

Small Signal Zener Diodes



FEATURES

- Very sharp reverse characteristic
- Very high stability
- Electrical data identical with the devices 1N5221B to 1N5267B
- Low reverse current level
- Standard Zener voltage tolerance $\pm 5\%$
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

LINKS TO ADDITIONAL RESOURCES



3D Models



Marking



Parametric Search



Order Samples

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	
Circuit configuration	Single	

ORDERING INFORMATION

DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
TZM5221B to TZM5267B	TZM5221B to TZM5267B-series-GS18	10 000 (8 mm tape on 13" reel)	10 000/box
TZM5221B to TZM5267B	TZM5221B to TZM5267B-series-GS08	2500 (8 mm tape on 7" reel)	12 500/box

PACKAGE

PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
MiniMELF (SOD-80)	approx. 31 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ °C}$, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Power dissipation	$R_{thJA} = < 300\text{ K/W}$	P_{tot}	500	mW
Zener current		I_Z	P_{tot}/V_Z	mA
Junction to ambient air	On PC board 50 mm x 50 mm x 1.6 mm	R_{thJA}	500	K/W
Junction temperature		T_j	175	°C
Storage temperature range		T_{stg}	-65 to +175	°C
Forward voltage (max.)	$I_F = 200\text{ mA}$	V_F	1.1	V



ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)								
PART NUMBER	ZENER VOLTAGE RANGE ⁽¹⁾	TEST CURRENT		REVERSE LEAKAGE CURRENT		DYNAMIC RESISTANCE		TEMPERATURE COEFFICIENT
	V _Z at I _{ZT1}	I _{ZT1}	I _{ZT2}	I _R at V _R		Z _Z at I _{ZT1}	Z _{ZK} at I _{ZT2}	TK _{VZ}
						f = 1 kHz		
						V	mA	
	NOM.					TYP.	TYP.	
TZM5221	2.4	20	0.25	< 100	1	< 30	< 1200	< -0.085
TZM5222	2.5	20	0.25	< 100	1	< 30	< 1250	< -0.085
TZM5223	2.7	20	0.25	< 75	1	< 30	< 1300	< -0.080
TZM5224	2.8	20	0.25	< 75	1	< 30	< 1400	< -0.080
TZM5225	3	20	0.25	< 50	1	< 29	< 1600	< -0.075
TZM5226	3.3	20	0.25	< 25	1	< 28	< 1600	< -0.070
TZM5227	3.6	20	0.25	< 15	1	< 24	< 1700	< -0.065
TZM5228	3.9	20	0.25	< 10	1	< 23	< 1900	< -0.060
TZM5229	4.3	20	0.25	< 5	1	< 22	< 2000	< ± 0.055
TZM5230	4.7	20	0.25	< 5	2	< 19	< 1900	< ± 0.030
TZM5231	5.1	20	0.25	< 5	2	< 17	< 1600	< ± 0.030
TZM5232	5.6	20	0.25	< 5	3	< 11	< 1600	< +0.038
TZM5233	6	20	0.25	< 5	3.5	< 7	< 1600	< +0.038
TZM5234	6.2	20	0.25	< 5	4	< 7	< 1000	< +0.045
TZM5235	6.8	20	0.25	< 3	5	< 5	< 750	< +0.050
TZM5236	7.5	20	0.25	< 3	6	< 6	< 500	< +0.058
TZM5237	8.2	20	0.25	< 3	6.5	< 8	< 500	< +0.062
TZM5238	8.7	20	0.25	< 3	6.5	< 8	< 600	< +0.065
TZM5239	9.1	20	0.25	< 3	7	< 10	< 600	< +0.068
TZM5240	10	20	0.25	< 3	8	< 17	< 600	< +0.075
TZM5241	11	20	0.25	< 2	8.4	< 22	< 600	< +0.076
TZM5242	12	20	0.25	< 1	9.1	< 30	< 600	< +0.077
TZM5243	13	9.5	0.25	< 0.5	9.9	< 13	< 600	< +0.079
TZM5244	14	9	0.25	< 0.1	10	< 15	< 600	< +0.082
TZM5245	15	8.5	0.25	< 0.1	11	< 16	< 600	< +0.082
TZM5246	16	7.8	0.25	< 0.1	12	< 17	< 600	< +0.083
TZM5247	17	7.4	0.25	< 0.1	13	< 19	< 600	< +0.084
TZM5248	18	7	0.25	< 0.1	14	< 21	< 600	< +0.085
TZM5249	19	6.6	0.25	< 0.1	14	< 23	< 600	< +0.086
TZM5250	20	6.2	0.25	< 0.1	15	< 25	< 600	< +0.086
TZM5251	22	5.6	0.25	< 0.1	17	< 29	< 600	< +0.087
TZM5252	24	5.2	0.25	< 0.1	18	< 33	< 600	< +0.088
TZM5253	25	5	0.25	< 0.1	19	< 35	< 600	< +0.089
TZM5254	27	4.6	0.25	< 0.1	21	< 41	< 600	< +0.090
TZM5255	28	4.5	0.25	< 0.1	21	< 44	< 600	< +0.091
TZM5256	30	4.2	0.25	< 0.1	23	< 49	< 600	< +0.091
TZM5257	33	3.8	0.25	< 0.1	25	< 58	< 700	< +0.092
TZM5258	36	3.4	0.25	< 0.1	27	< 70	< 700	< +0.093
TZM5259	39	3.2	0.25	< 0.1	30	< 80	< 800	< +0.094
TZM5260	43	3	0.25	< 0.1	33	< 93	< 900	< +0.095
TZM5261	47	2.7	0.25	< 0.1	36	105	< 1000	< +0.095
TZM5262	51	2.5	0.25	< 0.1	39	125	< 1100	< +0.096
TZM5263	56	2.2	0.25	< 0.1	43	150	< 1300	< +0.096
TZM5264	60	2.1	0.25	< 0.1	46	170	< 1400	< +0.097
TZM5265	62	2	0.25	< 0.1	47	185	< 1400	< +0.097
TZM5266	68	1.8	0.25	< 0.1	52	230	< 1600	< +0.097
TZM5267	75	1.7	0.25	< 0.1	56	270	< 1700	< +0.098

