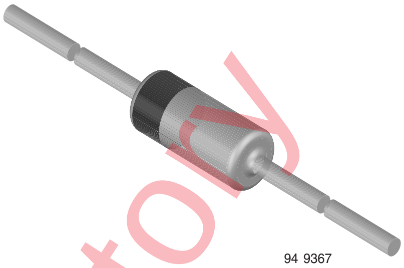
Small Signal Zener Diodes



Features

- Silicon Planar Power Zener Diodes.
- Standard Zener voltage tolerance is ± 2 %.

Applications

Voltage stabilization

Mechanical Data

Case: DO-35 Glass case
Weight: approx. 125 mg
Packaging codes/options:

TAP / 10 k per Ammopack (52 mm tape), 30 k/box
TR / 10 k per 13 " reel , 30 k/box

Absolute Maximum Ratings

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

Parameter	Test condition	Symbol	Value	Unit
Power dissipation	$T_L \leq 75$ °C	P_V	500	mW
Z-current		I_Z	P_V/V_Z	mA
Junction temperature		T_j	200	°C
Storage temperature range		T_{stg}	- 65 to + 200	°C

Thermal Characteristics

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

Parameter	Test condition	Symbol	Value	Unit
Junction ambient	l = 9.5 mm (3/8 "), T_L=constant	R_{thJA}	300	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			1.1	V

Electrical Characteristics

1N5221C...1N5267C

Partnumber	Nominal Zener Voltage[1)]	Test Current	Maximum Dynamic Impedance[1)]	Maximum Dynamic Impedance	Typical Temperature of Coeffizient	Maximum Reverse Leakage Current	
	@ I_{ZT}, V_Z	I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK} = 0.25 mA	@ I_{ZT}	I_R	V_R
	V	mA	Ω	Ω	α (%/K)	µA	V
1N5221C	2.4	20	30	1200	-0.085	100	1
1N5222C	2.5	20	30	1250	-0.085	100	1
1N5223C	2.7	20	30	1300	-0.080	75	1
1N5224C	2.8	20	30	1400	-0.080	75	1
1N5225C	3	20	29	1600	-0.075	50	1
1N5226C	3.3	20	28	1600	-0.070	25	1
1N5227C	3.6	20	24	1700	-0.065	15	1
1N5228C	3.9	20	23	1900	-0.060	10	1
1N5229C	4.3	20	22	2000	+0.055	5	1
1N5230C	4.7	20	19	1900	+0.030	5	2
1N5231C	5.1	20	17	1600	+0.030	5	2
1N5232C	5.6	20	11	1600	+0.038	5	3
1N5233C	6	20	7	1600	+0.038	5	3.5
1N5234C	6.2	20	7	1000	+0.045	5	4
1N5235C	6.8	20	5	750	+0.050	3	5
1N5236C	7.5	20	6	500	+0.058	3	6
1N5237C	8.2	20	8	500	+0.062	3	6.5
1N5238C	8.7	20	8	600	+0.065	3	6.5
1N5239C	9.1	20	10	600	+0.068	3	7
1N5240C	10	20	17	600	+0.075	3	8
1N5241C	11	20	22	600	+0.076	2	8.4
1N5242C	12	20	30	600	+0.077	1	9.1
1N5243C	13	9.5	13	600	+0.079	0.5	9.9
1N5244C	14	9	15	600	+0.082	0.1	10
1N5245C	15	8.5	16	600	+0.082	0.1	11
1N5246C	16	7.8	17	600	+0.083	0.1	12
1N5247C	17	7.4	19	600	+0.084	0.1	13
1N5248C	18	7	21	600	+0.085	0.1	14
1N5249C	19	6.6	23	600	+0.086	0.1	14
1N5250C	20	6.2	25	600	+0.086	0.1	15
1N5251C	22	5.6	29	600	+0.087	0.1	17
1N5252C	24	5.2	33	600	+0.088	0.1	18
1N5253C	25	5	35	600	+0.089	0.1	19
1N5254C	27	4.6	41	600	+0.090	0.1	21
1N5255C	28	4.5	44	600	+0.091	0.1	21
1N5256C	30	4.2	49	600	+0.091	0.1	23
1N5257C	33	3.8	58	700	+0.092	0.1	25
1N5258C	36	3.4	70	700	+0.093	0.1	27
1N5259C	39	3.2	80	800	+0.094	0.1	30
1N5260C	43	3	93	900	+0.095	0.1	33
1N5261C	47	2.7	105	1000	+0.095	0.1	36
1N5262C	51	2.5	125	1100	+0.096	0.1	39
1N5263C	56	2.2	150	1300	+0.096	0.1	43
1N5264C	60	2.1	170	1400	+0.097	0.1	46

