SGS-THOMSON MICROELECTRONICS

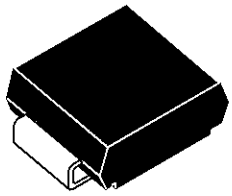
SM2Z5V1 → SM2Z200

2W ZENER DIODES

PRELIMINARY DATASHEET

FEATURES

- 2W ZENER DIODES
- SMA PACKAGE
- VOLTAGE RANGE : 5.1V TO 200V



SMA
(Plastic)

DESCRIPTION

- Body marked with : Logo, Date Code, Type Code and Cathode Band (laser marking).
- Full compatibility with both gluing and paste soldering techniques.
- Excellent on-board stability.
- Tinned copper leads.
- High temperature resistant resin.

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
P	Power dissipation *	T_l = 115°C	2	W
I_{ZM}	Continuous reverse current *	T_l = 115°C	See page 2	mA
I_{ZSM}	Peak reverse current	T_{amb} = 25°C	See page 2	A
T_{stg} T_j	Storage temperature range Junction temperature range		- 65 to + 175 - 65 to + 175	°C °C
T_l	Maximum lead temperature for soldering		260	°C

* On infinite heatsink

THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
$R_{th\ (j-l)}$	Junction to lead	30	°C/W
$R_{th\ (j-a)}$	Junction to ambient on printed circuit (with standard footprint dimensions)	120	°C/W

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

Types	Marking	V_{ZT} @ I_{ZT} min. V (1)	max. V (1)	r_{ZT}@I_{ZT} max. Ω (1)	I_{ZT} mA (1)	RZK @ I_{ZK} max. Ω	mA	α_{VZ} typ. 10^{-4}/°C	I_R @ V_R max. μA	V	I_{ZM} max. T_l=115°C mA	I_{ZSM} max. A (2)
SM2Z5V1	ZHK	4.8	5.4	5	100	350	2	1	5	1	370	7.8
SM2Z5V6	ZHL	5.2	6	2	100	250	2	2.5	5	1	330	7.1
SM2Z12	ZHW	11.4	12.7	7	50	150	1	6.5	1	9.1	155	3.3
SM2Z15	ZHZ	13.8	15.6	10	50	150	1	7	1	11.4	130	2.7
SM2Z18	ZJF	16.8	19.1	15	25	150	1	7.5	0.5	13.7	105	2.2
SM2Z24	ZJL	22.8	25.6	15	25	180	1	8	0.5	18.2	78	1.6
SM2Z27	ZJN	25.1	28.9	15	25	200	1	8.5	0.5	20.5	69	1.4
SM2Z30	ZJQ	28	32	15	25	250	1	8.5	0.5	22.8	62	1.1
SM2Z36	ZJS	34	38	40	10	350	1	8.5	0.5	27.4	52	0.9
SM2Z47	ZJV	44	50	45	10	600	1	9	0.5	35.7	40	0.7
SM2Z150	ZKR	138	156	700	5	4000	0.5	9.5	0.5	114	12.8	0.15
SM2Z200	ZKW	188	212	1000	5	6000	0.5	9.5	0.5	152	9.4	0.12

Note 1 : Pulse test : $t_p \leq 50ms$ $\delta < 2\%$

Note 2 : Rectangular waveform t_p = 10ms

Forward voltage drop : $V_F \leq 1.2$ V (T_{amb} = 25°C, I_F = 500 mA)

Fig. 1 : Power dissipation versus ambient temperature.

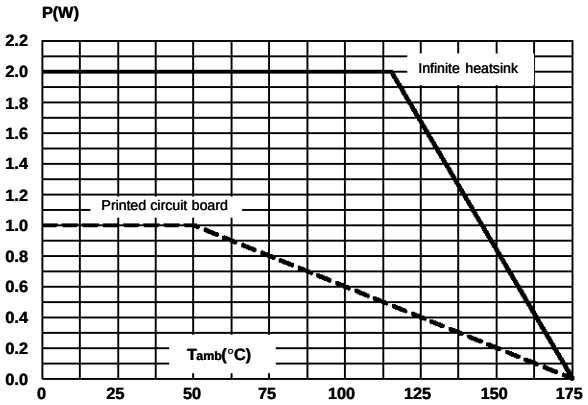


Fig. 2 : Junction to ambient thermal resistance versus copper surface under each lead.

