500mW Silicon Planar Zener Diodes

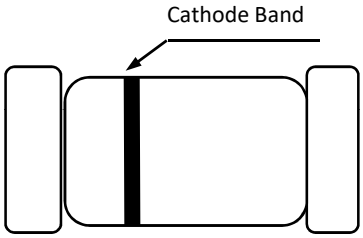
Features

- Silicon planar zener diodes
- In MiniMELF case especially for automatic insertion
- The Zener voltages are graded according to the international E 24 standard. Offered with either 5% or 2% tolerance. Smaller voltage tolerances and other Zener voltages are available upon request.
- These diodes are also available in DO-35 case with the type designation ZPD1....ZPD51

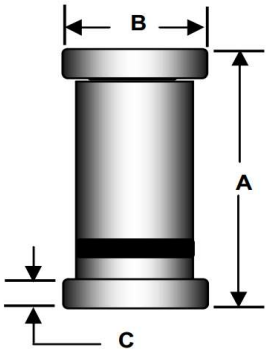
Mechanical Data

- Case : MiniMELF Glass Case (SOD-80C)
- Weight : approx. 0.05g

Marking



MiniMELF



DIM	MiniMELF			
	Millimeters		Inches	
	Min	Max	Min	Max
A	3.30	3.60	0.130	0.142
B	1.40	1.50	0.055	0.059
C	0.35	0.50	0.014	0.020

Maximum Ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Rated Value	Unit	Remark
Zerner Current (See Table "Characteristics")				
Power Dissipation at Ta=25℃	Ptot	500	mW	Note 1
Thermal resistance Junction to Ambient Air	Rth(j-a)	300	℃/W	Note 1
Maximum Junction Temperature	T_J	175	℃	
Storage Temperature Range	T_{STG}	-55 to +175	℃	

Note 1. Valid provided that electrodes are kept at ambient temperature.

Electrical Characteristics (Ta=25℃ unless otherwise noted)

Type No. (add suffix SB14301 for ±2% tol.)	Dynamic Resistance		Temp. Coefficient of Zener Voltage at Iz=5mA αvz(10^{-4}/℃)		Maximum Reverse Leakage Current		Admissible Zener Current (1)	
	at Iz=5mA f=1kHz r_{zj}(Ω)	at Iz=1mA f=1kHz r_{zj}(Ω)	Min.	Max.	I_R(uA)	at V_R(V)	at T_{amb}=45℃ Iz(mA)	at T_{amb}=25℃ Iz(mA)
ZMM1 (2)	6.5 (< 8)	< 50	-26	-23	-	-	280	340
ZMM2.4	<100	<600	-10	-5	50	0.8	152	175
ZMM2.7	75 (<83)	<500	-9	-4	20	0.8	135	160
ZMM3	80 (<95)	<500	-9	-3	20	0.8	117	140
ZMM3.3	80 (<95)	<500	-8	-3	6	0.8	109	130
ZMM3.6	80 (<95)	<500	-8	-3	6	0.8	101	120
ZMM3.9	80 (<95)	<500	-7	-3	1.6	0.8	92	110
ZMM4.3	80 (<95)	<500	-6	-1	1.0	0.8	85	100
ZMM4.7	70 (<78)	<500	-5	+2	0.1	0.8	76	90
ZMM5.1	30 (<60)	<480	-3	+4	0.1	0.8	67	80
ZMM5.6	10 (<40)	<400	-2	+6	0.1	1	59	70
ZMM6.2	4.8 (<10)	<200	-1	+7	0.1	2	54	64
ZMM6.8	4.5 (<8)	<150	+2	+7	0.1	3	49	58
ZMM7.5	4 (<7)	<50	+3	+7	0.1	5	44	53
ZMM8.2	4.5 (<7)	<50	+4	+7	0.1	6	40	47
ZMM9.1	4.8 (<10)	<50	+5	+8	0.1	7	36	43
ZMM10	5.2 (<15)	<70	+5	+8	0.1	7.5	33	40
ZMM11	6 (<20)	<70	+5	+9	0.1	8.5	30	36
ZMM12	7 (<20)	<90	+6	+9	0.1	9	28	32
ZMM13	9 (<25)	<110	+7	+9	0.1	10	25	29
ZMM15	11 (<30)	<110	+7	+9	0.1	11	23	27
ZMM16	13 (<40)	<170	+8	+9.5	0.1	12	20	24
ZMM18	18 (<50)	<170	+8	+9.5	0.1	14	18	21
ZMM20	20 (<50)	<220	+8	+10	0.1	15	17	20
ZMM22	25 (<55)	<220	+8	+10	0.1	17	16	18
ZMM24	28 (<80)	<220	+8	+10	0.1	18	13	16
ZMM27	30 (<80)	<250	+8	+10	0.1	20	12	14
ZMM30	35 (<80)	<250	+8	+10	0.1	22.5	10	13
ZMM33	40 (<80)	<250	+8	+10	0.1	25	9	12
ZMM36	40 (<90)	<250	+8	+10	0.1	27	9	11
ZMM39	50 (<90)	<300	+10	+12	0.1	29	8	10
ZMM43	60 (<100)	<700	+10	+12	0.1	32	7	9.2
ZMM47	70 (<100)	<750	+10	+12	0.1	35	6	8.5
ZMM51	70 (<100)	<750	+10	+12	0.1	38	6	7.8
ZMM56	< 135 (3)	< 1000 (4)	typ. +10 (3)	-	0.1	42	5.2	7.1
ZMM62	< 150 (3)	< 1000 (4)	typ. +10 (3)	-	0.1	47	4.8	6.4
ZMM68	< 200 (3)	< 1000 (4)	typ. +10 (3)	-	0.1	51	4.1	5.8
ZMM75	< 250 (3)	< 1500 (4)	typ. +10 (3)	-	0.1	55	3.9	5.3

