佳邦科技股份有限公司
INPAQ TECHNOLOGY CO., LTD.

SM4FJ-A Series

Product Name	ESD TVS (Transient Voltage Suppressor)
Series	SM4FJ-A Series
Package Size	SOD-123

SM4FJ-A Series Engineering Specification

1. Features

- 400W surface mount transient voltage suppressors
- Glass passivated chip junction
- Reliable low cost construction utilizing molded plastic technique
- Excellent clamping capability
- Low incremental surge resistance.
- Fast response time

2. Mechanical Date

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any

3. Pinning Information

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		

4. Maximum Ratings @Ta=25ºC unless otherwise noted

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000μs waveform(1)	P_{PP}	400	W
Peak pulse current with a 10/1000μs waveform(1)	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at T_L=75°C	P_D	1.0	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only(2)	I_{FSM}	30	A
Maximum instantaneous forward voltage at 25A for unidirectional only(3)	V_F	3.5	V
Operating junction and storage temperature range	T_J, T_{STG}	- 55 to +150	°C

(1)Non-repetitive current pulse per Fig.5 and derated above TA= 25 °C per Fig.1
(2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum
(3)VF<3.5V for devices of VBR<200V and VF<5.0V for devices of VBR>201V

5. Electrical characteristics

Part Number (Uni)	Device Marking Code	Breakdown Voltage V_{BR} @I_T			Maximum Reverse Leakage I_R @VRWM (uA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage V_C @I_{PP} (V)
	Uni	Min (V)	Max (V)	I_T (mA)				
SM4FJ5.0A-A	4KE	6.4	7	10	800	5	40.1	9.2
SM4FJ6.0A-A	4KG	6.67	7.37	10	800	6	35.9	10.3
SM4FJ6.5A-A	4KK	7.22	7.98	10	500	6.5	33.1	11.2
SM4FJ7.0A-A	4KM	7.78	8.6	10	200	7	30.9	12
SM4FJ7.5A-A	4KP	8.33	9.21	1	100	7.5	28.7	12.9
SM4FJ8.0A-A	4KR	8.89	9.83	1	50	8	27.2	13.6
SM4FJ8.5A-A	4KT	9.44	10.4	1	20	8.5	25.7	14.4
SM4FJ9.0A-A	4KV	10	11.1	1	10	9	24.1	15.4
SM4FJ10A-A	4KX	11.1	12.3	1	5	10	23.5	17
SM4FJ11A-A	4KZ	12.2	13.5	1	1	11	22	18.2
SM4FJ12A-A	4LE	13.3	14.7	1	1	12	20.1	19.9
SM4FJ13A-A	4LG	14.4	15.9	1	1	13	18.6	21.5
SM4FJ14A-A	4LK	15.6	17.2	1	1	14	17.2	23.2
SM4FJ15A-A	4LM	16.7	18.5	1	1	15	16.4	24.4
SM4FJ16A-A	4LP	17.8	19.7	1	1	16	15.4	26
SM4FJ17A-A	4LR	18.9	20.9	1	1	17	14.5	27.6
SM4FJ18A-A	4LT	20	22.1	1	1	18	13.7	29.2
SM4FJ20A-A	4LV	22.2	24.5	1	1	20	12.3	32.4
SM4FJ22A-A	4LX	24.4	26.9	1	1	22	11.3	35.5
SM4FJ24A-A	4LZ	26.7	29.5	1	1	24	10.3	38.9
SM4FJ26A-A	4ME	28.9	31.9	1	1	26	9.5	42.1
SM4FJ28A-A	4MG	31.1	34.4	1	1	28	8.8	45.4
SM4FJ30A-A	4MK	33.3	36.8	1	1	30	8.3	48.4
SM4FJ33A-A	4MM	36.7	40.6	1	1	33	7.5	53.3
SM4FJ36A-A	4MP	40	44.2	1	1	36	6.9	58.1
SM4FJ40A-A	4MR	44.4	49.1	1	1	40	6.2	64.5
SM4FJ43A-A	4MT	47.8	52.8	1	1	43	5.8	69.4
SM4FJ45A-A	4MV	50	55.3	1	1	45	5.5	72.7
SM4FJ48A-A	4MX	53.3	58.9	1	1	48	5.2	77.4
SM4FJ51A-A	4MZ	56.7	62.7	1	1	51	4.9	82.4

