

SMAFxxxAF Series

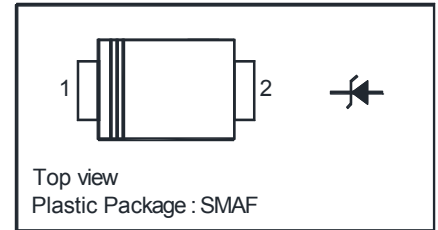
Surface Mount Transient Voltage Suppressors

Features

- For surface mounted applications in order to optimize board space
- Low profile package
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Flammability

PINNING

PIN	DESCRIPTION
1	Cathode
2	Anode

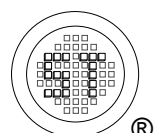


Absolute Maximum Ratings (Ta = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 μ s waveform	P_{PPM}	400	W
ESD (IEC6100-4-2) Air Contact	V_{ESD}	± 15 ± 8	KV
Peak Pulse Current on 10/1000 μ s waveform ¹⁾	I_{PPM}	see Table 1 and 2	A
Peak Forward Surge Current 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC Method) ²⁾	I_{FSM}	60	A
Typical Junction Capacitance at $V_R = 4$ V, $f = 1$ MHz	C_J	390	pF
Typical Thermal Resistance Junction to Ambient ²⁾	$R_{\theta JA}$	120	$^{\circ}C/W$
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to + 175	$^{\circ}C$

¹⁾ Non-repetitive current pulse and derated above $T_a = 25^{\circ}C$.

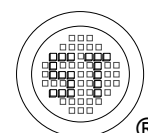
²⁾ Mounted on FR-4 PCB single-sided copper, mini pad.



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Electrical Characteristics (Ta = 25°C see Table 1)

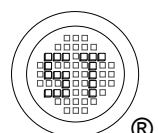
Type	Marking Code	Working Peak Reverse Voltage	Breakdown Voltage			Maximum Clamping Voltage		Maximum Reverse Current
			V _{BR}		at I _T	V _C	at I _{PPM}	I _R at V _{RWM}
			V _{RWM} (V)	Min. (V)	Max. (V)	(mA)	Max. (V)	(A)
SMAF5.0AF	5.0A	5	6.4	7	10	9.2	43.5	800
SMAF6.0AF	6.0A	6	6.67	7.37	10	10.3	38.8	800
SMAF6.5AF	6.5A	6.5	7.22	7.98	10	11.2	35.7	500
SMAF7.0AF	7.0A	7	7.78	8.6	10	12	33.3	200
SMAF7.5AF	7.5A	7.5	8.33	9.21	1	12.9	31	100
SMAF8.0AF	8.0A	8	8.89	9.83	1	13.6	29.4	50
SMAF8.5AF	8.5A	8.5	9.44	10.4	1	14.4	27.8	20
SMAF9.0AF	9.0A	9	10	11.1	1	15.4	26	10
SMAF10AF	10A	10	11.1	12.3	1	17	23.5	5
SMAF11AF	11A	11	12.2	13.5	1	18.2	22	1
SMAF12AF	12A	12	13.3	14.7	1	19.9	20.1	1
SMAF13AF	13A	13	14.4	15.9	1	21.5	18.6	1
SMAF14AF	14A	14	15.6	17.2	1	23.2	17.2	1
SMAF15AF	15A	15	16.7	18.5	1	24.4	16.4	1
SMAF16AF	16A	16	17.8	19.7	1	26	15.4	1
SMAF17AF	17A	17	18.9	20.9	1	27.6	14.5	1
SMAF18AF	18A	18	20	22.1	1	29.2	13.7	1
SMAF20AF	20A	20	22.2	24.5	1	32.4	12.3	1
SMAF22AF	22A	22	24.4	26.9	1	35.5	11.3	1
SMAF24AF	24A	24	26.7	29.5	1	38.9	10.3	1
SMAF26AF	26A	26	28.9	31.9	1	42.1	9.5	1
SMAF28AF	28A	28	31.1	34.4	1	45.4	8.8	1
SMAF30AF	30A	30	33.3	36.8	1	48.4	8.3	1
SMAF33AF	33A	33	36.7	40.6	1	53.3	7.5	1
SMAF36AF	36A	36	40	44.2	1	58.1	6.9	1
SMAF40AF	40A	40	44.4	49.1	1	64.5	6.2	1
SMAF43AF	43A	43	47.8	52.8	1	69.4	5.8	1
SMAF45AF	45A	45	50	55.3	1	72.7	5.5	1
SMAF48AF	48A	48	53.3	58.9	1	77.4	5.2	1
SMAF51AF	51A	51	56.7	62.7	1	82.4	4.9	1
SMAF54AF	54A	54	60	66.3	1	87.1	4.6	1
SMAF58AF	58A	58	64.4	71.2	1	93.6	4.3	1
SMAF60AF	60A	60	66.7	73.7	1	96.8	4.1	1
SMAF64AF	64A	64	71.1	78.6	1	103	3.9	1
SMAF70AF	70A	70	77.8	86	1	113	3.5	1
SMAF75AF	75A	75	83.3	92.1	1	121	3.3	1
SMAF78AF	78A	78	86.7	95.8	1	126	3.2	1
SMAF85AF	85A	85	94.4	104	1	137	2.9	1
SMAF90AF	90A	90	100	111	1	146	2.7	1
SMAF100AF	100A	100	111	123	1	162	2.5	1