Notes 1. Valid provided that electrodes are kept at ambient temperature
2. The ZMM1 is a silicon diode operated in forward direction Hence, the index of all parameters should be "F" instead of "Z"
Connect the cathode electrode to the negative pole
3. at IZ=2.5mA,
4. at IZ=0.5mA

Electrical Characteristics (Ta=25℃ unless otherwise noted)

Type No. ±5% Tol.	Zener Voltage Range (1) at Iz Vz (Volts)		Test Current Iz (mA)
	Min	Max.	
ZMM1 (2)	0.7	0.8	5.0
ZMM2.4	2.2	2.6	5.0
ZMM2.7	2.5	2.9	5.0
ZMM3	2.8	3.2	5.0
ZMM3.3	3.1	3.5	5.0
ZMM3.6	3.4	3.8	5.0
ZMM3.9	3.7	4.1	5.0
ZMM4.3	4.0	4.6	5.0
ZMM4.7	4.4	5.0	5.0
ZMM5.1	4.8	5.4	5.0
ZMM5.6	5.2	6.0	5.0
ZMM6.2	5.8	6.6	5.0
ZMM6.8	6.4	7.2	5.0
ZMM7.5	7.0	7.9	5.0
ZMM8.2	7.7	8.7	5.0
ZMM9.1	8.5	9.6	5.0
ZMM10	9.4	10.6	5.0
ZMM11	10.4	11.6	5.0
ZMM12	11.4	12.7	5.0
ZMM13	12.4	14.1	5.0
ZMM15	13.8	15.6	5.0
ZMM16	15.3	17.1	5.0
ZMM18	16.8	19.1	5.0
ZMM20	18.8	21.2	5.0
ZMM22	20.8	23.3	5.0
ZMM24	22.8	25.6	5.0
ZMM27	25.1	28.9	5.0
ZMM30	28.0	32.0	5.0
ZMM33	31.0	35.0	5.0
ZMM36	34.0	38.0	5.0
ZMM39	37.0	41.0	5.0
ZMM43	40.0	46.0	5.0
ZMM47	44.0	50.0	5.0
ZMM51	48.0	54.0	5.0
ZMM56	52.0	60.0	2.5
ZMM62	58.0	66.0	2.5
ZMM68	64.0	72.0	2.5
ZMM75	70.0	79.0	2.5

