



SMAF-A SERIES

Surface Mount Transient Voltage Suppressor

Features

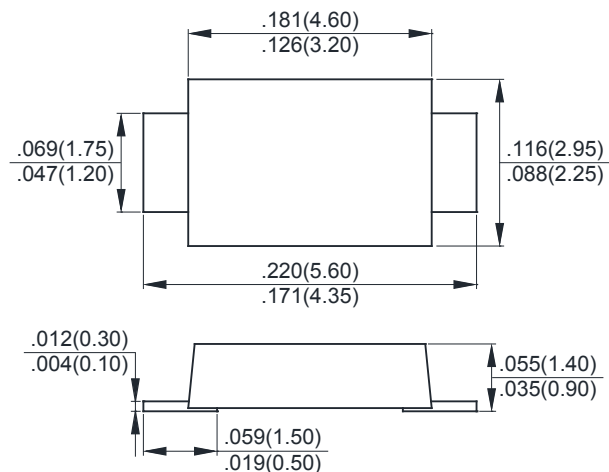
- ★ High reliability application and automotive grade AEC-Q101 qualified
- ★ Glass passivated chip
- ★ 400W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycles):0.01%
- ★ Low leakage
- ★ Excellent clamping capability
- ★ Very fast response time
- ★ Halogen free and RoHS compliant
- ★ ESD protection of data lines in accordance with IEC 61000-4-2 30kV(Air), 30kV(Contact)
- ★ EFT protection of data lines in accordance with IEC 61000-4-4

Mechanical Data

- ★ Case: Molded plastic, SMA-FL
- ★ Epoxy: UL 94V-0 rate flame retardant
- ★ Terminals: Solderable per MIL-STD-750, method 2026
- ★ Polarity: Color band denotes cathode end
- ★ Part no. with suffix "-A" means AEC-Q101 qualified

Working Voltage 5.0 to 180 V
Peak Pulse Power 400W

SMA-FL



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$ unless otherwise noted

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 μ s waveform (Note 1,2)	P _{PPM}	400	W
Peak forward surge current, 8.3 ms single half sine-wave (Note 3)	I _{FSM}	40	A
Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	P _D	1.0	W
Maximum instantaneous forward voltage at 25A for unidirectional only	V _F	3.5	V
Typical thermal resistance junction to ambient	R _{θJA}	120	$^\circ\text{C/W}$
Typical thermal resistance junction to lead	R _{θJL}	30	$^\circ\text{C/W}$
Operating junction temperature range	T _J	-65 to +150	$^\circ\text{C}$
Storage temperature range	T _{STG}	-65 to +175	$^\circ\text{C}$

