

## Surface Mount Zener Diodes

**(Pb)** Lead(Pb)-Free

**Features:**

- \*500mw Power Dissipation
- \*General Purpose
- \*Ideal for Surface Mountted Application

**Mechanical Data:**

- \*Case : MICRO-MELF Glass Case
- \*Weight : Approx 0.01g

**SMALL SIGNAL  
ZENER DIODES  
0.5 WATTS**



## MICRO-MELF Outline Dimensions

Unit:mm

MICRO-MELF		
Dim	Min	Max
A	2.0	1.8
B	1.20	1.30
C	1.35	1.35

**Maximum Ratings and Electrical Characteristics** ( $T_A=25^{\circ}\text{C}$  Unless Otherwise Noted)

Characteristics	Symbol	Value	Unit
Power Dissipation, $R_{\theta JA} \leq 300^{\circ}\text{C/W}$	$P_D$	500	mW
Z-Current	$I_Z$	$P_D/V_Z$	mA
Thermal Resistance Junction to Ambient <sup>(1)</sup>	$R_{\theta JA}$	500	$^{\circ}\text{C/W}$
Forward Voltage @ $I_F=200\text{mA}$	$V_F$	1.5	V
Operation Junction Temperature Range	$T_J$	175	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-65 to +175	$^{\circ}\text{C}$

Note: 1. On pc board 50 mm x 50mm x 1.6mm

## Electrical Characteristics (T<sub>A</sub>=25 °C unless otherwise noted, V<sub>F</sub>=1.5 V Max. @I<sub>F</sub>=200mA for all types)

Type	V <sub>Znom</sub>	I <sub>ZT</sub> for V <sub>ZT</sub> and r <sub>zT</sub>	r <sub>zk</sub> at I <sub>ZK</sub>	I <sub>R</sub> and I <sub>R</sub> at V <sub>R</sub>	TK <sub>VZ</sub>					
BZM55C...	V	mA	V <sup>1)</sup>	Ω	Ω	mA	μA	μA <sup>2)</sup>	V	%/K
2V4	2.4	5	2.28 to 2.56	< 85	< 600	1	< 100	< 50	1	-0.09 to -0.06
2V7	2.7	5	2.5 to 2.9	< 85	< 600	1	< 10	< 50	1	-0.09 to -0.06
3V0	3.0	5	2.8 to 3.2	< 90	< 600	1	< 4	< 40	1	-0.08 to -0.05
3V3	3.3	5	3.1 to 3.5	< 90	< 600	1	< 2	< 40	1	-0.08 to -0.05
3V6	3.6	5	3.4 to 3.8	< 90	< 600	1	< 2	< 40	1	-0.08 to -0.05
3V9	3.9	5	3.7 to 4.1	< 90	< 600	1	< 2	< 40	1	-0.08 to -0.05
4V3	4.3	5	4.0 to 4.6	< 90	< 600	1	< 1	< 20	1	-0.06 to -0.03
