Small Signal Zener Diodes



FEATURES

- Silicon planar power Zener diodes
- Standard Zener voltage tolerance is ± 5 %
- These diodes are also available in MiniMELF case with the type designation TZM5221 to TZM5267, SOT-23 case with the type designations MMBZ5225 to MMBZ5267 and SOD-123 case with the types designations MMSZ5225 to MMSZ5267
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT
HALOGEN FREE

APPLICATIONS

- Voltage stabilization

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V_Z range nom.	2.4 to 75	V
Test current I_{ZT}	1.7 to 20	mA
V_Z specification	Thermal equilibrium	
Int. construction	Single	

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
1N5221B to 1N5267B	1N5221B to 1N5267B-series-TR	10 000 per 13" reel	30 000/box
1N5221B to 1N5267B	1N5221B to 1N5267B-series-TAP	10 000 per ammopack (52 mm tape)	30 000/box

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
DO-35	125 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	260 °C/10 s at terminals

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	$T_L \leq 25$ °C	P_{tot}	500	mW
Zener current		I_Z	P_{tot}/V_Z	mA
Thermal resistance junction to ambient air	l = 4 mm, T_L = constant	R_{thJA}	300	K/W
Junction temperature		T_j	175	°C
Storage temperature range		T_{stg}	- 65 to + 175	°C
Forward voltage (max.)	I_F = 200 mA	V_F	1.1	V

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ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

PART NUMBER	ZENER VOLTAGE RANGE (1)	TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE f = 1 kHz		TEMPERATURE COEFFICIENT
	V_Z at I_{ZT1}	I_{ZT1}	I_{ZT2}	I_R at V_R		Z_Z at I_{ZT1} (1)	Z_{ZK} at I_{ZT2}	α_{VZ}
	V	mA		µA	V	Ω		%/K
	NOM.			MAX.		MAX.	MAX.	TYP.
1N5221B	2.4	20	0.25	100	1	30	1200	- 0.085
1N5222B	2.5	20	0.25	100	1	30	1250	- 0.085
1N5223B	2.7	20	0.25	75	1	30	1300	- 0.08
1N5224B	2.8	20	0.25	75	1	30	1400	- 0.08
1N5225B	3	20	0.25	50	1	29	1600	- 0.075
1N5226B	3.3	20	0.25	25	1	28	1600	- 0.07
1N5227B	3.6	20	0.25	15	1	24	1700	- 0.065
1N5228B	3.9	20	0.25	10	1	23	1900	- 0.06
1N5229B	4.3	20	0.25	5	1	22	2000	0.055
1N5230B	4.7	20	0.25	5	2	19	1900	0.03
1N5231B	5.1	20	0.25	5	2	17	1600	0.03
1N5232B	5.6	20	0.25	5	3	11	1600	0.038
1N5233B	6	20	0.25	5	3.5	7	1600	0.038
1N5234B	6.2	20	0.25	5	4	7	1000	0.045
1N5235B	6.8	20	0.25	3	5	5	750	0.05
1N5236B	7.5	20	0.25	3	6	6	500	0.058
1N5237B	8.2	20	0.25	3	6.5	8	500	0.062
1N5238B	8.7	20	0.25	3	6.5	8	600	0.065
1N5239B	9.1	20	0.25	3	7	10	600	0.068
1N5240B	10	20	0.25	3	8	17	600	0.075
1N5241B	11	20	0.25	2	8.4	22	600	0.076
1N5242B	12	20	0.25	1	9.1	30	600	0.077
1N5243B	13	9.5	0.25	0.5	9.9	13	600	0.079
1N5244B	14	9	0.25	0.1	10	15	600	0.082
1N5245B	15	8.5	0.25	0.1	11	16	600	0.082
1N5246B	16	7.8	0.25	0.1	12	17	600	0.083
1N5247B	17	7.4	0.25	0.1	13	19	600	0.084
1N5248B	18	7	0.25	0.1	14	21	600	0.085
1N5249B	19	6.6	0.25	0.1	14	23	600	0.086
1N5250B	20	6.2	0.25	0.1	15	25	600	0.086
1N5251B	22	5.6	0.25	0.1	17	29	600	0.087
1N5252B	24	5.2	0.25	0.1	18	33	600	0.088
1N5253B	25	5	0.25	0.1	19	35	600	0.089
1N5254B	27	4.6	0.25	0.1	21	41	600	0.09
1N5255B	28	4.5	0.25	0.1	21	44	600	0.091
1N5256B	30	4.2	0.25	0.1	23	49	600	0.091
1N5257B	33	3.8	0.25	0.1	25	58	700	0.092
1N5258B	36	3.4	0.25	0.1	27	70	700	0.093
1N5259B	39	3.2	0.25	0.1	30	80	800	0.094
1N5260B	43	3	0.25	0.1	33	93	900	0.095
1N5261B	47	2.7	0.25	0.1	36	105	1000	0.095
1N5262B	51	2.5	0.25	0.1	39	125	1100	0.096
1N5263B	56	2.2	0.25	0.1	43	150	1300	0.096
1N5264B	60	2.1	0.25	0.1	46	170	1400	0.097
1N5265B	62	2	0.25	0.1	47	185	1400	0.097
1N5266B	68	1.8	0.25	0.1	52	230	1600	0.097
1N5267B	75	1.7	0.25	0.1	56	270	1700	0.098