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Electrical Characteristics (Ta = 25°C see Table 2)

Type	Marking	Working Peak Reverse Voltage	Breakdown Voltage			Maximum Clamping Voltage		Maximum Reverse Current I _R at V _{RWM}
			V _{BR}		at I _T	V _C	at I _{PPM}	
		V _{RWM} (V)	Min. (V)	Max. (V)	(mA)	Max. (V)	(A)	Max. (µA)
SMAF110AF	110A	110	122	135	1	177	2.3	1
SMAF120AF	120A	120	133	147	1	193	2.1	1
SMAF130AF	130A	130	144	159	1	209	1.9	1
SMAF150AF	150A	150	167	185	1	243	1.6	1
SMAF160AF	160A	160	178	197	1	259	1.5	1
SMAF170AF	170A	170	189	209	1	275	1.5	1
SMAF180AF	180A	180	201	222	1	292	1.4	1
SMAF200AF	200A	200	224	247	1	324	1.2	1
SMAF220AF	220A	220	246	272	1	356	1.1	1
SMAF250AF	250A	250	279	309	1	405	1	1



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Electrical Characteristics Curves

Fig.1 Peak Pulse Power Rating Curve

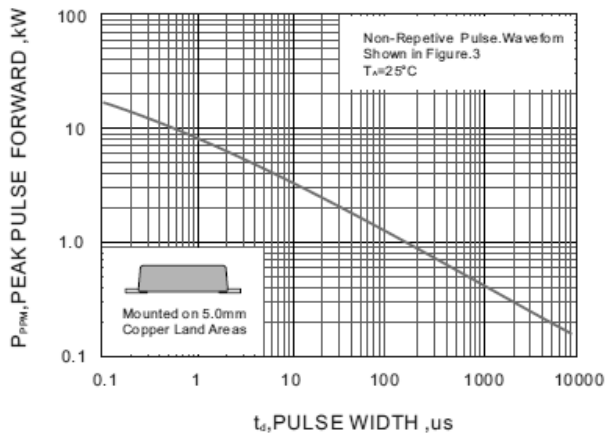


Fig.2 Forward Current Derating Curve