4V7	4.7	5	4.4 to 5.0	< 80	< 600	1	< 0.5	< 10	1	-0.05 to +0.02
5V1	5.1	5	4.8 to 5.4	< 60	< 550	1	< 0.1	< 2	1	-0.02 to +0.02
5V6	5.6	5	5.2 to 6.0	< 40	< 450	1	< 0.1	< 2	1	-0.05 to +0.05
6V2	6.2	5	5.8 to 6.6	< 10	< 200	1	< 0.1	< 2	2	0.03 to 0.06
6V8	6.8	5	6.4 to 7.2	< 8	< 150	1	< 0.1	< 2	3	0.03 to 0.07
7V5	7.5	5	7.0 to 7.9	< 7	< 50	1	< 0.1	< 2	5	0.03 to 0.07
8V2	8.2	5	7.7 to 8.7	< 7	< 50	1	< 0.1	< 2	6.2	0.03 to 0.08
9V1	9.1	5	8.5 to 9.6	< 10	< 50	1	< 0.1	< 2	6.8	0.03 to 0.09
10	10	5	9.4 to 10.6	< 15	< 70	1	< 0.1	< 2	7.5	0.03 to 0.1
11	11	5	10.4 to 11.6	< 20	< 70	1	< 0.1	< 2	8.2	0.03 to 0.11
12	12	5	11.4 to 12.7	< 20	< 90	1	< 0.1	< 2	9.1	0.03 to 0.11
13	13	5	12.4 to 14.1	< 26	< 110	1	< 0.1	< 2	10	0.03 to 0.11
15	15	5	13.8 to 15.6	< 30	< 110	1	< 0.1	< 2	11	0.03 to 0.11
16	16	5	15.3 to 17.1	< 40	< 170	1	< 0.1	< 2	12	0.03 to 0.11
18	18	5	16.8 to 19.1	< 50	< 170	1	< 0.1	< 2	13	0.03 to 0.11
20	20	5	18.8 to 21.2	< 55	< 220	1	< 0.1	< 2	15	0.03 to 0.11
22	22	5	20.8 to 23.3	< 55	< 220	1	< 0.1	< 2	16	0.04 to 0.12
24	24	5	22.8 to 25.6	< 80	< 220	1	< 0.1	< 2	18	0.04 to 0.12
27	27	5	25.1 to 28.9	< 80	< 220	1	< 0.1	< 2	20	0.04 to 0.12
30	30	5	28 to 32	< 80	< 220	1	< 0.1	< 2	22	0.04 to 0.12
33	33	5	31 to 35	< 80	< 220	1	< 0.1	< 2	24	0.04 to 0.12
36	36	5	34 to 38	< 80	< 220	1	< 0.1	< 2	27	0.04 to 0.12
39	39	2.5	37 to 41	< 90	< 500	1	< 0.1	< 5	30	0.04 to 0.12
43	43	2.5	40 to 46	< 90	< 600	0.5	< 0.1	< 5	33	0.04 to 0.12
47	47	2.5	44 to 50	< 110	< 700	0.5	< 0.1	< 5	36	0.04 to 0.12
51	51	2.5	48 to 54	< 125	< 700	0.5	< 0.1	< 10	39	0.04 to 0.12
56	56	2.5	52 to 60	< 135	< 1000	0.5	< 0.1	< 10	43	0.04 to 0.12
62	62	2.5	58 to 66	< 150	< 1000	0.5	< 0.1	< 10	47	0.04 to 0.12
68	68	2.5	64 to 72	< 200	< 1000	0.5	< 0.1	< 10	51	0.04 to 0.12
75	75	2.5	70 to 79	< 250	< 1500	0.5	< 0.1	< 10	56	0.04 to 0.12