Notes 1. Tested with pulses t_p=5ms

2. The ZMM1 is a silicon diode operated in forward direction Hence, the index of all parameters should be "F" instead of "Z"
Connect the cathode electrode to the negative pole

Ratings and Characteristics Curves (Ta=25℃ unless otherwise noted)

Fig. 1 Breakdown Characteristics (Tj=constant(pulsed))

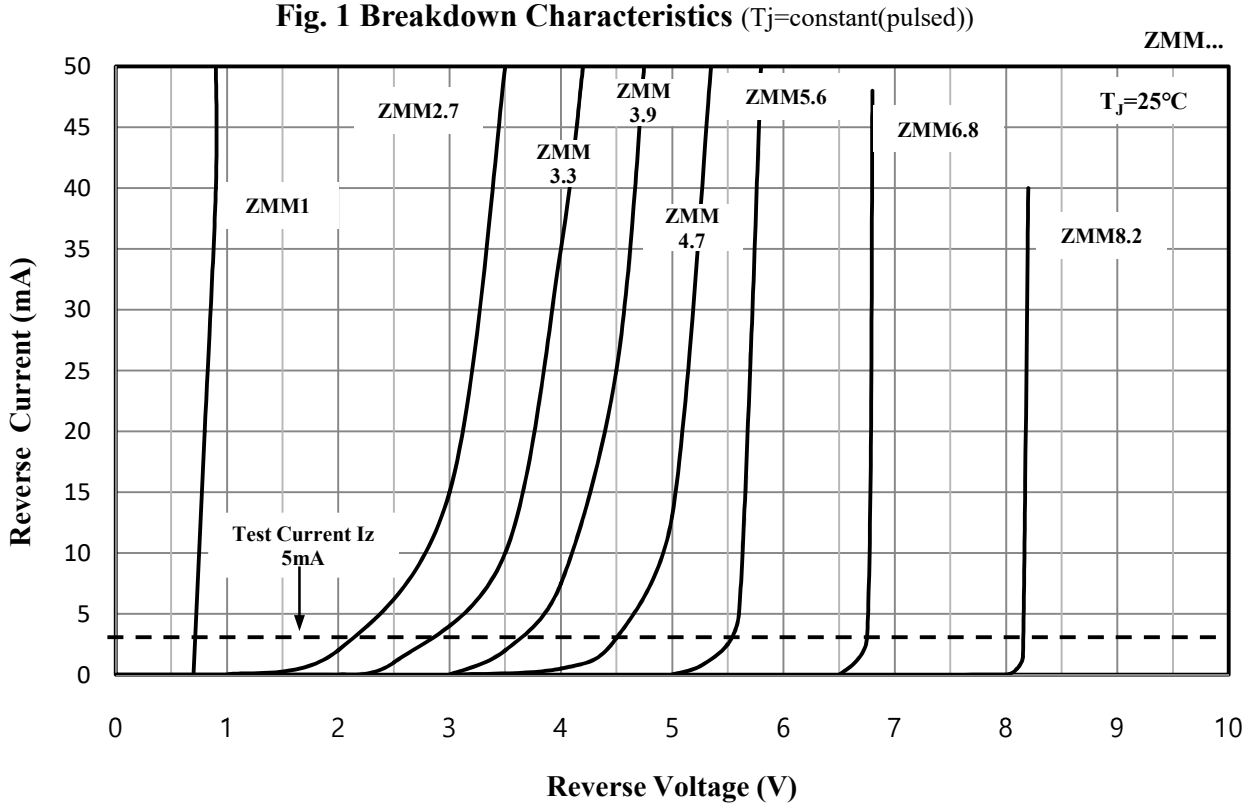
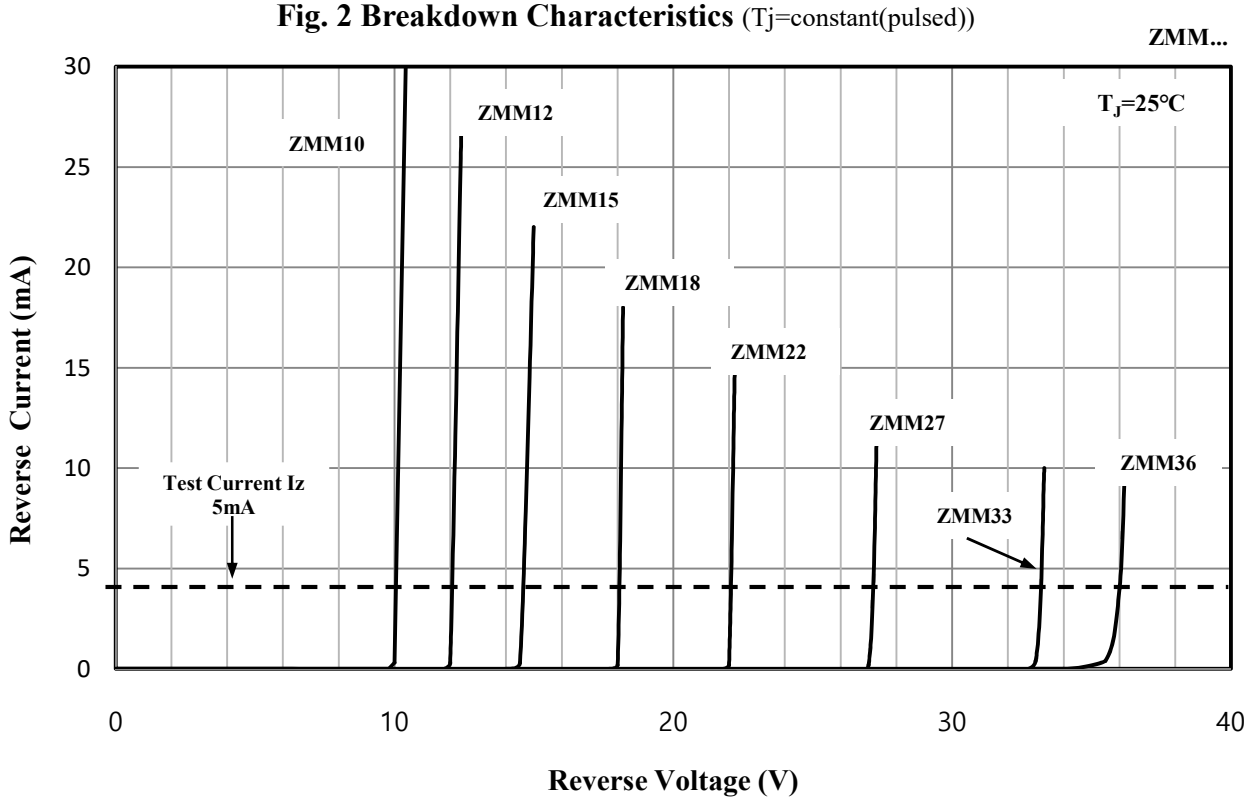


