

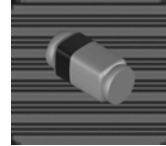


# BZT55 Series

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

## Features

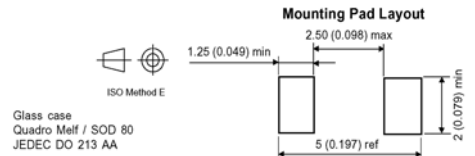
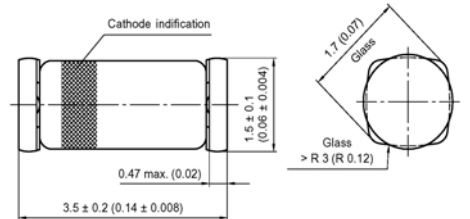
- ◆ Very sharp reverse characteristic
- ◆ Low reverse current level
- ◆ Available with tighter tolerances
- ◆ Very high stability
- ◆ Low noise
- ◆ For voltage stabilization



## Mechanical Data

- ◆ Case: QuadroMELF (SOD-80)
- ◆ Weight: approx. 0.034g

## Package Dimensions in mm (inches)



## Maximum Ratings and Thermal Characteristics

( $T_{amb} = 25^{\circ}\text{C}$ , unless otherwise specified)

Parameter	Symbol	Value	Unit
Zener current (see Table "Characteristics")	$I_Z$	$P_{tot}/V_Z$	mA
Power dissipation at $R_{thJA} \leq 300\text{K/W}$	$P_{tot}$	500	mW
Junction temperature	$T_j$	175	$^{\circ}\text{C}$
Storage temperature range	$T_{stg}$	-65 to +175	$^{\circ}\text{C}$
Forward voltage at $I_F=200\text{mA}$	$V_F$	1.5	V
Junction ambient on PC board 50mm X 50mm X 1.6mm	$R_{thJA}$	500	K/W

# Electrical Characteristics

(T<sub>A</sub>=25°C unless otherwise noted)

Part number C for ±5% V <sub>Z</sub>	Zener voltage <sup>1)</sup> V <sub>Z</sub> @ I <sub>ZT</sub> (V)		Dynamic resistance		Test current	Temperature coefficient TK <sub>VZ</sub> (% / K)		Test current	Reverse leakage current		
	Min.	Max.	at I <sub>ZT</sub> f=1kHz r <sub>zj</sub> (Ω)	at I <sub>ZK</sub> f=1kHz r <sub>zj</sub> (Ω)	I <sub>ZT</sub> (mA)	Min.	Max.	I <sub>ZK</sub> (mA)	at T <sub>app</sub> =25°C I <sub>R</sub> (uA)	at T <sub>app</sub> =150°C I <sub>R</sub> (uA)	at V <sub>R</sub> (Volts)
BZT55-C2V4	2.28	2.56	< 85	< 600	5	- 0.09	- 0.06	1	<50	<100	1
BZT55-C2V7	2.50	2.90	< 85	< 600	5	- 0.09	- 0.06	1	<10	<50	1
BZT55-C3V0	2.80	3.20	< 90	< 600	5	- 0.08	- 0.05	1	<4	<40	1
BZT55-C3V3	3.10	3.50	< 90	< 600	5	- 0.08	- 0.05	1	<2	<40	1
BZT55-C3V6	3.40	3.80	< 90	< 600	5	- 0.08	- 0.05	1	<2	<40	1
BZT55-C3V9	3.70	4.10	< 90	< 600	5	- 0.06	- 0.03	1	<2	<40	1
BZT55-C4V3	4.00	4.60	< 90	< 600	5	- 0.05	+ 0.02	1	<1	<20	1
BZT55-C4V7	4.40	5.00	< 80	< 600	5	- 0.02	+ 0.02	1	<0.5	<10	1
BZT55-C5V1	4.80	5.40	< 60	< 550	5	- 0.05	+ 0.05	1	<0.1	<2	1
BZT55-C5V6	5.20	6.00	< 40	< 450	5	+ 0.03	+ 0.06	1	<0.1	<2	1
BZT55-C6V2	5.80	6.60	< 10	< 200	5	+ 0.03	+ 0.07	1	<0.1	<2	2
BZT55-C6V8	6.40	7.20	< 8	< 150	5	+ 0.03	+ 0.07	1	<0.1	<2	3
BZT55-C7V5	7.00	7.90	< 7	< 50	5	+ 0.03	+ 0.08	1	<0.1	<2	5
BZT55-C8V2	7.70	8.70	< 7	< 50	5	+ 0.03	+ 0.09	1	<0.1	<2	6.2
BZT55-C9V1	8.50	9.60	< 10	< 50	5	+ 0.03	+ 0.1	1	<0.1	<2	6.8
BZT55-C10	9.40	10.60	< 15	< 70	5	+ 0.03	+ 0.11	1	<0.1	<2	7.5
BZT55-C11	10.40	11.60	< 20	< 70	5	+ 0.03	+ 0.11	1	<0.1	<2	8.2
BZT55-C12	11.40	12.70	< 20	< 90	5	+ 0.03	+ 0.11	1	<0.1	<2	9.1
BZT55-C13	12.40	14.10	< 26	< 110	5	+ 0.03	+ 0.11	1	<0.1	<2	10
BZT55-C15	13.80	15.60	< 30	< 110	5	+ 0.03	+ 0.11	1	<0.1	<2	11
BZT55-C16	15.30	17.10	< 40	< 170	5	+ 0.03	+ 0.11	1	<0.1	<2	12
BZT55-C18	16.80	19.10	< 50	< 170	5	+ 0.03	+ 0.11	1	<0.1	<2	13
BZT55-C20	18.80	21.20	< 55	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	15
BZT55-C22	20.80	23.30	< 55	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	16
BZT55-C24	22.80	25.60	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	18
BZT55-C27	25.10	28.90	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	20
BZT55-C30	28.00	32.00	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	22
BZT55-C33	31.00	35.00	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	24
BZT55-C36	34.00	38.00	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	27
BZT55-C39	37.00	41.00	< 90	< 500	2.5	+ 0.04	+ 0.12	0.5	<0.1	<5	30
BZT55-C43	40.00	46.00	< 90	< 600	2.5	+ 0.04	+ 0.12	0.5	<0.1	<5	33
BZT55-C47	44.00	50.00	< 110	< 700	2.5	+ 0.04	+ 0.12	0.5	<0.1	<5	36
BZT55-C51	48.00	54.00	< 125	< 700	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	39
BZT55-C56	52.00	60.00	< 135	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	43
BZT55-C62	58.00	66.00	< 150	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	47
BZT55-C68	64.00	72.00	< 200	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	51
BZT55-C75	70.00	79.00	< 250	< 1500	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	56

