Zener Diodes



FEATURES

- Silicon planar power Zener diodes
- For use in stablilizing and clipping circuits with high power rating
- The Zener voltages are graded according to the international E 24 standard. Smaller voltage tolerances are available upon request
- These diodes are also available in the DO-41 case with the type designation ZPY3V9 to ZPY100
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition

RoHS COMPLIANT

HALOGEN FREE

PRIMARY CHARACTERISTICS		
PARAMETER	VALUE	UNIT
V_Z range nom.	3.9 to 100	V
Test current I_{ZT}	5 to 100	mA
V_Z specification	Pulse current	
Int. construction	Single	

ORDERING INFORMATION			
DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL	MINIMUM ORDER QUANTITY
ZMY3V9 to ZMY100	ZMY3V9 to ZMY100-series-GS18	5 000 (12 mm tape on 13" reel)	10 000/box
ZMY3V9 to ZMY100	ZMY3V9 to ZMY100-series-GS08	1 500 (12 mm tape on 7" reel)	12 000/box

PACKAGE				
PACKAGE NAME	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
MELF DO-213AB (glass)	135 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	Valid provided that electrodes are kept at ambient temperature	P_{tot}	1000	mW
Zener current	See table “Characteristics”			
Junction to ambient air	Valid provided that electrodes are kept at ambient temperature	R_{thJA}	170	K/W
Junction to ambient case		R_{thJC}	60	K/W
Junction temperature, maximum		T_j	175	°C
Storage temperature range		T_{stg}	- 55 to + 175	°C

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

PART NUMBER	ZENER VOLTAGE RANGE (2)			TEST CURRENT	REVERSE VOLTAGE		DYNAMIC RESISTANCE f = 1 kHz		ADMISSIBLE ZENER CURRENT (1)	TEMPERATURE COEFFICIENT OF ZENER VOLTAGE	
	V_Z at I_{ZT1}			I_{ZT1}	V_R at I_R		Z_Z at I_{ZT1}		I_Z	α_{VZ} at I_{ZT1}	
	V			mA	V	µA	Ω		mA	10^{-4}/°C	
	MIN.	NOM.	MAX.				MAX.	TYP.		MIN.	MAX.
ZMY3V9	3.7	3.9	4.1	100	-	0.5	7	4	203	- 7	2
ZMY4V3	4	4.3	4.6	100	-	0.5	7	4	182	- 7	3
ZMY4V7	4.4	4.7	5	100	-	0.5	7	4	165	- 7	4
ZMY5V1	4.8	5.1	5.4	100	0.7	0.5	5	2	150	- 6	5
ZMY5V6	5.2	5.6	6	100	1.5	0.5	2	1	135	- 3	5
ZMY6V2	5.8	6.2	6.6	100	2	0.5	2	1	128	- 1	6
ZMY6V8	6.4	6.8	7.2	100	3	0.5	2	1	110	0	7
ZMY7V5	7	7.5	7.9	100	5	0.5	2	1	100	0	7
ZMY8V2	7.7	8.2	8.7	100	6	0.5	2	1	89	3	8
ZMY9V1	8.5	9.1	9.6	50	7	0.5	4	2	82	3	8
ZMY10	9.4	10	10.6	50	7.5	0.5	4	2	74	5	9
ZMY11	10.4	11	11.6	50	8.5	0.5	7	3	66	5	10
ZMY12	11.4	12	12.7	50	9	0.5	7	3	60	5	10
ZMY13	12.4	13	14.1	50	10	0.5	9	4	55	5	10
ZMY15	13.8	15	15.8	50	11	0.5	9	4	49	5	10
ZMY16	15.3	16	17.1	25	12	0.5	10	5	44	7	11
ZMY18	16.8	18	19.1	25	14	0.5	11	5	40	7	11
ZMY20	18.8	20	21.2	25	15	0.5	12	6	36	7	11
ZMY22	20.8	22	23.3	25	17	0.5	13	7	34	7	11
ZMY24	22.8	24	25.6	25	18	0.5	14	8	29	7	12
ZMY27	25.1	27	28.9	25	20	0.5	15	9	27	7	12
ZMY30	28	30	32	25	22.5	0.5	20	10	25	7	12
ZMY33	31	33	35	25	25	0.5	20	11	22	7	12
ZMY36	34	36	38	10	27	0.5	60	25	20	7	12
ZMY39	37	39	41	10	29	0.5	60	30	18	8	12
ZMY43	40	43	46	10	32	0.5	80	35	17	8	13
ZMY47	44	47	50	10	35	0.5	80	40	15	8	13
ZMY51	48	51	54	10	38	0.5	100	45	14	8	13
ZMY56	52	56	60	10	42	0.5	100	50	13	8	13
ZMY62	58	62	66	10	47	0.5	130	60	11	8	13
ZMY68	64	68	72	10	51	0.5	130	65	10	8	13
ZMY75	70	75	79	10	56	0.5	160	70	9	8	13
ZMY82	77	82	88	10	61	0.5	160	80	8	8	13
ZMY91	85	91	96	5	68	0.5	250	120	7.5	9	13
ZMY100	94	100	106	5	75	0.5	250	130	7	9	13