Part Number (Uni)	Device Marking Code	Breakdown Voltage V_{BR} @I_T			Maximum Reverse Leakage I_R @VRWM (uA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage V_C @I_{PP} (V)
	Uni	Min (V)	Max (V)	I_T (mA)				
SM4FJ54A-A	4NE	60	66.3	1	1	54	4.6	87.1
SM4FJ58A-A	4NG	64.4	71.2	1	1	58	4.3	93.6
SM4FJ60A-A	4NK	66.7	73.7	1	1	60	4.1	96.8
SM4FJ64A-A	4NM	71.1	78.6	1	1	64	3.9	103
SM4FJ70A-A	4NP	77.8	86	1	1	70	3.5	113
SM4FJ75A-A	4NR	83.3	92.1	1	1	75	3.3	121
SM4FJ78A-A	4NT	86.7	95.8	1	1	78	3.2	126
SM4FJ85A-A	4NV	94.4	104	1	1	85	2.9	137

6. Typical Characteristics

Fig. 1 - Pulse Derating Curve

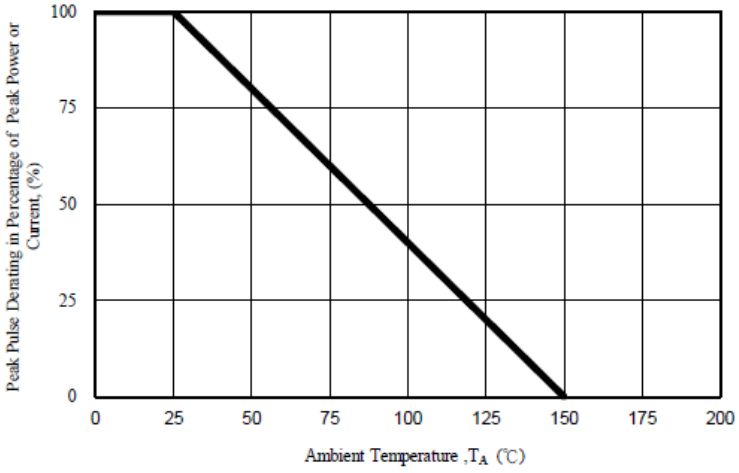


Fig. 2 - Maximum Non-Repetitive Surge Current

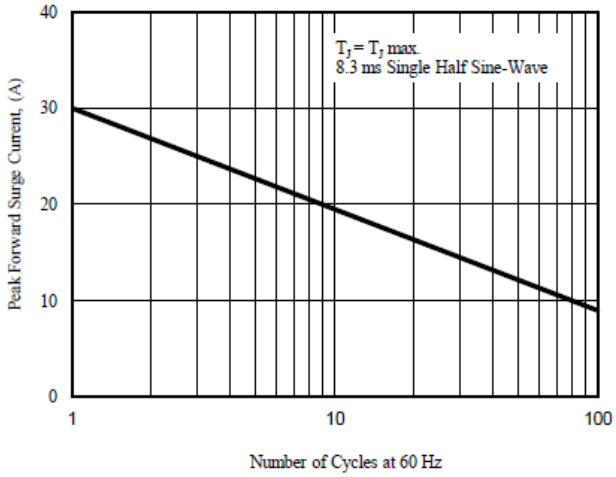


Fig. 3 - Pulse Waveform

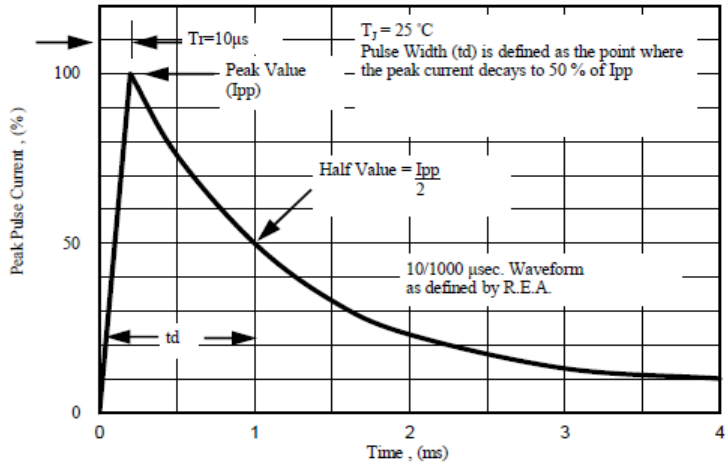


Fig. 4 - Typical Junction Capacitance

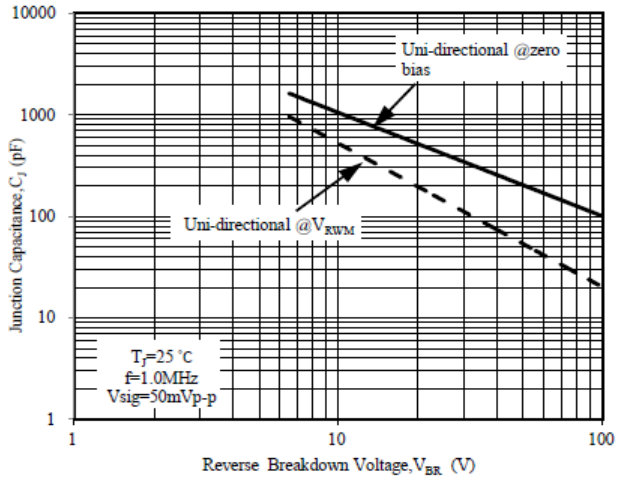
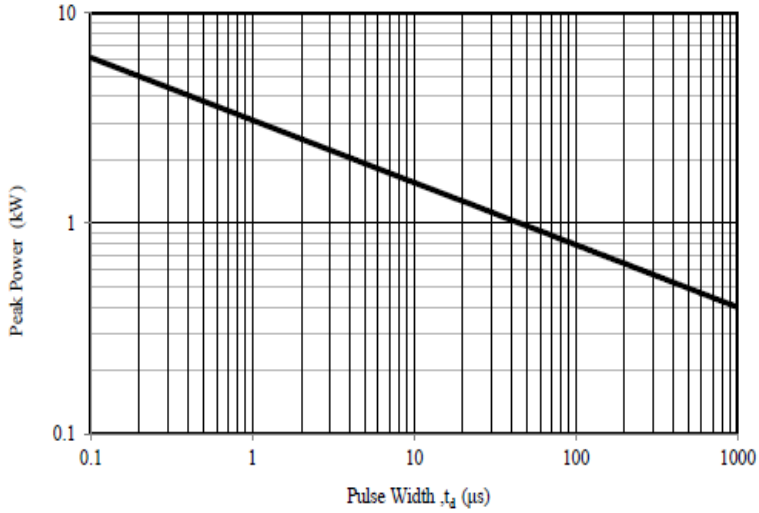
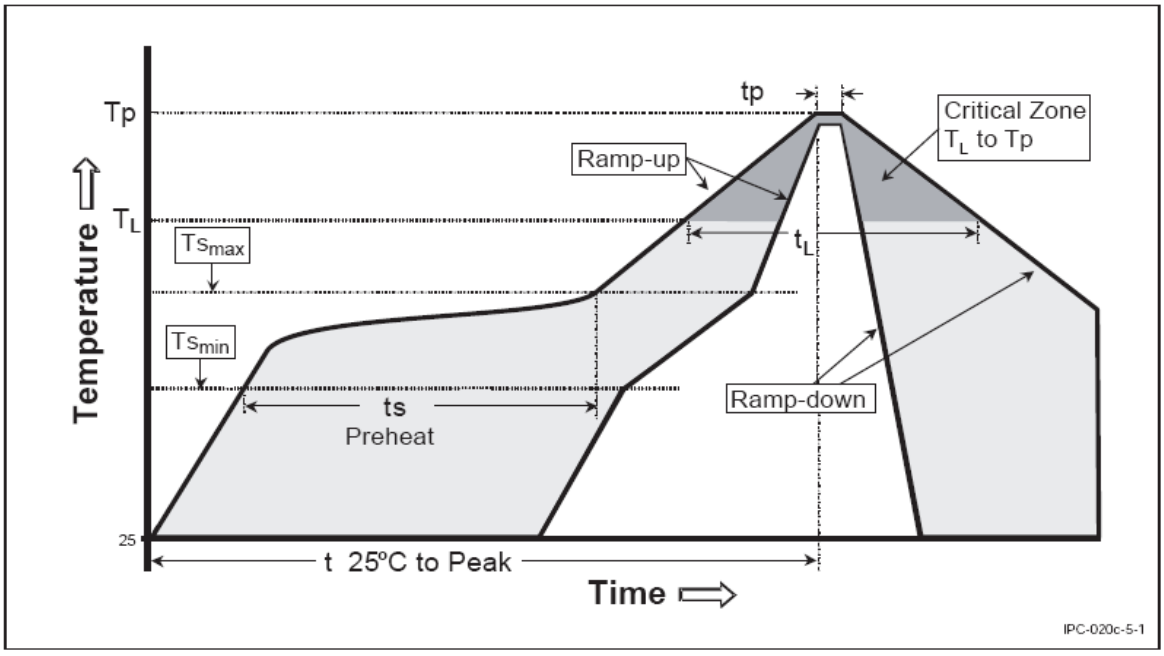