1) Tighter tolerances available request:

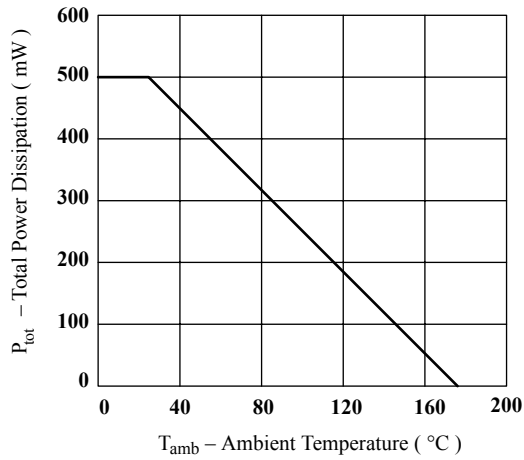
BZM55A... ±1% OF V<sub>Znom</sub>

BZM55B... ±2% OF V<sub>Znom</sub>

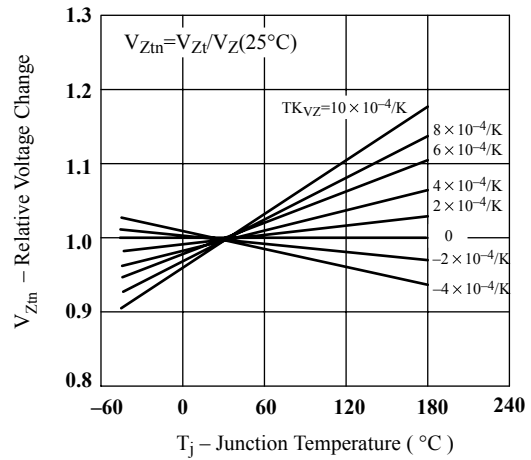
BZM55F... ±3% OF V<sub>Znom</sub>

2) at T<sub>j</sub>= 150 °C

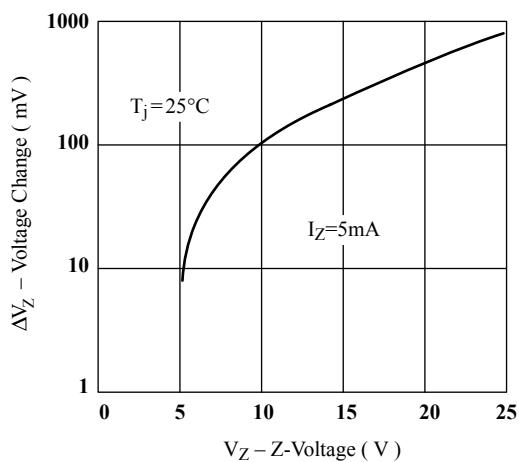
## Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise specified)



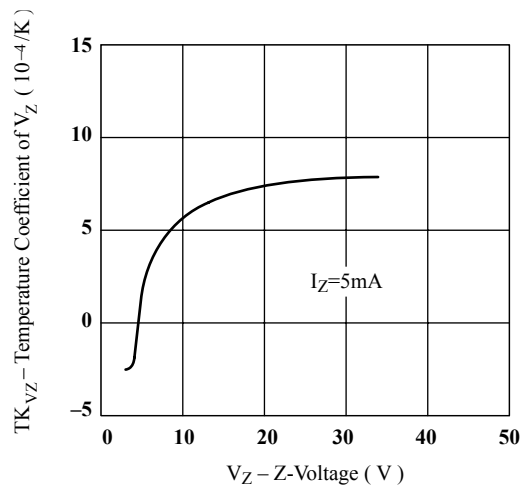
**Fig.1 Total Power Dissipation vs. Ambient Temperature**



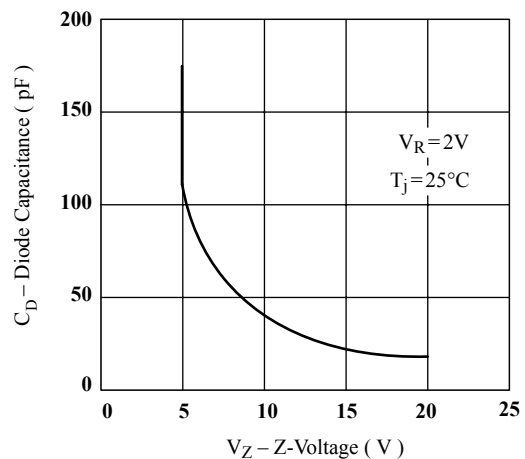
**Fig.2 Typical Change of Working Voltage vs. Junction Temperature**



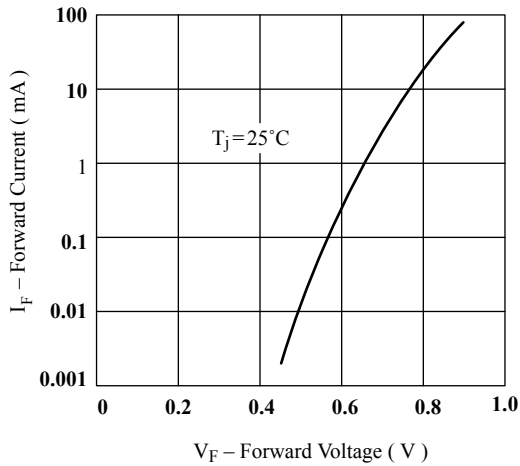
**Fig.3 Typical Change of Working Voltage under Operating Conditions at  $T_{\text{amb}}=25^\circ\text{C}$**



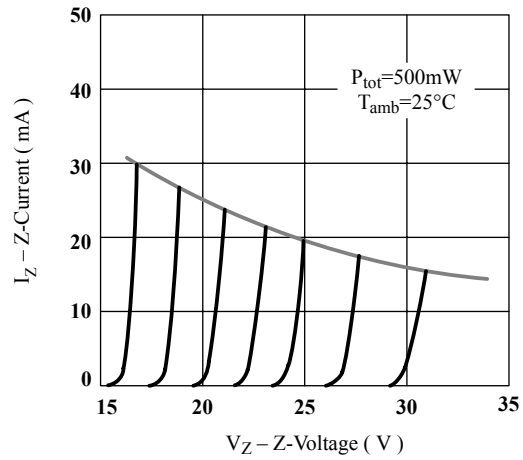
**Fig.4 Temperature Coefficient of  $V_Z$  vs. Z-Voltage**



