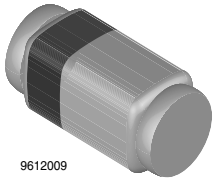
Small Signal Zener Diodes

Features

- Very sharp reverse characteristic
- Low reverse current level
- Available with tighter tolerances
- Very high stability
- Low noise
- V_Z - tolerance ± 5 %
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



Applications

- Voltage stabilization

Mechanical Data

Case: QuadroMELF Glass case SOD80
Weight: approx. 34 mg
Packaging Codes/Options:
GS18 / 10 k per 13" reel 10 k/box
GS08 / 2.5 k per 7" reel 12.5 k/box

Absolute Maximum Ratings

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

Parameter	Test condition	Symbol	Value	Unit
Power dissipation	$R_{thJA} \leq 300$ K/W	P_{tot}	500	mW
Z-current		I_Z	P_{tot}/V_Z	mA
Junction temperature		T_j	175	°C
Storage temperature range		T_{stg}	- 65 to + 175	°C

Thermal Characteristics

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

Parameter	Test condition	Symbol	Value	Unit
Junction to ambient air	on PC board 50 mm x 50 mm x 1.6 mm	R_{thJA}	500	K/W

Electrical Characteristics

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

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

Electrical Characteristics

Partnumber	Zener Voltage	Dynamic Resistance		Test Current		Temperature Coefficient of Zener Voltage	Reverse Leakage Current	
	V_{Znom}	r_{zjT} at I_{ZT}	r_{zjK} at I_{ZK}	I_{ZT}	I_{ZK}	TK_{VZ}	I_R at V_R	
	V	Ω	Ω	mA	mA	%/K	µA	V
TZQ5221B	2.4	< 30	< 1200	20	0.25	< - 0.085	< 100	1
TZQ5222B	2.5	< 30	< 1250	20	0.25	< - 0.085	< 100	1
TZQ5223B	2.7	< 30	< 1300	20	0.25	< - 0.080	< 75	1
TZQ5224B	2.8	< 30	< 1400	20	0.25	< - 0.080	< 75	1
TZQ5225B	3	< 29	< 1600	20	0.25	< - 0.075	< 50	1
TZQ5226B	3.3	< 28	< 1600	20	0.25	< - 0.070	< 25	1
TZQ5227B	3.6	< 24	< 1700	20	0.25	< - 0.065	< 15	1
TZQ5228B	3.9	< 23	< 1900	20	0.25	< - 0.060	< 10	1
TZQ5229B	4.3	< 22	< 2000	20	0.25	< ± 0.055	< 5	1
TZQ5230B	4.7	< 19	< 1900	20	0.25	< ± 0.030	< 5	2
TZQ5231B	5.1	< 17	< 1600	20	0.25	< ± 0.030	< 5	2
TZQ5232B	5.6	< 11	< 1600	20	0.25	< + 0.038	< 5	3
TZQ5233B	6	< 7	< 1600	20	0.25	< + 0.038	< 5	3.5
TZQ5234B	6.2	< 7	< 1000	20	0.25	< + 0.045	< 5	4
TZQ5235B	6.8	< 5	< 750	20	0.25	< + 0.050	< 3	5
TZQ5236B	7.5	< 6	< 500	20	0.25	< + 0.058	< 3	6
TZQ5237B	8.2	< 8	< 500	20	0.25	< + 0.062	< 3	6.5
TZQ5238B	8.7	< 8	< 600	20	0.25	< + 0.065	< 3	6.5
TZQ5239B	9.1	< 10	< 600	20	0.25	< + 0.068	< 3	7
TZQ5240B	10	< 17	< 600	20	0.25	< + 0.075	< 3	8
TZQ5241B	11	< 22	< 600	20	0.25	< + 0.076	< 2	8.4
TZQ5242B	12	< 30	< 600	20	0.25	< + 0.077	< 1	9.1
TZQ5243B	13	< 13	< 600	9.5	0.25	< + 0.079	< 0.5	9.9
TZQ5244B	14	< 15	< 600	9	0.25	< + 0.082	< 0.1	10
TZQ5245B	15	< 16	< 600	8.5	0.25	< + 0.082	< 0.1	11
TZQ5246B	16	< 17	< 600	7.8	0.25	< + 0.083	< 0.1	12
TZQ5247B	17	< 19	< 600	7.4	0.25	< + 0.084	< 0.1	13
TZQ5248B	18	< 21	< 600	7	0.25	< + 0.085	< 0.1	14
TZQ5249B	19	< 23	< 600	6.6	0.25	< + 0.086	< 0.1	14
TZQ5250B	20	< 25	< 600	6.2	0.25	< + 0.086	< 0.1	15
TZQ5251B	22	< 29	< 600	5.6	0.25	< + 0.087	< 0.1	17
TZQ5252B	24	< 33	< 600	5.2	0.25	< + 0.088	< 0.1	18
TZQ5253B	25	< 35	< 600	5	0.25	< + 0.089	< 0.1	19
TZQ5254B	27	< 41	< 600	4.6	0.25	< + 0.090	< 0.1	21
TZQ5255B	28	< 44	< 600	4.5	0.25	< + 0.091	< 0.1	21
TZQ5256B	30	< 49	< 600	4.2	0.25	< + 0.091	< 0.1	23
TZQ5257B	33	< 58	< 700	3.8	0.25	< + 0.092	< 0.1	25
TZQ5258B	36	< 70	< 700	3.4	0.25	< + 0.093	< 0.1	27
TZQ5259B	39	< 80	< 800	3.2	0.25	< + 0.094	< 0.1	30
TZQ5260B	43	< 93	< 900	3	0.25	< + 0.095	< 0.1	33
TZQ5261B	47	< 105	< 1000	2.7	0.25	< + 0.095	< 0.1	36
TZQ5262B	51	< 125	< 1100	2.5	0.25	< + 0.096	< 0.1	39
TZQ5263B	56	< 150	< 1300	2.2	0.25	< + 0.096	< 0.1	43
TZQ5264B	60	< 170	< 1400	2.1	0.25	< + 0.097	< 0.1	46
TZQ5265B	62	< 185	< 1400	2	0.25	< + 0.097	< 0.1	47
TZQ5266B	68	< 230	< 1600	1.8	0.25	< + 0.097	< 0.1	52
TZQ5267B	75	< 270	< 1700	1.7	0.25	< + 0.098	< 0.1	56

