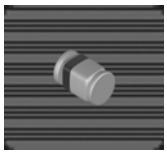
BZM55 Series

Zener Diodes

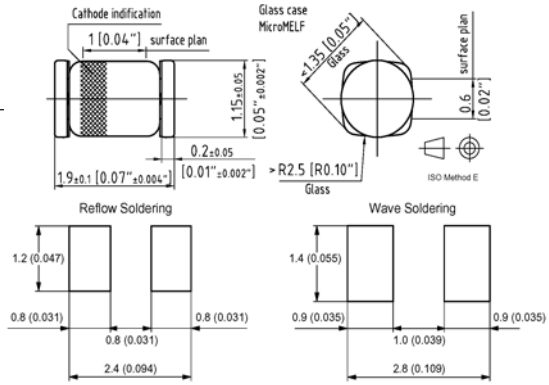
Zener Voltage Range: 2.4 to 75 Volts Power Dissipation: 500mW

Features

- ◆ Saving space
- ◆ Hermetic sealed parts
- ◆ Electrical data identical with the devices BZT55..Series
- ◆ Fits onto SOD-323 / SOD-110 footprints
- ◆ Very sharp reverse characteristic
- ◆ Low reverse current level
- ◆ Very high stability
- ◆ Low noise
- ◆ Available with tighter tolerances
- ◆ For voltage stabilization



Package Dimensions in mm (inches)



Mechanical Data

- ◆ Case: MicroMELF
- ◆ Weight: approx. 12 mg

Maximum Ratings and Thermal Characteristics

(T_{amb}=25°C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Zener current (see Table "Characteristics")	I_Z	P_{tot}/V_Z	mA
Power dissipation at $R_{thJA} \leq$ 300K/W	P_{tot}	500	mW
Junction temperature	T_j	175	°C
Storage temperature range	T_{stg}	-65 to +175	°C
Forward voltage at I_F=200mA	V_F	1.5	V
Junction ambient (mounted on epoxy-glass hard tissue, Fig.1)	$R_{\theta JA}$	500	K/W
Junction ambient (35um copper clad, 0.9mm² copper area per electrode))	$R_{\theta JL}$	300	K/W

Electrical Characteristics

(T_A=25ºC unless otherwise noted)

Part number C for ±5% V_z	Zener voltage [1] V_z @ I_{ZT} (V)		Dynamic resistance		Test current	Temperature coefficient TK_{VZ} (% / K)		Test current	Reverse leakage current		
	Min.	Max.	at I_{ZT} f=1kHz r_{zj} (Ω)	at I_{ZK} f=1kHz r_{zj} (Ω)	I_{ZT} (mA)	Min.	Max.	I_{ZK} (mA)	at T_{amb}=25ºC I_R (uA)	at T_{amb}=150ºC I_R (uA)	at V_R (Volts)
BZM55-C2V4	2.28	2.56	< 85	< 600	5	- 0.09	- 0.06	1	<50	<100	1
BZM55-C2V7	2.50	2.90	< 85	< 600	5	- 0.09	- 0.06	1	<10	<50	1
BZM55-C3V0	2.80	3.20	< 90	< 600	5	- 0.08	- 0.05	1	<4	<40	1
BZM55-C3V3	3.10	3.50	< 90	< 600	5	- 0.08	- 0.05	1	<2	<40	1
BZM55-C3V6	3.40	3.80	< 90	< 600	5	- 0.08	- 0.05	1	<2	<40	1
BZM55-C3V9	3.70	4.10	< 90	< 600	5	- 0.06	- 0.03	1	<2	<40	1
BZM55-C4V3	4.00	4.60	< 90	< 600	5	- 0.05	+ 0.02	1	<1	<20	1
BZM55-C4V7	4.40	5.00	< 80	< 600	5	- 0.02	+ 0.02	1	<0.5	<10	1
BZM55-C5V1	4.80	5.40	< 60	< 550	5	- 0.05	+ 0.05	1	<0.1	<2	1
BZM55-C5V6	5.20	6.00	< 40	< 450	5	+ 0.03	+ 0.06	1	<0.1	<2	1
BZM55-C6V2	5.80	6.60	< 10	< 200	5	+ 0.03	+ 0.07	1	<0.1	<2	2
BZM55-C6V8	6.40	7.20	< 8	< 150	5	+ 0.03	+ 0.07	1	<0.1	<2	3
BZM55-C7V5	7.00	7.90	< 7	< 50	5	+ 0.03	+ 0.08	1	<0.1	<2	5
BZM55-C8V2	7.70	8.70	< 7	< 50	5	+ 0.03	+ 0.09	1	<0.1	<2	6.2
BZM55-C9V1	8.50	9.60	< 10	< 50	5	+ 0.03	+ 0.1	1	<0.1	<2	6.8
BZM55-C10	9.40	10.60	< 15	< 70	5	+ 0.03	+ 0.11	1	<0.1	<2	7.5
BZM55-C11	10.40	11.60	< 20	< 70	5	+ 0.03	+ 0.11	1	<0.1	<2	8.2
BZM55-C12	11.40	12.70	< 20	< 90	5	+ 0.03	+ 0.11	1	<0.1	<2	9.1
BZM55-C13	12.40	14.10	< 26	< 110	5	+ 0.03	+ 0.11	1	<0.1	<2	10
BZM55-C15	13.80	15.60	< 30	< 110	5	+ 0.03	+ 0.11	1	<0.1	<2	11
BZM55-C16	15.30	17.10	< 40	< 170	5	+ 0.03	+ 0.11	1	<0.1	<2	12
BZM55-C18	16.80	19.10	< 50	< 170	5	+ 0.03	+ 0.11	1	<0.1	<2	13
BZM55-C20	18.80	21.20	< 55	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	15
BZM55-C22	20.80	23.30	< 55	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	16
BZM55-C24	22.80	25.60	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	18
BZM55-C27	25.10	28.90	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	20
BZM55-C30	28.00	32.00	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	22
BZM55-C33	31.00	35.00	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	24
BZM55-C36	34.00	38.00	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	27
BZM55-C39	37.00	41.00	< 90	< 500	2.5	+ 0.04	+ 0.12	0.5	<0.1	<5	30
BZM55-C43	40.00	46.00	< 90	< 600	2.5	+ 0.04	+ 0.12	0.5	<0.1	<5	33
BZM55-C47	44.00	50.00	< 110	< 700	2.5	+ 0.04	+ 0.12	0.5	<0.1	<5	36
BZM55-C51	48.00	54.00	< 125	< 700	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	39
BZM55-C56	52.00	60.00	< 135	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	43
BZM55-C62	58.00	66.00	< 150	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	47
BZM55-C68	64.00	72.00	< 200	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	51
BZM55-C75	70.00	79.00	< 250	< 1500	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	56

