



# THE DATASHEET OF SMF12A-TP



**Features**

- Uni and Bi-directional Type Available (Suffix "C" means Bi-directional)
- Surface Mount
- Low Clamping Voltage
- Small, High Thermal Efficiency
- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note 2) ("P" Suffix Designates RoHS Compliant. See Ordering Information)

**Maximum Ratings**

- Operating Junction Temperature Range: -65°C to +175°C
- Storage Temperature Range: -65°C to +175°C
- Typical Thermal Resistance: 26°C/W Junction to Lead
- Typical Thermal Resistance: 300°C/W Junction to Ambient

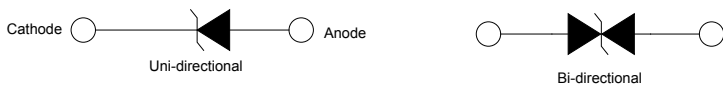
**Electrical Characteristics @ 25°C Unless Otherwise Specified**

Peak Pulse Power Dissipation with a 10/1000µs Waveform	$P_{PP}$	200W	-
ESD Voltage(HBM)	$V_{ESD}$	>16KV	-
IEC61000-4-2(ESD)	Air Contact	±30KV ±30KV	-
Peak forward surge current, 8.3 ms single half sine-wave	$I_{FSM}$	30A	-

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

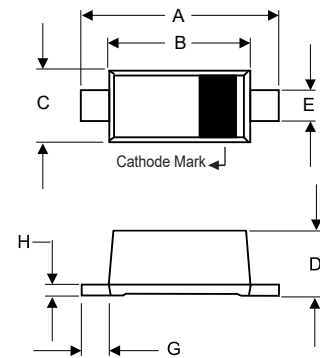
2. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.

Pin Configuration:



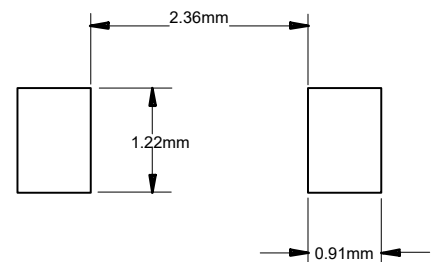
**200 Watt TVS  
5.0 to 170 Volts**

**SOD-123FL**



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.130	0.152	3.30	3.85	
B	0.100	0.122	2.55	3.10	
C	0.055	0.075	1.40	1.90	
D	0.035	0.053	0.90	1.35	
E	0.020	0.041	0.50	1.05	
G	0.010	----	0.25	----	
H	----	0.010	----	0.25	

