5GF12V-20	12V-20	12	20	30	600	+0.03...+0.11	1	9.1	38
MZO.5GF13V-9.5	13V-9.5	13	9.5	13	600	+0.03...+0.11	0.5	9.9	35
MZO.5GF14V-9.0	14V-9.0	14	9	15	600	+0.03...+0.11	0.5	10	32
MZO.5GF15V-8.5	15V-8.5	15	8.5	16	600	+0.03...+0.11	0.1	11	30
MZO.5GF16V-7.8	16V-7.8	16	7.8	17	600	+0.03...+0.11	0.1	12	28
MZO.5GF17V-7.4	17V-7.4	17	7.4	19	600	+0.03...+0.11	0.1	13	27
MZO.5GF18V-7.0	18V-7.0	18	7	21	600	+0.03...+0.11	0.1	14	25
MZO.5GF19V-6.6	19V-6.6	19	6.6	23	600	+0.03...+0.11	0.1	14	24
MZO.5GF20V-6.2	20V-6.2	20	6.2	25	600	+0.03...+0.11	0.1	15	23
MZO.5GF22V-5.6	22V-5.6	22	5.6	29	600	+0.03...+0.11	0.1	17	21
MZO.5GF24V-5.2	24V-5.2	24	5.2	33	600	+0.04...+0.12	0.1	18	19.1
MZO.5GF25V-5.0	25V-5.0	25	5	35	600	+0.03...+0.12	0.1	19	18.2
MZO.5GF27V-4.6	27V-4.6	27	4.6	41	600	+0.04...+0.12	0.1	21	16.8
MZO.5GF28V-4.5	28V-4.5	28	4.5	44	600	+0.03...+0.12	0.1	21	16.2
MZO.5GF30V-4.2	30V-4.2	30	4.2	49	600	+0.04...+0.12	0.1	23	15.1
MZO.5GF33V-3.8	33V-3.8	33	3.8	58	700	+0.04...+0.12	0.1	25	13.8
MZO.5GF36V-3.4	36V-3.4	36	3.4	70	700	+0.04...+0.12	0.1	27	12.6
MZO.5GF39V-3.2	39V-3.2	39	3.2	80	800	+0.04...+0.12	0.1	30	11.6
MZO.5GF43V-3	43V-3	43	3	93	900	+0.04...+0.13	0.1	33	10.6
MZO.5GF47V-2.7	47V-2.7	47	2.7	105	1000	+0.05...+0.13	0.1	36	9.7
MZO.5GF51V-2.5	51V-2.5	51	2.5	125	1100	+0.05...+0.14	0.1	39	8.9
MZO.5GF56V-2.2	56V-2.2	56	2.2	150	1300	+0.05...+0.14	0.1	43	-
MZO.5GF60V-2.1	60V-2.1	60	2.1	170	1400	+0.05...+0.15	0.1	46	-
MZO.5GF62V-2.0	62V-2.0	62	2	185	1500	+0.05...+0.15	0.1	47	-
MZO.5GF68V-1.8	68V-1.8	68	1.8	230	1600	+0.05...+0.15	0.1	52	-
MZO.5GF75V-1.7	75V-1.7	75	1.7	270	1700	+0.05...+0.15	0.1	56	-



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Ratings at 25°C ambient temperature unless otherwise specified