Notes: 1. t_p < 10 ms, T/t_p > 1000.

*) Additionnal measurement of Voltage group 9V1 to 75 at 95 % V_{zmin} < 35 nA at T_j 25 ºC

Electrical Characteristics

(T_A=25°C unless otherwise noted)

Part number B for ±2% V_Z	Zener voltage [1] V_Z @ I_{ZT} (V)		Dynamic resistance		Test current	Temperature coefficient TK_{VZ} (% / K)		Test current	Reverse leakage current		
	Min.	Max.	at I_{ZT} f=1kHz r_{zj} (Ω)	at I_{ZK} f=1kHz r_{zj} (Ω)	I_{ZT} (mA)	Min.	Max.	I_{ZK} (mA)	at T_{amb}=25°C I_R (uA)	at T_{amb}=150°C I_R (uA)	at V_R (Volts)
BZM55-B2V4	2.35	2.45	< 85	< 600	5	- 0.09	- 0.06	1	<50	<100	1
BZM55-B2V7	2.65	2.76	< 85	< 600	5	- 0.09	- 0.06	1	<10	<50	1
BZM55-B3V0	2.94	3.06	< 90	< 600	5	- 0.08	- 0.05	1	<4	<40	1
BZM55-B3V3	3.24	3.36	< 90	< 600	5	- 0.08	- 0.05	1	<2	<40	1
BZM55-B3V6	3.52	3.68	< 90	< 600	5	- 0.08	- 0.05	1	<2	<40	1
BZM55-B3V9	3.82	3.98	< 90	< 600	5	- 0.06	- 0.03	1	<2	<40	1
BZM55-B4V3	4.22	4.38	< 90	< 600	5	- 0.05	+ 0.02	1	<1	<20	1
BZM55-B4V7	4.6	4.8	< 80	< 600	5	- 0.02	+ 0.02	1	<0.5	<10	1
BZM55-B5V1	5.00	5.20	< 60	< 550	5	- 0.05	+ 0.05	1	<0.1	<2	1
BZM55-B5V6	5.48	5.72	< 40	< 450	5	+ 0.03	+ 0.06	1	<0.1	<2	1
BZM55-B6V2	6.08	6.32	< 10	< 200	5	+ 0.03	+ 0.07	1	<0.1	<2	2
BZM55-B6V8	6.66	6.94	< 8	< 150	5	+ 0.03	+ 0.07	1	<0.1	<2	3
BZM55-B7V5	7.35	7.65	< 7	< 50	5	+ 0.03	+ 0.08	1	<0.1	<2	5
BZM55-B8V2	8.04	8.36	< 7	< 50	5	+ 0.03	+ 0.09	1	<0.1	<2	6.2
BZM55-B9V1	8.92	9.28	< 10	< 50	5	+ 0.03	+ 0.1	1	<0.1	<2	6.8
BZM55-B10	9.80	10.20	< 15	< 70	5	+ 0.03	+ 0.11	1	<0.1	<2	7.5
BZM55-B11	10.78	11.22	< 20	< 70	5	+ 0.03	+ 0.11	1	<0.1	<2	8.2
BZM55-B12	11.76	12.24	< 20	< 90	5	+ 0.03	+ 0.11	1	<0.1	<2	9.1
BZM55-B13	12.74	13.26	< 26	< 110	5	+ 0.03	+ 0.11	1	<0.1	<2	10
BZM55-B15	14.70	15.30	< 30	< 110	5	+ 0.03	+ 0.11	1	<0.1	<2	11
BZM55-B16	15.70	16.30	< 40	< 170	5	+ 0.03	+ 0.11	1	<0.1	<2	12
BZM55-B18	17.64	18.36	< 50	< 170	5	+ 0.03	+ 0.11	1	<0.1	<2	13
BZM55-B20	19.60	20.40	< 55	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	15
BZM55-B22	21.55	22.45	< 55	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	16
BZM55-B24	23.50	24.50	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	18
BZM55-B27	26.40	27.60	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	20
BZM55-B30	29.40	30.60	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	22
BZM55-B33	32.40	33.60	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	24
BZM55-B36	35.30	36.70	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	27
BZM55-B39	38.20	39.80	< 90	< 500	2.5	+ 0.04	+ 0.12	1	<0.1	<5	30
BZM55-B43	42.10	43.90	< 90	< 600	2.5	+ 0.04	+ 0.12	0.5	<0.1	<5	33
BZM55-B47	46.10	47.90	< 110	< 700	2.5	+ 0.04	+ 0.12	0.5	<0.1	<5	36
BZM55-B51	50.00	52.00	< 125	< 700	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	39
BZM55-B56	54.90	57.10	< 135	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	43
BZM55-B62	60.80	63.20	< 150	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	47
BZM55-B68	66.60	69.40	< 200	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	51
BZM55-B75	73.50	76.50	< 250	< 1500	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	56

