

# Zener diode

## Features

V<sub>Z</sub>-tolerance  $\pm 2\%$

## Applications

Voltage stabilization

## Construction

Silicon epitaxial planar



## Absolute Maximum Ratings

T<sub>j</sub>=25°C

Parameter	Test Conditions	Type	Symbol	Value	Unit
Power dissipation	I=4mm T <sub>L</sub> ≤25°C		P <sub>V</sub>	500	mW
Z-current			I <sub>Z</sub>	P <sub>V</sub> /V <sub>Z</sub>	mA
Junction temperature			T <sub>j</sub>	175	°C
Storage temperature range			T <sub>stg</sub>	-65~+175	°C

## Maximum Thermal Resistance

T<sub>j</sub>=25°C

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	I=4mm T <sub>L</sub> =constant	R <sub>thJA</sub>	350	K/W

## Electrical Characteristics

T<sub>j</sub>=25°C

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	I <sub>F</sub> =200mA		V <sub>F</sub>			1.5	V

# BZX55B Series

Type	V <sub>Znom</sub>	I <sub>ZT</sub>	for V <sub>ZT</sub> and	r <sub>zT</sub>	r <sub>zIK</sub> at	I <sub>ZK</sub>	I <sub>R</sub> and	I <sub>R</sub> at	V <sub>R</sub>	TK <sub>VZ</sub>
BZX55B	V	mA	V <sup>1)</sup>	Ω	Ω	mA	μ A	μ A <sup>2)</sup>	V	%/K
2V4	2.4	5	2.35~2.45	<85	<600	1	<50	<100	1	-0.09~-0.06
2V7	2.7	5	2.64~2.76	<85	<600	1	<10	<50	1	-0.09~-0.06
3V0	3.0	5	2.94~3.06	<85	<600	1	<4	<40	1	-0.08~-0.05
3V3	3.3	5	3.24~3.36	<85	<600	1	<2	<40	1	-0.08~-0.05
3V6	3.6	5	3.52~3.68	<85	<600	1	<2	<40	1	-0.08~-0.05
3V9	3.9	5	3.82~3.98	<85	<600	1	<2	<40	1	-0.08~-0.05
4V3	4.3	5	4.22~4.38	<75	<600	1	<1	<20	1	-0.06~-0.03
4V7	4.7	5	4.6~4.8	<60	<600	1	<0.5	<10	1	-0.05~+0.02
5V1	5.1	5	5.0~5.2	<35	<550	1	<0.1	<2	1	-0.02~+0.02
5V6	5.6	5	5.48~5.72	<25	<450	1	<0.1	<2	1	-0.05~+0.05
6V2	6.2	5	6.08~6.32	<10	<200	1	<0.1	<2	2	0.03~0.06
6V8	6.8	5	6.66~6.94	<8	<150	1	<0.1	<2	3	0.03~0.07
7V5	7.5	5	7.35~7.65	<7	<50	1	<0.1	<2	5	0.03~0.07
8V2	8.2	5	8.04~8.36	<7	<50	1	<0.1	<2	6.2	0.03~0.08
9V1	9.1	5	8.92~9.28	<10	<50	1	<0.1	<2	6.8	0.03~0.09
10	10	5	9.8~10.2	<15	<70	1	<0.1	<2	7.5	0.03~0.1
11	11	5	10.78~11.22	<20	<70	1	<0.1	<2	8.2	0.03~0.11
12	12	5	11.76~12.24	<20	<90	1	<0.1	<2	9.1	0.03~0.11
13	13	5	12.74~13.26	<26	<110	1	<0.1	<2	10	0.03~0.11
15	15	5	14.7~15.3	<30	<110	1	<0.1	<2	11	0.03~0.11
16	16	5	15.7~16.3	<40	<170	1	<0.1	<2	12	0.03~0.11
18	18	5	17.64~18.36	<50	<170	1	<0.1	<2	13	0.03~0.11
20	20	5	19.6~20.4	<55	<220	1	<0.1	<2	15	0.03~0.11
22	22	5	21.55~22.45	<55	<220	1	<0.1	<2	16	0.04~0.12
24	24	5	23.5~24.5	<80	<220	1	<0.1	<2	18	0.04~0.12
27	27	5	26.4~27.6	<80	<220	1	<0.1	<2	20	0.04~0.12
30	30	5	29.4~30.6	<80	<220	1	<0.1	<2	22	0.04~0.12
33	33	5	32.4~33.6	<80	<220	1	<0.1	<2	24	0.04~0.12
36	36	5	35.3~36.7	<80	<220	1	<0.1	<2	27	0.04~0.12
39	39	2.5	38.2~39.8	<90	<500	0.5	<0.1	<5	30	0.04~0.12
43	43	2.5	42.1~43.9	<90	<600	0.5	<0.1	<5	33	0.04~0.12
47	47	2.5	46.1~47.9	<110	<700	0.5	<0.1	<5	36	0.04~0.12
51	51	2.5	50~52	<125	<700	0.5	<0.1	<10	39	0.04~0.12
56	56	2.5	54.9~57.1	<135	<1000	0.5	<0.1	<10	43	0.04~0.12
62	62	2.5	60.8~63.2	<150	<1000	0.5	<0.1	<10	47	0.04~0.12
68	68	2.5	66.6~69.4	<200	<1000	0.5	<0.1	<10	51	0.04~0.12
75	75	2.5	73.5~76.5	<250	<1500	0.5	<0.1	<10	56	0.04~0.12

