Small Signal Zener Diodes

FEATURES

- Very sharp reverse characteristic
- Low reverse current level
- Very high stability
- Low noise
- V_Z-tolerance ± 1 %
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

RoHS COMPLIANT

APPLICATION

- Voltage stabilization

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V_Z range nom.	4.7 to 30	V
Test current I_{ZT}	1; 5	mA
V_Z specification	Pulse current	
Int. construction	Single	

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
TZMA-series	TZMA-series-08	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)	31 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	$R_{thJA} \leq 300$ 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 to lead		R_{thJL}	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	1.5	V

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

PART NUMBER	ZENER VOLTAGE RANGE			TEST CURRENT		REVERSE LEAKAGE CURRENT			DYNAMIC RESISTANCE		TEMPERATURE COEFFICIENT OF ZENER VOLTAGE	
	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}	
	V			mA		µA		V	Ω		%/K	
	MIN.	NOM.	MAX.						TYP.	TYP.	MIN.	MAX.
TZMA4V7	4.65	4.7	4.75	5	1	< 0.5	< 10	1	< 80	< 600	-0.05	0.02
TZMA5V1	5.05	5.1	5.15	5	1	< 0.1	< 2	1	< 60	< 550	-0.02	0.02
TZMA5V6	5.54	5.6	5.66	5	1	< 0.1	< 2	1	< 40	< 450	-0.05	0.05
TZMA6V2	6.14	6.2	6.26	5	1	< 0.1	< 2	2	< 10	< 200	0.03	0.06
TZMA6V8	6.73	6.8	6.87	5	1	< 0.1	< 2	3	< 8	< 150	0.03	0.07
TZMA7V5	7.42	7.5	7.58	5	1	< 0.1	< 2	5	< 7	< 50	0.03	0.07
TZMA8V2	8.12	8.2	8.28	5	1	< 0.1	< 2	6.2	< 7	< 50	0.03	0.08
TZMA9V1	9.01	9.1	9.19	5	1	< 0.1	< 2	6.8	< 10	< 50	0.03	0.09
TZMA10	9.90	10	10.10	5	1	< 0.1	< 2	7.5	< 15	< 70	0.03	0.1
TZMA11	10.89	11	11.11	5	1	< 0.1	< 2	8.2	< 20	< 70	0.03	0.11
TZMA12	11.88	12	12.12	5	1	< 0.1	< 2	9.1	< 20	< 90	0.03	0.11
TZMA13	12.87	13	13.13	5	1	< 0.1	< 2	10	< 26	< 110	0.03	0.11
TZMA15	14.85	15	15.15	5	1	< 0.1	< 2	11	< 30	< 110	0.03	0.11
TZMA16	15.84	16	16.16	5	1	< 0.1	< 2	12	< 40	< 170	0.03	0.11
TZMA18	17.82	18	18.18	5	1	< 0.1	< 2	13	< 50	< 170	0.03	0.11
TZMA20	19.80	20	20.20	5	1	< 0.1	< 2	15	< 55	< 220	0.03	0.11
TZMA30	29.70	30	30.30	5	1	< 0.1	< 2	22	< 80	< 220	0.04	0.12

