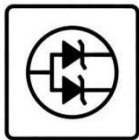


# MSKSEMI 美森科

SEMICONDUCTOR



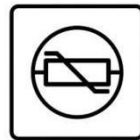
ESD



TVS



TSS



MOV



GDT



PLED

## **MM1W3V3L-MS THRU MM1W330L-MS**

### **Product specification**


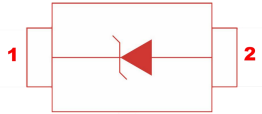
**FEATURES**

- Total power dissipation: Max. 1 W.
- Wide zener reverse voltage range 3.3V to 330V.
- Small plastic package suitable for surface mounted design.

**MECHANICAL DATA**

- Case: SOD-123FL
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight:15mg 0.00048oz

**FEATURES**

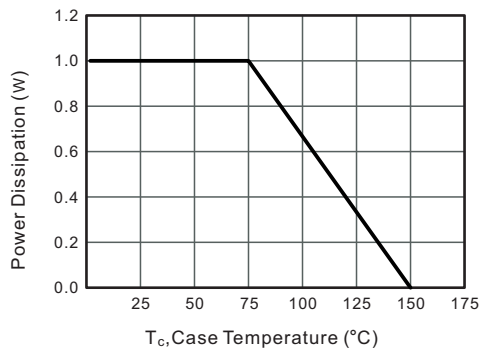
SOD-123FL	PIN ASSIGNMENT
 <p>1.Cathode 2.Anode</p>	

**Absolute Maximum Ratings And Characteristics ( Ta = 25 °C )**

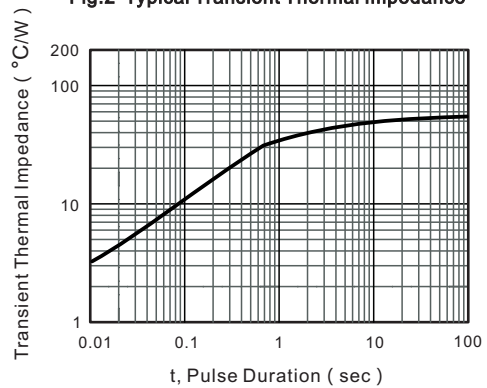
Parameter	Symbol	Value	Unit
Power Dissipation at T <sub>L</sub> =75 °C	P <sub>D</sub>	1	W
Forward Voltage at I <sub>F</sub> = 200 mA	V <sub>F</sub>	1.2	V
Typical thermal resistance junction to ambient <sup>(1)</sup>	R <sub>θJA</sub>	55	°C/W
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>stg</sub>	-55 ~ +150	°C

( 1 ) Thermal resistance from junction to ambient at P.C.B . mounted with 2.0" X 2.0" (5 X 5 cm) copper areas pads .

