

SMAF5.0A THRU SMAF220A

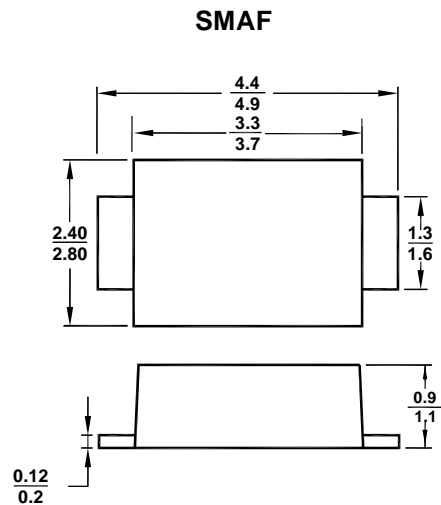
Surface Mount Transient Voltage Suppressors

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

Mechanical Data

- Case: SMAF
- Terminals: Solderable per MIL-STD-750, Method 2026



All Dimensions in mm

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 s waveform	P_{PPM}	Min. 200	W
ESD Voltage per IEC6100-4-2 Air Contact	V_{ESD}	± 15 ± 8	KV
Peak Pulse Current on 10/1000 us waveform ¹⁾	I_{PPM}	see Table 1	A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC Method) ²⁾	I_{FSM}	20	A
Typical Junction capacitance at $V_R = 4\text{ V}$, $f = 1\text{ MHz}$	C_J	390	pF
Typical Thermal Resistance Junction to Ambient ²⁾	$R_{\theta JA}$	150	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_j, T_{stg}	- 55 to + 150	$^\circ\text{C}$

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

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

TOP DYNAMIC



SMAF5.0A THRU SMAF220A

Electrical Characteristics $T_a = 25^\circ\text{C}$

Type	Marking	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)
SMAF5.0	5.0V	5	6.4	7.82	10	9.6	41.7	800
SMAF5.0A	5.0A	5	6.4	7.07	10	9.2	43.85	800
SMAF6.0	6.0V	6	6.67	8.15	10	11.4	35.1	800
SMAF6.0A	6.0A	6	6.67	7.37	10	10.3	38.8	800
SMAF6.5	6.5V	6.5	7.22	8.82	10	12.3	32.5	500
SMAF6.5A	6.5A	6.5	7.22	7.98	10	11.2	35.7	500
SMAF7.0	7.0V	7	7.78	9.51	10	13.3	30.1	200
SMAF7.0A	7.0A	7	7.78	8.6	10	12	33.3	200
SMAF7.5	7.5V	7.5	8.33	10.02	1	14.3	28	100
SMAF7.5A	7.5A	7.5	8.33	9.21	1	12.9	31	100
SMAF8.0	8.0V	8	8.89	10.09	1	15	26.7	50
SMAF8.0A	8.0A	8	8.89	9.83	1	13.6	29.4	50
SMAF8.5	8.5V	8.5	9.44	11.5	1	15.9	25.2	10
SMAF8.5A	8.5A	8.5	9.44	10.4	1	14.4	27.8	10
SMAF9.0	9.0V	9	10	12.2	1	16.9	23.7	5
SMAF9.0A	9.0A	9	10	11.1	1	15.4	26	5
SMAF10	10V	10	11.1	13.6	1	18.8	21.3	5
SMAF10A	10A	10	11.1	12.3	1	17	23.5	5
SMAF11	11V	11	12.2	14.9	1	20.1	19.9	5
SMAF11A	11A	11	12.2	13.5	1	18.2	22	5
SMAF12	12V	12	13.3	16.3	1	22	18.2	5
SMAF12A	12A	12	13.3	14.7	1	19.9	20.1	5
SMAF13	13V	13	14.4	17.6	1	23.8	16.8	5
SMAF13A	13A	13	14.4	15.9	1	21.5	18.6	5
SMAF14	14V	14	15.6	19.1	1	25.8	15.5	5
SMAF14A	14A	14	15.6	17.2	1	23.2	17.2	5
SMAF15	15V	15	16.7	20.4	1	26.9	14.9	5
SMAF15A	15A	15	16.7	18.5	1	24.4	16.4	5
SMAF16	16V	16	17.8	21.8	1	28.8	13.9	5
SMAF16A	16A	16	17.8	19.7	1	26	15.4	5
SMAF17	17V	17	18.9	23.1	1	30.5	13.1	5
SMAF17A	17A	17	18.9	20.9	1	27.6	14.5	5
SMAF18	18V	18	20	24.4	1	32.2	12.4	5
SMAF18A	18A	18	20	22.1	1	29.2	13.7	5
SMAF20	20V	20	22.2	27.1	1	35.8	11.2	5
SMAF20A	20A	20	22.2	24.5	1	32.4	12.3	5
SMAF22	22V	22	24.4	29.8	1	39.4	10.2	5
SMAF22A	22A	22	24.4	26.9	1	35.5	11.3	5
SMAF24	24V	24	26.7	32.6	1	43	9.3	5
SMAF24A	24A	24	26.7	29.5	1	38.9	10.3	5
SMAF26	26V	26	28.9	35.3	1	46.6	8.6	5
SMAF26A	26A	26	28.9	31.9	1	42.1	9.5	5
SMAF28	28V	28	31.1	38	1	50	8	5
SMAF28A	28A	28	31.1	34.4	1	45.4	8.8	5
SMAF30	30V	30	33.3	40.7	1	53.5	7.5	5
SMAF30A	30A	30	33.3	36.8	1	48.4	8.3	5