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

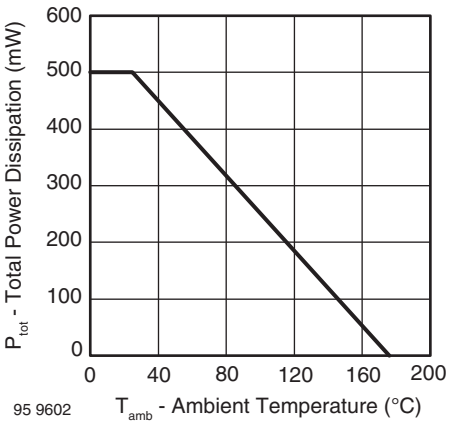

Fig. 1 - Total Power Dissipation vs. Ambient Temperature

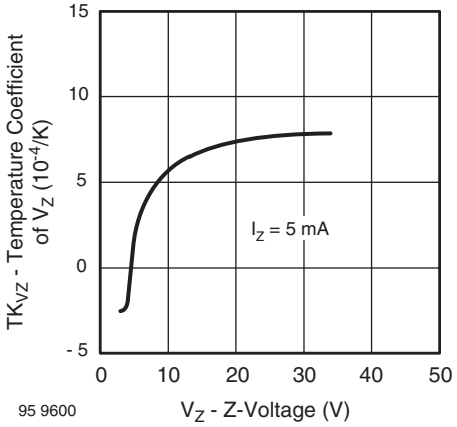

Fig. 4 - Temperature Coefficient of V_Z vs. Z-Voltage

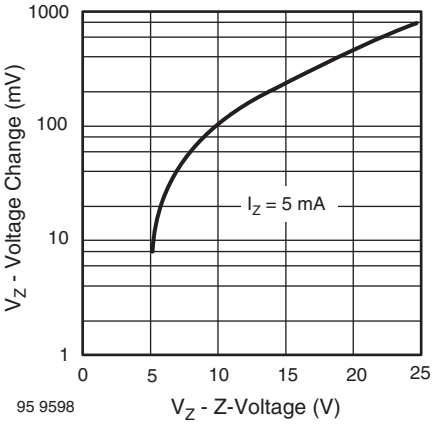

Fig. 2 - Typical Change of Working Voltage under Operating Conditions at T_{amb} = 25 °C

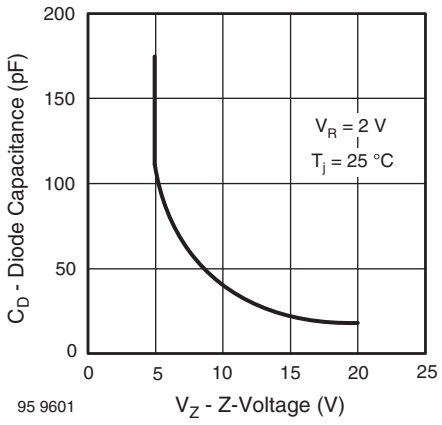

Fig. 5 - Diode Capacitance vs. Z-Voltage

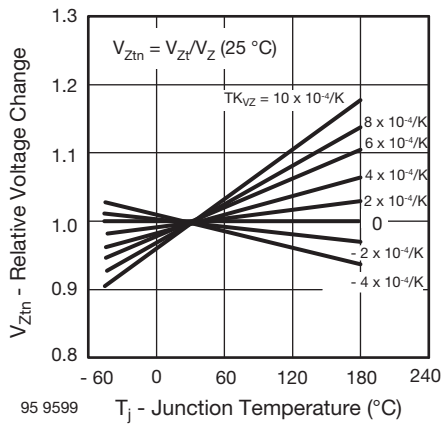

Fig. 3 - Typical Change of Working Voltage vs. Junction Temperature

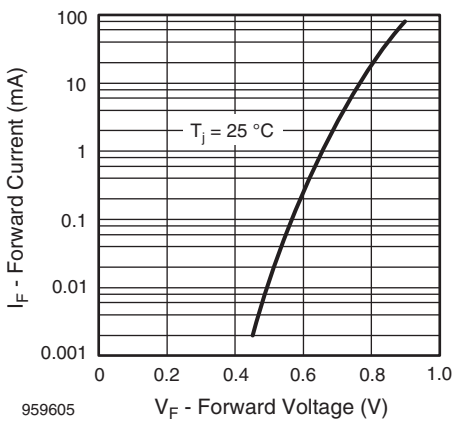

Fig. 6 - Forward Current vs. Forward Voltage

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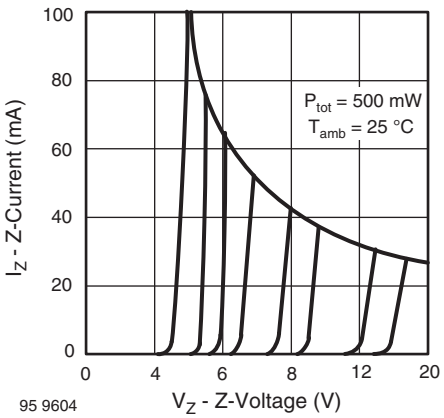

