TEMIC
Semiconductors

BZX55C...

Silicon Epitaxial Planar Z–Diodes

Features

- Very sharp reverse characteristic
- Low reverse current level
- Very high stability
- Low noise
- Available with tighter tolerances

Applications

Voltage stabilization
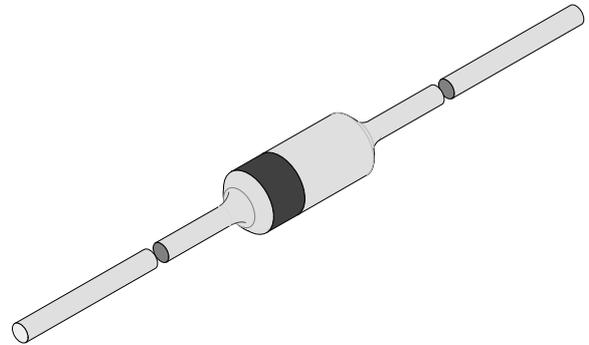
94 9367

Absolute Maximum Ratings

$T_j = 25°C$

Parameter	Test Conditions	Type	Symbol	Value	Unit
Power dissipation	l=4mm, T_L=25°C		P_V	500	mW
Z–current			I_Z	P_V/V_Z	mA
Junction temperature			T_j	175	°C
Storage temperature range			T_{stg}	−65...+175	°C

Maximum Thermal Resistance

$T_j = 25°C$

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	l=4mm, T_L=constant	R_{thJA}	300	K/W

Characteristics

$T_j = 25°C$

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	I_F=200mA		V_F			1.5	V

Type BZX55C...	V_{Znom} V	I_{ZT} mA	for V_{ZT} [1] V	and r_{zjT} Ω	r_{zjK} Ω	at I_{ZK} mA	I_R μA	and I_R [2] μA	at V_R V	TK_{VZ} %/K
2V4	2.4	5	2.28 to 2.56	< 85	< 600	1	< 50	< 100	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	< 85	< 600	1	< 4	< 40	1	–0.08 to –0.05
3V3	3.3	5	3.1 to 3.5	< 85	< 600	1	< 2	< 40	1	–0.08 to –0.05
3V6	3.6	5	3.4 to 3.8	< 85	< 600	1	< 2	< 40	1	–0.08 to –0.05
3V9	3.9	5	3.7 to 4.1	< 85	< 600	1	< 2	< 40	1	–0.08 to –0.05
4V3	4.3	5	4.0 to 4.6	< 75	< 600	1	< 1	< 20	1	–0.06 to –0.03
4V7	4.7	5	4.4 to 5.0	< 60	< 600	1	< 0.5	< 10	1	–0.05 to +0.02
5V1	5.1	5	4.8 to 5.4	< 35	< 550	1	< 0.1	< 2	1	–0.02 to +0.02
5V6	5.6	5	5.2 to 6.0	<25	< 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	0.5	< 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 on request:
BZX55A... ± 1% of V_{Znom}
BZX55B... ± 2% of V_{Znom}
BZX55F... ± 3% of V_{Znom}

[2] at $T_j = 150°C$

## Typical Characteristics ($T_j = 25°C$ unless otherwise specified)

95 9611
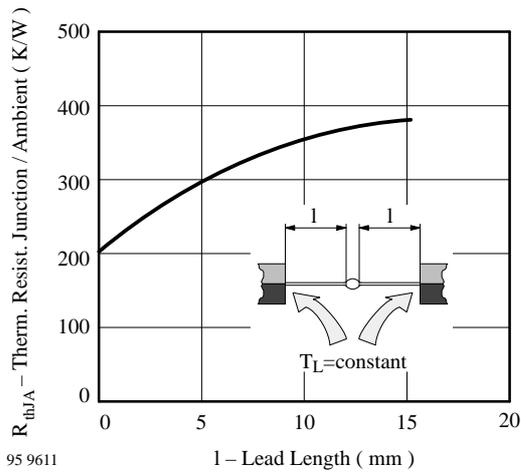
Figure 1. Thermal Resistance vs. Lead Length