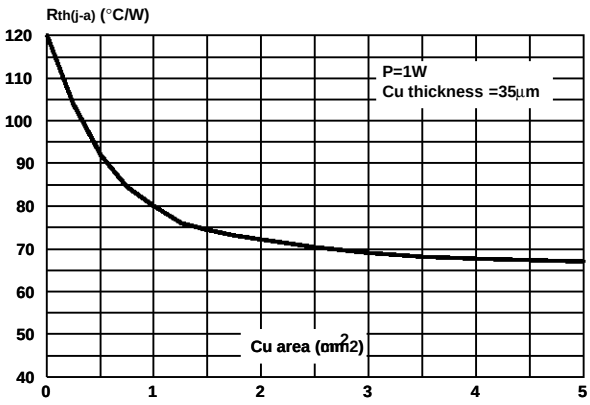


Fig. 3 : Relative variation of thermal impedance versus pulse duration.

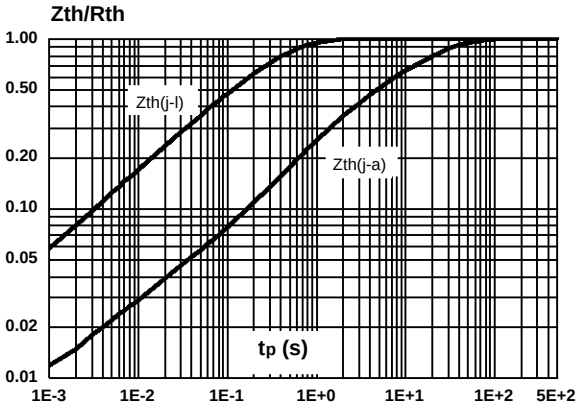


Fig. 4 : Junction capacitance versus reverse voltage applied (typical values).

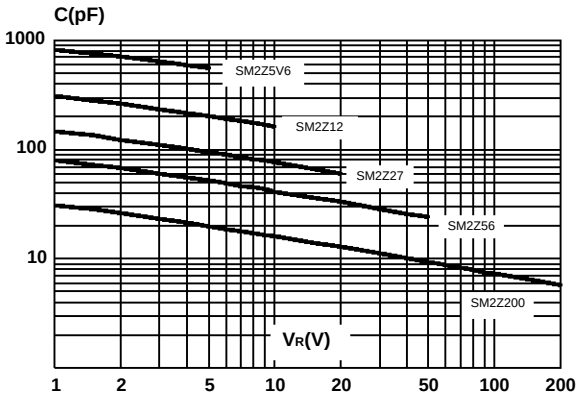


Fig. 5 : Peak forward voltage drop versus peak forward current (typical values).

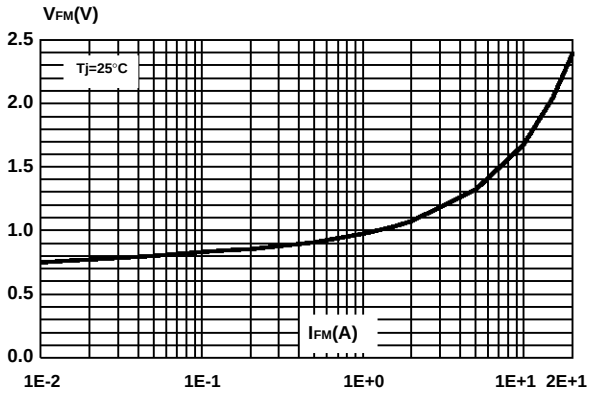


Fig. 6 : Leakage current versus regulation voltage (typical values).