Notes: 1. t<sub>p</sub> < 10 ms, T/t<sub>p</sub> > 1000.

\*) Additional measurement of Voltage group 9V1 to 75 at 95 % V<sub>Zmin</sub> < 35 nA at T<sub>j</sub> 25 °C

# Electrical Characteristics

(T<sub>A</sub>=25°C unless otherwise noted)

Part number B for ±2% V <sub>Z</sub>	Zener voltage <sup>1)</sup> V <sub>Z</sub> @ I <sub>ZT</sub> (V)		Dynamic resistance		Test current	Temperature coefficient TK <sub>VZ</sub> (% / K)		Test current	Reverse leakage current		
	Min.	Max.	at I <sub>ZT</sub> f=1kHz r <sub>Zj</sub> (Ω)	at I <sub>ZK</sub> f=1kHz r <sub>Zj</sub> (Ω)	I <sub>ZT</sub> (mA)	Min.	Max.	I <sub>ZK</sub> (mA)	at T <sub>amb</sub> =25°C I <sub>R</sub> (µA)	at T <sub>amb</sub> =150°C I <sub>R</sub> (µA)	at V <sub>R</sub> (Volts)
BZT55-B2V4	2.35	2.45	< 85	< 600	5	- 0.09	- 0.06	1	<50	<100	1
BZT55-B2V7	2.65	2.76	< 85	< 600	5	- 0.09	- 0.06	1	<10	<50	1
BZT55-B3V0	2.94	3.06	< 90	< 600	5	- 0.08	- 0.05	1	<4	<40	1
BZT55-B3V3	3.24	3.36	< 90	< 600	5	- 0.08	- 0.05	1	<2	<40	1
BZT55-B3V6	3.52	3.68	< 90	< 600	5	- 0.08	- 0.05	1	<2	<40	1
BZT55-B3V9	3.82	3.98	< 90	< 600	5	- 0.06	- 0.03	1	<2	<40	1
BZT55-B4V3	4.22	4.38	< 90	< 600	5	- 0.05	+ 0.02	1	<1	<20	1
BZT55-B4V7	4.6	4.8	< 80	< 600	5	- 0.02	+ 0.02	1	<0.5	<10	1
BZT55-B5V1	5.00	5.20	< 60	< 550	5	- 0.05	+ 0.05	1	<0.1	<2	1
BZT55-B5V6	5.48	5.72	< 40	< 450	5	+ 0.03	+ 0.06	1	<0.1	<2	1
BZT55-B6V2	6.08	6.32	< 10	< 200	5	+ 0.03	+ 0.07	1	<0.1	<2	2
BZT55-B6V8	6.66	6.94	< 8	< 150	5	+ 0.03	+ 0.07	1	<0.1	<2	3
BZT55-B7V5	7.35	7.65	< 7	< 50	5	+ 0.03	+ 0.08	1	<0.1	<2	5
BZT55-B8V2	8.04	8.36	< 7	< 50	5	+ 0.03	+ 0.09	1	<0.1	<2	6.2
BZT55-B9V1	8.92	9.28	< 10	< 50	5	+ 0.03	+ 0.1	1	<0.1	<2	6.8
BZT55-B10	9.80	10.20	< 15	< 70	5	+ 0.03	+ 0.11	1	<0.1	<2	7.5
BZT55-B11	10.78	11.22	< 20	< 70	5	+ 0.03	+ 0.11	1	<0.1	<2	8.2
BZT55-B12	11.76	12.24	< 20	< 90	5	+ 0.03	+ 0.11	1	<0.1	<2	9.1
BZT55-B13	12.74	13.26	< 26	< 110	5	+ 0.03	+ 0.11	1	<0.1	<2	10
BZT55-B15	14.70	15.30	< 30	< 110	5	+ 0.03	+ 0.11	1	<0.1	<2	11