Fig. 5 - Steady State Power Derating Curve



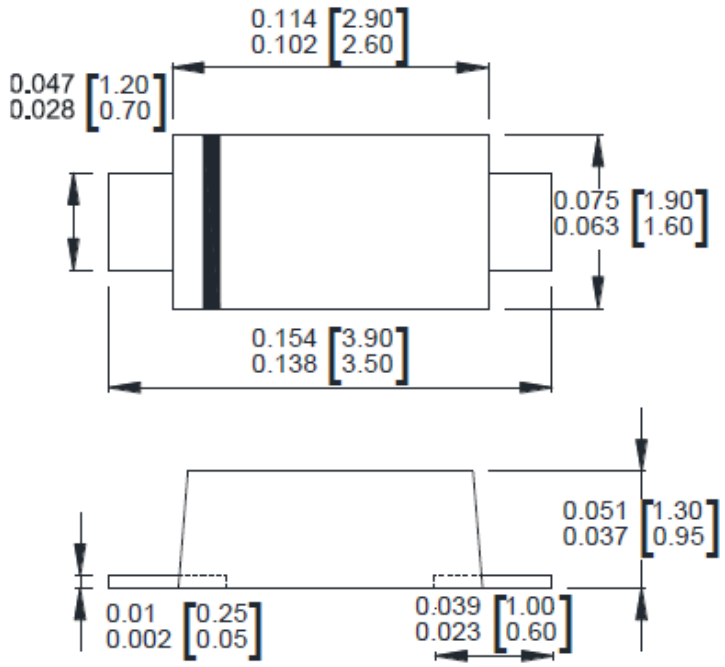
7. Reflow Soldering

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (Tsmax to Tp)	3° C/second max.
Preheat – Temperature Min (Tsmin) – Temperature Max (Tsmax) – Time (tsmin to tsmax)	 150 °C 200 °C 60-120 seconds
Time maintained above: – Temperature (TL) – Time (tL)	 217 °C 60-150 seconds
Peak/Classification Temperature (Tp)	260 °C
Time within 5 °C of actual Peak Temperature (tp)	 30 seconds
Ramp-Down Rate	6 °C/second max.
Time 25 °C to Peak Temperature	8 minutes max.