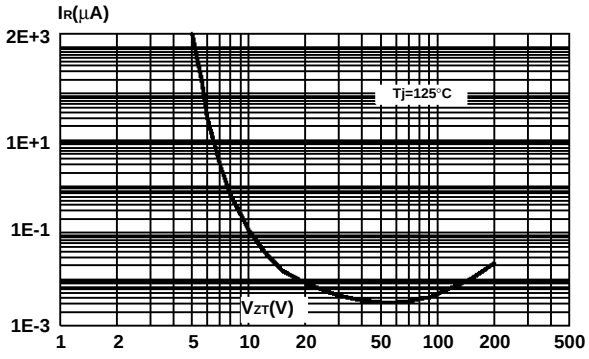


Fig. 7 : Differential resistance versus regulation voltage (typical values).

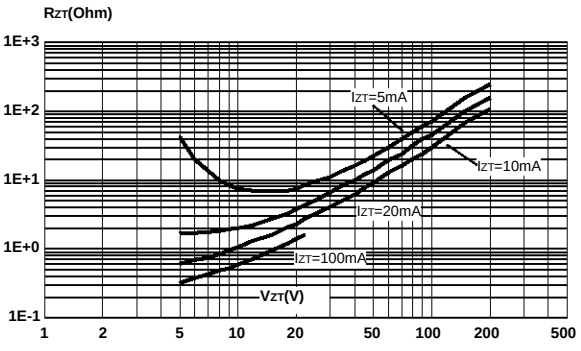
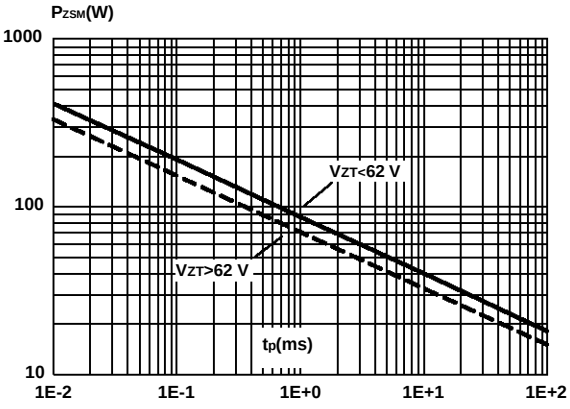
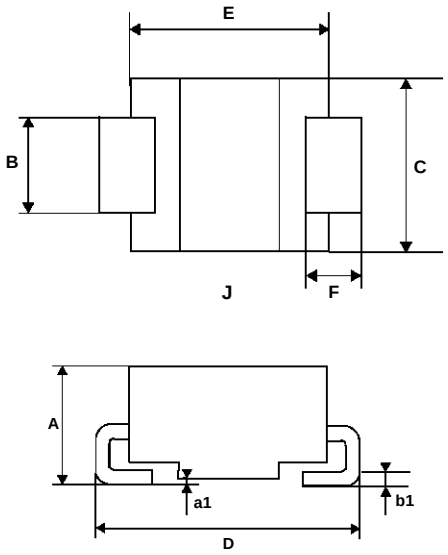


Fig. 8 : Peak pulse power versus pulse duration (rectangular waveform, maximum values).



PACKAGE MECHANICAL DATA

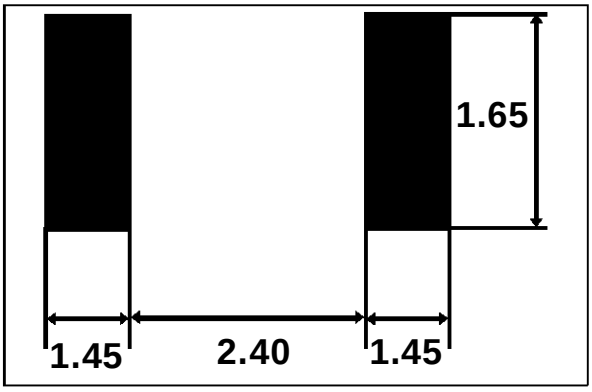
SMA (Plastic)



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.980	2.300	0.078	0.091
a1	0.102	0.280	0.004	0.011
B	1.400	1.700	0.055	0.067
b1	0.152	0.300	0.006	0.012
C	2.540	2.850	0.100	0.112
D	4.930	5.290	0.194	0.208
E	3.990	4.500	0.157	0.177
F	0.760	1.270	0.030	0.050

FOOT PRINT DIMENSIONS (in millimeters)

SMA (Plastic**)**



Packaging : standard packaging is in tape and reel.