



SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS

Power Dissipation-400W

Stand-off Voltage-5.0V to 220V

FEATURES

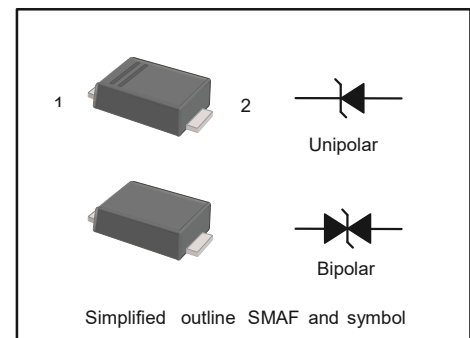
- ◆ For surface mount applications
- ◆ Glass passivated chip junction
- ◆ Low profile package
- ◆ Low induction
- ◆ Plastic package has UL Flammability Classification 94V-0

MECHANICAL DATA

- ◆ Case: SMAF molded plastic body
- ◆ Terminals: Solderable per MIL-STD-750, Method 2026
- ◆ Weight: Approximated 0.027 grams

PINNING

PIN	DESCRIPTION
1	Cathode
2	Anode



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at $T_A = 25^\circ\text{C}$ unless otherwise specified.

PARAMETER	SYMBOL	VALUE	UNIT
Peak Pulse Power Dissipation at $T_A = 25^\circ\text{C}$ (Note1, Note2, Fig.1)	P_{PPM}	400	W
Peak Forward Surge Current (Note3, Fig.4)	I_{FSM} (UNI)	40	A
Peak Pulse Current on 10/1000 us Waveform (Note1, Fig.3)	I_{PP}	see TABLE 1	A
ESD Voltage per IEC6100-4-2 Contact Air	V_{ESD1} V_{ESD2}	± 30 ± 30	kV
Typical Thermal Resistance (Note2)	$R_{\theta JA}$	70	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^\circ\text{C}$ per Fig.2.
2. Mounted on $5\text{mm} \times 5\text{mm}$ copper pad.
3. Measured at 8.3ms single half sine-wave superimposed on rated load (JEDEC Method).