Notes : (1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2

(2) Mounted on copper pad area of 0.2" x 0.2" (5.0 x 5.0mm) to each terminal

(3) Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

SMAF-A SERIES

Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage $V_{BR}@I_T$			Maximum Reverse Leakage $I_R@V_{RWM}$ (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A)	Maximum Clamping Voltage $V_C@I_{PP}$ (V)
		Uni	Bi	Min (V)	Max (V)	I_T (mA)				
SMAF5.0A-A	SMAF5.0CA-A	AE	WE	6.40	7.00	10	800	5.0	43.48	9.2
SMAF6.0A-A	SMAF6.0CA-A	AG	WG	6.67	7.37	10	800	6.0	38.83	10.3
SMAF6.5A-A	SMAF6.5CA-A	AK	WK	7.22	7.98	10	500	6.5	35.71	11.2
SMAF7.0A-A	SMAF7.0CA-A	AM	WM	7.78	8.60	10	200	7.0	33.33	12.0
SMAF7.5A-A	SMAF7.5CA-A	AP	WP	8.33	9.21	1	100	7.5	31.01	12.9
SMAF8.0A-A	SMAF8.0CA-A	AR	WR	8.89	9.83	1	50	8.0	29.41	13.6
SMAF8.5A-A	SMAF8.5CA-A	AT	WT	9.44	10.4	1	10	8.5	27.78	14.4
SMAF9.0A-A	SMAF9.0CA-A	AV	WV	10.0	11.1	1	5	9.0	25.97	15.4
SMAF10A-A	SMAF10CA-A	AX	WX	11.1	12.3	1	5	10	23.53	17.0
SMAF11A-A	SMAF11CA-A	AZ	WZ	12.2	13.5	1	1	11	21.98	18.2
SMAF12A-A	SMAF12CA-A	BE	XE	13.3	14.7	1	1	12	20.10	19.9
SMAF13A-A	SMAF13CA-A	BG	XG	14.4	15.9	1	1	13	18.60	21.5
SMAF14A-A	SMAF14CA-A	BK	XK	15.6	17.2	1	1	14	17.24	23.2
SMAF15A-A	SMAF15CA-A	BM	XM	16.7	18.5	1	1	15	16.39	24.4
SMAF16A-A	SMAF16CA-A	BP	XP	17.8	19.7	1	1	16	15.38	26.0
SMAF17A-A	SMAF17CA-A	BR	XR	18.9	20.9	1	1	17	14.49	27.6
SMAF18A-A	SMAF18CA-A	BT	XT	20.0	22.1	1	1	18	13.70	29.2
SMAF20A-A	SMAF20CA-A	BV	XV	22.2	24.5	1	1	20	12.35	32.4
SMAF22A-A	SMAF22CA-A	BX	XX	24.4	26.9	1	1	22	11.27	35.5
SMAF24A-A	SMAF24CA-A	BZ	XZ	26.7	29.5	1	1	24	10.28	38.9
SMAF26A-A	SMAF26CA-A	CE	YE	28.9	31.9	1	1	26	9.50	42.1
SMAF28A-A	SMAF28CA-A	CG	YG	31.1	34.4	1	1	28	8.81	45.4
SMAF30A-A	SMAF30CA-A	CK	YK	33.3	36.8	1	1	30	8.26	48.4
SMAF33A-A	SMAF33CA-A	CM	YM	36.7	40.6	1	1	33	7.50	53.3
SMAF36A-A	SMAF36CA-A	CP	YP	40.0	44.2	1	1	36	6.88	58.1
SMAF40A-A	SMAF40CA-A	CR	YR	44.4	49.1	1	1	40	6.20	64.5
SMAF43A-A	SMAF43CA-A	CT	YT	47.8	52.8	1	1	43	5.76	69.4
SMAF45A-A	SMAF45CA-A	CV	YV	50.0	55.3	1	1	45	5.50	72.7
SMAF48A-A	SMAF48CA-A	CX	YX	53.3	58.9	1	1	48	5.17	77.4
SMAF51A-A	SMAF51CA-A	CZ	YZ	56.7	62.7	1	1	51	4.85	82.4
SMAF54A-A	SMAF54CA-A	RE	ZE	60.0	66.3	1	1	54	4.59	87.1
SMAF58A-A	SMAF58CA-A	RG	ZG	64.4	71.2	1	1	58	4.27	93.6
SMAF60A-A	SMAF60CA-A	RK	ZK	66.7	73.7	1	1	60	4.13	96.8
SMAF64A-A	SMAF64CA-A	RM	ZM	71.1	78.6	1	1	64	3.88	103.0
SMAF70A-A	SMAF70CA-A	RP	ZP	77.8	86.0	1	1	70	3.54	113.0
SMAF75A-A	SMAF75CA-A	RR	ZR	83.3	92.1	1	1	75	3.31	121.0
SMAF78A-A	SMAF78CA-A	RT	ZT	86.7	95.8	1	1	78	3.17	126.0
SMAF85A-A	SMAF85CA-A	RV	ZV	94.4	104	1	1	85	2.92	137.0
SMAF90A-A	SMAF90CA-A	RX	ZX	100	111	1	1	90	2.74	146.0
SMAF100A-A	SMAF100CA-A	RZ	ZZ	111	123	1	1	100	2.47	162.0
SMAF110A-A	SMAF110CA-A	SE	VE	122	135	1	1	110	2.26	177.0
SMAF120A-A	SMAF120CA-A	SG	VG	133	147	1	1	120	2.07	193.0
SMAF130A-A	SMAF130CA-A	SK	VK	144	159	1	1	130	1.91	209.0
SMAF150A-A	SMAF150CA-A	SM	VM	167	185	1	1	150	1.65	243.0
SMAF160A-A	SMAF160CA-A	SP	VP	178	197	1	1	160	1.54	259.0
SMAF170A-A	SMAF170CA-A	SR	VR	189	209	1	1	170	1.45	275.0
SMAF180A-A	SMAF180CA-A	ST	VT	200	220	1	1	180	1.37	291.6

Suffix "A" denotes 5% tolerance device.

Add suffix "CA" after part number to specify Bi-directional devices.

For Bi-directional type having V_R of 10 volts and less, the I_R limit is double.