TOP DYNAMIC



SMAF5.0A THRU SMAF220A

Electrical Characteristics $T_a = 25^\circ\text{C}$

Type	Marking	Working Peak Reverse Voltage V_{RWM} (V)	Breakdown Voltage			Maximum Clamping Voltage		Maximum Reverse Current
			V_{BR}		at I_T	V_C	at I_{PPM}	I_R at V_{RWM}
			Min. (V)	Max. (V)	(mA)	Max. (V)	(A)	Max. (μA)
SMAF33	33V	33	36.7	44.9	1	59	6.8	5
SMAF33A	33A	33	36.7	40.6	1	53.3	7.5	5
SMAF36	36V	36	40	48.9	1	64.3	6.2	5
SMAF36A	36A	36	40	44.2	1	58.1	6.9	5
SMAF40	40V	40	44.4	54.3	1	71.4	5.6	5
SMAF40A	40A	40	44.4	49.1	1	64.5	6.2	5
SMAF43	43V	43	47.8	58.4	1	76.7	5.2	5
SMAF43A	43A	43	47.8	52.8	1	69.4	5.8	5
SMAF45	45V	45	50	61.1	1	80.3	5	5
SMAF45A	45A	45	50	55.3	1	72.7	5.5	5
SMAF48	48V	48	53.3	65.1	1	85.5	4.7	5
SMAF48A	48A	48	53.3	58.9	1	77.4	5.2	5
SMAF51	51V	51	56.7	69.3	1	91.1	4.4	5
SMAF51A	51A	51	56.7	62.7	1	82.4	4.9	5
SMAF54	54V	54	60	73.3	1	96.3	4.2	5
SMAF54A	54A	54	60	66.3	1	87.1	4.6	5
SMAF58	58V	58	64.4	78.7	1	103	3.9	5
SMAF58A	58A	58	64.4	71.2	1	93.6	4.3	5
SMAF60	60V	60	66.7	81.5	1	107	3.7	5
SMAF60A	60A	60	66.7	73.7	1	96.8	4.1	5
SMAF64	64V	64	71.1	86.9	1	114	3.5	5
SMAF64A	64A	64	71.1	78.6	1	103	3.9	5
SMAF70	70V	70	77.8	95.1	1	125	3.2	5
SMAF70A	70A	70	77.8	86	1	113	3.5	5
SMAF75	75V	75	83.3	102	1	134	3	5
SMAF75A	75A	75	83.3	92.1	1	121	3	5
SMAF78	78V	78	86.7	106	1	139	2.9	5
SMAF78A	78A	78	86.7	95.8	1	126	3.2	5
SMAF85	85V	85	94.4	115	1	151	2	5
SMAF85A	85A	85	94.4	104	1	137	2.2	5
SMAF90	90V	90	100	122	1	160	1.9	5
SMAF90A	90A	90	100	111	1	146	2.1	5
SMAF100	100V	100	111	136	1	179	1.7	5
SMAF100A	100A	100	111	123	1	162	1.9	5
SMAF110	110V	110	122	149	1	196	1.5	5
SMAF110A	110A	110	122	135	1	177	1.7	5
SMAF120	120V	120	133	163	1	214	1.4	5
SMAF120A	120A	120	133	147	1	193	1.6	5
SMAF130	130V	130	144	176	1	231	1.3	5
SMAF130A	130A	130	144	159	1	209	1.4	5
SMAF150	150V	150	167	204	1	268	1.1	5
SMAF150A	150A	150	167	185	1	243	1.2	5
SMAF160	160V	160	178	218	1	287	1.1	5
SMAF160A	160A	160	178	197	1	259	1.2	5
SMAF170	170V	170	189	231	1	304	1.1	5
SMAF170A	170A	170	189	209	1	275	1.1	5

