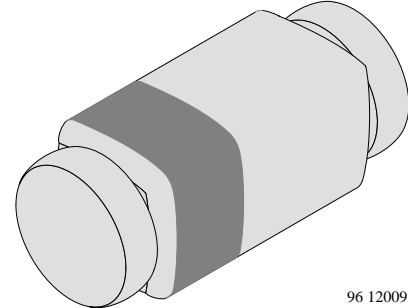


Silicon Epitaxial Planar Z-Diodes

Features

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



96 12009

Applications

Voltage stabilization

Order Instruction

Type	Ordering Code	Remarks
TZQ5221B	TZQ5221B-GS08	Tape and Reel (2.500 pcs)
	TZQ5221B-GS18	Tape and Reel (10.000 pcs)

Absolute Maximum Ratings

 $T_j = 25^\circ\text{C}$

Parameter	Test Conditions	Type	Symbol	Value	Unit
Power dissipation	$R_{thJA} \leq 300\text{K/W}$		P_V	500	mW
Z-current			I_Z	P_V/V_Z	mA
Junction temperature			T_j	175	$^\circ\text{C}$
Storage temperature range			T_{stg}	-65...+175	$^\circ\text{C}$

Maximum Thermal Resistance

 $T_j = 25^\circ\text{C}$

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	on PC board 50 mmx50 mmx1.6 mm	R_{thJA}	500	K/W

Electrical Characteristics

 $T_j = 25^\circ\text{C}$

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Forward voltage	$I_F=200\text{mA}$		V_F			1.5	V

TZQ5221B...TZQ5267B



Vishay Semiconductors

Type	$V_{Znom}^{1)}$	I_{ZT} for r_{zIT}		r_{zjk} at I_{ZK}		I_R at V_R		TK_{VZ}
	V	mA	Ω	Ω	mA	μA	V	%/K
TZQ5221B	2.4	20	< 30	< 1200	0.25	< 100	1.0	< -0.085
TZQ5222B	2.5	20	< 30	< 1250	0.25	< 100	1.0	< -0.085
TZQ5223B	2.7	20	< 30	< 1300	0.25	< 75	1.0	< -0.080
TZQ5224B	2.8	20	< 30	< 1400	0.25	< 75	1.0	< -0.080
TZQ5225B	3.0	20	< 29	< 1600	0.25	< 50	1.0	< -0.075
TZQ5226B	3.3	20	< 28	< 1600	0.25	< 25	1.0	< -0.070
TZQ5227B	3.6	20	< 24	< 1700	0.25	< 15	1.0	< -0.065
TZQ5228B	3.9	20	< 23	< 1900	0.25	< 10	1.0	< -0.060
TZQ5229B	4.3	20	< 22	< 2000	0.25	< 5	1.0	< ± 0.055
TZQ5230B	4.7	20	< 19	< 1900	0.25	< 5	2.0	< ± 0.030
TZQ5231B	5.1	20	< 17	< 1600	0.25	< 5	2.0	< ± 0.030
TZQ5232B	5.6	20	< 11	< 1600	0.25	< 5	3.0	< +0.038
TZQ5233B	6.0	20	< 7	< 1600	0.25	< 5	3.5	< +0.038
TZQ5234B	6.2	20	< 7	< 1000	0.25	< 5	4.0	< +0.045
TZQ5235B	6.8	20	< 5	< 750	0.25	< 3	5.0	< +0.050
TZQ5236B	7.5	20	< 6	< 500	0.25	< 3	6.0	< +0.058
TZQ5237B	8.2	20	< 8	< 500	0.25	< 3	6.5	< +0.062
TZQ5238B	8.7	20	< 8	< 600	0.25	< 3	6.5	< +0.065
TZQ5239B	9.1	20	< 10	< 600	0.25	< 3	7.0	< +0.068
TZQ5240B	10	20	< 17	< 600	0.25	< 3	8.0	< +0.075
TZQ5241B	11	20	< 22	< 600	0.25	< 2	8.4	< +0.076
TZQ5242B	12	20	< 30	< 600	0.25	< 1	9.1	< +0.077
TZQ5243B	13	9.5	< 13	< 600	0.25	< 0.5	9.9	< +0.079
TZQ5244B	14	9.0	< 15	< 600	0.25	< 0.1	10	< +0.082
TZQ5245B	15	8.5	< 16	< 600	0.25	< 0.1	11	< +0.082
TZQ5246B	16	7.8	< 17	< 600	0.25	< 0.1	12	< +0.083
TZQ5247B	17	7.4	< 19	< 600	0.25	< 0.1	13	< +0.084
TZQ5248B	18	7.0	< 21	< 600	0.25	< 0.1	14	< +0.085
TZQ5249B	19	6.6	< 23	< 600	0.25	< 0.1	14	< +0.086
TZQ5250B	20	6.2	< 25	< 600	0.25	< 0.1	15	< +0.086
TZQ5251B	22	5.6	< 29	< 600	0.25	< 0.1	17	< +0.087
TZQ5252B	24	5.2	< 33	< 600	0.25	< 0.1	18	< +0.088
TZQ5253B	25	5.0	< 35	< 600	0.25	< 0.1	19	< +0.089
TZQ5254B	27	4.6	< 41	< 600	0.25	< 0.1	21	< +0.090
TZQ5255B	28	4.5	< 44	< 600	0.25	< 0.1	21	< +0.091
TZQ5256B	30	4.2	< 49	< 600	0.25	< 0.1	23	< +0.091
TZQ5257B	33	3.8	< 58	< 700	0.25	< 0.1	25	< +0.092
TZQ5258B	36	3.4	< 70	< 700	0.25	< 0.1	27	< +0.093
TZQ5259B	39	3.2	< 80	< 800	0.25	< 0.1	30	< +0.094
TZQ5260B	43	3.0	< 93	< 900	0.25	< 0.1	33	< +0.095
TZQ5261B	47	2.7	< 105	< 1000	0.25	< 0.1	36	< +0.095
TZQ5262B	51	2.5	< 125	< 1100	0.25	< 0.1	39	< +0.096
TZQ5263B	56	2.2	< 150	< 1300	0.25	< 0.1	43	< +0.096
TZQ5264B	60	2.1	< 170	< 1400	0.25	< 0.1	46	< +0.097
TZQ5265B	62	2.0	< 185	< 1400	0.25	< 0.1	47	< +0.097
TZQ5266B	68	1.8	< 230	< 1600	0.25	< 0.1	52	< +0.097
TZQ5267B	75	1.7	< 270	< 1700	0.25	< 0.1	56	< +0.098