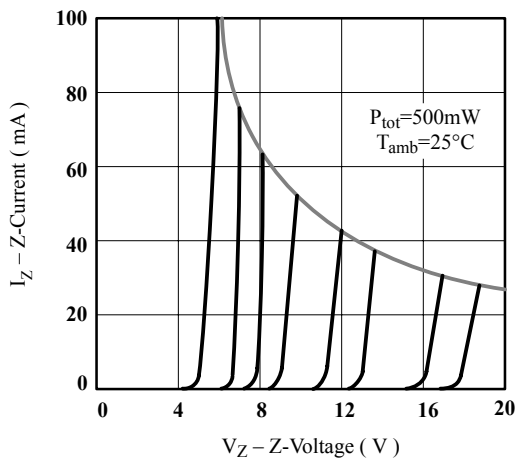
**Fig.5 Diode Capacitance vs. Z-Voltage**



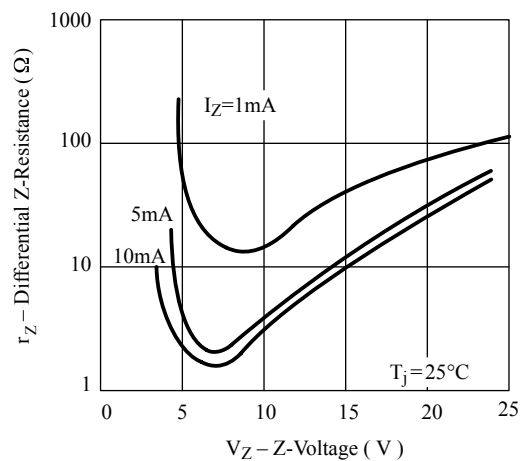
**Fig.6 Forward Current vs. Forward Voltage**



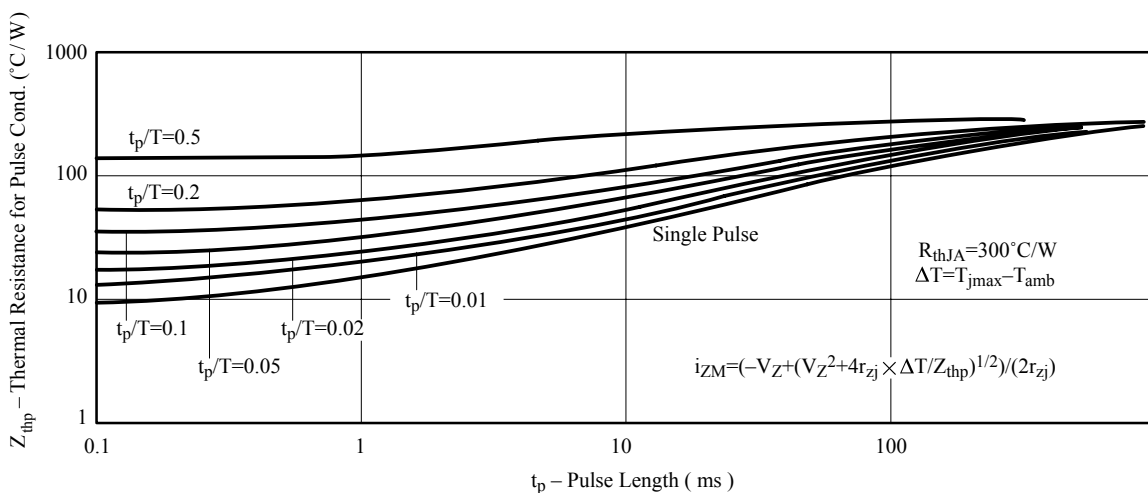
**Figure 7. Z-Current vs. Z-Voltage**



**Figure 8. Z-Current vs. Z-Voltage**



**Figure 9. Differential Z-Resistance vs. Z-Voltage**



**Figure 10. Thermal Response**