95 9599
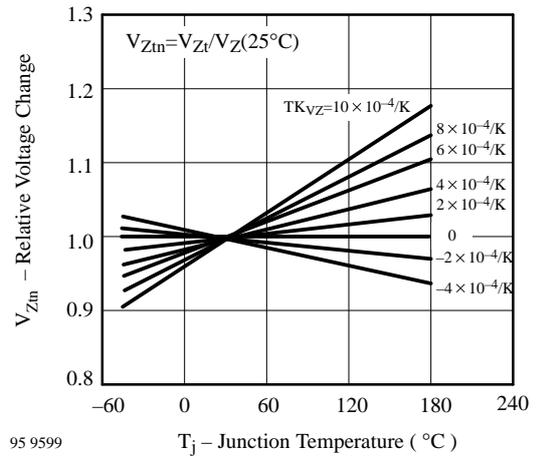
Figure 4. Typical Change of Working Voltage vs. Junction Temperature

95 9602
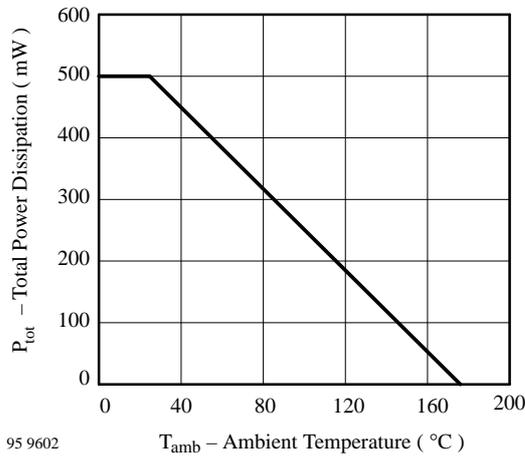
Figure 2. Total Power Dissipation vs. Ambient Temperature

95 9600
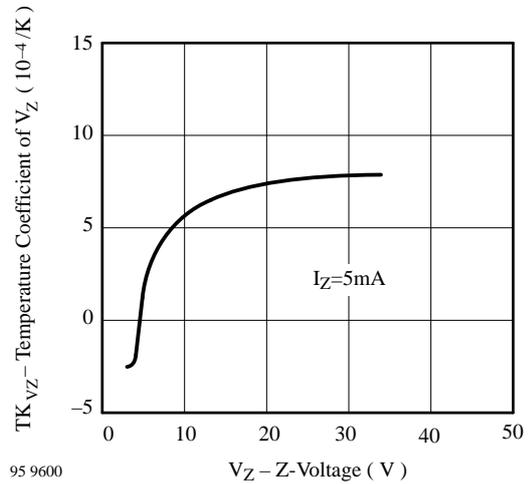
Figure 5. Temperature Coefficient of Vz vs. Z–Voltage

95 9598
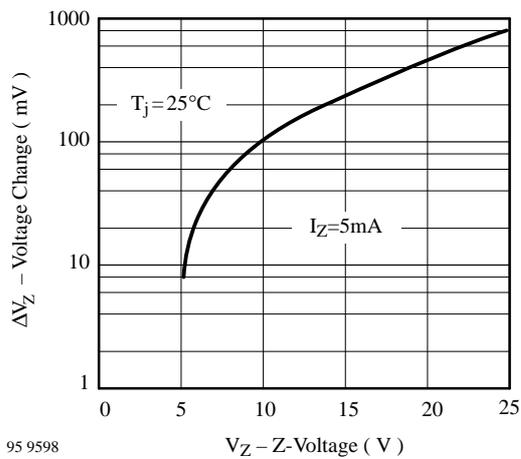
Figure 3. Typical Change of Working Voltage under Operating Conditions at $T_{amb}=25°C$