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			f=1KHz Z <sub>ZT</sub> ( $\Omega$ ) At I <sub>ZT</sub>	f=1KHZ I <sub>ZK</sub> =0.25Ma Z <sub>ZK</sub> ( $\Omega$ )		M A	V <sub>R(V)</sub> A	
			MAX	MIN				
MZ0.5GF2V0	2V0	2.0	100	2000		15	0.5	150
MZ0.5GF2V2	2V2	2.2	100	2000		15	0.5	145
MZ0.5GF2V4	2V4	2.4	100	1800		10	0.7	140
MZ0.5GF2V7	2V7	2.7	100	1900	-0.08...-0.06	75	0.7	135
MZ0.5GF3V0	3V0	3.0	95	2000	-0.08...-0.06	50	1	125
MZ0.5GF3V3	3V3	3.3	95	2200	-0.08...-0.05	25	1	115
MZ0.5GF3V6	3V6	3.6	90	2300	-0.08...-0.04	15	1	105
MZ0.5GF3V9	3V9	3.9	90	2400	-0.07...-0.03	10	1	95
MZ0.5GF4V3	4V3	4.3	88	2500	-0.04...-0.01	5	1	90
MZ0.5GF4V7	4V7	4.7	70	2200	-0.03...-0.01	3	1.5	85
MZ0.5GF5V1	5V1	5.1	50	2050	-0.02...-0.05	2	2	80
MZ0.5GF5V6	5V6	5.6	25	1800	-0.01...-0.06	2	3	70
MZ0.5GF6V2	6V2	6.2	10	1300	0...0.07	1	4	64
MZ0.5GF6V8	6V8	6.8	8	750	+0.01...+0.08	1	5.2	58
MZ0.5GF7V5	7V5	7.5	7	600	+0.01...+0.09	0.5	6	53
MZ0.5GF8V2	8V2	8.2	7	600	+0.01...+0.09	0.5	6.4	47
MZ0.5GF9V1	9V1	9.1	10	600	+0.02...+0.10	0.1	7	43
MZ0.5GF10V	10V	10	15	600	+0.03...+0.11	0.1	8	40
MZ0.5GF11V	11V	11	18	600	+0.03...+0.11	0.1	8.1	36
MZ0.5GF12V	12V	12	22	600	+0.03...+0.11	0.1	9.1	32
MZ0.5GF13V	13V	13	25	600	+0.03...+0.11	0.1	9.9	29
MZ0.5GF15V	15V	15	32	600	+0.03...+0.11	0.1	11	27
MZ0.5GF16V	16V	16	36	600	+0.03...+0.11	0.1	12	24
MZ0.5GF18V	18V	18	42	600	+0.03...+0.11	0.1	14	21
MZ0.5GF20V	20V	20	48	600	+0.03...+0.11	0.1	15	20
MZ0.5GF22V	22V	22	55	600	+0.03...+0.11	0.1	17	18
MZ0.5GF24V	24V	24	62	600	+0.04...+0.12	0.1	18	16
MZ0.5GF27V	27V	27	70	600	+0.04...+0.12	0.1	21	14
MZ0.5GF30V	30V	30	78	600	+0.04...+0.12	0.1	23	13
MZ0.5GF33V	33V	33	88	700	+0.04...+0.12	0.1	25	12
MZ0.5GF36V	36V	36	95	700	+0.04...+0.12	0.1	27	11
MZ0.5GF39V	39V	39	130	800	+0.04...+0.12	0.1	30	10
MZ0.5GF43V	43V	43	130	900	+0.04...+0.13	0.1	33	10.6
MZ0.5GF47V	47V	47	130	1000	+0.05...+0.13	0.1	36	9.7
MZ0.5GF51V	51V	51	140	1100	+0.05...+0.14	0.1	39	8.9
MZ0.5GF56V	56V	56	160 <sup>(5)</sup>	1300 <sup>(6)</sup>	+0.05...+0.14 <sup>(5)</sup>	0.1	43	
MZ0.5GF60V	60V	60	180 <sup>(5)</sup>	1400 <sup>(6)</sup>	+0.05...+0.15 <sup>(5)</sup>	0.1	46	
MZ0.5GF62V	62V	62	210 <sup>(5)</sup>	1500 <sup>(6)</sup>	+0.05...+0.15 <sup>(5)</sup>	0.1	47	
MZ0.5GF68V	68V	68	240 <sup>(5)</sup>	1600 <sup>(6)</sup>	+0.05...+0.15 <sup>(5)</sup>	0.1	52	
MZ0.5GF75V	75V	75	280 <sup>(5)</sup>	1700 <sup>(6)</sup>	+0.05...+0.15 <sup>(5)</sup>	0.1	56	