Partnumber	Nominal Zener Voltage[1)]	Test Current	Maximum Dynamic Impedance[1)]	Maximum Dynamic Impedance	Typical Temperature of Coeffizient	Maximum Reverse Leakage Current	
	@ I_{ZT}, V_Z	I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK} = 0.25 mA	@ I_{ZT}	I_R	V_R
	V	mA	Ω	Ω	α (%/K)	µA	V
1N5265C	62	2	185	1400	+0.097	0.1	47
1N5266C	68	1.8	230	1600	+0.097	0.1	52
1N5267C	75	1.7	270	1700	+0.098	0.1	56

1) Based on dc-measurement at thermal equilibrium; lead length = 9.5 (3/8 "); thermal resistance of heat sink = 30 K/W

Typical Characteristics (Tamb = 25 °C unless otherwise specified)

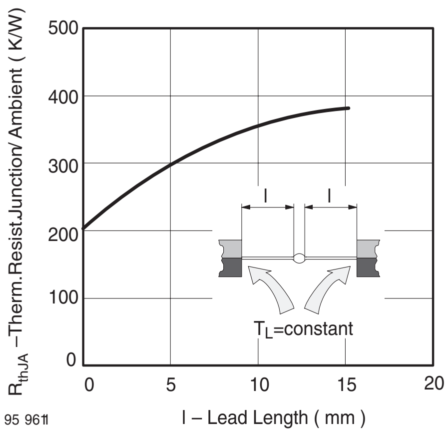


Figure 1. Thermal Resistance vs. Lead Length

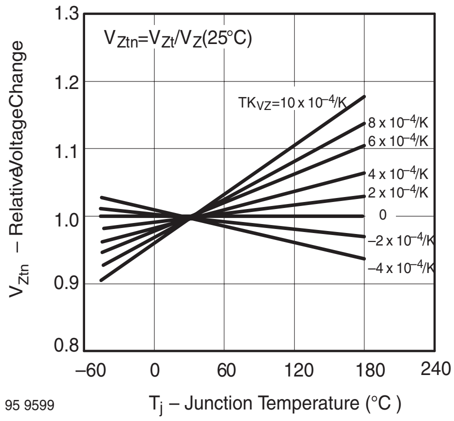


Figure 3. Typical Change of Working Voltage vs. Junction Temperature

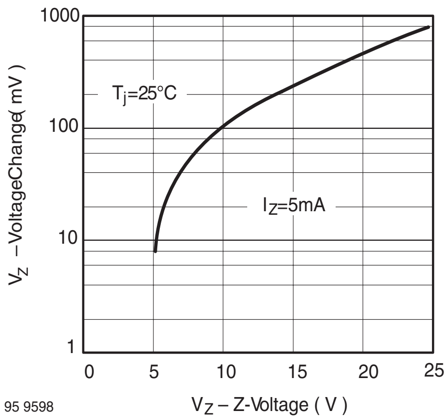


Figure 2. Typical Change of Working Voltage under Operating Conditions at T_{amb}=25°C