<sup>1)</sup> Other tolerances available request:

BZX55C... ±5% of V<sub>Znom</sub>

<sup>2)</sup> at T<sub>J</sub>=150°C

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

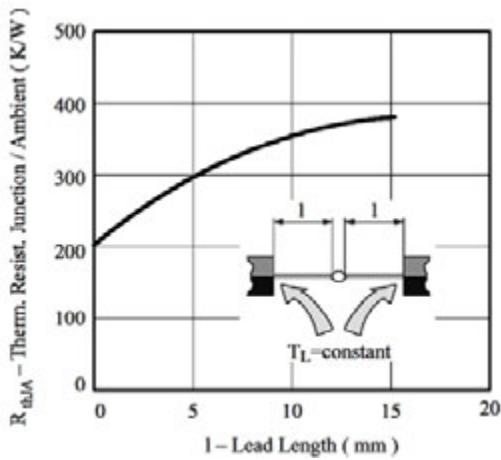


Figure 1. Thermal Resistance vs. Lead length

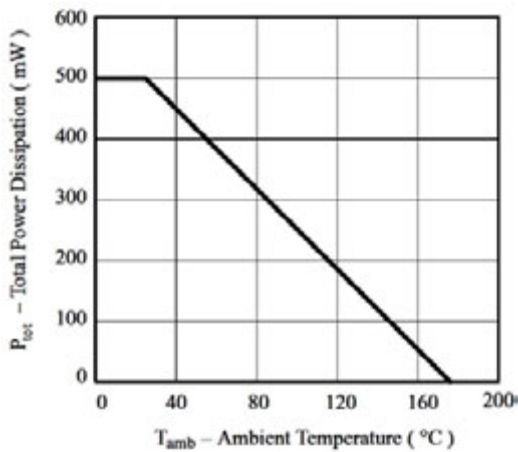


Figure 2. Total Power Dissipation vs. Ambient Temperature

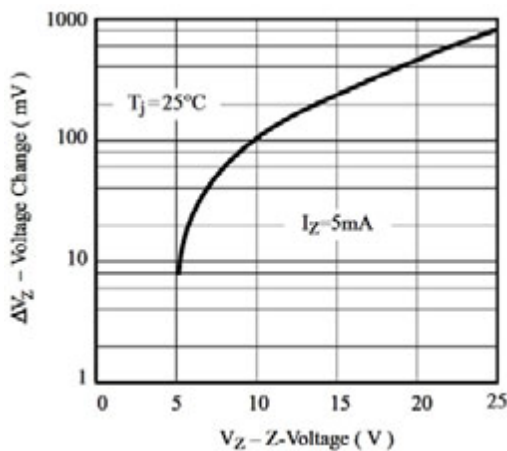


Figure 3. Typical Change of Working Voltage under Operating Conditions at  $T_{\text{amb}}=25^\circ\text{C}$

