



# THE DATASHEET OF SMF60A-TP



**Features**

- Uni and Bi-directional Type Available (Suffix "C" means Bi-directional)
- Surface Mount
- Low Clamping Voltage
- Small, High Thermal Efficiency
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note1) ("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

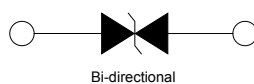
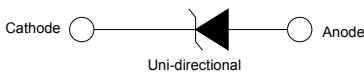
**Electrical Characteristics @ 25°C Unless Otherwise Specified**

Peak Pulse Power Dissipation with a 10/1000µs Waveform	P <sub>PP</sub>	200W	-
ESD Voltage(HBM)	V <sub>ESD</sub>	>16KV	-
Peak forward surge current, 8.3 ms single half sine-wave	I <sub>FSM</sub>	30A	-

Note:

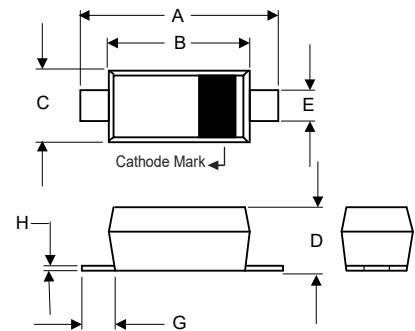
1. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.

Pin Configuration:



**200 Watt TVS  
5.0 to 170 Volts**

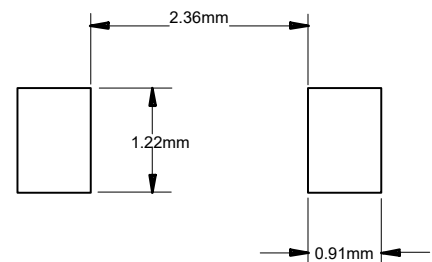
**SOD-123FL**



**DIMENSIONS**

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/KE
SMF6.0A	6.0	6.67	7.37	10	10.3	19.4	400	6.0A/KG
SMF6.5A	6.5	7.22	7.98	10	11.2	17.9	250	6.5A/KK
SMF7.0A	7.0	7.78	8.6	10	12	16.7	100	7.0A/KM
SMF7.5A	7.5	8.33	9.21	1.0	12.9	15.5	50	7.5A/KP
SMF8.0A	8.0	8.89	9.83	1.0	13.6	14.7	25	8.0A/KR
SMF8.5A	8.5	9.44	10.4	1.0	14.4	13.9	10	8.5A/KT
SMF9.0A	9.0	10	11.1	1.0	15.4	13	5.0	9.0A/KV
SMF10A	10	11.1	12.3	1.0	17	11.8	2.5	10A/KX
SMF11A	11	12.2	13.5	1.0	18.2	11	2.5	11A/KZ
SMF12A	12	13.3	14.7	1.0	19.9	10.1	2.5	12A/LE
SMF13A	13	14.4	15.9	1.0	21.5	9.3	1.0	13A/LG
SMF14A	14	15.6	17.2	1.0	23.2	8.6	1.0	14A/LK
SMF15A	15	16.7	18.5	1.0	24.4	8.2	1.0	15A/LM
SMF16A	16	17.8	19.7	1.0	26	7.7	1.0	16A/LP
SMF17A	17	18.9	20.9	1.0	27.6	7.2	1.0	17A/LR
SMF18A	18	20	22.1	1.0	29.2	6.8	1.0	18A/LT
SMF20A	20	22.2	24.5	1.0	32.4	6.2	1.0	20A/LV
SMF22A	22	24.4	26.9	1.0	35.5	5.6	1.0	22A/LX
SMF24A	24	26.7	29.5	1.0	38.9	5.1	1.0	24A/LZ
SMF26A	26	28.9	31.9	1.0	42.1	4.8	1.0	26A/ME
SMF28A	28	31.1	34.4	1.0	45.4	4.4	1.0	28A/MG
SMF30A	30	33.3	36.8	1.0	48.4	4.1	1.0	30A/MK
SMF33A	33	36.7	40.6	1.0	53.3	3.8	1.0	33A/MM
SMF36A	36	40	44.2	1.0	58.1	3.4	1.0	36A/MP
SMF40A	40	44.4	49.1	1.0	64.5	3.1	1.0	40A/MR
SMF43A	43	47.8	52.8	1.0	69.4	2.9	1.0	43A/MT
SMF45A	45	50	55.3	1.0	72.7	2.8	1.0	45A/MV
SMF48A	48	53.3	58.9	1.0	77.4	2.6	1.0	48A/MX
SMF51A	51	56.7	62.7	1.0	82.4	2.4	1.0	51A/MZ
SMF54A	54	60	66.3	1.0	87.1	2.3	1.0	54A/NE
SMF58A	58	64.4	71.2	1.0	93.6	2.1	1.0	58A/NG
SMF60A	60	66.7	73.7	1.0	96.8	1.8	1.0	60A/NK
SMF64A	64	71.1	78.6	1.0	103	1.7	1.0	64A/NM
SMF70A	70	77.8	86	1.0	113	1.5	1.0	70A/NP
SMF75A	75	83.3	92.1	1.0	121	1.4	1.0	75A/NR
SMF78A	78	86.7	95.8	1.0	126	1.4	1.0	78A/NT
SMF85A	85	94.4	104	1.0	137	1.3	1.0	85A/NV
SMF90A	90	100	111	1.0	146	1.2	1.0	90A/NX
SMF100A	100	111	123	1.0	162	1.1	1.0	100/NZ
SMF110A	110	122	135	1.0	177	1.0	1.0	110/PE
SMF120A	120	133	147	1.0	193	0.9	1.0	120/PG
SMF130A	130	144	159	1.0	209	0.8	1.0	130/PK
SMF150A	150	167	185	1.0	243	0.7	1.0	150/PM
SMF160A	160	178	197	1.0	259	0.7	1.0	160/PP
SMF170A	170	189	209	1.0	275	0.6	1.0	170/PR