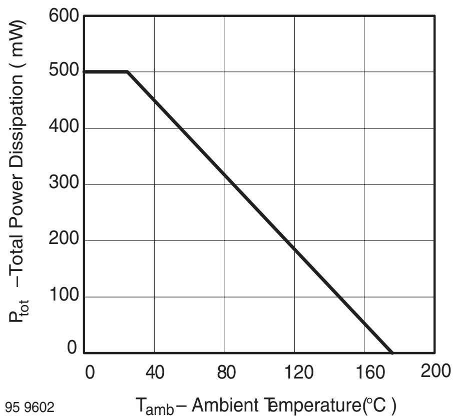


Figure 4. Total Power Dissipation vs. Ambient Temperature

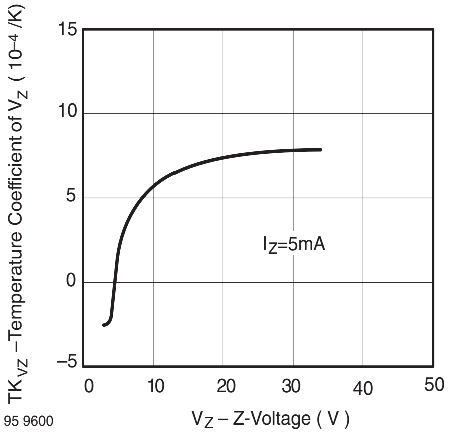


Figure 5. Temperature Coefficient of Vz vs. Z-Voltage

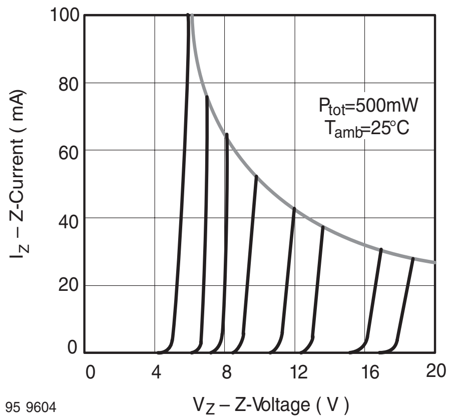


Figure 8. Z-Current vs. Z-Voltage

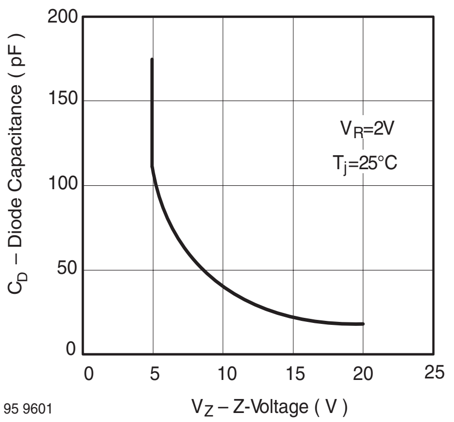


Figure 6. Diode Capacitance vs. Z-Voltage

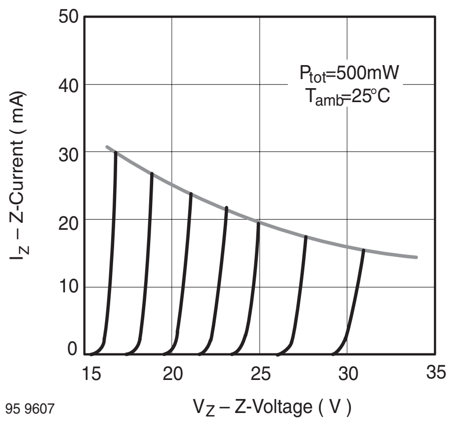


Figure 9. Z-Current vs. Z-Voltage