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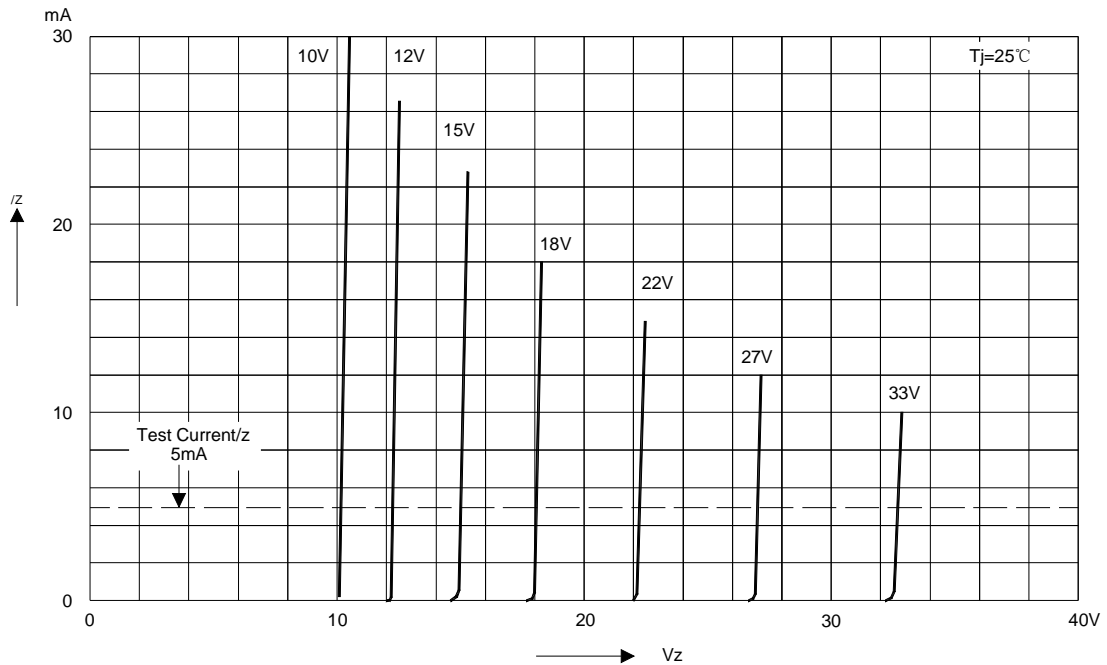
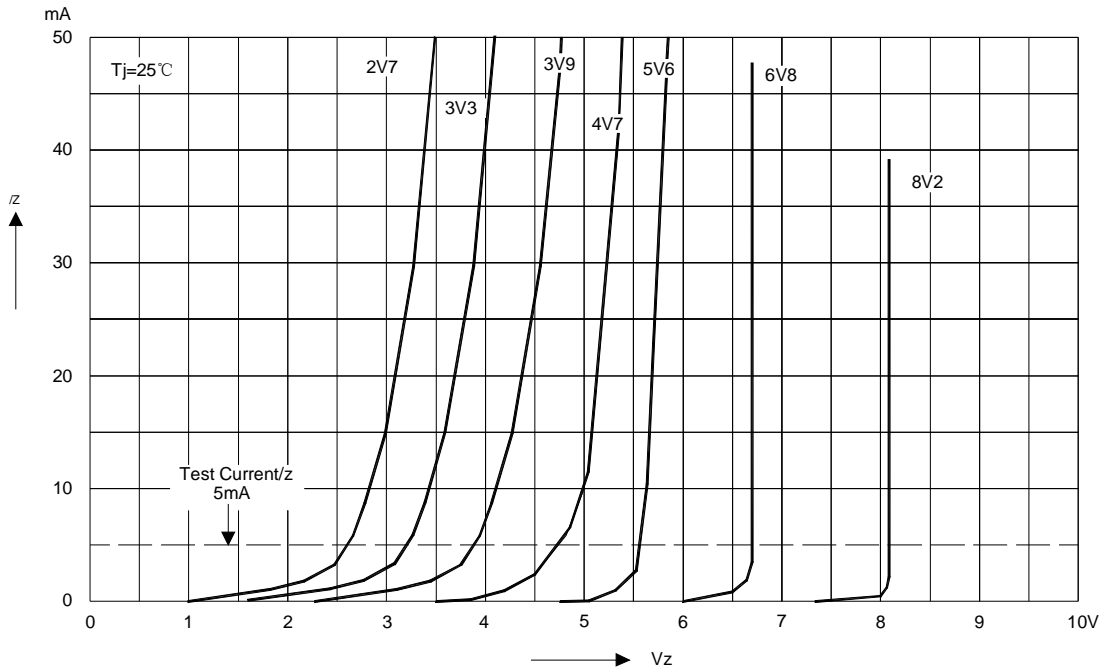
MZ0.5GE2V0-20 THRU MZ0.5GE75V-1.7