P4SMAF SERIES

CHARACTERISTICS at $T_A = 25^\circ\text{C}$

TABLE1

Type		Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage		Max.Clamp Voltage	Peak Pulse Current
		V_{RWM}	$V_{(BR)}$ at I_T		I_T	I_R at V_{RWM}		V_C at I_{PP}	I_{PP}
			Min.	Max.		UNI	BI		
UNI	BI	V	V	V	mA	μA	μA	V	A
P4SMAF5.0	P4SMAF5.0C	5	6.4	7.55	10	800	1600	9.6	41.6
P4SMAF5.0A	P4SMAF5.0CA	5	6.4	7.25	10	800	1600	9.2	43.5
P4SMAF6.0	P4SMAF6.0C	6	6.67	8.45	10	800	1600	11.4	35.1
P4SMAF6.0A	P4SMAF6.0CA	6	6.67	7.67	10	800	1600	10.3	38.8
P4SMAF6.5	P4SMAF6.5C	6.5	7.22	9.14	10	500	1000	12.3	32.5
P4SMAF6.5A	P4SMAF6.5CAT	6.5	7.22	8.3	10	500	1000	11.2	35.7
P4SMAF7.0	P4SMAF7.0C	7	7.78	9.86	10	200	400	13.3	30.1
P4SMAF7.0A	P4SMAF7.0CA	7	7.78	8.95	10	200	400	12	33.3
P4SMAF7.5	P4SMAF7.5C	7.5	8.33	10.67	1	100	200	14.3	28
P4SMAF7.5A	P4SMAF7.5CA	7.5	8.33	9.58	1	100	200	12.9	31
P4SMAF8.0	P4SMAF8.0C	8	8.89	11.3	1	50	100	15	26.5
P4SMAF8.0A	P4SMAF8.0CA	8	8.89	10.23	1	50	100	13.6	29.4
P4SMAF8.5	P4SMAF8.5C	8.5	9.44	11.92	1	10	20	15.9	25.1
P4SMAF8.5A	P4SMAF8.5CA	8.5	9.44	10.82	1	10	20	14.4	27.7
P4SMAF9.0	P4SMAF9.0C	9	10	12.6	1	5	5	16.9	23.6
P4SMAF9.0A	P4SMAF9.0CA	9	10	11.5	1	5	5	15.4	26
P4SMAF10	P4SMAF10C	10	11.1	14.1	1	5	5	18.8	21.2
P4SMAF10A	P4SMAF10CA	10	11.1	12.8	1	5	5	17	23.5
P4SMAF11	P4SMAF11C	11	12.2	15.4	1	1	1	20.1	20
P4SMAF11A	P4SMAF11CA	11	12.2	14	1	1	1	18.2	22
P4SMAF12	P4SMAF12C	12	13.3	16.9	1	1	1	22	18.1
P4SMAF12A	P4SMAF12CA	12	13.3	15.3	1	1	1	19.9	20.1
P4SMAF13	P4SMAF13C	13	14.4	18.2	1	1	1	23.8	16.8
P4SMAF13A	P4SMAF13CA	13	14.4	16.5	1	1	1	21.5	18.6
P4SMAF14	P4SMAF14C	14	15.6	19.8	1	1	1	25.8	15.5
P4SMAF14A	P4SMAF14CA	14	15.6	17.9	1	1	1	23.2	17.2
P4SMAF15	P4SMAF15C	15	16.7	21.1	1	1	1	26.9	14.8
P4SMAF15A	P4SMAF15CA	15	16.7	19.2	1	1	1	24.4	16.4
P4SMAF16	P4SMAF16C	16	17.8	22.6	1	1	1	28.8	13.8
P4SMAF16A	P4SMAF16CA	16	17.8	20.5	1	1	1	26	15.3



P4SMAF SERIES

P4SMAF17	P4SMAF17C	17	18.9	23.9	1	1	1	30.5	13.1
P4SMAF17A	P4SMAF17CA	17	18.9	21.7	1	1	1	27.6	14.5
P4SMAF18	P4SMAF18C	18	20	25.3	1	1	1	32.2	12.4
P4SMAF18A	P4SMAF18CA	18	20	23.3	1	1	1	29.2	13.7
P4SMAF20	P4SMAF20C	20	22.2	28.1	1	1	1	35.8	11.1
P4SMAF20A	P4SMAF20CA	20	22.2	25.5	1	1	1	32.4	12.3
P4SMAF22	P4SMAF22C	22	24.4	30.9	1	1	1	39.4	10.1
P4SMAF22A	P4SMAF22CA	22	24.4	28	1	1	1	35.5	11.2
P4SMAF24	P4SMAF24C	24	26.7	33.8	1	1	1	43	9.3
P4SMAF24A	P4SMAF24CA	24	26.7	30.7	1	1	1	38.9	10.3
P4SMAF26	P4SMAF26C	26	28.9	36.6	1	1	1	46.6	8.6
P4SMAF26A	P4SMAF26CA	26	28.9	33.2	1	1	1	42.1	9.5
P4SMAF28	P4SMAF28C	28	31.1	39.4	1	1	1	50	8
P4SMAF28A	P4SMAF28CA	28	31.1	35.8	1	1	1	45.4	8.8
P4SMAF30	P4SMAF30C	30	33.3	42.2	1	1	1	53.5	7.5
P4SMAF30A	P4SMAF30CA	30	33.3	38.3	1	1	1	48.4	8.3
P4SMAF33	P4SMAF33C	33	36.7	46.5	1	1	1	59	6.8
P4SMAF33A	P4SMAF33CA	33	36.7	42.2	1	1	1	53.3	7.5
P4SMAF36	P4SMAF36C	36	40	50.7	1	1	1	64.3	6.2
P4SMAF36A	P4SMAF36CA	36	40	46	1	1	1	58.1	6.9
P4SMAF40	P4SMAF40C	40	44.4	56.3	1	1	1	71.4	5.6
P4SMAF40A	P4SMAF40CA	40	44.4	51.1	1	1	1	64.5	6.2
P4SMAF43	P4SMAF43C	43	47.8	60.5	1	1	1	76.7	5.2
P4SMAF43A	P4SMAF43CA	43	47.8	54.9	1	1	1	69.4	5.7
P4SMAF45	P4SMAF45C	45	50	63.3	1	1	1	80.3	5
P4SMAF45A	P4SMAF45CA	45	50	57.5	1	5	5	72.7	5.5
P4SMAF48	P4SMAF48C	48	53.3	67.5	1	5	5	85.5	4.7
P4SMAF48A	P4SMAF48CA	48	53.3	61.3	1	5	5	77.4	5.2
P4SMAF51	P4SMAF51C	51	56.7	71.8	1	5	5	91.1	4.4
P4SMAF51A	P4SMAF51CA	51	56.7	65.2	1	5	5	82.4	4.9
P4SMAF54	P4SMAF54C	54	60	76	1	5	5	96.3	4.2
P4SMAF54A	P4SMAF54CA	54	60	69	1	5	5	87.1	4.6
P4SMAF58	P4SMAF58C	58	64.4	81.6	1	5	5	103	3.9
P4SMAF58A	P4SMAF58CA	58	64.4	74.1	1	5	5	93.6	4.3
P4SMAF60	P4SMAF60C	60	66.7	84.5	1	5	5	107	3.7
P4SMAF60A	P4SMAF60CA	60	66.7	76.7	1	5	5	96.8	4.1
P4SMAF64	P4SMAF64C	64	71.1	90.1	1	5	5	114	3.5
P4SMAF64A	P4SMAF64CA	64	71.1	81.8	1	5	5	103	3.9
P4SMAF70	P4SMAF70C	70	77.8	98.6	1	5	5	125	3.2