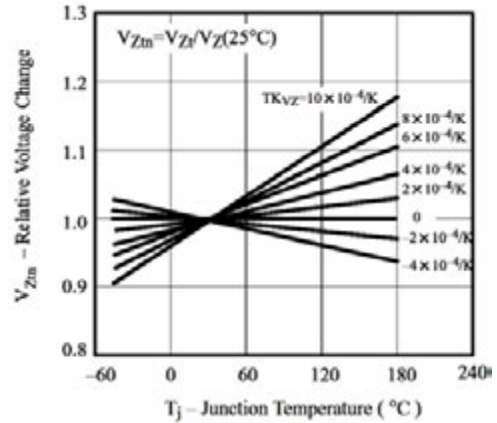


Figure 4. Typical Change of Working Voltage Vs. Junction Temperature

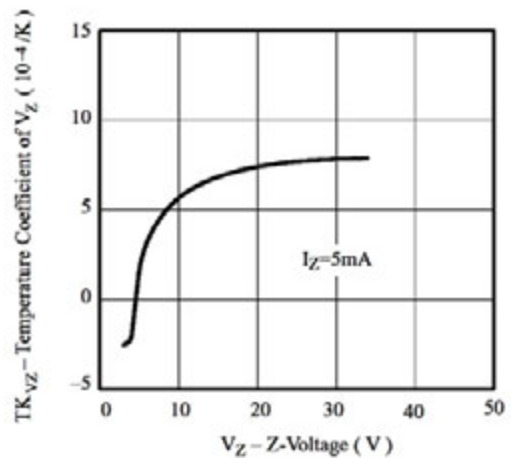


Figure 5. Temperature Coefficient of  $V_Z$  vs. Z-Voltage

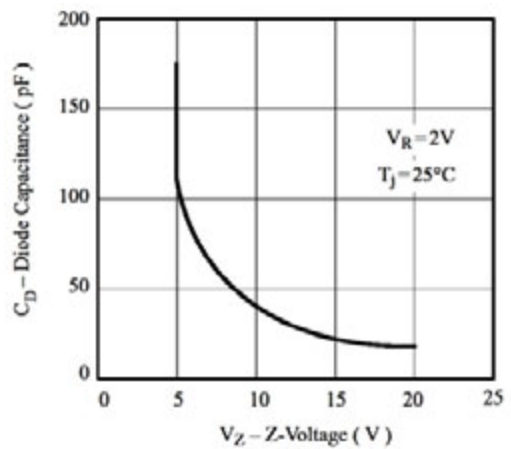


Figure 6. Diode Capacitance vs. Z-voltage

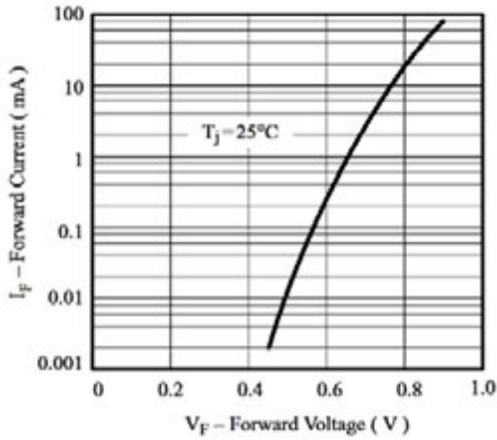


Figure 7. Forward Current vs. Forward Voltage

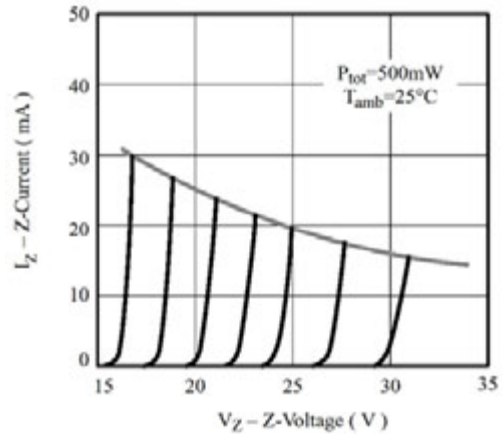


Figure 9. Z-Current vs. Z-Voltage

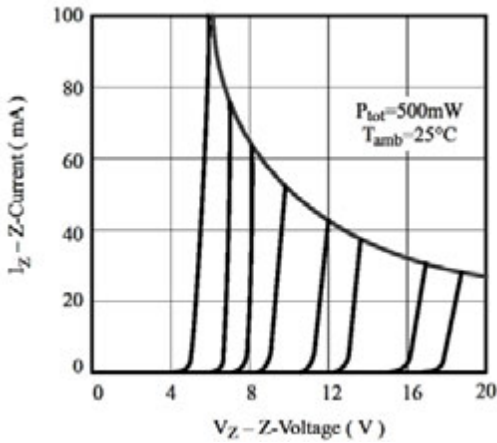


Figure 8. Z-Current vs. Z-Voltage

