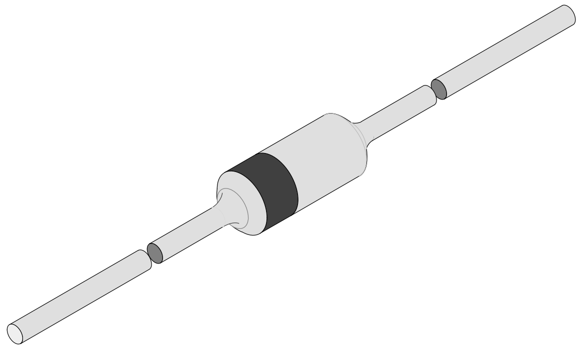
Silicon Epitaxial Planar Z–Diodes

Features

- Very sharp reverse characteristic
- Low reverse current level
- Low noise
- Very high stability
- Available with tighter tolerances
- V_Z–tolerance ± 2%



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Applications

Voltage stabilization

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

Electrical Characteristics

T_j = 25°C

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	I_F=100mA		V_F			1.5	V

Type	V_{Znom}	I_{ZT} for	V_{ZT} and	r_{zjT}	r_{zjk} at	I_{ZK}	I_R and	I_R at	V_R	TK_{VZ}
BZX55B...	V	mA	V	Ω	Ω	mA	μA	μA 2)	V	%/K
2V7	2.7	5	2.64 to 2.76	< 85	< 600	1	< 10	< 50	1	–0.09 to –0.06
3V0	3.0	5	2.94 to 3.06	< 90	< 600	1	< 4	< 40	1	–0.08 to –0.05
3V3	3.3	5	3.24 to 3.36	< 90	< 600	1	< 2	< 40	1	–0.08 to –0.05
3V6	3.6	5	3.52 to 3.68	< 90	< 600	1	< 2	< 40	1	–0.08 to –0.05
3V9	3.9	5	3.82 to 3.98	< 90	< 600	1	< 2	< 40	1	–0.08 to –0.05
4V3	4.3	5	4.22 to 4.38	< 90	< 600	1	< 1	< 20	1	–0.06 to –0.03
4V7	4.7	5	4.60 to 4.80	< 80	< 600	1	< 0.5	< 10	1	–0.05 to +0.02
5V1	5.1	5	5.00 to 5.20	< 60	< 550	1	< 0.1	< 2	1	–0.02 to +0.02
5V6	5.6	5	5.48 to 5.72	< 40	< 450	1	< 0.1	< 2	1	–0.05 to +0.05
6V2	6.2	5	6.08 to 6.32	< 10	< 200	1	< 0.1	< 2	2	0.03 to 0.06
6V8	6.8	5	6.66 to 6.94	< 8	< 150	1	< 0.1	< 2	3	0.03 to 0.07
7V5	7.5	5	7.35 to 7.65	< 7	< 50	1	< 0.1	< 2	5	0.03 to 0.07
8V2	8.2	5	8.04 to 8.36	< 7	< 50	1	< 0.1	< 2	6.2	0.03 to 0.08
9V1	9.1	5	8.92 to 9.28	< 10	< 50	1	< 0.1	< 2	6.8	0.03 to 0.09
10	10	5	9.80 to 10.20	< 15	< 70	1	< 0.1	< 2	7.5	0.03 to 0.1
11	11	5	10.78 to 11.22	< 20	< 70	1	< 0.1	< 2	8.2	0.03 to 0.11
12	12	5	11.76 to 12.24	< 20	< 90	1	< 0.1	< 2	9.1	0.03 to 0.11
13	13	5	12.74 to 13.26	< 26	< 110	1	< 0.1	< 2	10	0.03 to 0.11
15	15	5	14.70 to 15.30	< 30	< 110	1	< 0.1	< 2	11	0.03 to 0.11
16	16	5	15.70 to 16.30	< 40	< 170	1	< 0.1	< 2	12	0.03 to 0.11
18	18	5	17.64 to 18.36	< 50	< 170	1	< 0.1	< 2	13	0.03 to 0.11
20	20	5	19.60 to 20.40	< 55	< 220	1	< 0.1	< 2	15	0.03 to 0.11
22	22	5	21.55 to 22.45	< 55	< 220	1	< 0.1	< 2	16	0.04 to 0.12
24	24	5	23.5 to 24.5	< 80	< 220	1	< 0.1	< 2	18	0.04 to 0,12
27	27	5	26.4 to 27.6	< 80	< 220	1	< 0.1	< 2	20	0.04 to 0.12
30	30	5	29.4 to 30.6	< 80	< 220	1	< 0.1	< 2	22	0.04 to 0.12
33	33	5	32.4 to 33.6	< 80	< 220	1	< 0.1	< 2	24	0.04 to 0.12
36	36	5	35.3 to 36.7	< 80	< 220	1	< 0.1	< 2	27	0.04 to 0.12
39	39	2.5	38.2 to 39.8	< 90	< 500	0.5	< 0.1	< 5	30	0.04 to 0.12
43	43	2.5	42.1 to 43.9	< 90	< 600	0.5	< 0.1	< 5	33	0.04 to 0.12
47	47	2.5	46.1 to 47.9	< 110	< 700	0.5	< 0.1	< 5	36	0.04 to 0.12
51	51	2.5	50.0 to 52.0	< 125	< 700	0.5	< 0.1	< 10	39	0.04 to 0.12
56	56	2.5	54.9 to 57.1	< 135	< 1000	0.5	< 0.1	< 10	43	0.04 to 0.12
62	62	2.5	60.8 to 63.2	< 150	< 1000	0.5	< 0.1	< 10	47	0.04 to 0.12
68	68	2.5	66.6 to 69.4	< 200	< 1000	0.5	< 0.1	< 10	51	0.04 to 0.12
75	75	2.5	73.5 to 76.5	< 250	< 1500	0.5	< 0.1	< 10	56	0.04 to 0.12