P4SMAF SERIES

P4SMAF70A	P4SMAF70CA	70	77.8	89.5	1	5	5	113	3.5
P4SMAF75	P4SMAF75C	75	83.3	105.7	1	5	5	134	3
P4SMAF75A	P4SMAF75CA	75	83.3	95.8	1	5	5	121	3.3
P4SMAF78	P4SMAF78C	78	86.7	109.8	1	5	5	139	2.9
P4SMAF78A	P4SMAF78CA	78	86.7	99.7	1	5	5	126	3.2
P4SMAF85	P4SMAF85C	85	94.4	119.2	1	5	5	151	2.6
P4SMAF85A	P4SMAF85CA	85	94.4	108.2	1	5	5	137	2.9
P4SMAF90	P4SMAF90C	90	100	126.5	1	5	5	160	2.5
P4SMAF90A	P4SMAF90CA	90	100	115.5	1	5	5	146	2.7
P4SMAF100	P4SMAF100C	100	111	141	1	5	5	179	2.2
P4SMAF100A	P4SMAF100CA	100	111	128	1	5	5	162	2.5
P4SMAF110	P4SMAF110C	110	122	154.5	1	5	5	196	2
P4SMAF110A	P4SMAF110CA	110	122	140.5	1	5	5	177	2.3
P4SMAF120	P4SMAF120C	120	133	169	1	5	5	214	1.9
P4SMAF120A	P4SMAF120CA	120	133	153	1	5	5	193	2
P4SMAF130	P4SMAF130C	130	144	182.5	1	5	5	231	1.7
P4SMAF130A	P4SMAF130CA	130	144	165.5	1	5	5	209	1.9
P4SMAF150	P4SMAF150C	150	167	211.5	1	5	5	268	1.5
P4SMAF150A	P4SMAF150CA	150	167	192.5	1	5	5	243	1.6
P4SMAF160	P4SMAF160C	160	178	226	1	5	5	287	1.4
P4SMAF160A	P4SMAF160CA	160	178	205	1	5	5	259	1.5
P4SMAF170	P4SMAF170C	170	189	239.5	1	5	5	304	1.3
P4SMAF170A	P4SMAF170CA	170	189	217.5	1	5	5	275	1.4
P4SMAF180	P4SMAF180C	180	198	253.8	1	5	5	322	1.2
P4SMAF180A	P4SMAF180CA	180	198	230.4	1	5	5	292	1.3
P4SMAF190	P4SMAF190C	190	209	267.9	1	5	5	340	1.2
P4SMAF190A	P4SMAF190CA	190	209	243.2	1	5	5	308	1.3
P4SMAF200	P4SMAF200C	200	220	282	1	5	5	358	1.1
P4SMAF200A	P4SMAF200CA	200	220	256	1	5	5	324	1.2
P4SMAF210	P4SMAF210C	210	231	296.1	1	5	5	376	1.1
P4SMAF210A	P4SMAF210CA	210	231	268.8	1	5	5	340	1.2
P4SMAF220	P4SMAF220C	220	242	310.2	1	5	5	394	1
P4SMAF220A	P4SMAF220CA	220	242	281.6	1	5	5	356	1.1