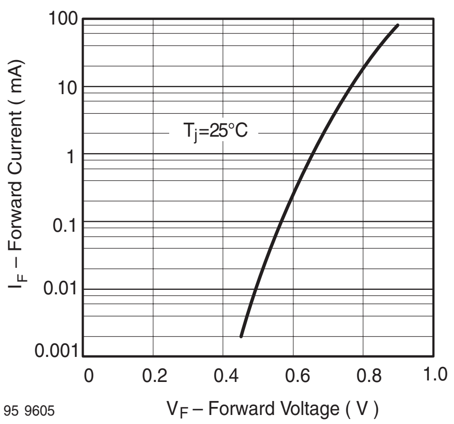


Figure 7. Forward Current vs. Forward Voltage

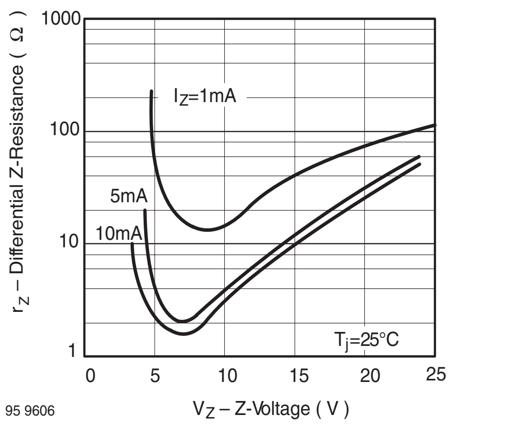


Figure 10. Differential Z-Resistance vs. Z-Voltage

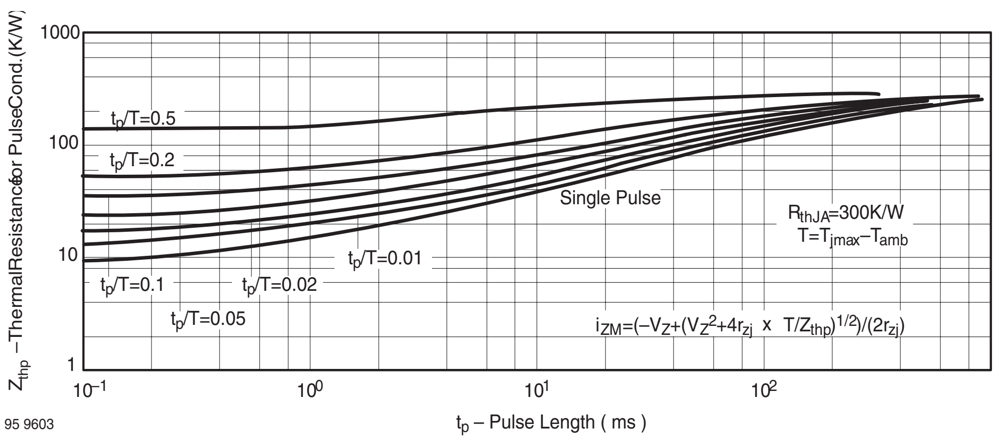
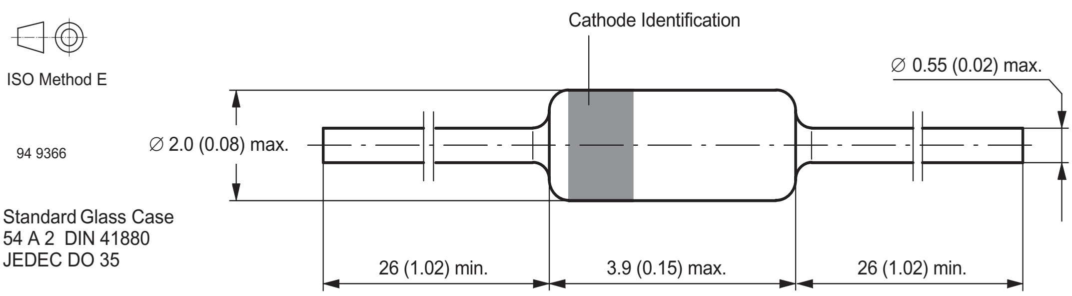


Figure 11. Thermal Response

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 operatingsystems 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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