MZ0.5GE2V THRU MZ0.5GE75V

### RATINGS AND CHARACTERISTIC CURVES

Breakdown characteristics

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





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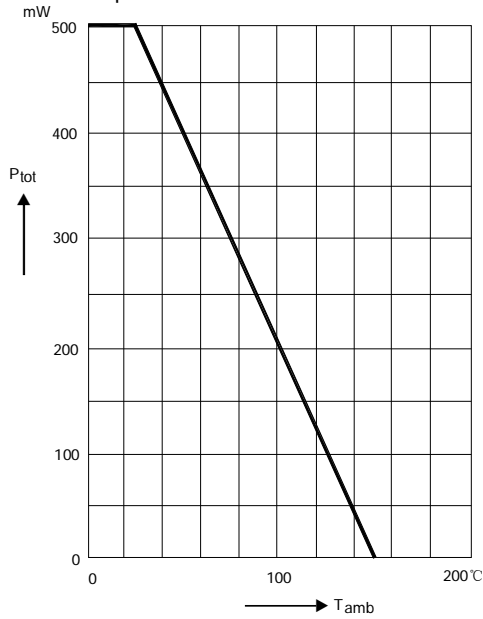
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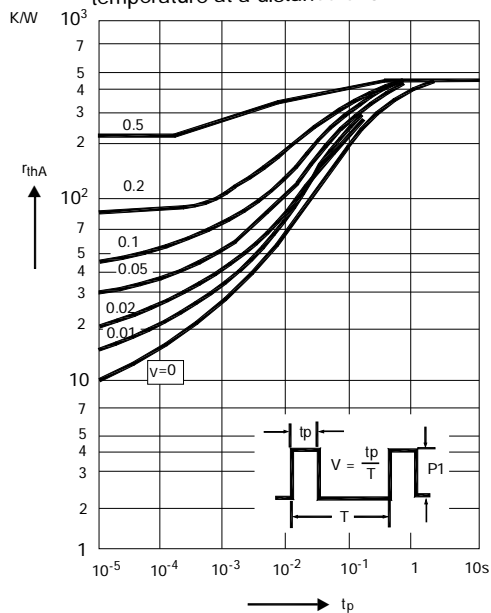
### RATINGS AND CHARACTERISTIC CURVES

Admissible power dissipation  
versus ambient temperature  
Valid provided that leads are kept ambient  
temperature at a distance of 8mm from case