**Fig.1 Maximum Continuous Power Derating**



**Fig.2 Typical Transient Thermal Impedance**



**Characteristics at Ta = 25°C**

Type	Marking	Zener Voltage Range <sup>(1)</sup>			I <sub>ZT</sub> (mA)	Dynamic Impedance Z <sub>ZT</sub> ( at I <sub>ZT</sub> ) Max (Ω)	Reverse Current		Admissible Zener Current I <sub>ZM</sub> (mA)
		V <sub>ZT</sub> ( at I <sub>ZT</sub> )					I <sub>r</sub> Max ( μA )	at V <sub>R</sub> ( V )	
		Min ( V )	Nom ( V )	Max ( V )					
MM1W3V3L-MS	FHD	3.10	3.3	3.50	75	10	100	1	285
MM1W3V6L-MS	FHE	3.40	3.6	3.80	69	10	100	1	263
MM1W3V9L-MS	FHF	3.70	3.9	4.10	64	9.0	50	1	243
MM1W4V3L-MS	FHG	4.06	4.3	4.56	58	9.0	25	1	219
MM1W4V7L-MS	FHJ	4.50	4.7	4.93	53	8.0	10	1	203
MM1W5V1L-MS	FHK	4.84	5.1	5.36	49	7.0	10	1	186
MM1W5V6L-MS	FHL	5.32	5.6	5.92	45	5.0	10	2	170
MM1W6V2L-MS	FHN	5.86	6.2	6.51	41	2.0	10	3	154
MM1W6V8L-MS	FHO	6.46	6.8	7.18	37	3.5	10	4	140
MM1W7V5L-MS	FHQ	7.12	7.5	7.88	34	4.0	10	5	127
MM1W8V2L-MS	FHR	7.79	8.2	8.67	31	4.5	10	6	116
MM1W9V1L-MS	FHT	8.60	9.1	9.59	28	5.0	10	7	104
MM1W10L-MS	FHU	9.50	10	10.5	25	7.0	10	7	95
MM1W11L-MS	FHV	10.4	11	11.6	23	8.0	5	8	86
MM1W12L-MS	FHW	11.4	12	12.6	21	9.0	5	9	79
MM1W13L-MS	FHX	12.4	13	14.1	19	10	5	10	71
MM1W15L-MS	FHZ	13.8	15	15.8	17	14	5	11	63
MM1W16L-MS	FJA	15.2	16	17.1	16	16	5	12	58
MM1W18L-MS	FJF	16.8	18	19.2	14	20	5	13	52
MM1W20L-MS	FJG	19.0	20	21.2	13	22	5	15	47
MM1W22L-MS	FJK	20.8	22	23.3	12	23	5	17	43
MM1W24L-MS	FJL	22.8	24	26.0	11	25	5	18	38
MM1W27L-MS	FJN	25.3	27	28.9	9.5	35	5	21	35
MM1W30L-MS	FJQ	28.2	30	32.0	8.5	40	5	23	31
MM1W33L-MS	FJR	31.3	33	34.9	7.5	45	5	25	28
MM1W36L-MS	FJS	34.2	36	37.9	7.0	50	5	27	26
MM1W39L-MS	FJT	37.2	39	41.5	6.5	60	5	30	24
MM1W43L-MS	FLG	40.9	43	45.6	6.0	70	1	32	22
MM1W47L-MS	FLJ	44.9	47	49.8	5.5	80	1	35	20
MM1W51L-MS	FLK	48.6	51	54.0	5.0	95	1	38	18
MM1W56L-MS	FLL	53.6	56	58.8	4.5	110	1	42	17
MM1W62L-MS	FLN	58.9	62	65.6	4.0	125	1	47	15
MM1W68L-MS	FLO	64.6	68	71.7	3.7	150	1	52	14
MM1W75L-MS	FLQ	71.2	75	78.8	3.3	175	1	56	12
MM1W82L-MS	FLR	77.9	82	87.0	3.0	200	1	62	11
MM1W91L-MS	FLT	86.0	91	96.0	2.8	250	1	69	10
MM1W100L-MS	FLU	95.0	100	105	2.5	350	1	76	9.5
MM1W110L-MS	FLV	104	110	116	2.3	450	1	84	8.6
MM1W120L-MS	FLW	114	120	127	2.0	550	1	91	7.8
MM1W135L-MS	FLX	125	135	142	1.9	700	1	100	7.0
MM1W150L-MS	FLZ	140	150	157	1.7	900	1	110	6.3
MM1W165L-MS	FPA	155	165	172	1.6	1100	1	120	5.8