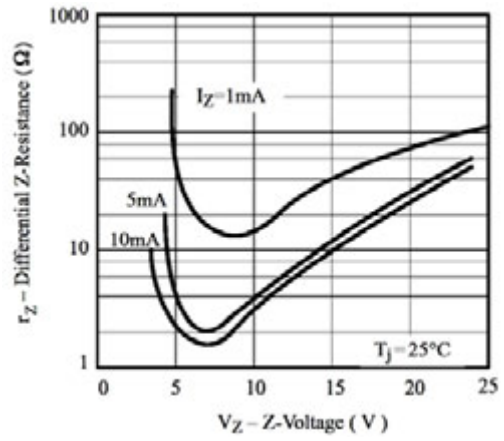


Figure 10. Differential Z-Resistance Vz vs. Z-Voltage

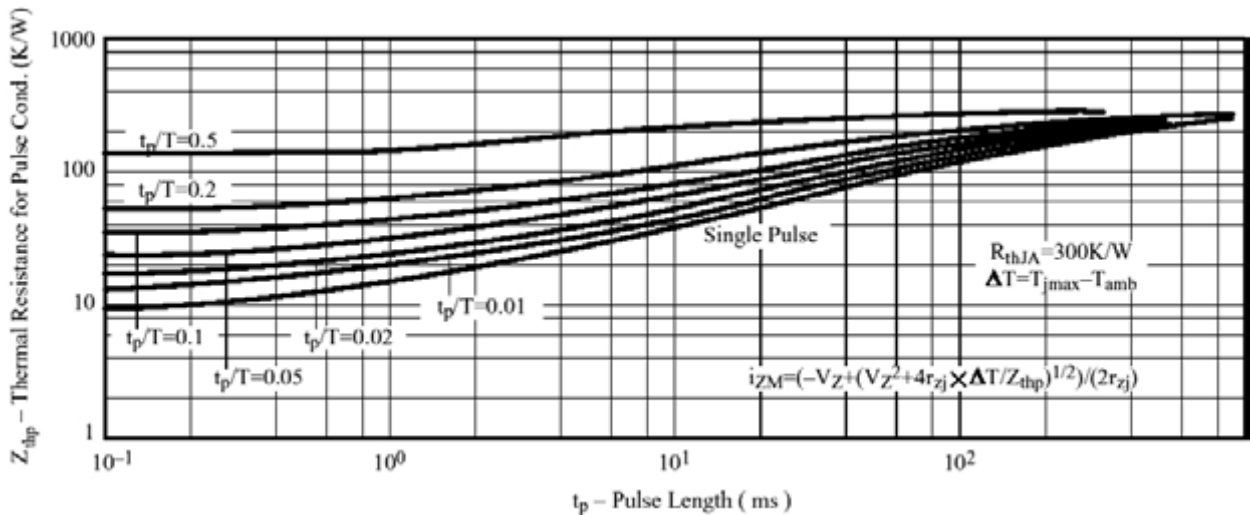
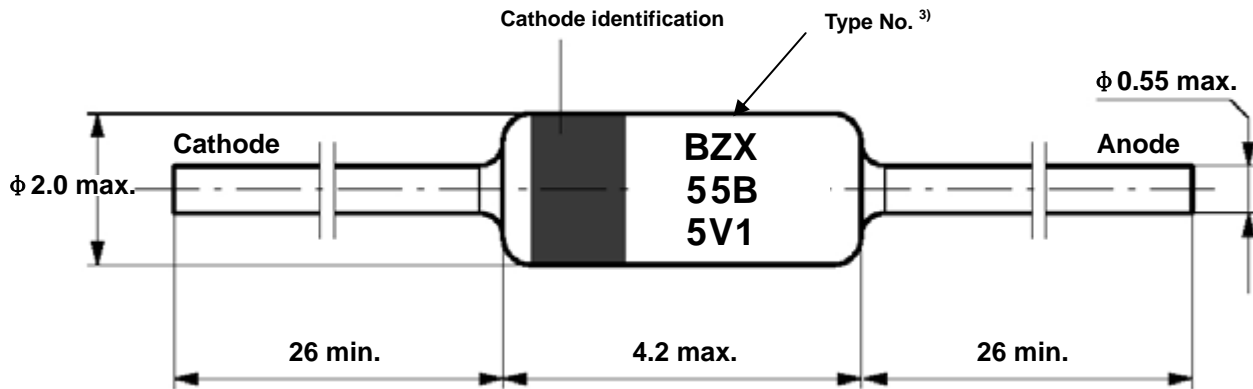


Figure 11. Thermal Response

## Dimensions in mm



Standard Glass Case  
JEDEC DO 35

<sup>3)</sup> Type No.

**BZX55 B 5V1**

①      ②      ③

- ① Series name
- ② Tighter tolerances available request:
  - A ----- $\pm 1\%$  of  $V_{Znom}$
  - B ----- $\pm 2\%$  of  $V_{Znom}$
  - C ----- $\pm 5\%$  of  $V_{Znom}$
- ③ Zener Voltage ( $V_{Znom}$ ), for example:
  - 5V1 ----- 5.1V
  - 12 ----- 12V