

YENYO

SMAF-A SERIES

Surface Mount Transient Voltage Suppressor

Features

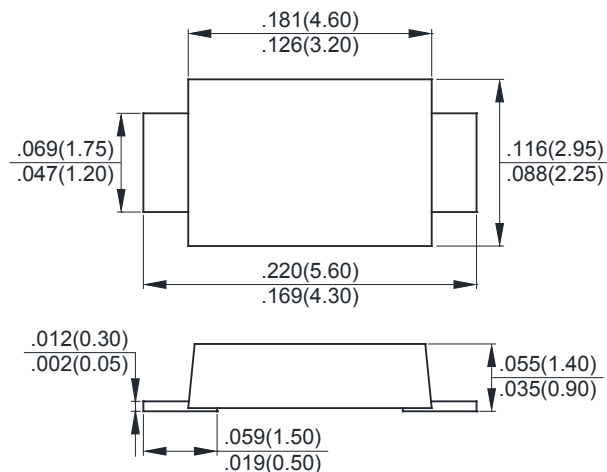
- ★ High reliability application and automotive grade AEC-Q101 qualified
- ★ Glass passivated chip
- ★ 400W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycles):0.01%
- ★ Low leakage
- ★ Excellent clamping capability
- ★ Very fast response time
- ★ Halogen free and RoHS compliant
- ★ 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°C unless otherwise noted

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000μs 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°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	°C/W
Typical thermal resistance junction to lead	R _{θJL}	30	°C/W
Operating junction temperature range	T _J	-65 to +150	°C
Storage temperature range	T _{STG}	-65 to +175	°C

Notes : (1) Non-repetitive current pulse, per Fig. 3 and derated above T_A=25°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 (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)				
SMAF5.0CA-A	AEA	WEA	6.40	7.00	10	800	5.0	43.48	9.2
SMAF6.0CA-A	AGA	WGA	6.67	7.37	10	800	6.0	38.83	10.3
SMAF6.5CA-A	AKA	WKA	7.22	7.98	10	500	6.5	35.71	11.2
SMAF7.0CA-A	AMA	WMA	7.78	8.60	10	200	7.0	33.33	12.0
SMAF7.5CA-A	APA	WPA	8.33	9.21	1	100	7.5	31.01	12.9
SMAF8.0CA-A	ARA	WRA	8.89	9.83	1	50	8.0	29.41	13.6
SMAF8.5CA-A	ATA	WTA	9.44	10.4	1	10	8.5	27.78	14.4
SMAF9.0CA-A	AVA	WVA	10.0	11.1	1	5	9.0	25.97	15.4
SMAF10CA-A	AXA	WXA	11.1	12.3	1	5	10	23.53	17.0
SMAF11CA-A	AZA	WZA	12.2	13.5	1	1	11	21.98	18.2
SMAF12CA-A	BEA	XEA	13.3	14.7	1	1	12	20.10	19.9
SMAF13CA-A	BGA	XGA	14.4	15.9	1	1	13	18.60	21.5
SMAF14CA-A	BKA	XKA	15.6	17.2	1	1	14	17.24	23.2
SMAF15CA-A	BMA	XMA	16.7	18.5	1	1	15	16.39	24.4
SMAF16CA-A	BPA	XPA	17.8	19.7	1	1	16	15.38	26.0
SMAF17CA-A	BRA	XRA	18.9	20.9	1	1	17	14.49	27.6
SMAF18CA-A	BT A	XTA	20.0	22.1	1	1	18	13.70	29.2
SMAF20CA-A	BVA	XVA	22.2	24.5	1	1	20	12.35	32.4
SMAF22CA-A	BXA	XXA	24.4	26.9	1	1	22	11.27	35.5
SMAF24CA-A	BZA	XZA	26.7	29.5	1	1	24	10.28	38.9
SMAF26CA-A	CEA	YEA	28.9	31.9	1	1	26	9.50	42.1
SMAF28CA-A	CGA	YGA	31.1	34.4	1	1	28	8.81	45.4
SMAF30CA-A	CKA	YKA	33.3	36.8	1	1	30	8.26	48.4
SMAF33CA-A	CMA	YMA	36.7	40.6	1	1	33	7.50	53.3
SMAF36CA-A	CPA	YPA	40.0	44.2	1	1	36	6.88	58.1
SMAF40CA-A	CRA	YRA	44.4	49.1	1	1	40	6.20	64.5
SMAF43CA-A	CTA	YTA	47.8	52.8	1	1	43	5.76	69.4
SMAF45CA-A	CVA	YVA	50.0	55.3	1	1	45	5.50	72.7
SMAF48CA-A	CXA	YXA	53.3	58.9	1	1	48	5.17	77.4
SMAF51CA-A	CZA	YZA	56.7	62.7	1	1	51	4.85	82.4
SMAF54CA-A	REA	ZEA	60.0	66.3	1	1	54	4.59	87.1
SMAF58CA-A	RGA	ZGA	64.4	71.2	1	1	58	4.27	93.6
SMAF60CA-A	RKA	ZKA	66.7	73.7	1	1	60	4.13	96.8
SMAF64CA-A	RMA	ZMA	71.1	78.6	1	1	64	3.88	103.0
SMAF70CA-A	RPA	ZPA	77.8	86.0	1	1	70	3.54	113.0
SMAF75CA-A	RRA	ZRA	83.3	92.1	1	1	75	3.31	121.0
SMAF78CA-A	RTA	ZTA	86.7	95.8	1	1	78	3.17	126.0
SMAF85CA-A	RVA	ZVA	94.4	104	1	1	85	2.92	137.0
SMAF90CA-A	RXA	ZXA	100	111	1	1	90	2.74	146.0
SMAF100CA-A	RZA	ZZA	111	123	1	1	100	2.47	162.0
SMAF110CA-A	SEA	VEA	122	135	1	1	110	2.26	177.0
SMAF120CA-A	SGA	VGA	133	147	1	1	120	2.07	193.0
SMAF130CA-A	SKA	VKA	144	159	1	1	130	1.91	209.0
SMAF150CA-A	SMA	VMA	167	185	1	1	150	1.65	243.0
SMAF160CA-A	SPA	VPA	178	197	1	1	160	1.54	259.0
SMAF170CA-A	SRA	VRA	189	209	1	1	170	1.45	275.0
SMAF180CA-A	STA	VTA	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_{RWM} of 10 volts and less, the I_R limit is double.