Notes

(1) Valid provided that electrodes are kept at ambient temperature

(2) Tested with pulses t_p = 5 ms

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

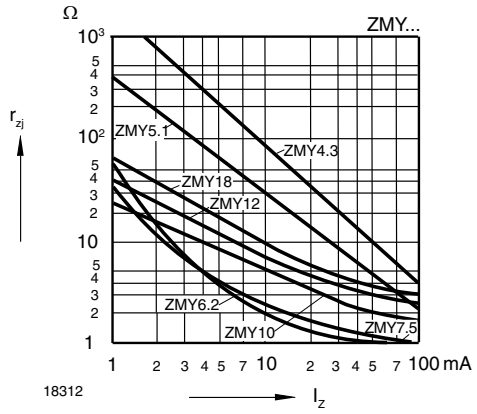


Fig. 1 - Dynamic Resistance vs. Zener Current

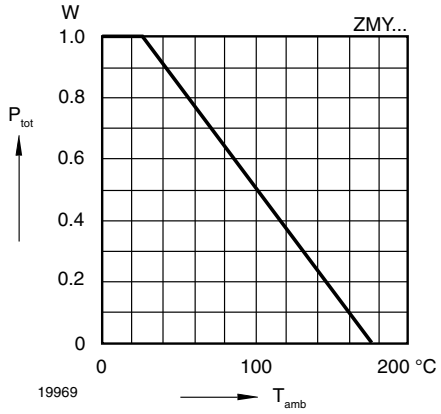


Fig. 4 - Admissible Power Dissipation vs. Ambient Temperature

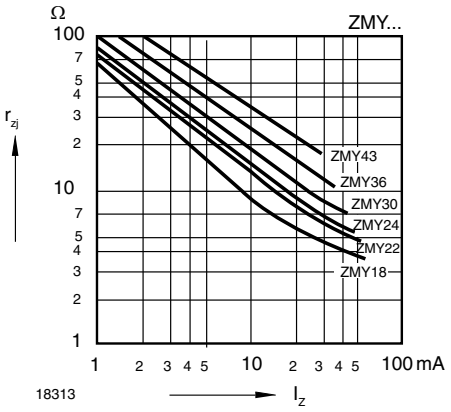


Fig. 2 - Dynamic Resistance vs. Zener Current

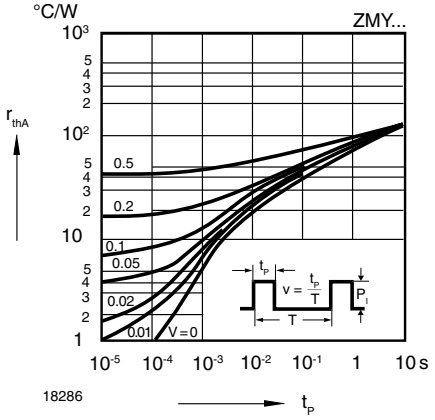


Fig. 5 - Pulse Thermal Resistance vs. Pulse Duration

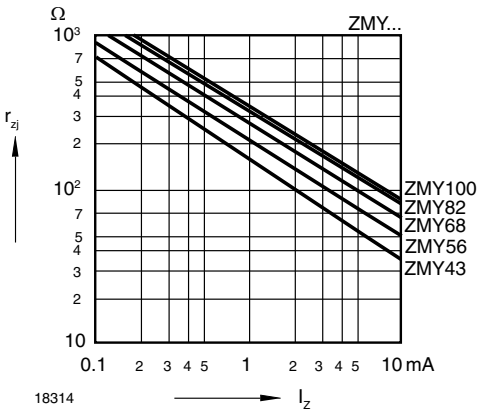


Fig. 3 - Dynamic Resistance vs. Zener Current