95 9601
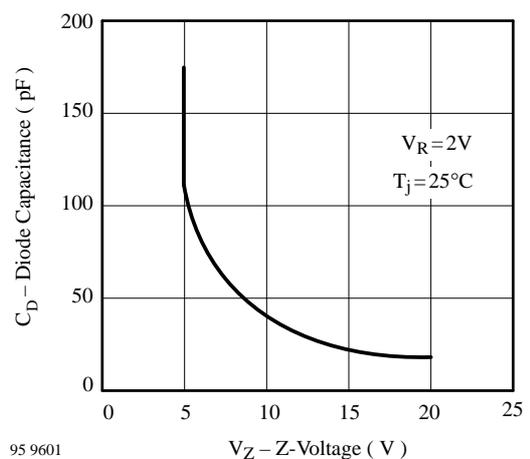
Figure 6. Diode Capacitance vs. Z–Voltage

95 9605
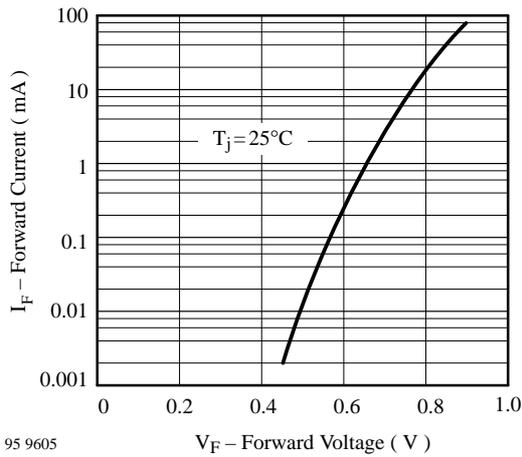
Figure 7. Forward Current vs. Forward Voltage

95 9607
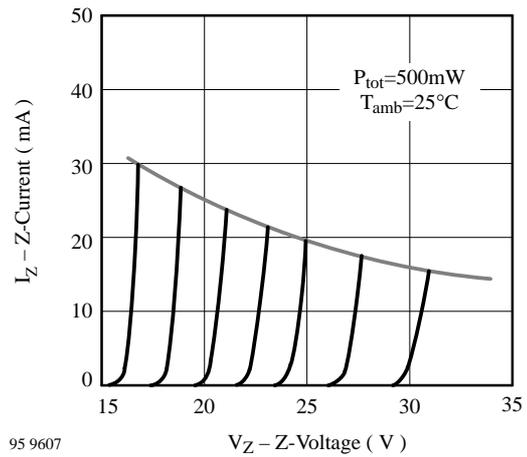
Figure 9. Z–Current vs. Z–Voltage

95 9604
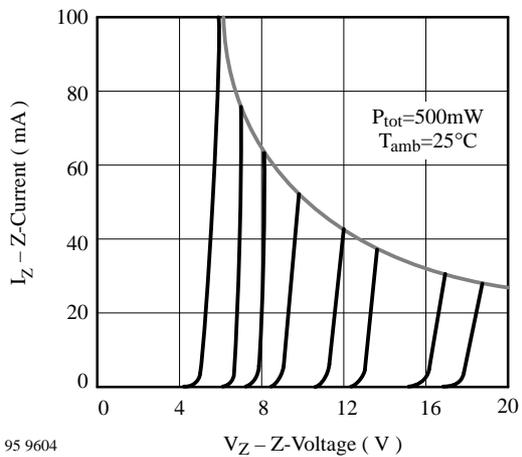
Figure 8. Z–Current vs. Z–Voltage

95 9606
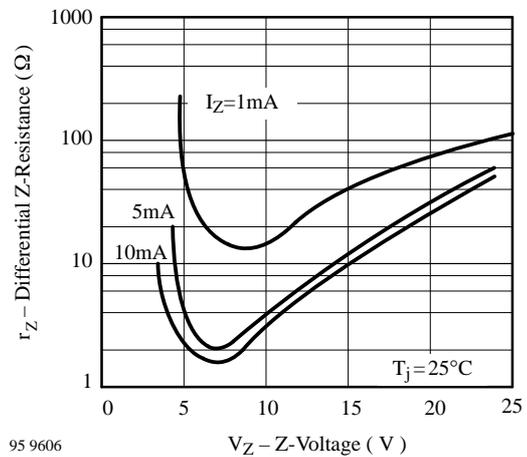
Figure 10. Differential Z–Resistance vs. Z–Voltage