BZT55-B16	15.70	16.30	< 40	< 170	5	+ 0.03	+ 0.11	1	<0.1	<2	12
BZT55-B18	17.64	18.36	< 50	< 170	5	+ 0.03	+ 0.11	1	<0.1	<2	13
BZT55-B20	19.60	20.40	< 55	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	15
BZT55-B22	21.55	22.45	< 55	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	16
BZT55-B24	23.50	24.50	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	18
BZT55-B27	26.40	27.60	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	20
BZT55-B30	29.40	30.60	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	22
BZT55-B33	32.40	33.60	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	24
BZT55-B36	35.30	36.70	< 80	< 220	5	+ 0.04	+ 0.12	1	<0.1	<2	27
BZT55-B39	38.20	39.80	< 90	< 500	2.5	+ 0.04	+ 0.12	1	<0.1	<5	30
BZT55-B43	42.10	43.90	< 90	< 600	2.5	+ 0.04	+ 0.12	0.5	<0.1	<5	33
BZT55-B47	46.10	47.90	< 110	< 700	2.5	+ 0.04	+ 0.12	0.5	<0.1	<5	36
BZT55-B51	50.00	52.00	< 125	< 700	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	39
BZT55-B56	54.90	57.10	< 135	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	43
BZT55-B62	60.80	63.20	< 150	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	47
BZT55-B68	66.60	69.40	< 200	< 1000	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	51
BZT55-B75	73.50	76.50	< 250	< 1500	2.5	+ 0.04	+ 0.12	0.5	<0.1	<10	56

Notes: 1. t<sub>p</sub> < 10 ms, T/t<sub>p</sub> > 1000.

\*) Additional measurement of Voltage group 9V1 to 75 at 95 % V<sub>Zmin</sub> < 35 nA at T<sub>J</sub> 25 °C

# RATINGS AND CHARACTERISTIC CURVES

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

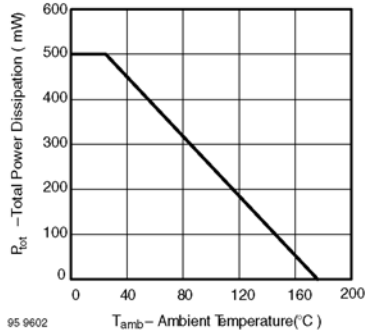


Fig. 1 Total Power Dissipation vs. Ambient Temperature

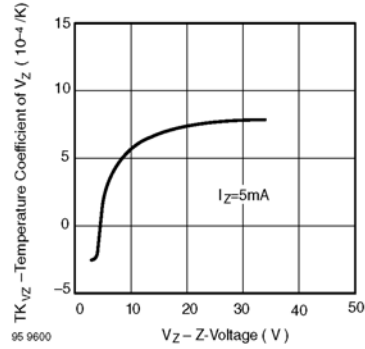


Fig. 4 Temperature Coefficient of  $V_Z$  vs. Z-Voltage

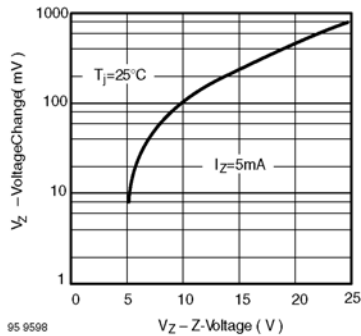


Fig. 2 Typical Change of Working Voltage under Operating Conditions at  $T_{amb}=25^\circ\text{C}$