Characteristics (T$_j$ = 25°C unless otherwise specified)

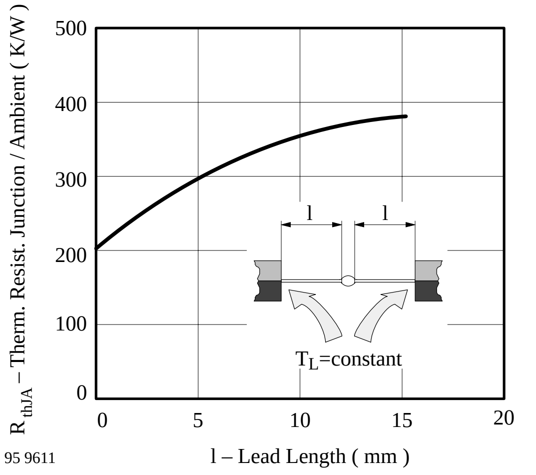

Figure 1. Thermal Resistance vs. Lead Length

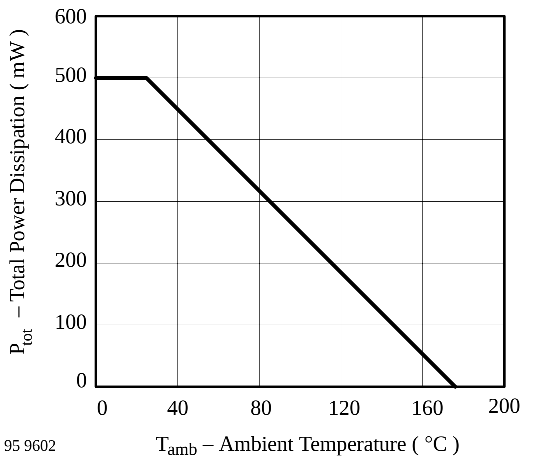

Figure 2. Total Power Dissipation vs. Ambient Temperature

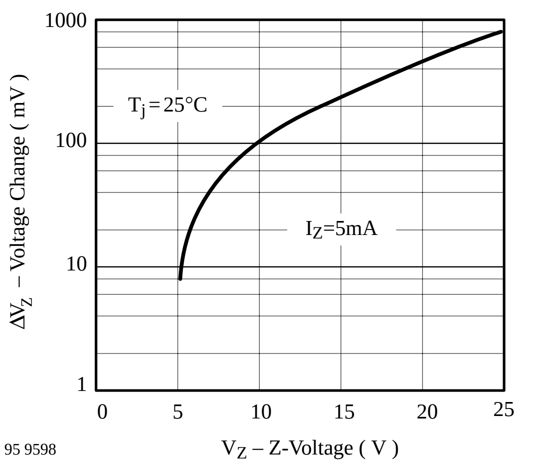

Figure 3. Typical Change of Working Voltage under Operating Conditions at T$_{amb}$=25°C