Note

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

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BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

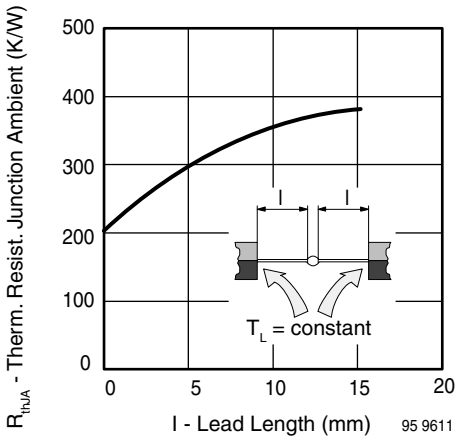


Fig. 1 - Thermal Resistance vs. Lead Length

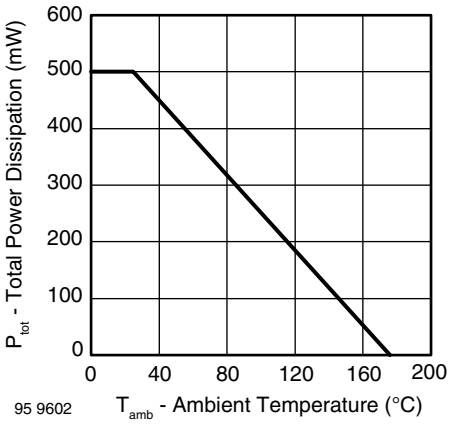


Fig. 4 - Total Power Dissipation vs. Ambient Temperature

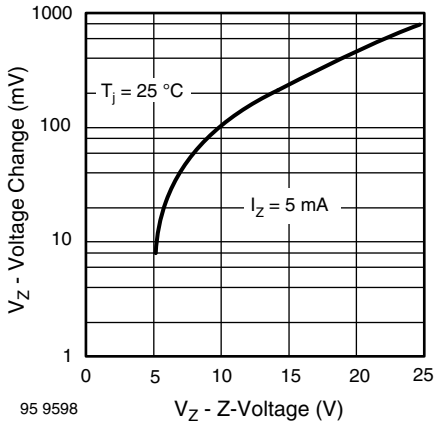


Fig. 2 - Typical Change of Working Voltage under Operating Conditions at T_{amb}= 25 °C