Notes: 1. t_p < 10 ms, T/t_p > 1000.

*) Additionnal measurement of Voltage group 9V1 to 75 at 95 % V_{zmin} < 35 nA at T_j 25 °C

RATINGS AND CHARACTERISTIC CURVES

(T_A = 25°C unless otherwise noted)

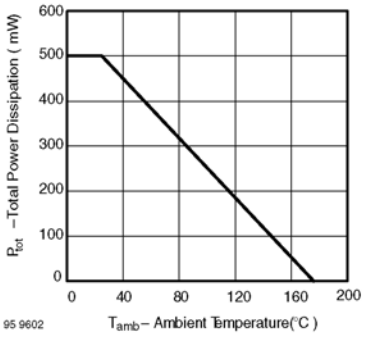


Fig. 1 Total Power Dissipation vs. Ambient Temperature

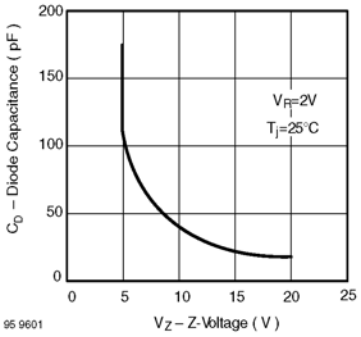


Fig. 4 Diode Capacitance vs. Z-Voltage

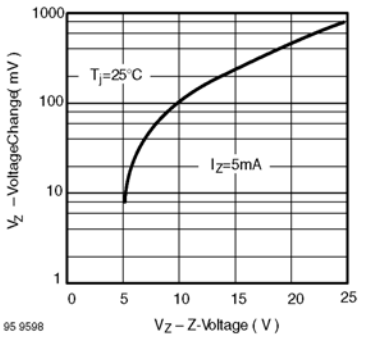


Fig. 2 Typical Change of Working Voltage under Operating Conditions at T_{amb}=25°C