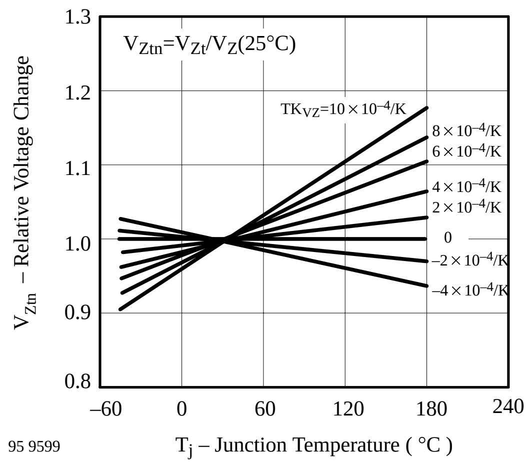

Figure 4. Typical Change of Working Voltage vs. Junction Temperature

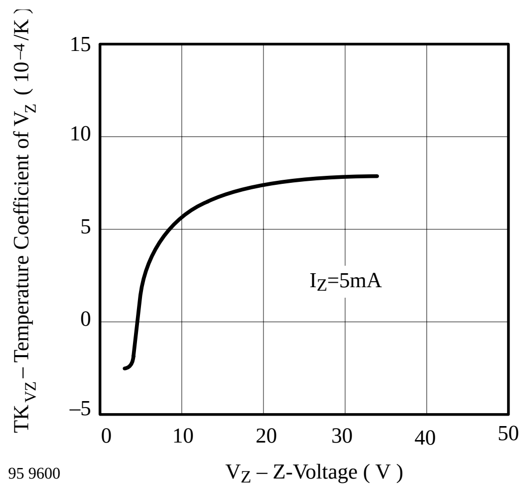

Figure 5. Temperature Coefficient of Vz vs. Z–Voltage

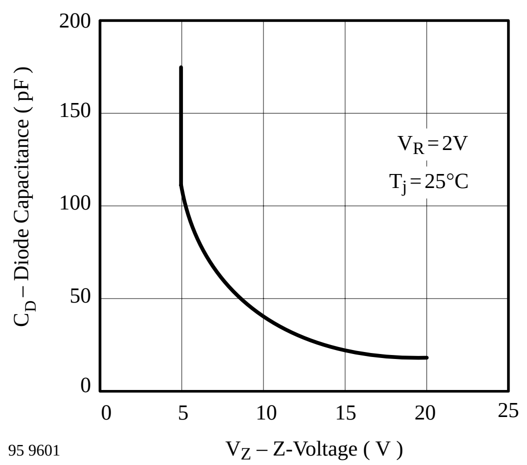

Figure 6. Diode Capacitance vs. Z–Voltage

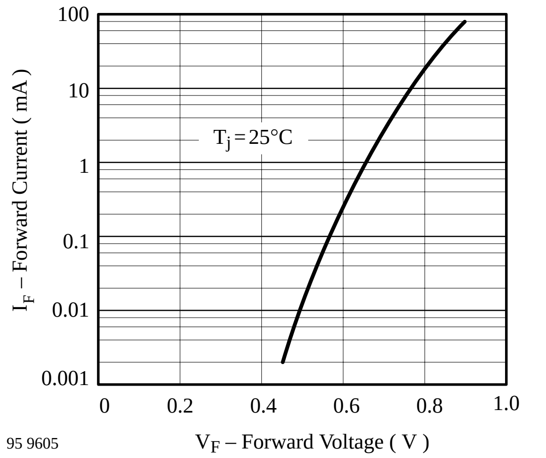

Figure 7. Forward Current vs. Forward Voltage

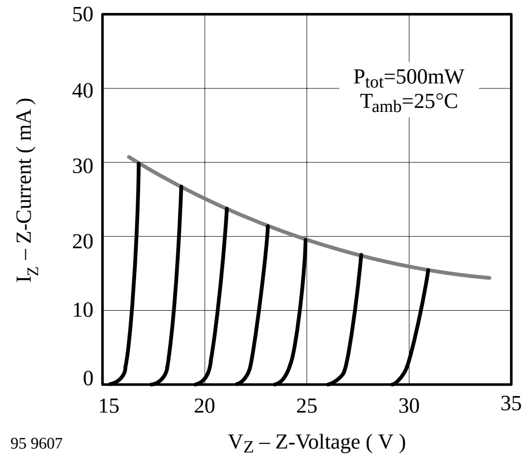

Figure 9. Z–Current vs. Z–Voltage

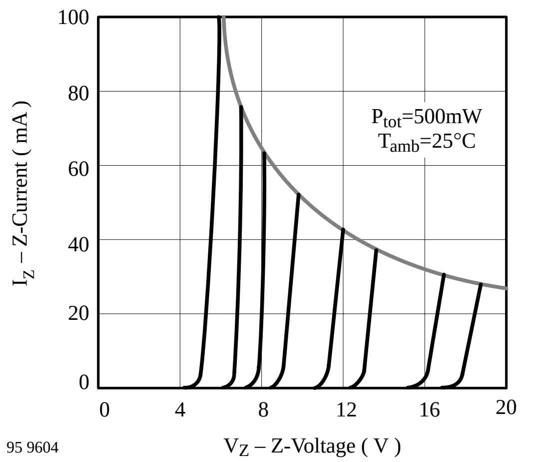

Figure 8. Z–Current vs. Z–Voltage

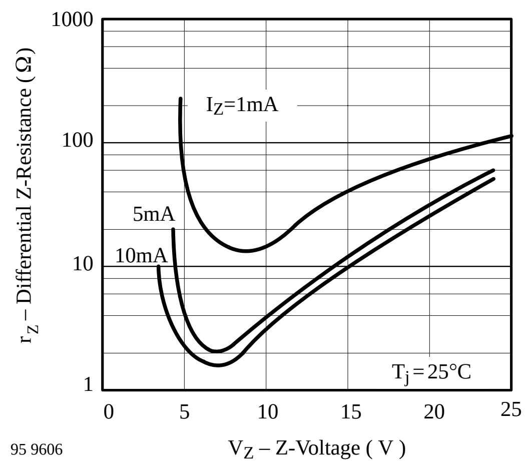

Figure 10. Differential Z–Resistance vs. Z–Voltage