1.)Based on dc measurement at thermal equilibrium; case temperature maintained at $30^{\circ}C \pm 2^{\circ}C$.

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

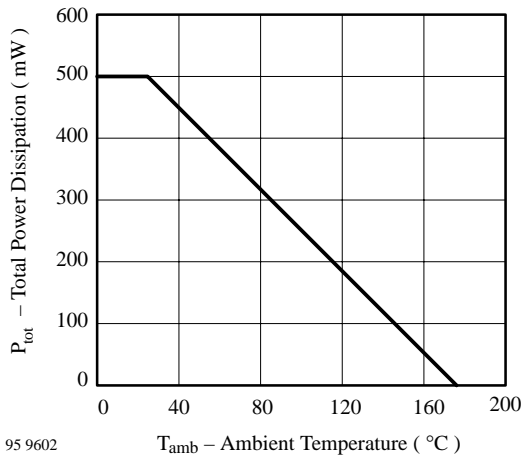


Figure 1. Total Power Dissipation vs. Ambient Temperature

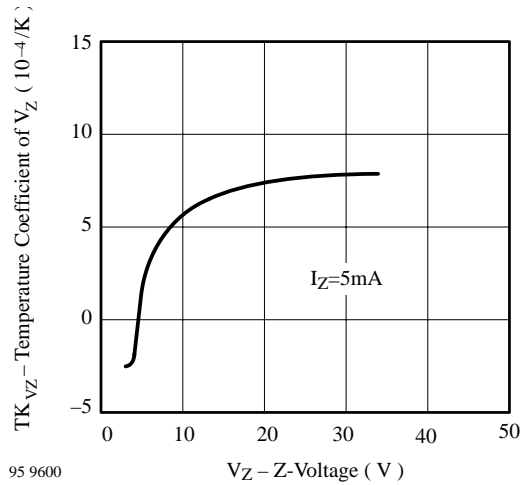


Figure 4. Temperature Coefficient of V_Z vs. Z-Voltage

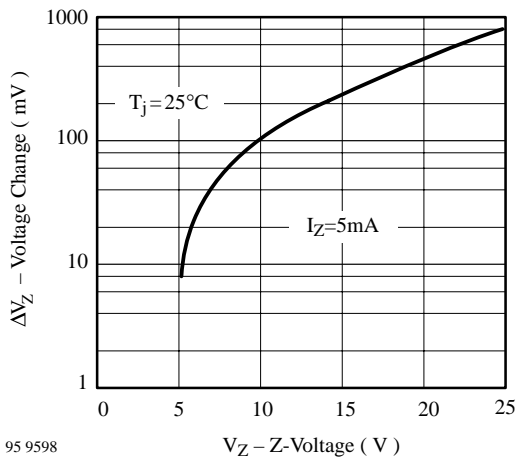


Figure 2. Typical Change of Working Voltage under Operating Conditions at $T_{\text{amb}}=25^\circ\text{C}$