**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/AE
SMF6.0CA	6.0	6.67	7.37	10	10.3	19.4	400	6.0CA/AG
SMF6.5CA	6.5	7.22	7.98	10	11.2	17.9	250	6.5CA/AK
SMF7.0CA	7.0	7.78	8.6	10	12	16.7	100	7.0CA/AM
SMF7.5CA	7.5	8.33	9.21	1.0	12.9	15.5	50	7.5CA/AP
SMF8.0CA	8.0	8.89	9.83	1.0	13.6	14.7	25	8.0CA/AR
SMF8.5CA	8.5	9.44	10.4	1.0	14.4	13.9	10	8.5CA/AT
SMF9.0CA	9.0	10	11.1	1.0	15.4	13	5.0	9.0CA/AV
SMF10CA	10	11.1	12.3	1.0	17	11.8	2.5	10CA/AX
SMF11CA	11	12.2	13.5	1.0	18.2	11	2.5	11CA/AZ
SMF12CA	12	13.3	14.7	1.0	19.9	10.1	2.5	12CA/BE
SMF13CA	13	14.4	15.9	1.0	21.5	9.3	1.0	13CA/BG
SMF14CA	14	15.6	17.2	1.0	23.2	8.6	1.0	14CA/BK
SMF15CA	15	16.7	18.5	1.0	24.4	8.2	1.0	15CA/BM
SMF16CA	16	17.8	19.7	1.0	26	7.7	1.0	16CA/BP
SMF17CA	17	18.9	20.9	1.0	27.6	7.2	1.0	17CA/BR
SMF18CA	18	20	22.1	1.0	29.2	6.8	1.0	18CA/BT
SMF20CA	20	22.2	24.5	1.0	32.4	6.2	1.0	20CA/BV
SMF22CA	22	24.4	26.9	1.0	35.5	5.6	1.0	22CA/BX
SMF24CA	24	26.7	29.5	1.0	38.9	5.1	1.0	24CA/BZ
SMF26CA	26	28.9	31.9	1.0	42.1	4.8	1.0	26CA/CE
SMF28CA	28	31.1	34.4	1.0	45.4	4.4	1.0	28CA/CG
SMF30CA	30	33.3	36.8	1.0	48.4	4.1	1.0	30CA/CK
SMF33CA	33	36.7	40.6	1.0	53.3	3.8	1.0	33CA/CM
SMF36CA	36	40	44.2	1.0	58.1	3.4	1.0	36CA/CP
SMF40CA	40	44.4	49.1	1.0	64.5	3.1	1.0	40CA/CR
SMF43CA	43	47.8	52.8	1.0	69.4	2.9	1.0	43CA/CT
SMF45CA	45	50	55.3	1.0	72.7	2.8	1.0	45CA/CV
SMF48CA	48	53.3	58.9	1.0	77.4	2.6	1.0	48CA/CX
SMF51CA	51	56.7	62.7	1.0	82.4	2.4	1.0	51CA/CZ
SMF54CA	54	60	66.3	1.0	87.1	2.3	1.0	54CA/DE
SMF58CA	58	64.4	71.2	1.0	93.6	2.1	1.0	58CA/DG
SMF60CA	60	66.7	73.7	1.0	96.8	1.8	1.0	60CA/DK
SMF64CA	64	71.1	78.6	1.0	103	1.7	1.0	64CA/DM
SMF70CA	70	77.8	86	1.0	113	1.5	1.0	70CA/DP
SMF75CA	75	83.3	92.1	1.0	121	1.4	1.0	75CA/DR
SMF78CA	78	86.7	95.8	1.0	126	1.4	1.0	78CA/DT
SMF85CA	85	94.4	104	1.0	137	1.3	1.0	85CA/DV
SMF90CA	90	100	111	1.0	146	1.2	1.0	90CA/DX
SMF100CA	100	111	123	1.0	162	1.1	1.0	100C/DZ
SMF110CA	110	122	135	1.0	177	1.0	1.0	110C/EE
SMF120CA	120	133	147	1.0	193	0.9	1.0	120C/EG
SMF130CA	130	144	159	1.0	209	0.8	1.0	130C/EK
SMF150CA	150	167	185	1.0	243	0.7	1.0	150C/EM
SMF160CA	160	178	197	1.0	259	0.7	1.0	160C/EP
SMF170CA	170	189	209	1.0	275	0.6	1.0	170C/ER

**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

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

### \*\*\*IMPORTANT NOTICE\*\*\*

**Micro Commercial Components Corp.** reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . **Micro Commercial Components Corp** . does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold **Micro Commercial Components Corp** . and all the companies whose products are represented on our website, harmless against all damages.

### \*\*\*LIFE SUPPORT\*\*\*

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

### \*\*\*CUSTOMER AWARENESS\*\*\*

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources.** MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View SMF60A-TP on WIN SOURCE](#)
- ⊖ [Micro Commercial Co](#) Information

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management