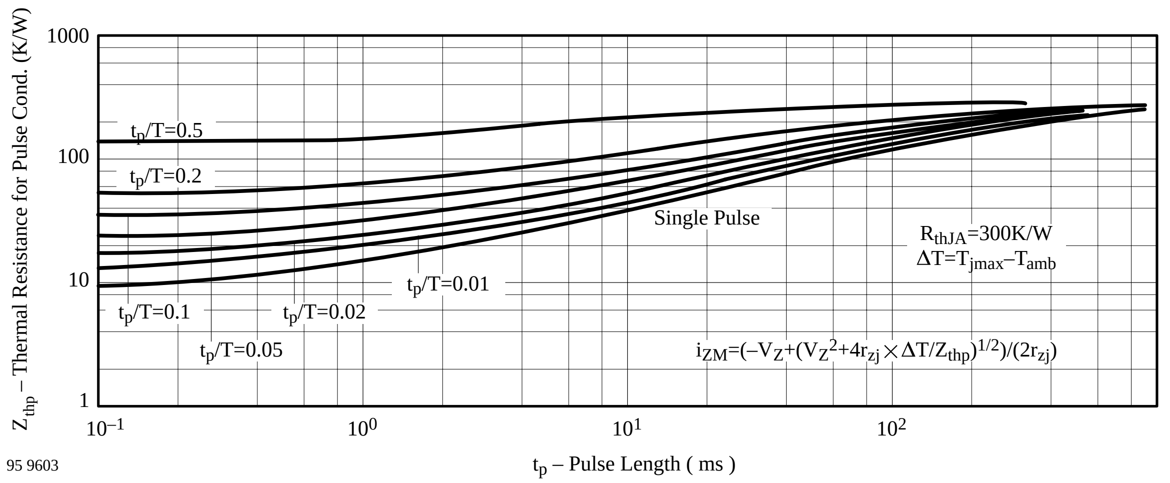

Figure 11. Thermal Response

Dimensions in mm

technical drawings
according to DIN
specifications

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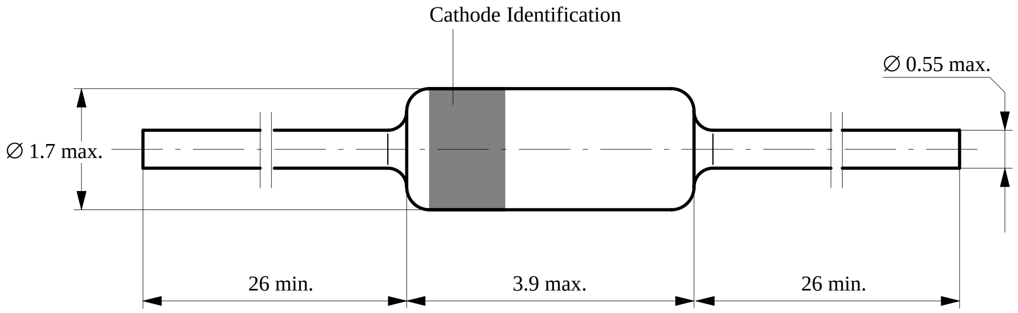

Standard Glass Case
54 A 2 DIN 41880
JEDEC DO 35
Weight max. 0.3 g

Ozone Depleting Substances Policy Statement

It is the policy of **Vishay Semiconductor 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.

Vishay Semiconductor GmbH 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.

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

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