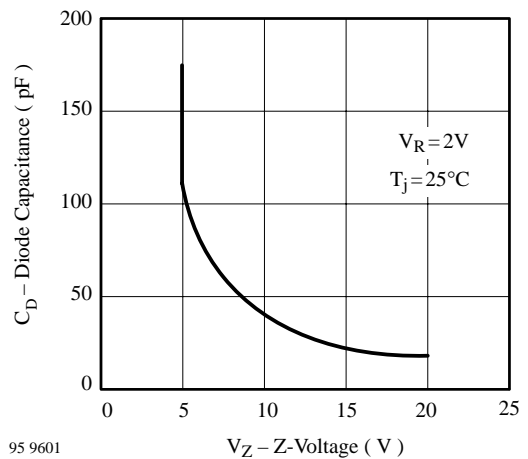


Figure 5. Diode Capacitance vs. Z-Voltage

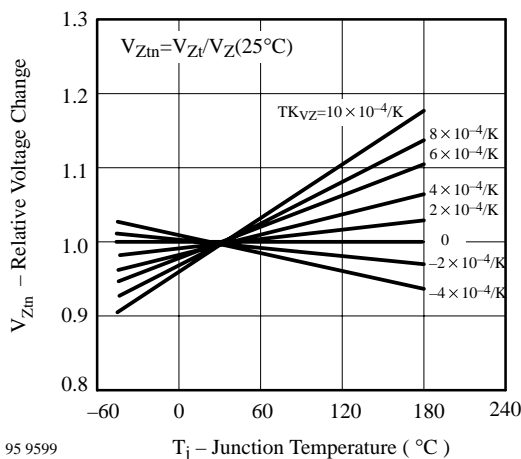


Figure 3. Typical Change of Working Voltage vs. Junction Temperature

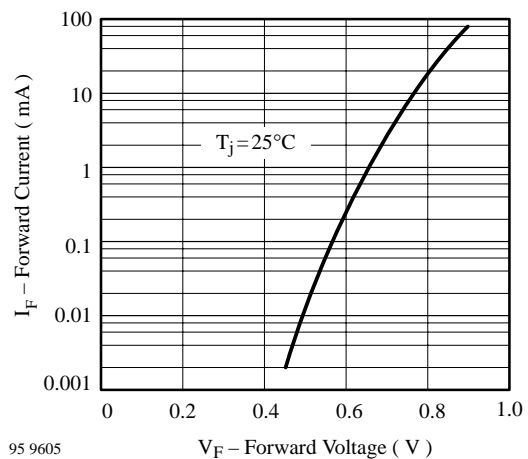
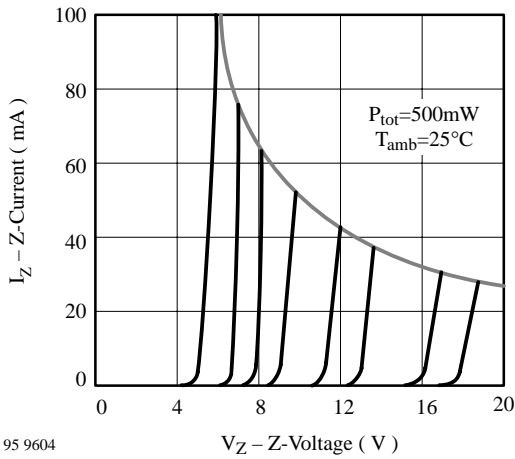
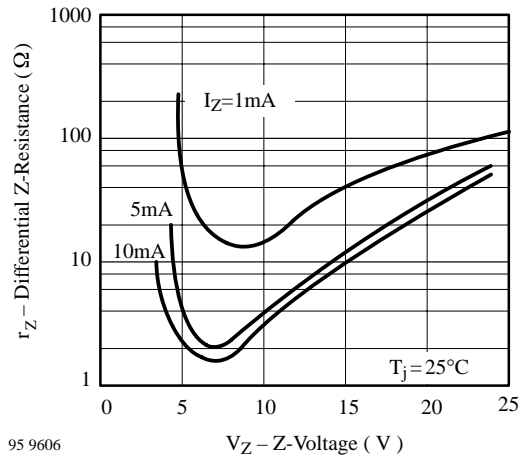