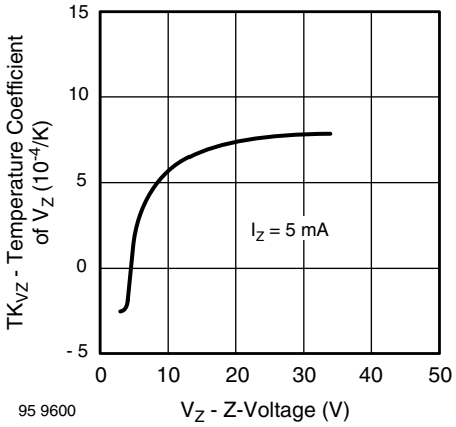


Fig. 5 - Temperature Coefficient of V_Z vs. Z-Voltage

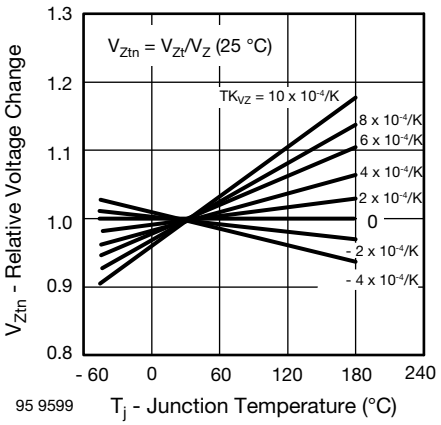


Fig. 3 - Typical Change of Working Voltage vs. Junction Temperature

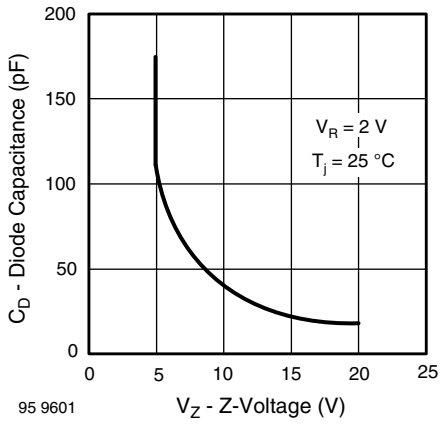


Fig. 6 - Diode Capacitance vs. Z-Voltage

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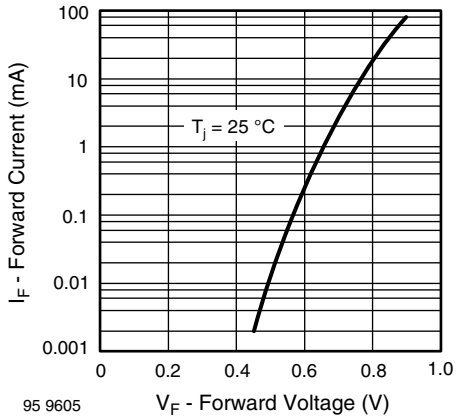