Fig. 7 - Z-Current vs. Z-Voltage

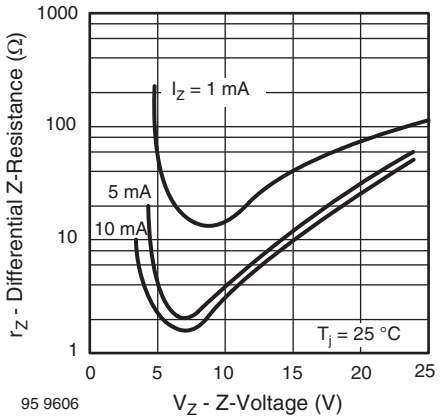

Fig. 9 - Differential Z-Resistance vs. Z-Voltage

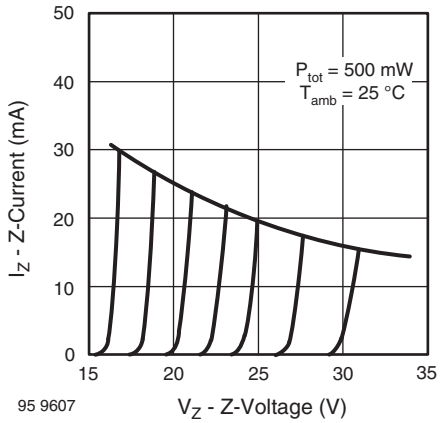

Fig. 8 - Z-Current vs. Z-Voltage

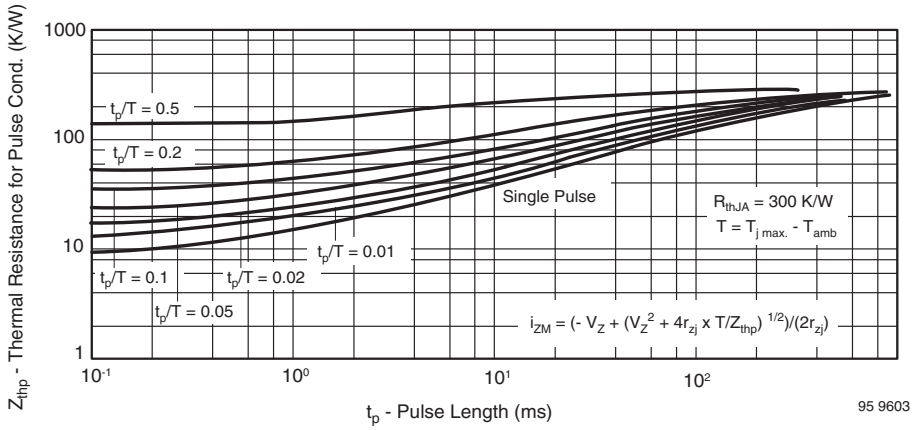

Fig. 10 - Thermal Response

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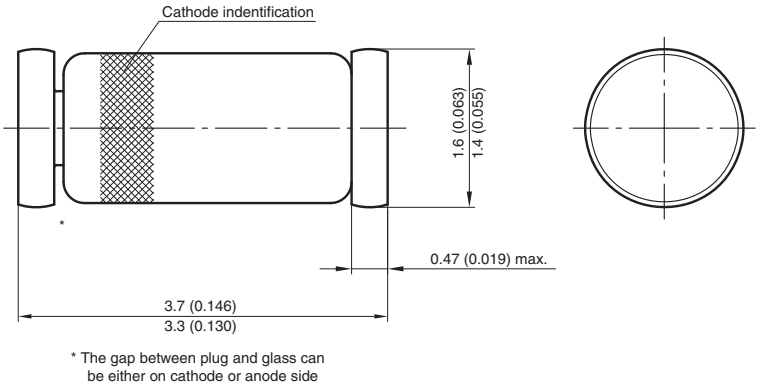
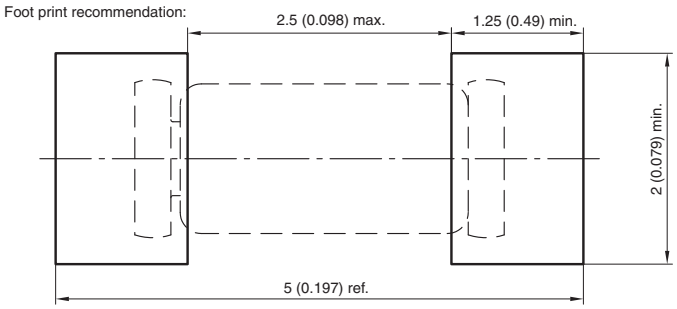
PACKAGE DIMENSIONS in millimeters (inches): **MiniMELF (SOD-80)**



* The gap between plug and glass can be either on cathode or anode side



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