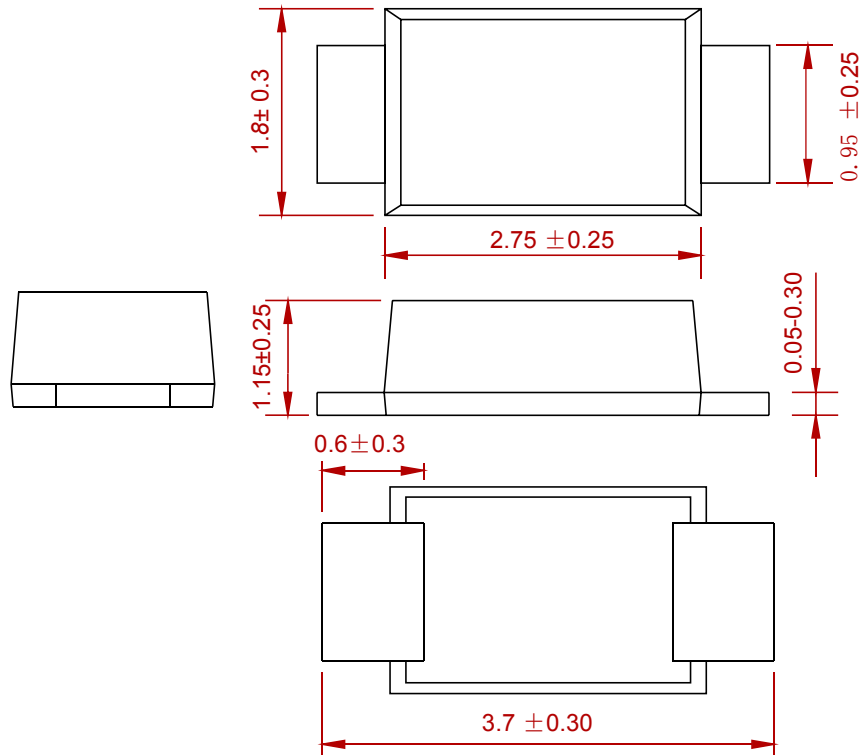
 ( 1 ) V<sub>ZT</sub> is tested with pulses (20 ms)

**Characteristics at Ta = 25°C**

Type	Marking	Zener Voltage Range <sup>(1)</sup>			I <sub>ZT</sub>	Dynamic Impedance	Reverse Current		Admissible Zener Current
		V <sub>ZT</sub> ( at I <sub>ZT</sub> )				Z <sub>ZT</sub> ( at I <sub>ZT</sub> )	I <sub>k</sub>	at V <sub>R</sub>	
		Min ( V )	Nom ( V )	Max ( V )	( mA )	Max ( Ω )	Max ( μA )	( V )	I <sub>ZM</sub> ( mA )
MM1W180L-MS	FPF	170	180	191	1.4	1200	1	135	5.2
MM1W200L-MS	FPG	189	200	211	1.2	1400	1	150	4.7
MM1W220L-MS	FPK	209	220	231	1.0	1600	1	165	4.3
MM1W240L-MS	FPL	229	240	251	1.0	1800	1	180	3.9
MM1W260L-MS	FPM	249	260	271	1.0	2000	1	190	3.7
MM1W280L-MS	FPN	269	280	291	1.0	2100	1	205	3.4
MM1W300L-MS	FPQ	289	300	315	1.0	2300	1	230	3.1
MM1W330L-MS	FLR	313	330	346	1.0	2500	1	250	2.8

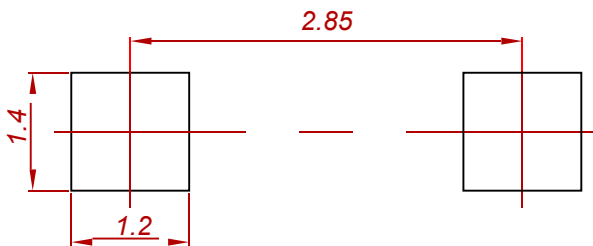
( 1 ) V<sub>ZT</sub> is tested with pulses (20 ms)

**PACKAGE MECHANICAL DATA**



*Dimensions in millimeters*

**Suggested Pad Layout**



**Note:**

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$  mm.
3. The pad layout is for reference purposes only.

**REEL SPECIFICATION**

P/N	PKG	QTY
MM1W3V3L-MS THRU MM1W330L-MS	SOD-123FL	3000

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