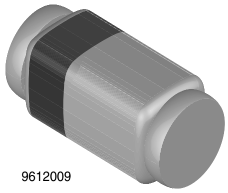
Small Signal Zener Diodes

Features

- Zener voltage specified at 50 µA
- Maximum delta V_Z given from 10 µA to 100 µA
- Very high stability
- Low noise
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



Applications

- Voltage stabilization

Packaging Codes/Options:

GS08 / 2.5 k per 7" reel 12.5 k/box

Mechanical Data

Case: QuadroMELF Glass case SOD80

Weight: approx. 34 mg

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 = 100 mA	V_F			1.5	V

Electrical Characteristics

Partnumber	Zener Voltage			Max. Zener Current	Max. Voltage Change	Max. Reverse Current	Test Voltage
	V_Z at I_Z = 50 µA			I_{ZM}[2)]	ΔV_Z[4)]	I_R[3)]	V_R[3)]
	V			mA	V	µA	V
	typ[1)]	min	max				
TZS4678	1.8	1.71	1.89	120	0.7	7.5	1
TZS4679	2	1.9	2.1	110	0.7	5	1
TZS4680	2.2	2.09	2.31	100	0.75	4	1
TZS4681	2.4	2.28	2.52	95	0.80	2	1
TZS4682	2.7	2.565	2.835	90	0.85	1	1
TZS4683	3	2.85	3.15	85	0.90	0.80	1
TZS4684	3.3	3.135	3.465	80	0.95	7.5	1.5
TZS4685	3.6	3.42	3.78	75	0.95	7.5	2
TZS4686	3.9	3.705	4.095	70	0.97	5	2
TZS4687	4.3	4.085	4.515	65	0.99	4	2
TZS4688	4.7	4.465	4.935	60	0.99	10	3
TZS4689	5.1	4.845	5.355	55	0.97	10	3
TZS4690	5.6	5.32	5.88	50	0.96	10	4
TZS4691	6.2	5.89	6.51	45	0.95	10	5
TZS4692	6.8	6.46	7.14	35	0.90	10	5.1
TZS4693	7.5	7.125	7.875	31.8	0.75	10	5.7
TZS4694	8.2	7.79	8.61	29	0.5	1	6.2
TZS4695	8.7	8.265	9.135	27.4	0.1	1	6.6
TZS4696	9.1	8.645	9.555	26.2	0.08	1	6.9
TZS4697	10	9.5	10.5	24.8	0.1	1	7.6
TZS4698	11	10.45	11.55	21.6	0.11	0,05	8.4
TZS4699	12	11.4	12.6	20.4	0.12	0.05	9.1
TZS4700	13	12.35	13.65	19	0.13	0.05	9.8
TZS4701	14	13.3	14.7	17.5	0.14	0.05	10.6
TZS4702	15	14.25	15.75	16.3	0.15	0.05	11.4
TZS4703	16	15.2	16.8	15.4	0.16	0.05	12.1
TZS4704	17	16.15	17.85	14.5	0.17	0.05	12.9
TZS4705	18	17.1	18.9	13.2	0.18	0.05	13.6
TZS4706	19	18.05	19.95	12.5	0.19	0.05	14.4
TZS4707	20	19	21	11.9	0.2	0.01	15.2
TZS4708	22	20.9	23.1	10.8	0.22	0.01	16.7
TZS4709	24	22.8	25.2	9.9	0.24	0.01	18.2
TZS4710	25	23.75	26.25	9.5	0.25	0.01	19
TZS4711	27	25.65	28.35	8.8	0.27	0.01	20.4
TZS4712	28	26.6	29.4	8.5	0.28	0.01	21.2
TZS4713	30	28.5	31.5	7.9	0.3	0.01	22.8
TZS4714	33	31.35	34.65	7.2	0.33	0.01	25
TZS4715	36	34.2	37.8	6.6	0.36	0.01	27.3
TZS4716	39	37.05	40.95	6.1	0.39	0.01	29.6
TZS4717	43	40.85	45.15	5.5	0.43	0.01	32.6

[1)] Toleranzing and voltage designation (V_Z). The type numbers shown have a standard tolerance of ± 5 % on the nominal zener voltage.

[2)] Maximum zener current ratings (I_{ZM}). Maximum zener current ratings are based on maximum zener voltage of the individual units.

[3)] Reverse leakage current (I_R). Reverse leakage currents are guaranteed and measured at V_R as shown on the table.

[4)] Maximum voltage change (ΔV_Z). Voltage change is equal to the difference between V_Z at 100 µA and V_Z at 10 µA.