RATINGS AND CHARACTERISTIC CURVES

Fig.1 Peak Pulse Power Rating Curve

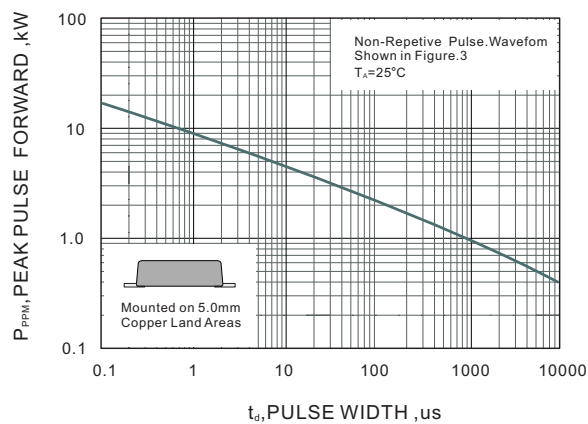


Fig.2 Forward Current Derating Curve

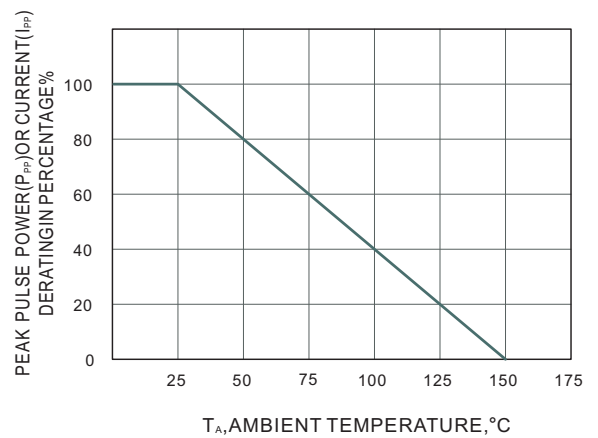


Fig.3 Pulse Waveform

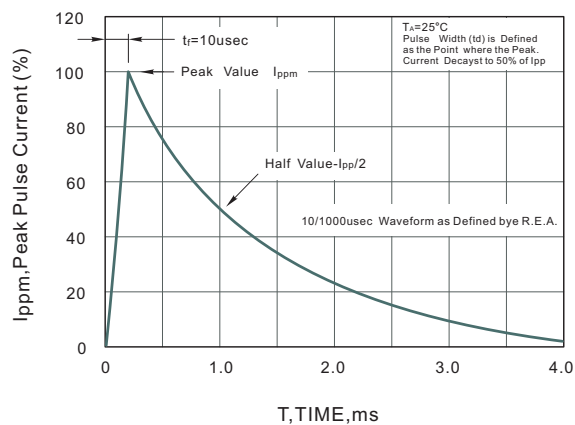
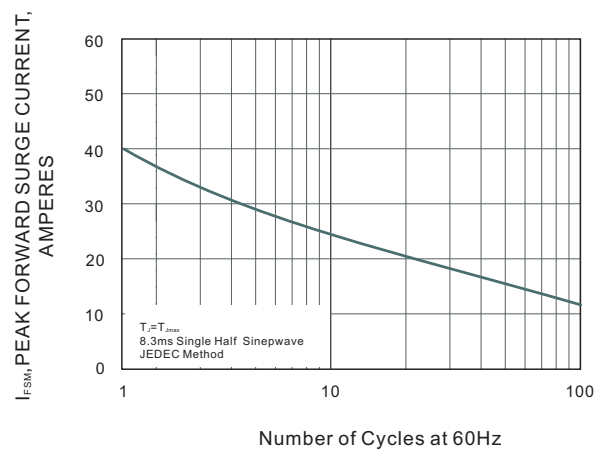