95 9603
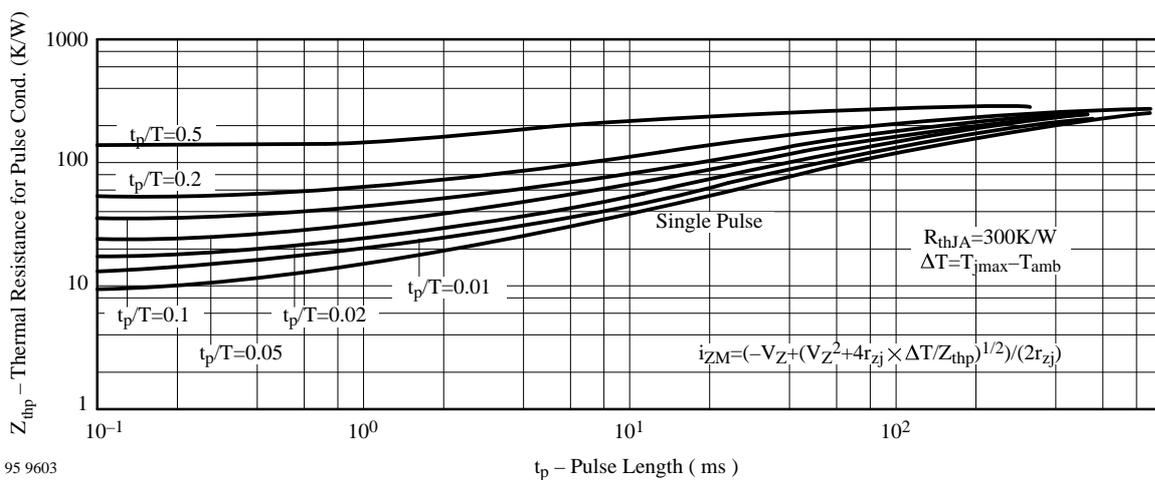
Figure 11. Thermal Response

In Figure 11:
- $R_{thJA}=300K/W$
- $\Delta T=T_{jmax}-T_{amb}$
- $i_{ZM}=(-V_Z+(V_Z^2+4r_{zj}\times\Delta T/Z_{thp})^{1/2})/(2r_{zj})$

TEMIC
Semiconductors

Dimensions in mm

technical drawings
according to DIN
specifications

94 9366

Standard Glass Case
54 A 2 DIN 41880
JEDEC DO 35
Weight max. 0.3 g

Cathode Identification

∅ 0.55 max.

∅ 1.7 max.

26 min.

3.9 max.

26 min.

TEMIC
Semiconductors
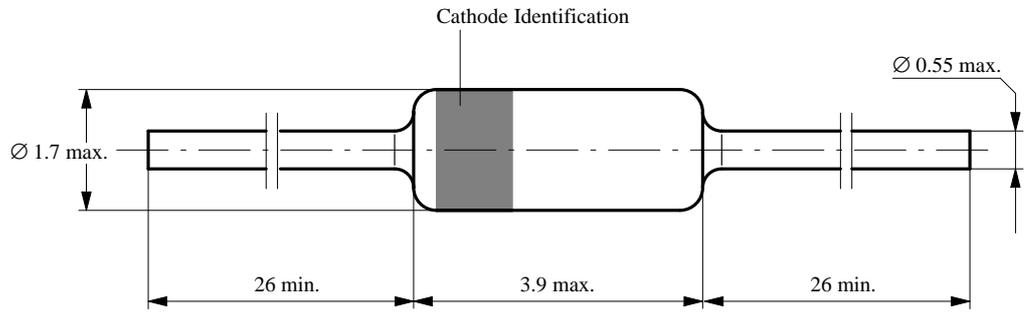
Ozone Depleting Substances Policy Statement

It is the policy of **TEMIC TELEFUNKEN microelectronic GmbH** to

1. Meet all present and future national and international statutory requirements.

2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively

2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA

3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.