**SUGGESTED SOLDER PAD LAYOUT**



Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC Part Number	Reverse Stand-Off Voltage	Breakdown Voltage $V_{BR}(V)$		Test Current	Max. Clamping Voltage @ $I_{PP}$	Max. Peak Pulse Current	Max. Reverse Leakage Current @ $V_{WM}$	Marking Code
	$V_{WM}(V)$	Min	Max	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_D(\mu A)$	
SMF5.0A	5.0	6.4	7.0	10	9.2	21.7	400	5.0A
SMF6.0A	6.0	6.67	7.37	10	10.3	19.4	400	6.0A
SMF6.5A	6.5	7.22	7.98	10	11.2	17.9	250	6.5A
SMF7.0A	7.0	7.78	8.6	10	12	16.7	100	7.0A
SMF7.5A	7.5	8.33	9.21	1.0	12.9	15.5	50	7.5A
SMF8.0A	8.0	8.89	9.83	1.0	13.6	14.7	25	8.0A
SMF8.5A	8.5	9.44	10.4	1.0	14.4	13.9	10	8.5A
SMF9.0A	9.0	10	11.1	1.0	15.4	13	5.0	9.0A
SMF10A	10	11.1	12.3	1.0	17	11.8	2.5	10A
SMF11A	11	12.2	13.5	1.0	18.2	11	2.5	11A
SMF12A	12	13.3	14.7	1.0	19.9	10.1	2.5	12A
SMF13A	13	14.4	15.9	1.0	21.5	9.3	1.0	13A
SMF14A	14	15.6	17.2	1.0	23.2	8.6	1.0	14A
SMF15A	15	16.7	18.5	1.0	24.4	8.2	1.0	15A
SMF16A	16	17.8	19.7	1.0	26	7.7	1.0	16A
SMF17A	17	18.9	20.9	1.0	27.6	7.2	1.0	17A
SMF18A	18	20	22.1	1.0	29.2	6.8	1.0	18A
SMF20A	20	22.2	24.5	1.0	32.4	6.2	1.0	20A
SMF22A	22	24.4	26.9	1.0	35.5	5.6	1.0	22A
SMF24A	24	26.7	29.5	1.0	38.9	5.1	1.0	24A
SMF26A	26	28.9	31.9	1.0	42.1	4.8	1.0	26A
SMF28A	28	31.1	34.4	1.0	45.4	4.4	1.0	28A
SMF30A	30	33.3	36.8	1.0	48.4	4.1	1.0	30A
SMF33A	33	36.7	40.6	1.0	53.3	3.8	1.0	33A
SMF36A	36	40	44.2	1.0	58.1	3.4	1.0	36A
SMF40A	40	44.4	49.1	1.0	64.5	3.1	1.0	40A
SMF43A	43	47.8	52.8	1.0	69.4	2.9	1.0	43A
SMF45A	45	50	55.3	1.0	72.7	2.8	1.0	45A
SMF48A	48	53.3	58.9	1.0	77.4	2.6	1.0	48A
SMF51A	51	56.7	62.7	1.0	82.4	2.4	1.0	51A
SMF54A	54	60	66.3	1.0	87.1	2.3	1.0	54A
SMF58A	58	64.4	71.2	1.0	93.6	2.1	1.0	58A
SMF60A	60	66.7	73.7	1.0	96.8	1.8	1.0	60A
SMF64A	64	71.1	78.6	1.0	103	1.7	1.0	64A
SMF70A	70	77.8	86	1.0	113	1.5	1.0	70A
SMF75A	75	83.3	92.1	1.0	121	1.4	1.0	75A
SMF78A	78	86.7	95.8	1.0	126	1.4	1.0	78A
SMF85A	85	94.4	104	1.0	137	1.3	1.0	85A
SMF90A	90	100	111	1.0	146	1.2	1.0	90A
SMF100A	100	111	123	1.0	162	1.1	1.0	100
SMF110A	110	122	135	1.0	177	1.0	1.0	110
SMF120A	120	133	147	1.0	193	0.9	1.0	120
SMF130A	130	144	159	1.0	209	0.8	1.0	130
SMF150A	150	167	185	1.0	243	0.7	1.0	150
SMF160A	160	178	197	1.0	259	0.7	1.0	160
SMF170A	170	189	209	1.0	275	0.6	1.0	170

Electrical Characteristics @ 25°C Unless Otherwise Specified

MCC Part Number	Reverse Stand-Off Voltage	Breakdown Voltage $V_{BR}(V)$		Test Current	Max. Clamping Voltage @ $I_{PP}$	Max. Peak Pulse Current	Max. Reverse Leakage Current @ $V_{WM}$	Marking Code
	$V_{WM}(V)$	Min	Max	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_D(\mu A)$	
SMF5.0CA	5.0	6.4	7.0	10	9.2	21.7	400	5.0CA
SMF6.0CA	6.0	6.67	7.37	10	10.3	19.4	400	6.0CA
SMF6.5CA	6.5	7.22	7.98	10	11.2	17.9	250	6.5CA
SMF7.0CA	7.0	7.78	8.6	10	12	16.7	100	7.0CA
SMF7.5CA	7.5	8.33	9.21	1.0	12.9	15.5	50	7.5CA
SMF8.0CA	8.0	8.89	9.83	1.0	13.6	14.7	25	8.0CA
SMF8.5CA	8.5	9.44	10.4	1.0	14.4	13.9	10	8.5CA
SMF9.0CA	9.0	10	11.1	1.0	15.4	13	5.0	9.0CA
SMF10CA	10	11.1	12.3	1.0	17	11.8	2.5	10CA
SMF11CA	11	12.2	13.5	1.0	18.2	11	2.5	11CA
SMF12CA	12	13.3	14.7	1.0	19.9	10.1	2.5	12CA
SMF13CA	13	14.4	15.9	1.0	21.5	9.3	1.0	13CA
SMF14CA	14	15.6	17.2	1.0	23.2	8.6	1.0	14CA
SMF15CA	15	16.7	18.5	1.0	24.4	8.2	1.0	15CA
SMF16CA	16	17.8	19.7	1.0	26	7.7	1.0	16CA
SMF17CA	17	18.9	20.9	1.0	27.6	7.2	1.0	17CA
SMF18CA	18	20	22.1	1.0	29.2	6.8	1.0	18CA
SMF20CA	20	22.2	24.5	1.0	32.4	6.2	1.0	20CA
SMF22CA	22	24.4	26.9	1.0	35.5	5.6	1.0	22CA
SMF24CA	24	26.7	29.5	1.0	38.9	5.1	1.0	24CA
SMF26CA	26	28.9	31.9	1.0	42.1	4.8	1.0	26CA
SMF28CA	28	31.1	34.4	1.0	45.4	4.4	1.0	28CA
SMF30CA	30	33.3	36.8	1.0	48.4	4.1	1.0	30CA
SMF33CA	33	36.7	40.6	1.0	53.3	3.8	1.0	33CA
SMF36CA	36	40	44.2	1.0	58.1	3.4	1.0	36CA
SMF40CA	40	44.4	49.1	1.0	64.5	3.1	1.0	40CA
SMF43CA	43	47.8	52.8	1.0	69.4	2.9	1.0	43CA
SMF45CA	45	50	55.3	1.0	72.7	2.8	1.0	45CA
SMF48CA	48	53.3	58.9	1.0	77.4	2.6	1.0	48CA
SMF51CA	51	56.7	62.7	1.0	82.4	2.4	1.0	51CA
SMF54CA	54	60	66.3	1.0	87.1	2.3	1.0	54CA
SMF58CA	58	64.4	71.2	1.0	93.6	2.1	1.0	58CA
SMF60CA	60	66.7	73.7	1.0	96.8	1.8	1.0	60CA
SMF64CA	64	71.1	78.6	1.0	103	1.7	1.0	64CA
SMF70CA	70	77.8	86	1.0	113	1.5	1.0	70CA
SMF75CA	75	83.3	92.1	1.0	121	1.4	1.0	75CA
SMF78CA	78	86.7	95.8	1.0	126	1.4	1.0	78CA
SMF85CA	85	94.4	104	1.0	137	1.3	1.0	85CA
SMF90CA	90	100	111	1.0	146	1.2	1.0	90CA
SMF100CA	100	111	123	1.0	162	1.1	1.0	100C
SMF110CA	110	122	135	1.0	177	1.0	1.0	110C
SMF120CA	120	133	147	1.0	193	0.9	1.0	120C
SMF130CA	130	144	159	1.0	209	0.8	1.0	130C
SMF150CA	150	167	185	1.0	243	0.7	1.0	150C
SMF160CA	160	178	197	1.0	259	0.7	1.0	160C
SMF170CA	170	189	209	1.0	275	0.6	1.0	170C