Note

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



BASIC CHARACTERISTICS ($T_{\text{amb}} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

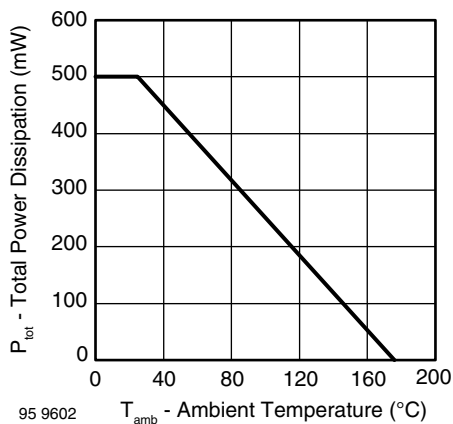


Fig. 1 - Total Power Dissipation vs. Ambient Temperature

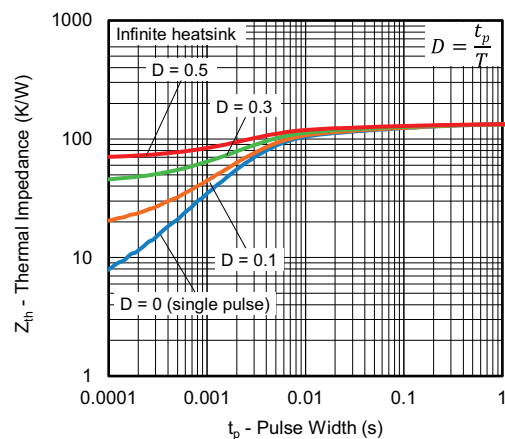


Fig. 2 - Typical Thermal Response

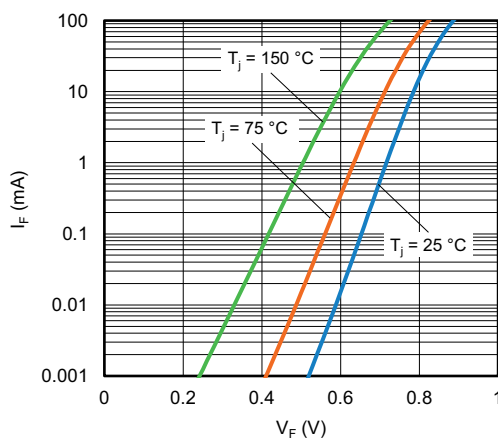
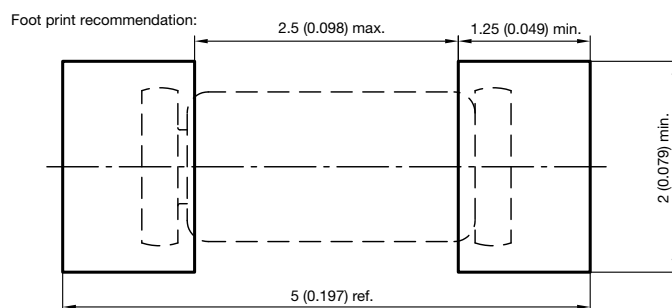
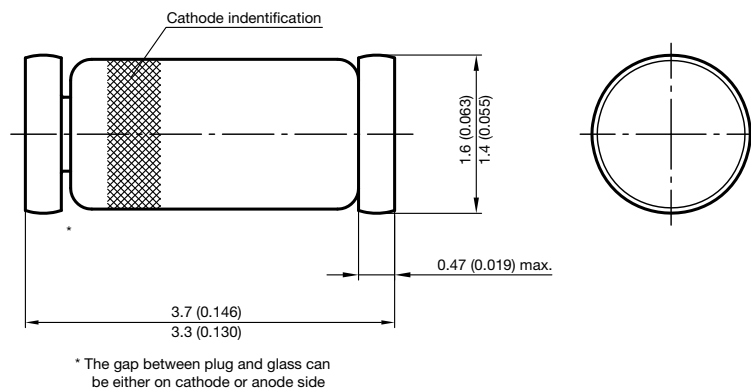


Fig. 3 - Typical Forward Current I_F vs. Forward Voltage V_F



PACKAGE DIMENSIONS in millimeters (inches): **MiniMELF (SOD-80)**



Document no.: 6.560-5005.01-4
Rev. 8 - Date: 07.June.2006
96 12070



Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay's knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer's responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and / or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer's technical experts. Product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein.

Hyperlinks included in this datasheet may direct users to third-party websites. These links are provided as a convenience and for informational purposes only. Inclusion of these hyperlinks does not constitute an endorsement or an approval by Vishay of any of the products, services or opinions of the corporation, organization or individual associated with the third-party website. Vishay disclaims any and all liability and bears no responsibility for the accuracy, legality or content of the third-party website or for that of subsequent links.

Vishay products are not designed for use in life-saving or life-sustaining applications or any application in which the failure of the Vishay product could result in personal injury or death unless specifically qualified in writing by Vishay. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.