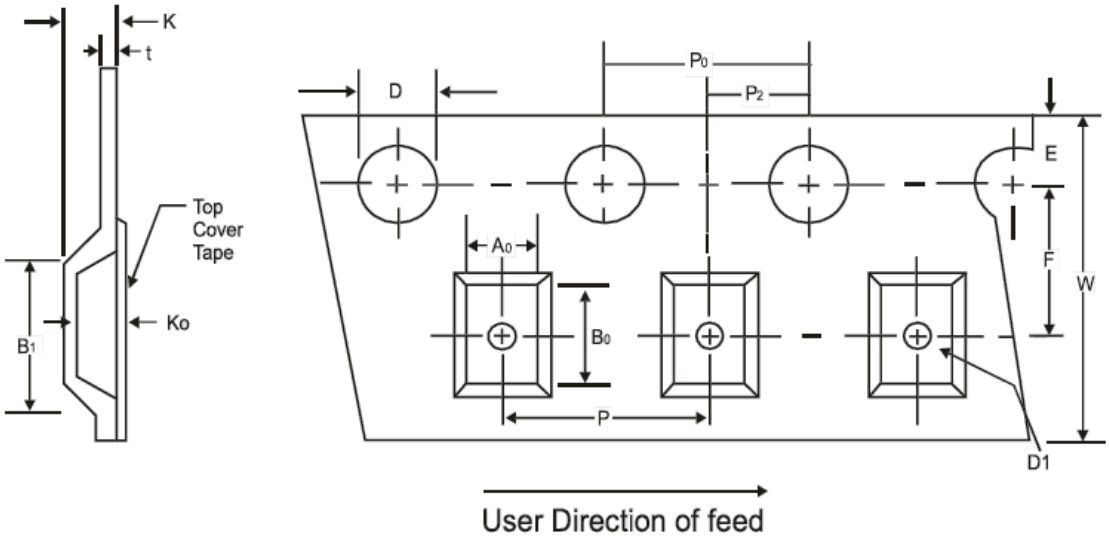
8. Outline Dimensions

SOD-123

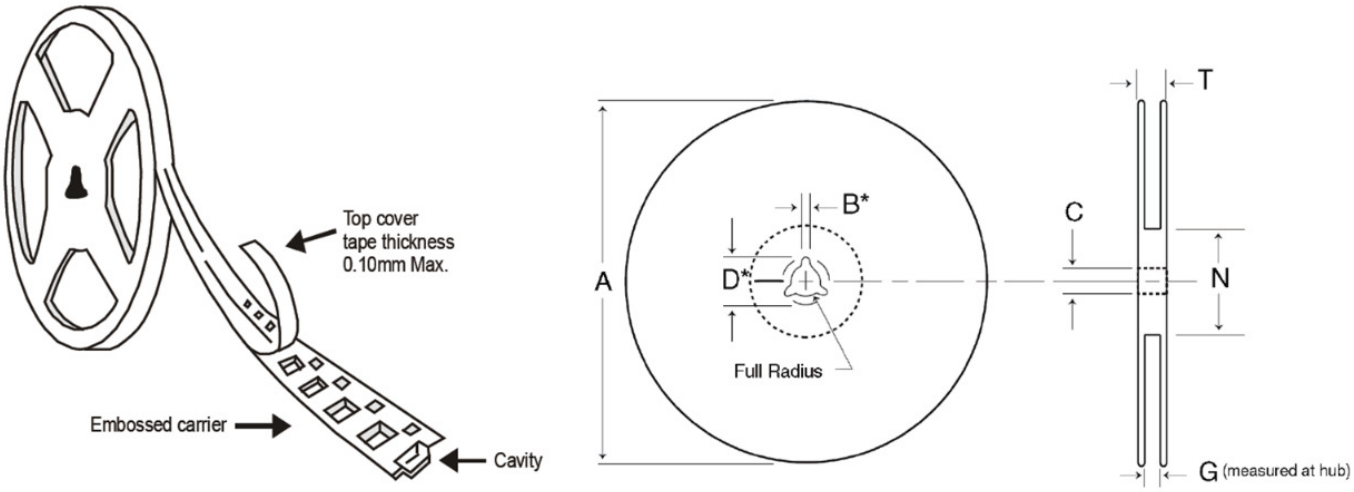


Dimensions : inch [mm]

9. Tape & Reel Information

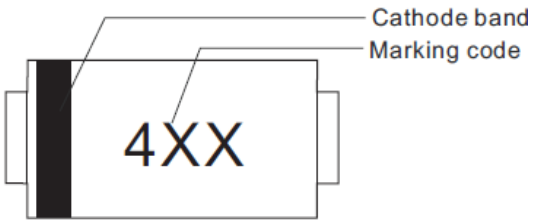


Symbol	W	D	E	P0	t	B1	D1	F	K	P2	P
SOD-123 Unit : mm	8±0.1	1.55±0.05	1.75±0.05	4.0±0.1	0.28 Max	NA	0.9 Min	3.5±0.05	NA	2.0±0.05	4±0.1



Symbol	A	B	C	D	N	G	T
SOD-123 Unit : mm	177 (7inch)	2.2 max	13	20.2 max	50 min	8.4 max	11.4 max

10. Marking Code



1. CATHODE MARK (For Uni-direction Products Only)
2. TYPE NAME (By Device Marking Code)

11. Order Information

Part Number	Quantity	Packaging Option
SM4FJ-A Series	3000 /reel	tape/7”reel

12. MSL Level

LEVEL 1