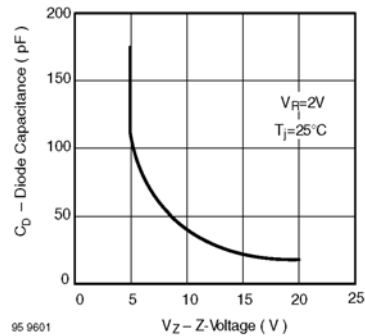


Fig. 5 Diode Capacitance vs. Z-Voltage

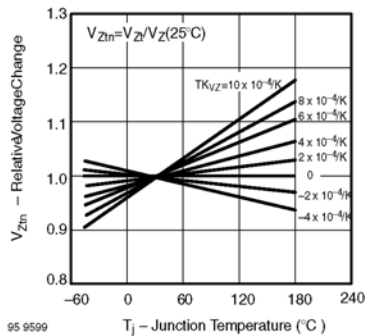


Fig. 3 Typical Change of Working Voltage vs. Junction Temperature

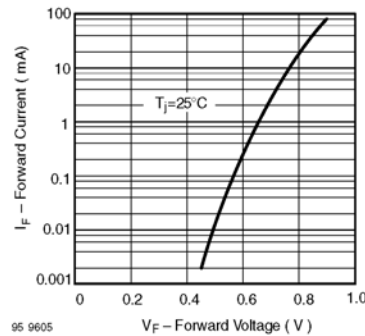


Fig. 6 Forward Current vs. Forward Voltage

# RATINGS AND CHARACTERISTIC CURVES

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

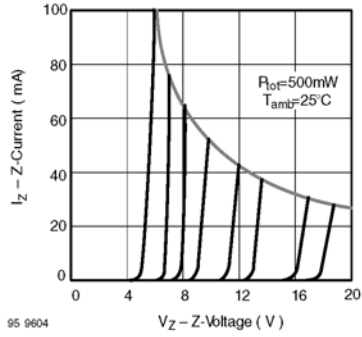


Fig. 7 Z-Current vs. Z-Voltage

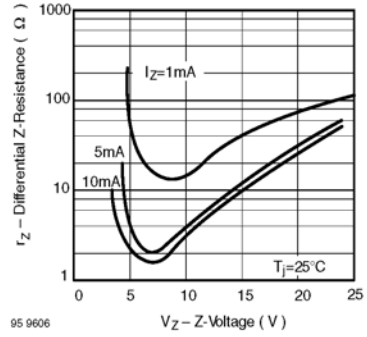


Fig. 9 Differential Z-Resistance vs. Z-Voltage

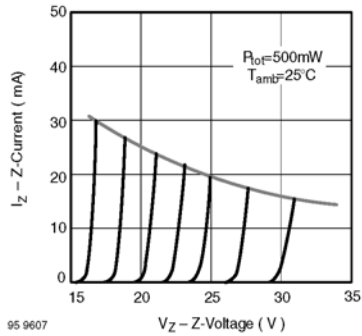


Fig. 8 Z-Current vs. Z-Voltage

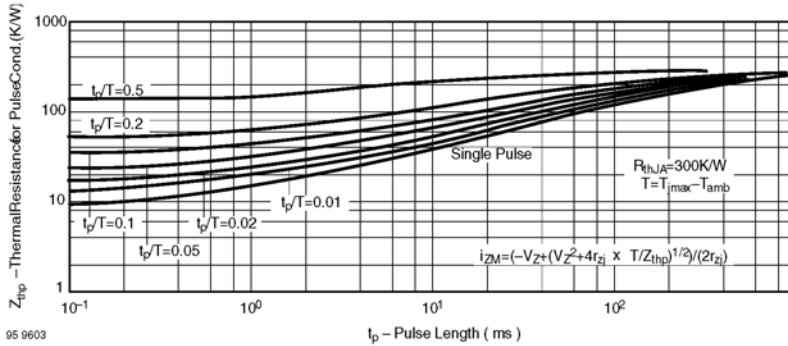


Fig. 10 Thermal Response