Typical Characteristics

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

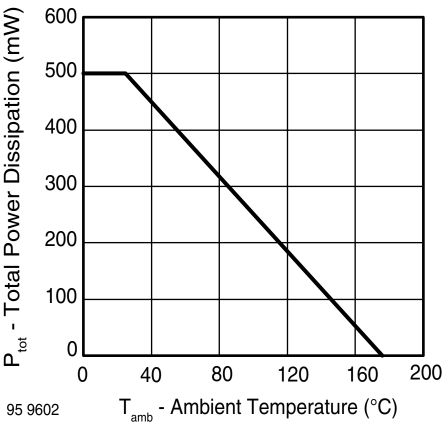


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Figure 1. Total Power Dissipation vs. Ambient Temperature

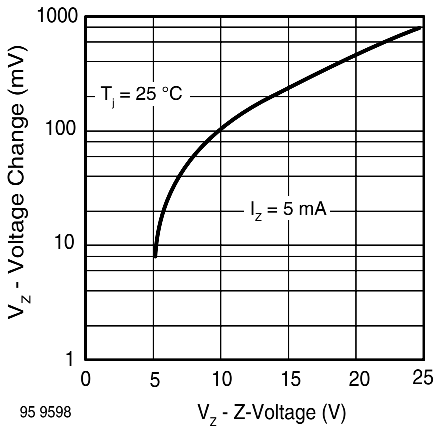

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Figure 2. Typical Change of Working Voltage under Operating Conditions at T_{amb}=25°C

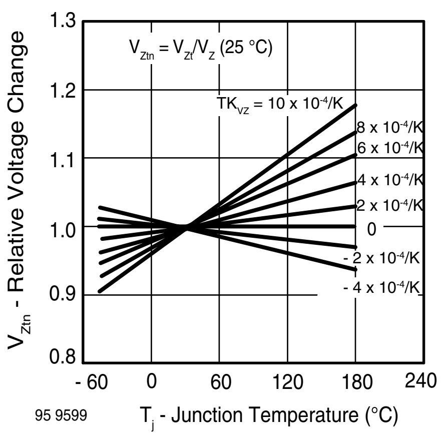

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Figure 3. Typical Change of Working Voltage vs. Junction Temperature

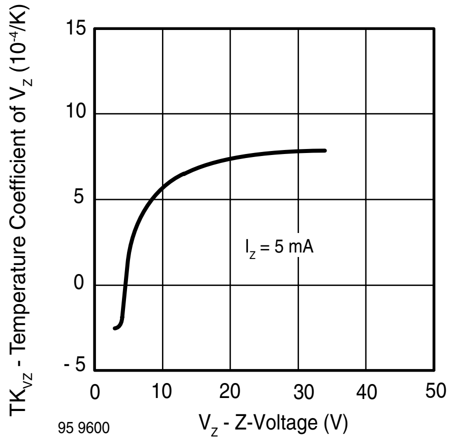

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Figure 4. Temperature Coefficient of Vz vs. Z-Voltage

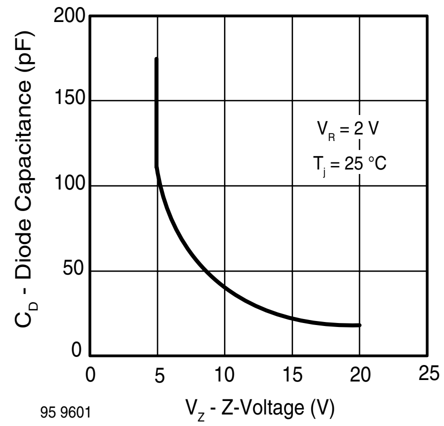

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Figure 5. Diode Capacitance vs. Z-Voltage

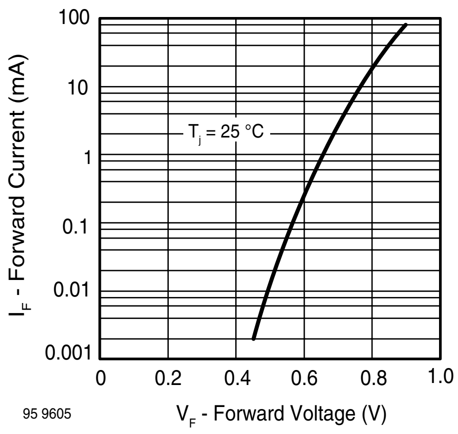

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Figure 6. Forward Current vs. Forward Voltage