RATINGS AND CHARACTERISTICS CURVES SMAF-A SERIES

Fig.1 - Peak Pulse Power Rating Curve

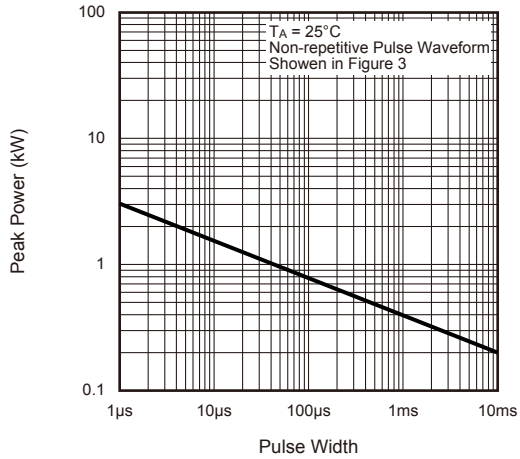


Fig.2 - Pulse Derating Curve

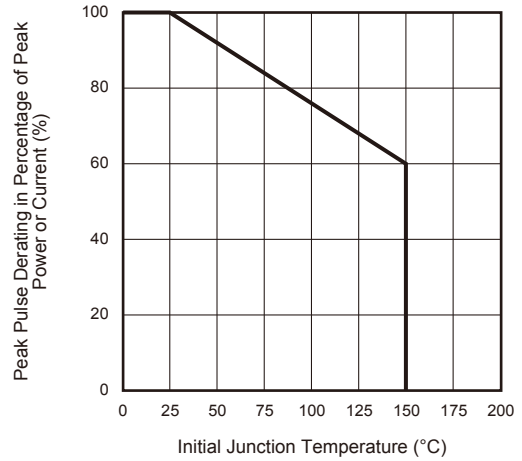


Fig.3 - Pulse Waveform

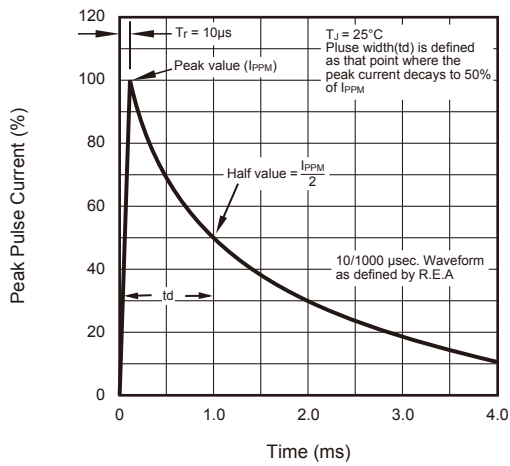


Fig.4 - Typical Junction Capacitance

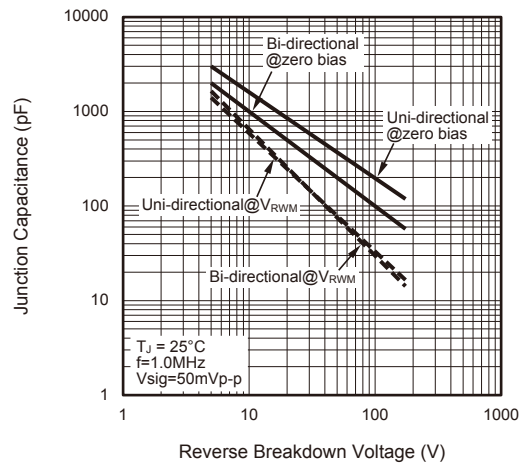


Fig.5 - Steady State Power Derating Curve

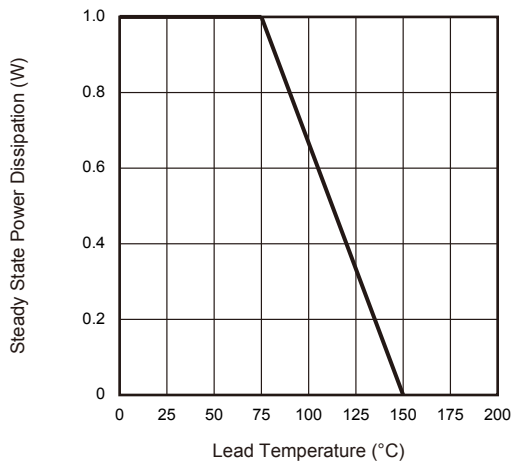


Fig.6 - Maximum Non-Repetitive Surge Current