Fig. 7 - Forward Current vs. Forward Voltage

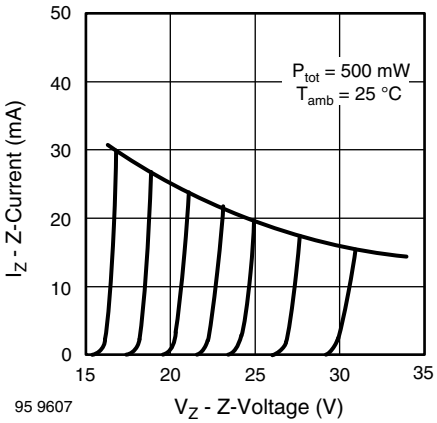


Fig. 9 - Z-Current vs. Z-Voltage

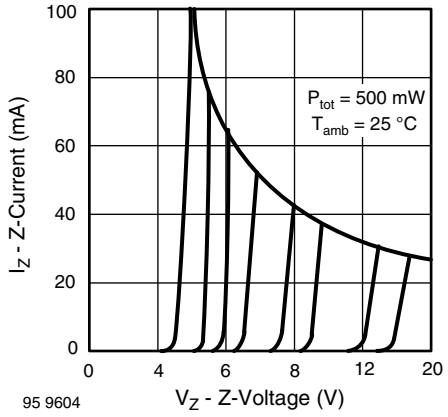


Fig. 8 - Z-Current vs. Z-Voltage

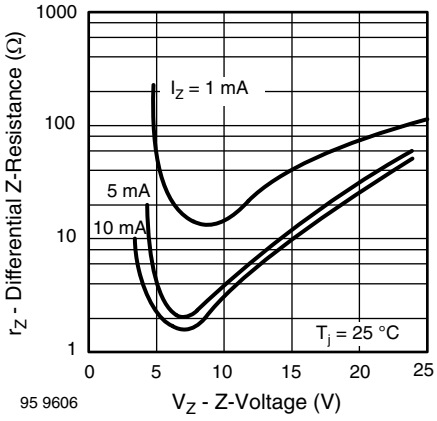


Fig. 10 - Differential Z-Resistance vs. Z-Voltage

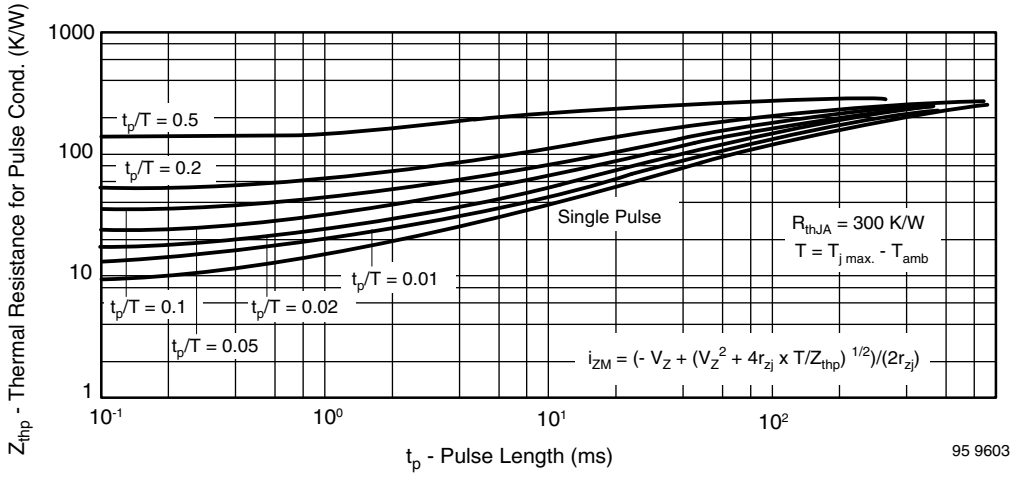
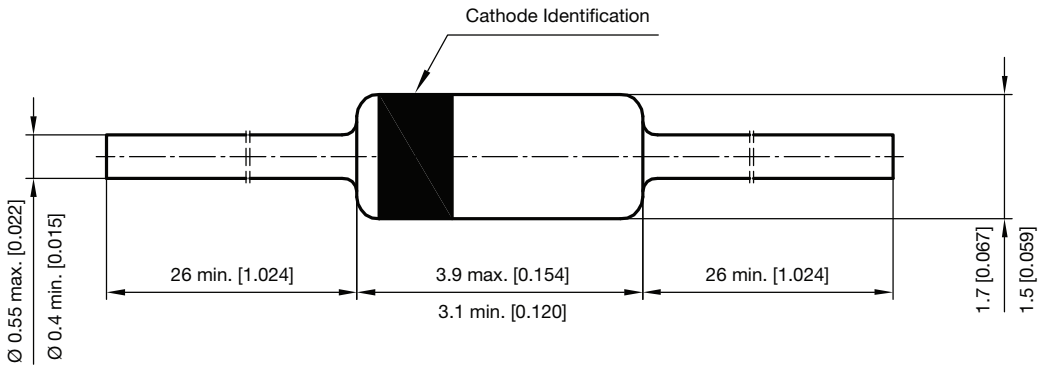


Fig. 11 - Thermal Response

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PACKAGE DIMENSIONS in millimeters (inches): **DO-35_1N52xx**



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