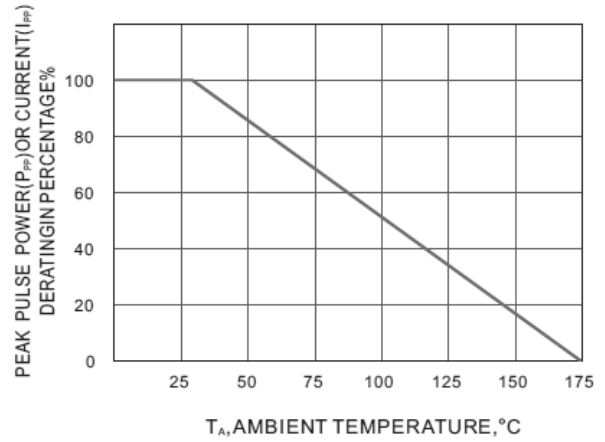


Fig.3 Pulse Waveform

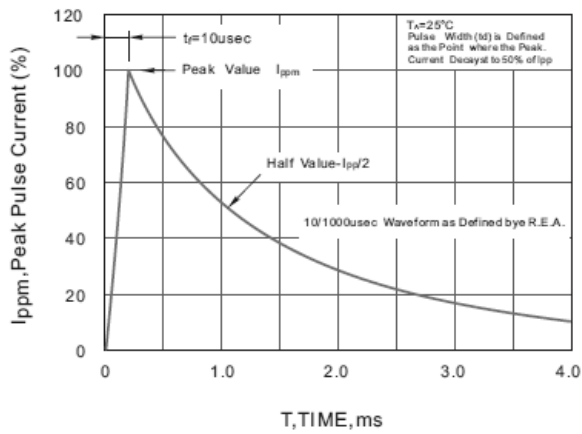
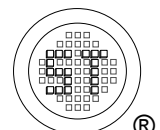
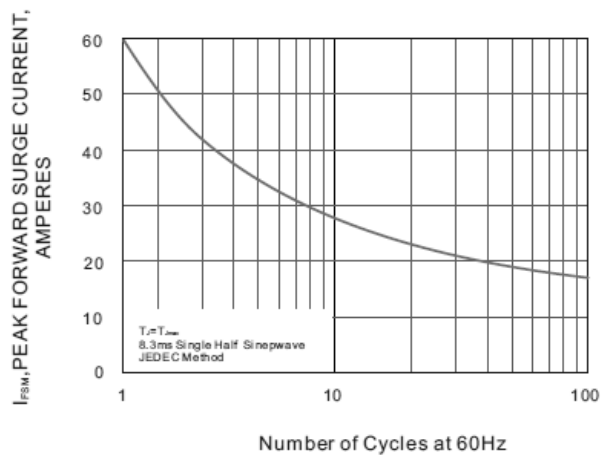


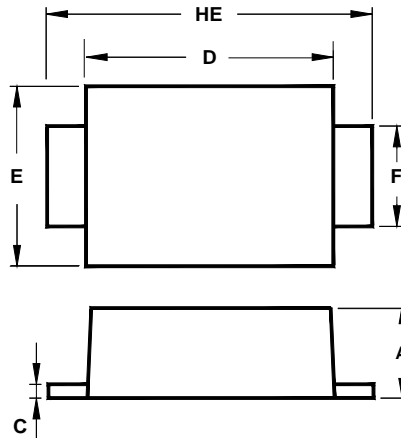
Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



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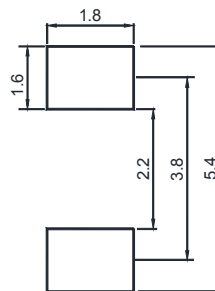
Package Outline Dimensions (Units: mm)

SMAF



UNIT	A	C	D	E	F	H _E
mm	1.1 0.9	0.2 0.12	3.7 3.3	2.80 2.40	1.6 1.3	4.9 4.4

Recommended Soldering Footprint



Packing information

Package	Tape Width (mm)	Pitch		Reel Size		Per Reel Packing Quantity
		mm	inch	mm	inch	
SMAF	12	4 ± 0.1	(0.157 ± 0.004)	178	7	3,000
				330	13	10,000

Marking information

"***A" = Part No.

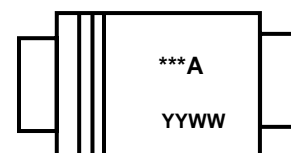
"III" = Cathode line

"YYWW" = Date Code Marking

"Y" = Year

"W" = Week

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