[1] Based on dc measurement at thermal equilibrium; case temperature maintained at 30 °C ± 2 °C.

Typical Characteristics

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

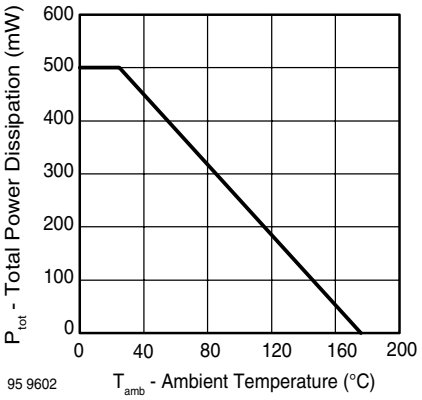


Figure 1. Total Power Dissipation vs. Ambient Temperature

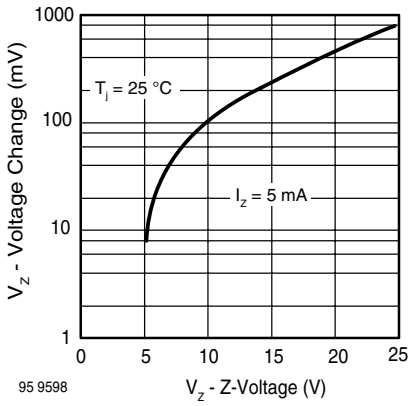


Figure 2. Typical Change of Working Voltage under Operating Conditions at T_{amb}=25°C