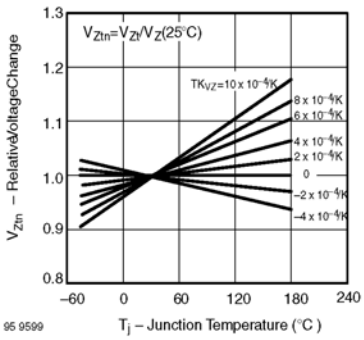


Fig. 5 Typical Change of Working Voltage vs. Junction Temperature

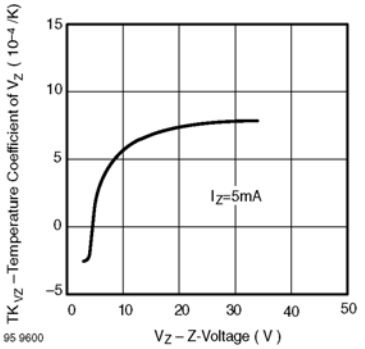


Fig. 3 Temperature Coefficient of Vz vs. Z-Voltage

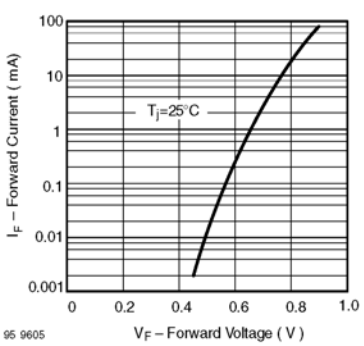


Fig. 6 Forward Current vs. Forward Voltage

RATINGS AND CHARACTERISTIC CURVES

(T_A = 25°C unless otherwise noted)

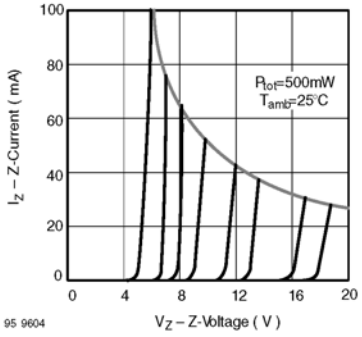


Fig. 7 Z-Current vs. Z-Voltage

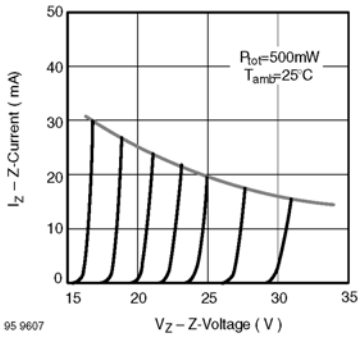


Fig. 8 Z-Current vs. Z-Voltage

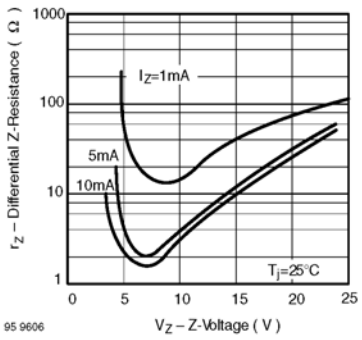


Fig. 9 Differential Z-Resistance vs. Z-Voltage

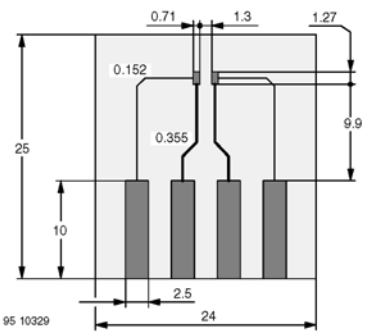


Fig. 10 Board for R_{thJA} definition (in mm)

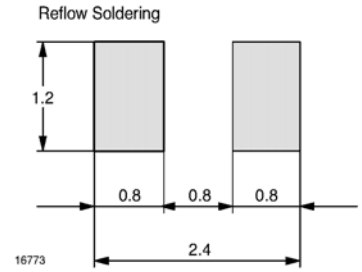


Fig. 11 Recommended foot pads (in mm)

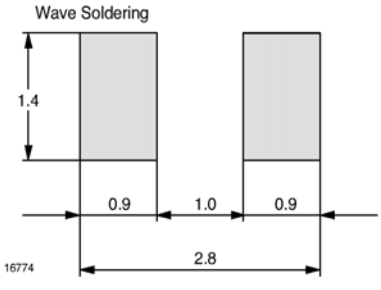


Fig. 12 Recommended foot pads (in mm)

RATINGS AND CHARACTERISTIC CURVES

(T_A = 25°C unless otherwise noted)

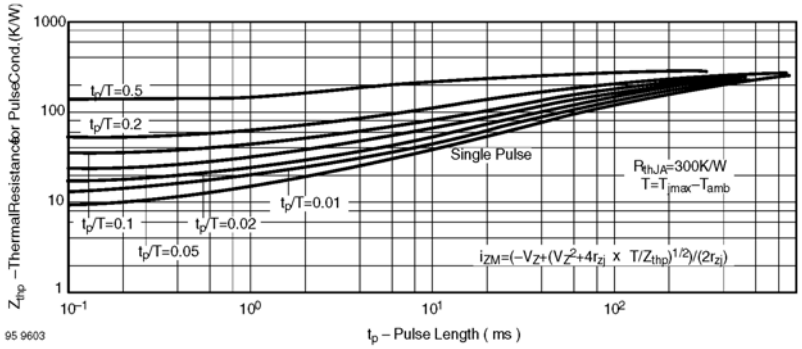


Fig. 13 Thermal Response