RATINGS AND CHARACTERISTICS CURVES

Fig.1 - Peak Pulse Power Rating Curve

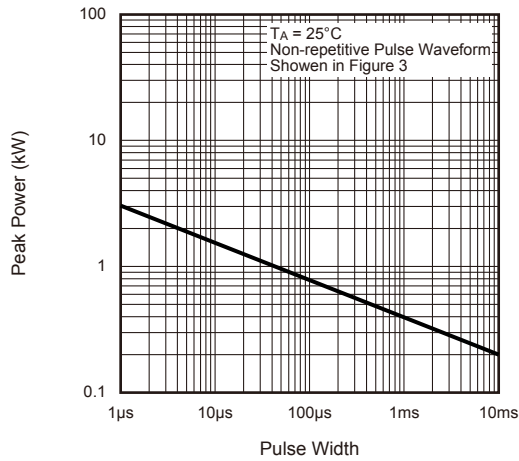


Fig.2 - Pulse Derating Curve

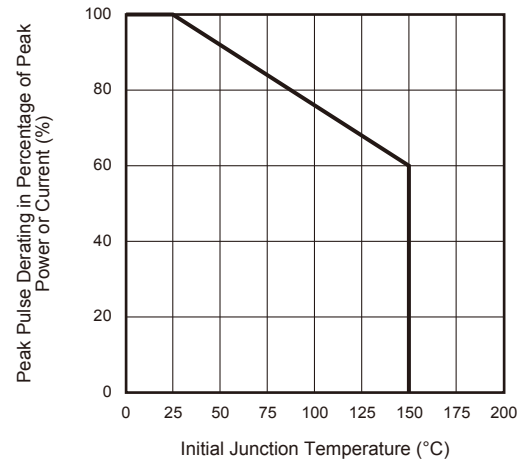


Fig.3 - Pulse Waveform

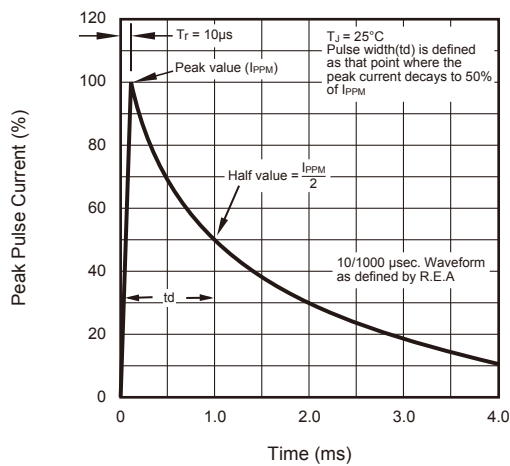


Fig.4 - Typical Junction Capacitance

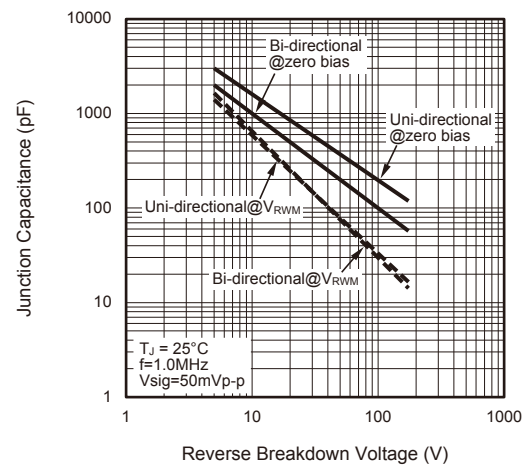


Fig.5 - Steady State Power Derating Curve

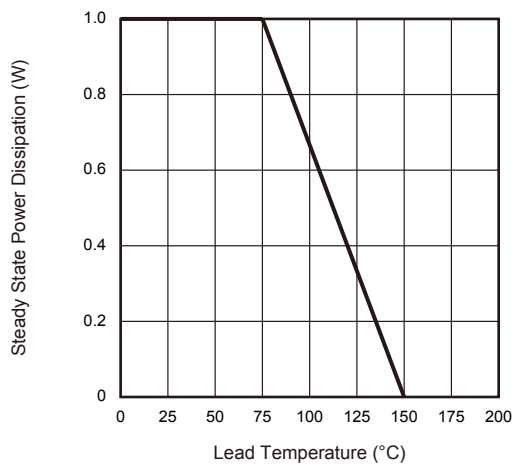


Fig.6 - Maximum Non-Repetitive Surge Current