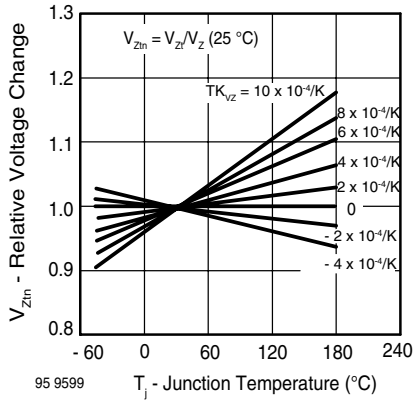


Figure 3. Typical Change of Working Voltage vs. Junction Temperature

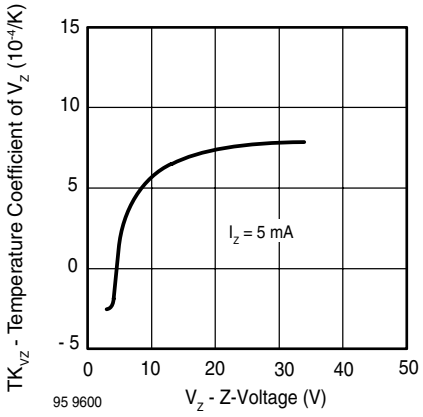


Figure 4. Temperature Coefficient of Vz vs. Z-Voltage

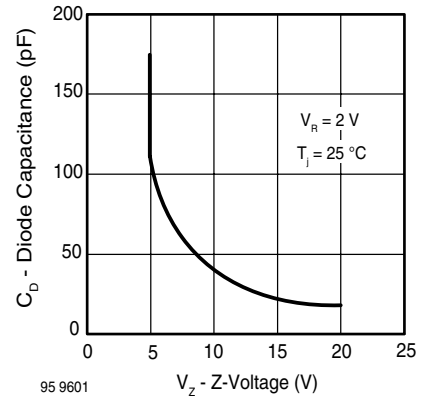


Figure 5. Diode Capacitance vs. Z-Voltage

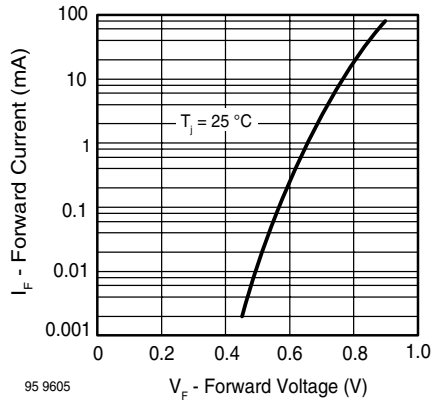


Figure 6. Forward Current vs. Forward Voltage

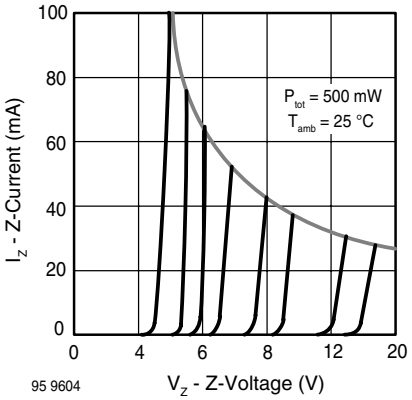


Figure 7. Z-Current vs. Z-Voltage

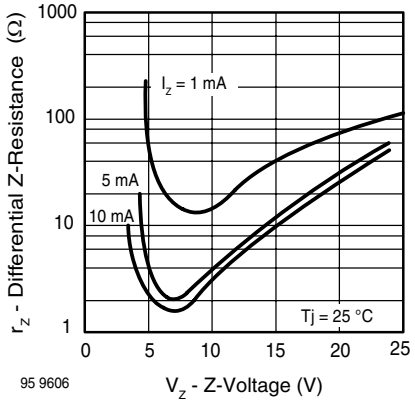


Figure 9. Differential Z-Resistance vs. Z-Voltage

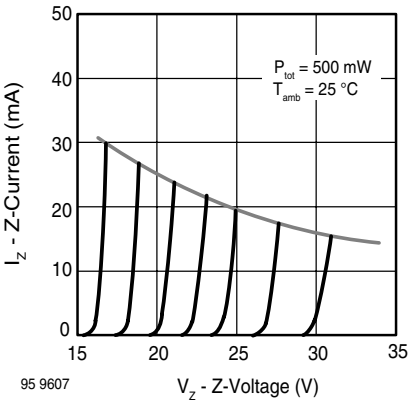


Figure 8. Z-Current vs. Z-Voltage

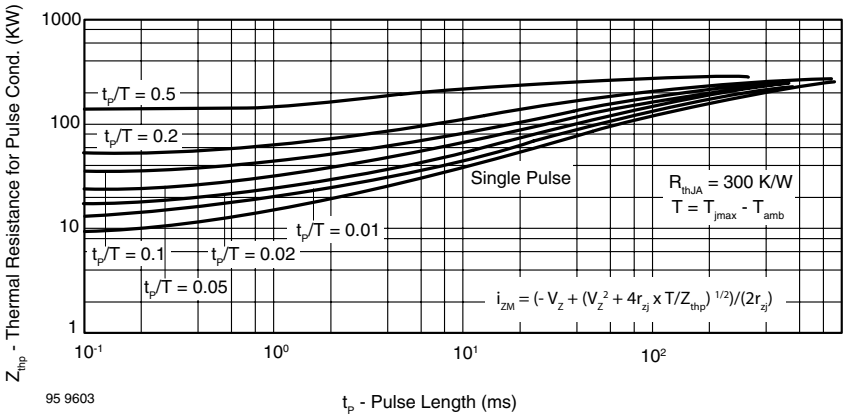
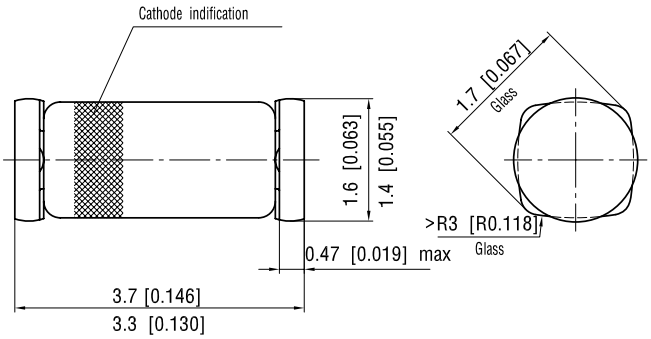
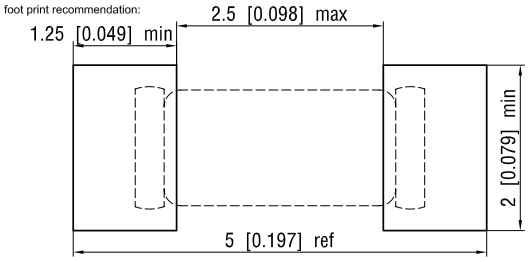


Figure 10. Thermal Response

Package Dimensions in mm (Inches)





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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.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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