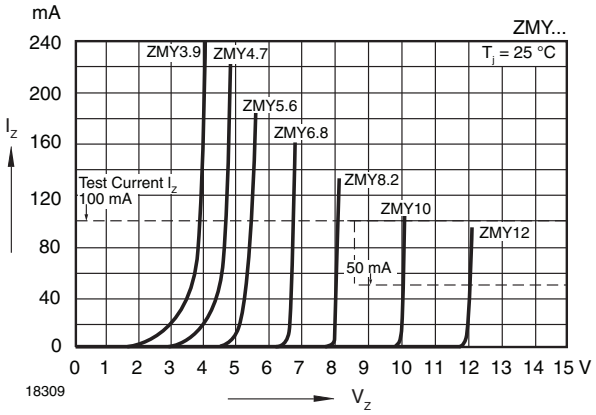


Fig. 6 - Breakdown Characteristics

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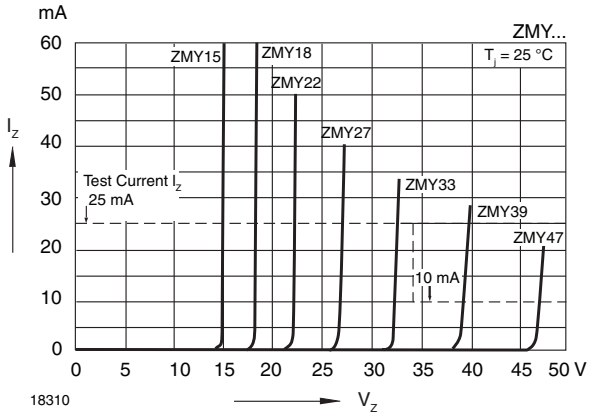


Fig. 7 - Breakdown Characteristics

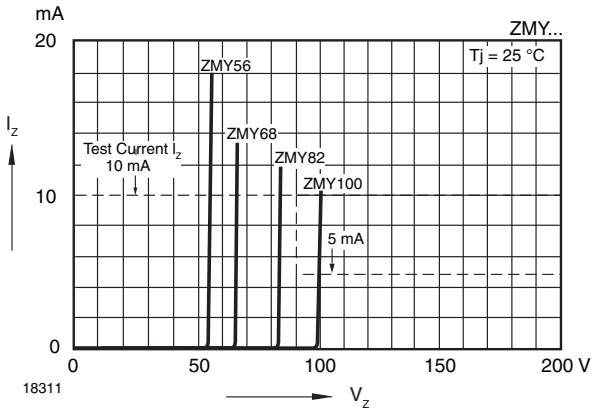
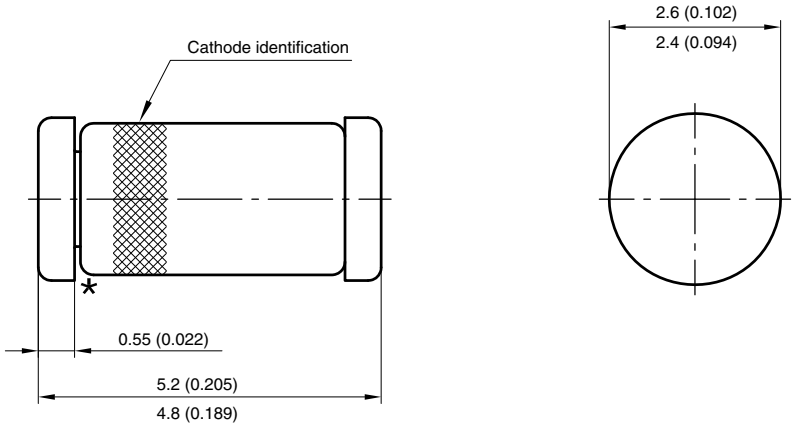


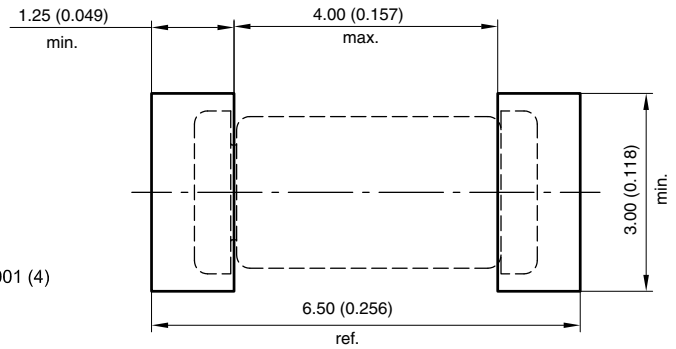
Fig. 8 - Breakdown Characteristics

PACKAGE DIMENSIONS in millimeters (inches): **MELF DO-213AB (glass)**



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

Foot print recommendation:



Document no.:S8-V-3453.02-001 (4)
Rev. 3 - Date: 07 June 2006
18317

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