Figure 6. Forward Current vs. Forward Voltage



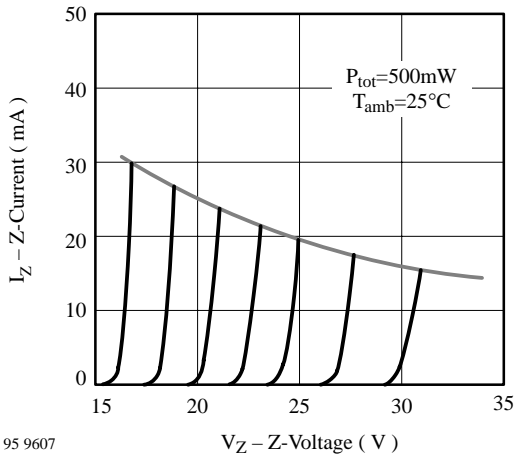
95 9604

Figure 7. Z-Current vs. Z-Voltage



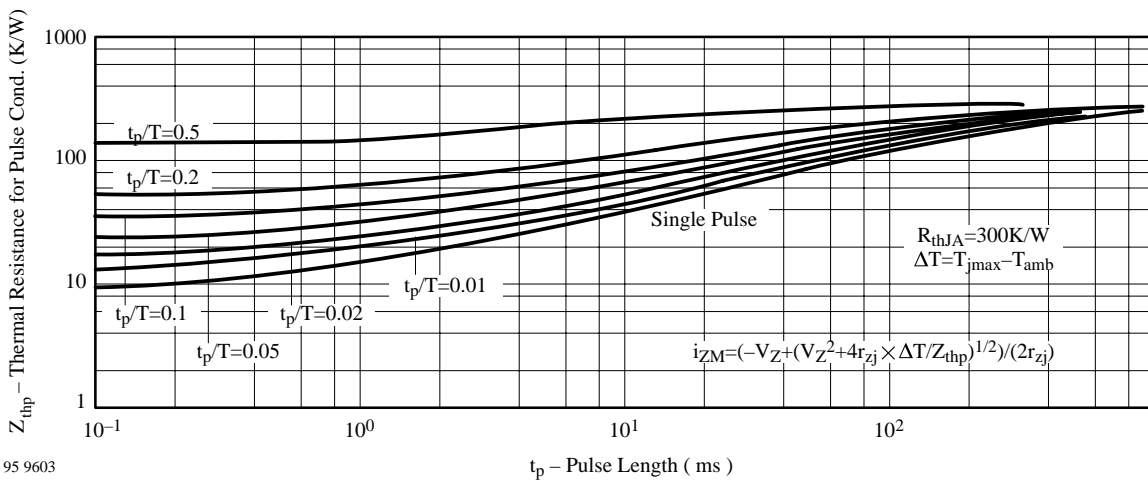
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Figure 9. Differential Z-Resistance vs. Z-Voltage



95 9607

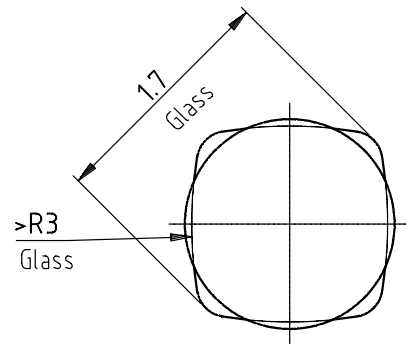
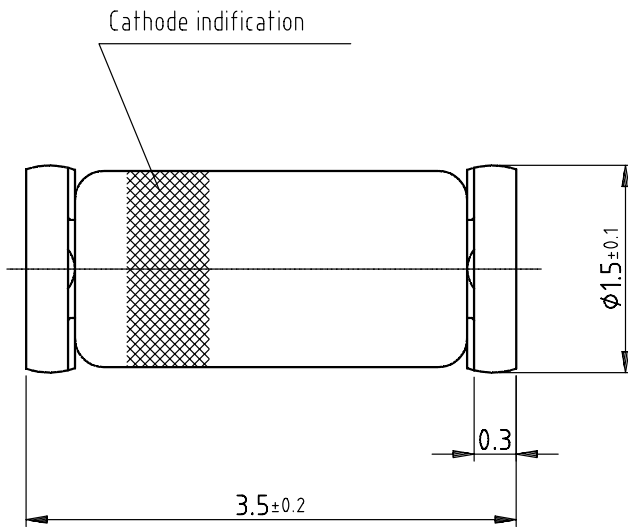
Figure 8. Z-Current vs. Z-Voltage



95 9603

Figure 10. Thermal Response

Dimensions in mm



Glass case
 Quadro MELF / SOD80
 similar to JEDEC 213 AA

96 12071

technical drawings
 according to DIN
 specifications

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.

We reserve the right to make changes to improve technical design and may do so without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay Semiconductors against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany
Telephone: 49 (0)7131 67 2831, Fax number: 49 (0)7131 67 2423