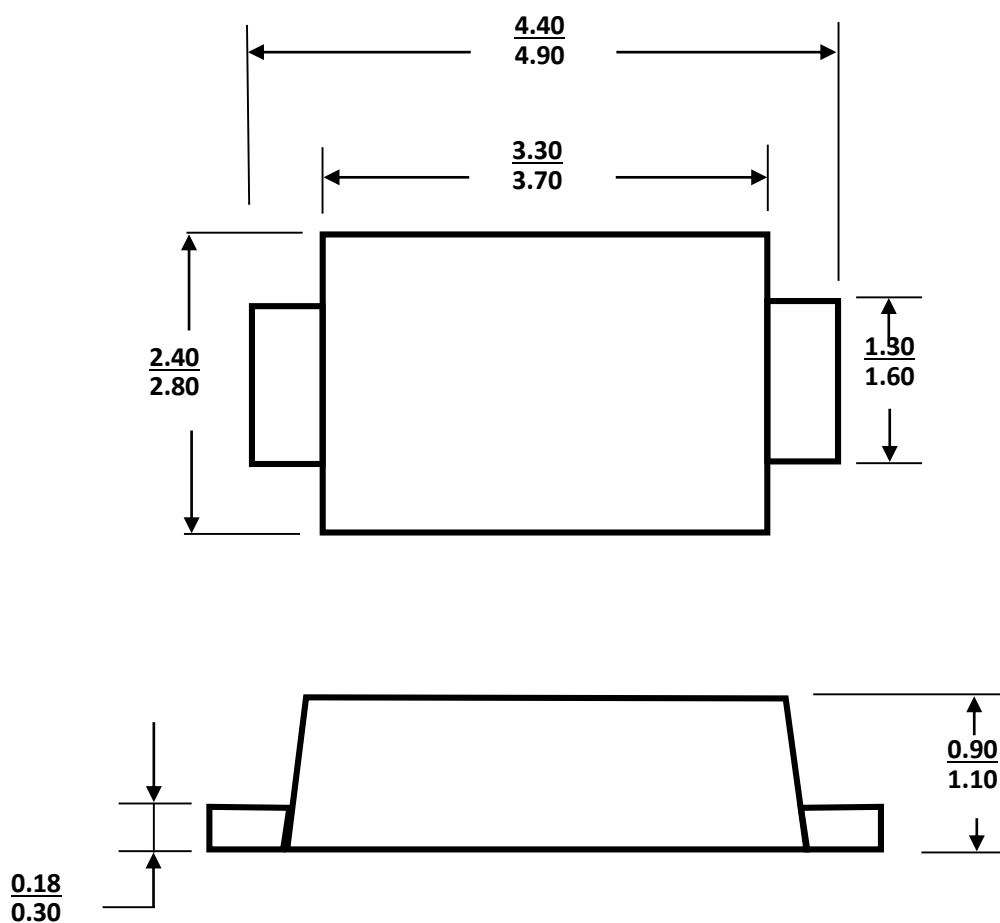
Fig.4 Maximum Non-Repetitive Peak Forward Surge Current





PACKAGE OUTLINE

SMAF



Dimensions in millimeters

ORDERING INFORMATION

Device	Package	Shipping
P4SMAF Series	SMAF	3,000/Tape & Reel (7 inches)
		10,000/ Tape & Reel (13 inches)