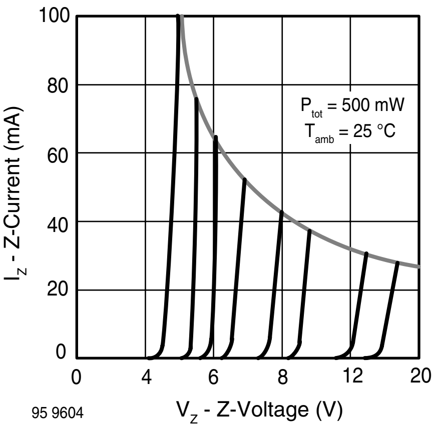


Figure 7. Z-Current vs. Z-Voltage

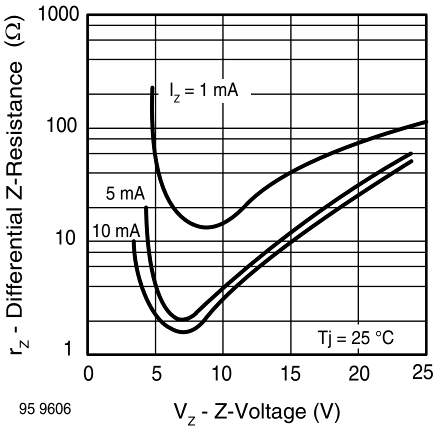


Figure 9. Differential Z-Resistance vs. Z-Voltage

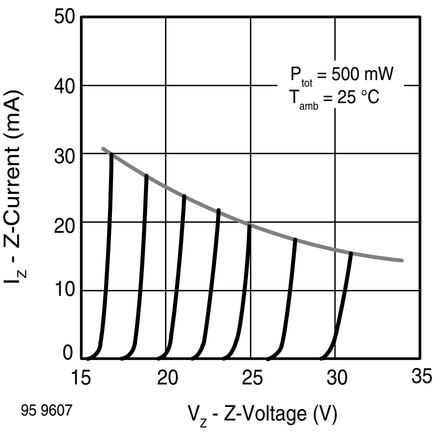


Figure 8. Z-Current vs. Z-Voltage

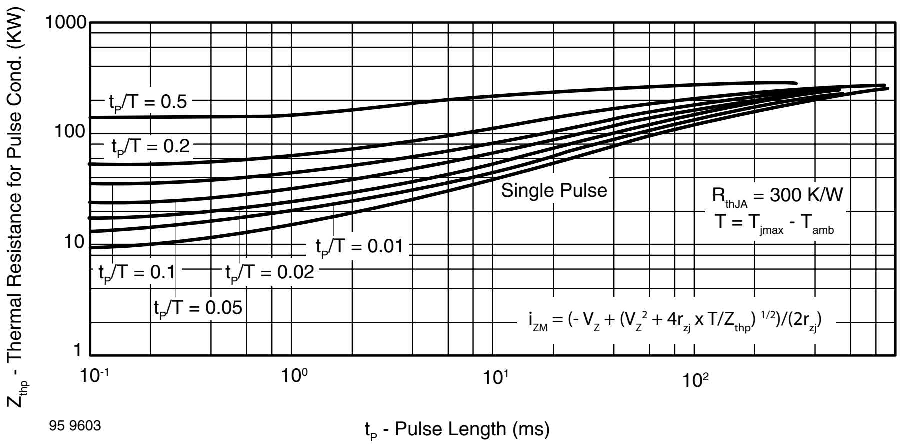
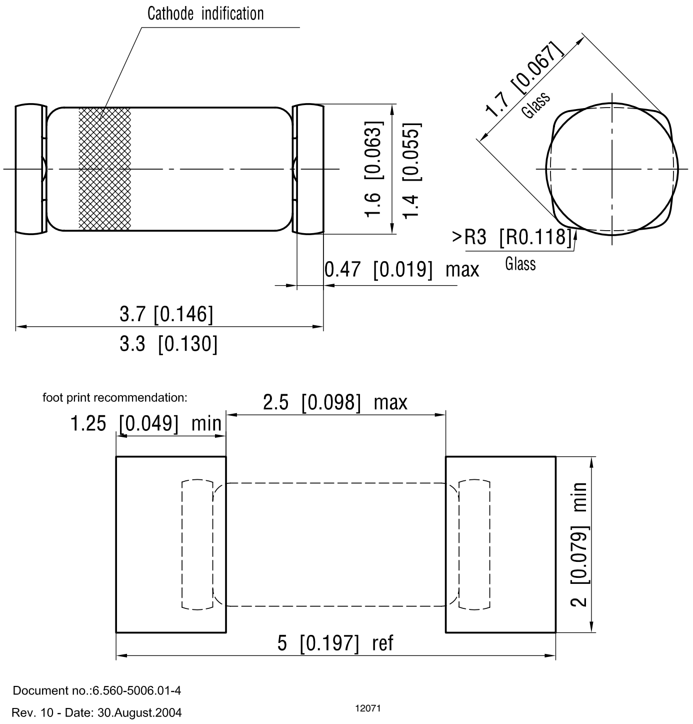


Figure 10. Thermal Response

Package Dimensions in mm (Inches)



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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