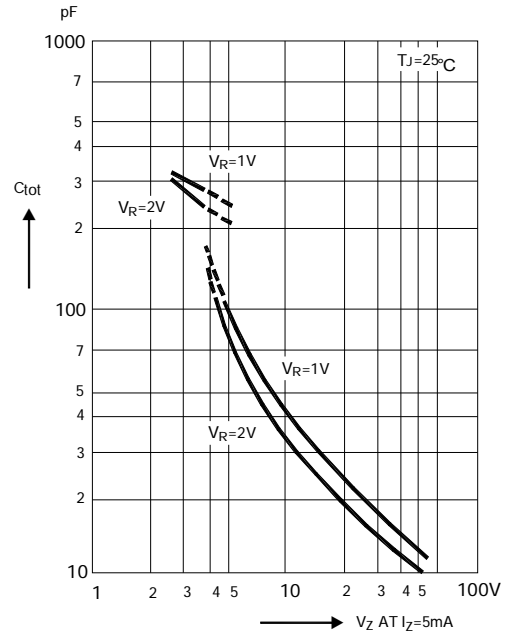


Pulse thermal resistance  
versus pulse duration

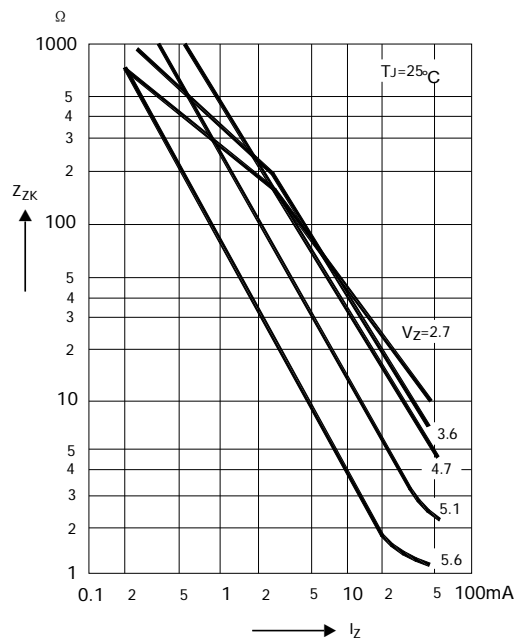
Valid provided that leads are kept ambient  
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Capacitance  
Zener voltage



Dynamic resistance  
versus Zener current





# ZENER DIODE

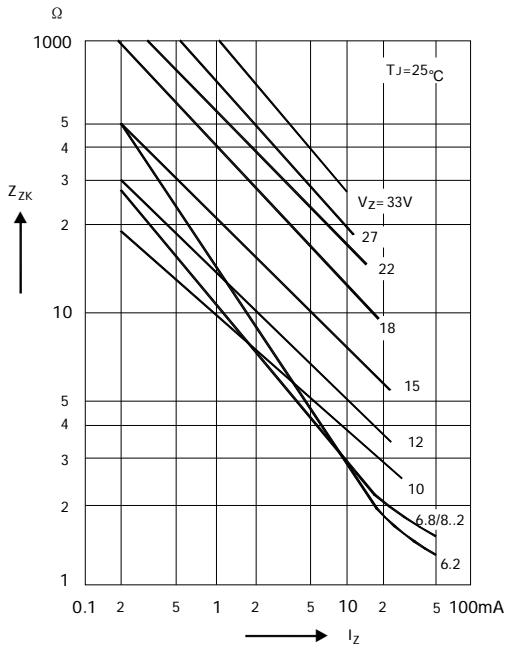
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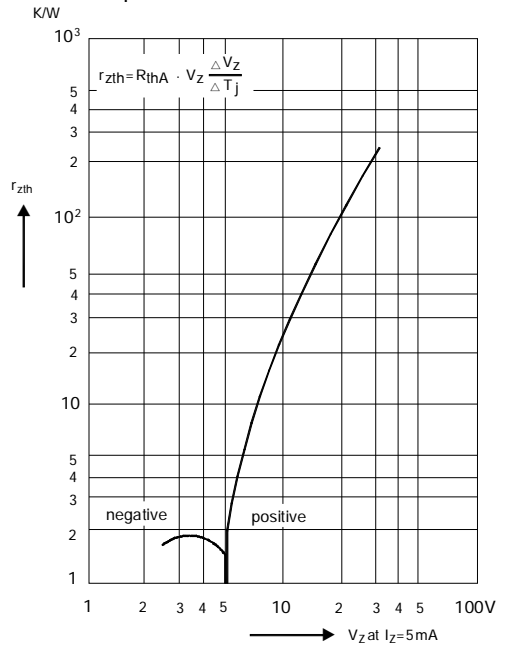
MZ0.5GE2V THRU MZ0.5GE75V

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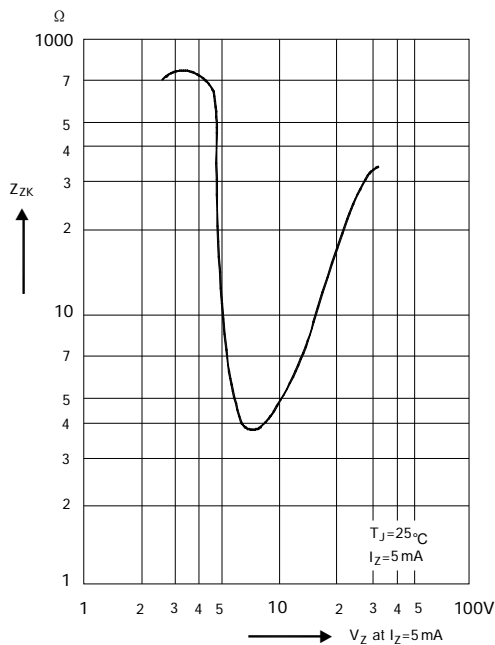
Dynamic resistance versus Zener current