Fig. 2 Breakdown Characteristics (Tj=constant(pulsed))



Ratings and Characteristics Curves (Ta=25℃ unless otherwise noted)

Fig. 3 Breakdown Characteristics (Tj=constant(pulsed))

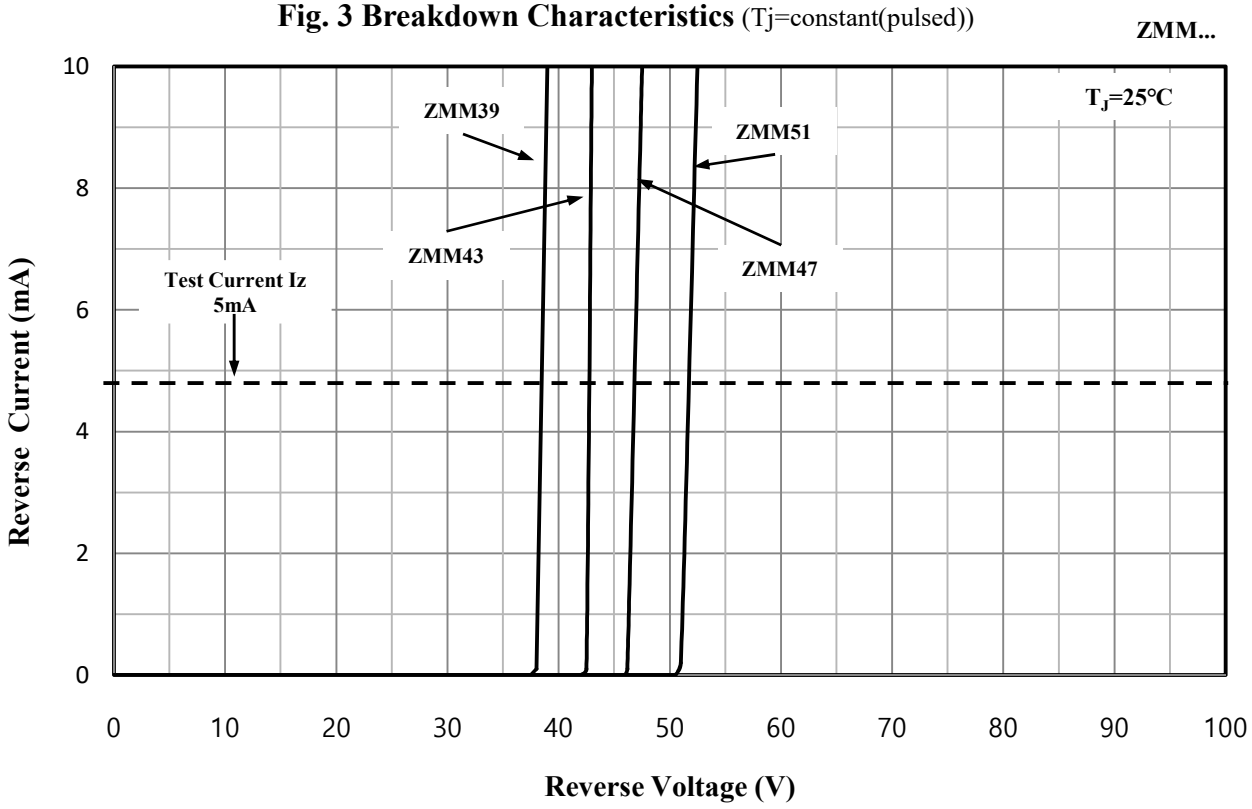


Fig. 4 Forward Characteristics

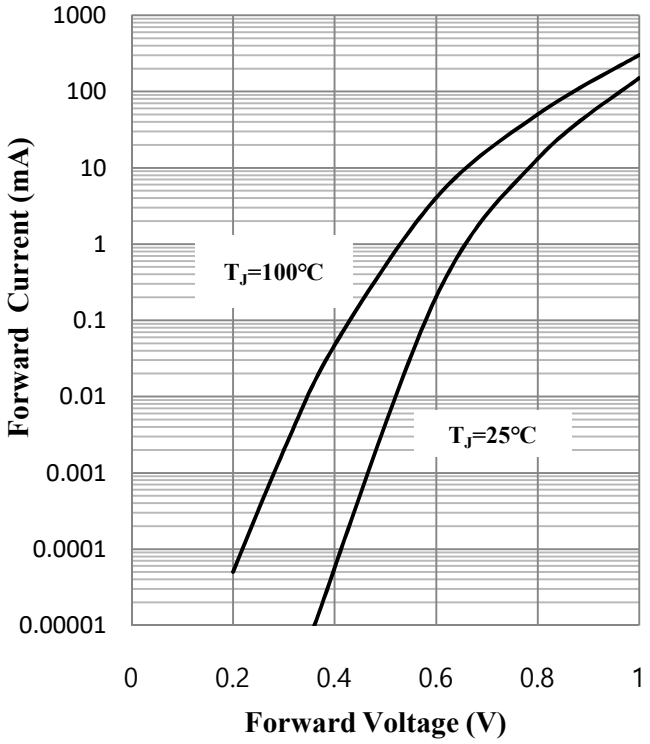


Fig. 5 Admissible power dissipation versus ambient temperature
Valid provided that electrodes are kept at ambient temperature