TOP DYNAMIC



Dated : 26/07/2016 JD Rev: 02

SMAF5.0A THRU SMAF220A

Electrical Characteristics at $T_a = 25^\circ\text{C}$

Type	Marking	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)
SMAF180	180V	180	200	243	1	323	1.1	5
SMAF180A	180A	180	200	220	1	291	1.1	5
SMAF190	190V	190	211	254	1	341	1.1	5
SMAF190A	190A	190	211	230	1	307	1.1	5
SMAF200	200V	200	222	264	1	361	1.1	5
SMAF200A	200A	200	222	239	1	323	1.1	5
SMAF220	220V	220	243	282	1	386	1.1	5
SMAF220A	220A	220	243	255	1	356	1.1	5

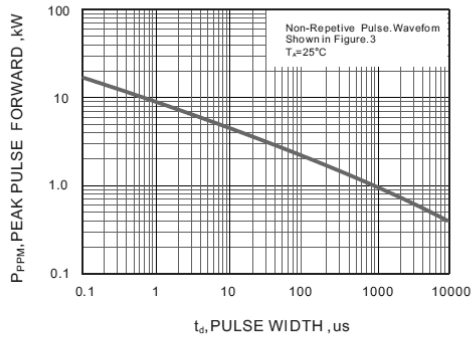
TOP DYNAMIC



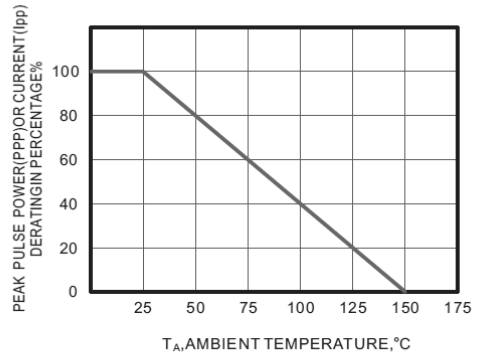
Dated : 26/07/2016 JD Rev: 02

SMAF5.0A THRU SMAF220A

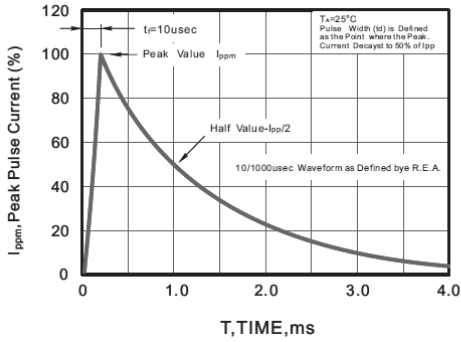
Peak Pulse Power Rating Curve



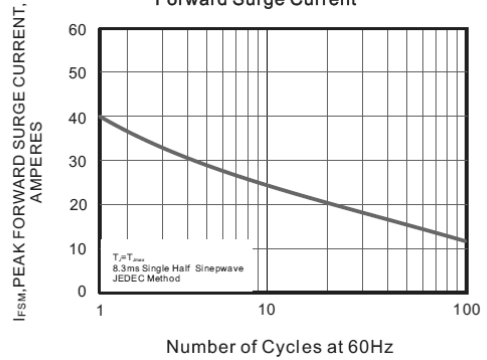
Forward Current Derating Curve



Pulse Waveform



Maximum Non-Repetitive Peak Forward Surge Current



TOP DYNAMIC



ISO14001 : 2004 Certificate No. 121505007 ISO 9001 : 2008 Certificate No. 50114012 OHSAS 18001 : 2007 Certificate No. 05131509006 IECQ QC 080000 Certificate No. ECQH002074402

Dated : 26/07/2016 JD Rev: 02