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

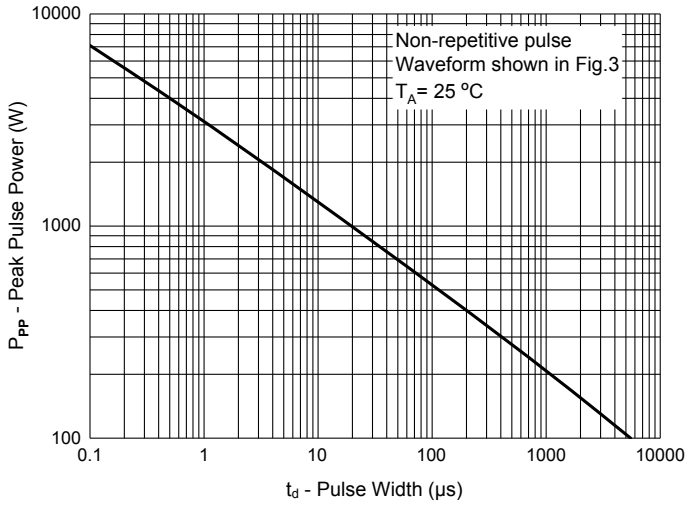


Fig. 2 - Typical Junction Capacitance



Fig. 3 - Pulse Waveform

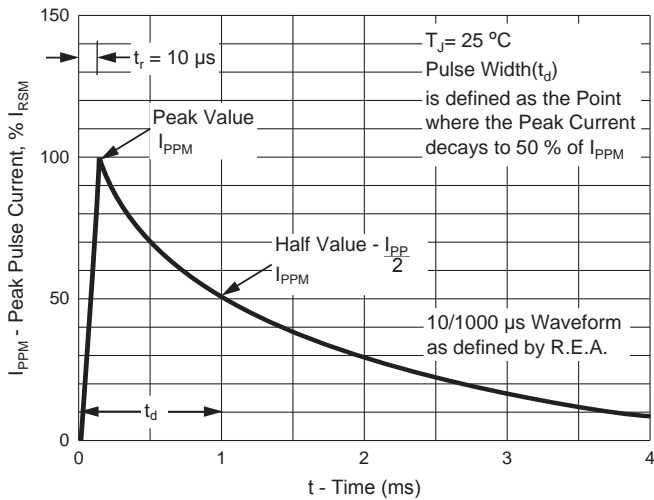


Fig. 4 - Pulse Derating Curve



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:2.5Kpcs/Reel

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