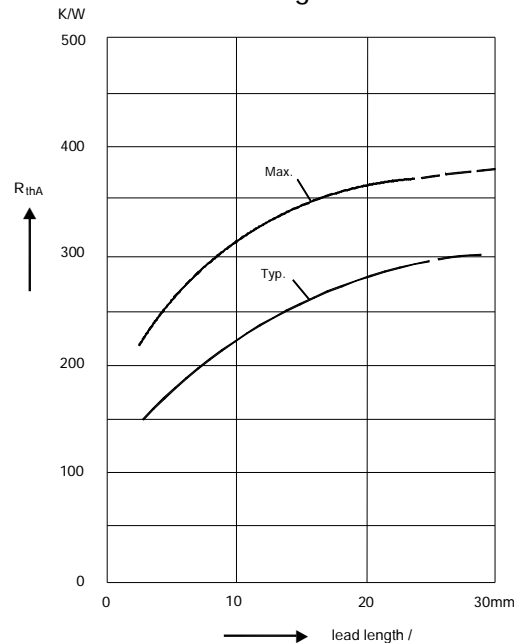
Thermal differential resistance versus Zener voltage  
Valid provided that leads are kept at ambient temperature at a distance of 8mm from case



Dynamic resistance versus Zener current

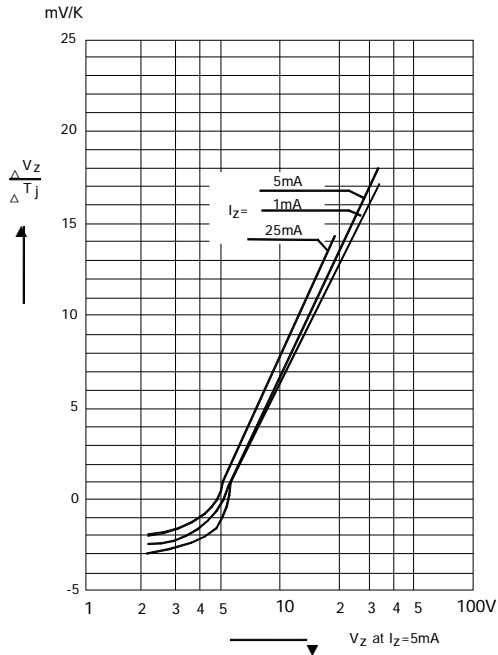


Thermal resistance versus lead length

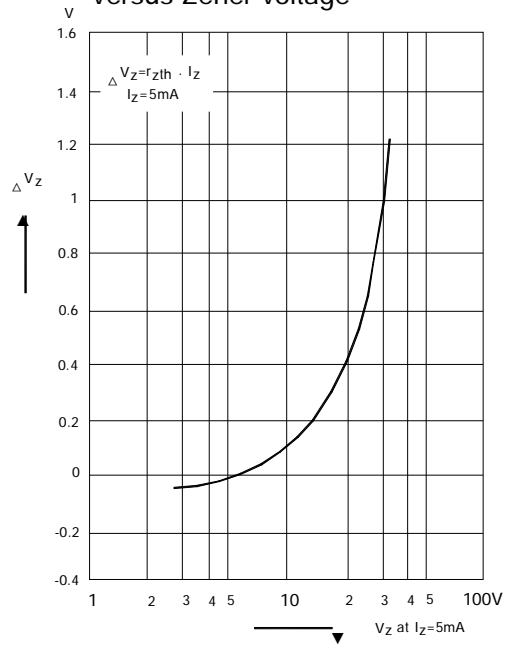


RATINGS AND CHARACTERISTIC CURVES

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

