

Working Voltage: 5.0 to 350 V Peak Pulse Power: 200 W

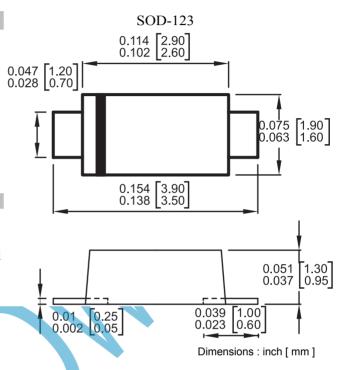
# **Surface Mount Transient Voltage Suppressors**

#### **Features**

- Glass passivated chip
- 200 W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle):0.01 %
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

#### **Mechanical Data**

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any



#### Maximum Ratings(T<sub>A</sub>=25°C unless otherwise noted)

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000μs waveform <sup>(1)</sup>	$P_{PP}$	200	W
Peak power dissipation with a 8/20µs waveform <sup>(1)</sup>	$P_{PP}$	1000	W
Peak pulse current wih a 10/1000µs waveform <sup>(1)</sup>	$I_{PP}$	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75$ °C	$P_{\mathrm{D}}$	0.4	W
Peak forward surge current, 8.3 ms single half sine- wave unidirectional only <sup>(2)</sup>	$I_{FSM}$	20	A
Maximum instantaneous forward voltage at 25 A for unidirectional only	$V_{\mathrm{F}}$	3.5	V
Operating junction and storage temperature range	$T_J, T_{STG}$	- 55 to +150	°C

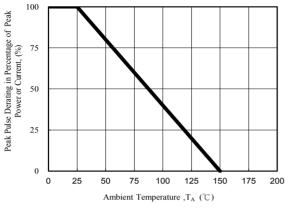
#### Note:

(1)Non-repetitive current pulse per Fig.5 and derated above  $T_A=25$  °C per Fig.1

(2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum



### Ratings and Characteristics Curves (T<sub>A</sub>=25°C unless otherwise noted)





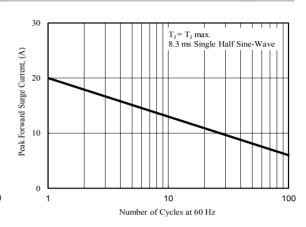


Fig. 2 - Maximum Non-Repetitive Surge Current

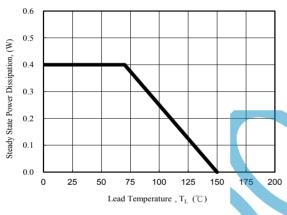


Fig. 3 - Steady State Power Derating Curve

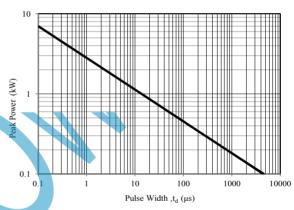


Fig. 4 - Peak Pulse Power Rating Curve

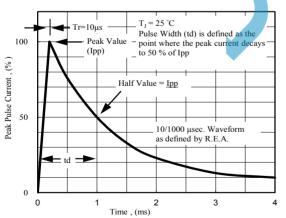


Fig. 5 - Pulse Waveform

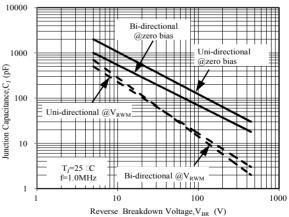


Fig. 6 - Typical Junction Capacitance



## **SMF Series**

Part Number (Uni)         Part Number (Bi)         Breakdown Voltage V <sub>BR</sub> @I <sub>T</sub> Reverse Leakage I <sub>R</sub> (W <sub>RWM</sub> (uA))         Peak Reverse Voltage V <sub>RWM</sub> (UA)         Reverse Current I <sub>PP</sub> Voltage (W <sub>RWM</sub> (uA))         Clamp Voltage (W <sub>RWM</sub> (uA))         Peak Reverse Voltage V <sub>RWM</sub> (UA)         Reverse Voltage V <sub>RWM</sub> (uA)         Current I <sub>PP</sub> (V)         Current I <sub>PP</sub> (W)	Electrical Characteristics(T <sub>A</sub> =25°C unless otherwise noted)											
Part Number   (Hi)								Maximum	_		Maximum	
Color	Part Number	Part Number			Breakdov	vn Voltage	Vpp @IT	Reverse	Peak Reverse	Reverse	Clamping	
No.   Color				_			вк С 1				Voltage Vo	
SMF50A SMF50CA FE KE 6-40 7.00 10 800 5.0 21.74 9.2 SMF60A SMF6.0CA FE KE 6-67 7.37 10 400 6.0 19.42 10.3 SMF6.5CA FK KK 7.22 7.38 10 250 6.5 17.86 11.2 SMF7.0CA FM KM 7.78 8.60 10 100 7.0 16.67 12.0 SMF7.0CA FM KM 7.78 8.60 10 100 7.0 16.67 12.0 SMF7.0CA FM KM 7.78 8.60 10 100 7.0 16.67 12.0 SMF7.0CA FM KM 7.78 8.60 10 100 7.0 16.67 12.0 SMF7.5CA FR KR 8.89 9.83 1 25 8.0 14.71 13.6 SMF8.5CA FK KR 8.89 9.83 1 25 8.0 14.71 13.6 SMF8.5CA FF KT 9.44 10.40 1 10 8.5 13.89 14.4 SMF9.0A SMF8.0CA FF KT 9.44 10.40 1 10 8.5 13.89 14.4 SMF9.0A SMF9.0CA FV KV 10.00 11.10 1 5 9.0 12.99 15.4 SMF1.0A SMF1.0CA FV KV 10.00 11.10 1 5 9.0 12.99 15.5 SMF1.0A SMF1.0CA FV KV 10.00 11.10 1 5 9.0 12.99 15.5 SMF1.0A SMF1.0CA FV KV 10.00 11.10 1 5 9.0 12.99 15.5 SMF1.0A SMF1.0CA FV KV 10.00 11.10 1 5 9.0 12.99 15.5 SMF1.0A SMF1.0CA FV KV 10.00 11.10 1 5 9.0 12.99 15.5 SMF1.0A SMF1.0CA FV KV 10.00 11.10 1 5 9.0 12.99 15.5 SMF1.0A SMF1.0CA FV KV 10.00 11.10 1 5 9.0 12.99 15.2 SMF1.0A SMF1.0CA FV KV 10.00 11.10 1 5 9.0 12.99 15.2 SMF1.0A SMF1.0CA FV KV 10.00 11.10 1 5 9.0 12.99 15.2 SMF1.0A SMF1.0CA FV KV 10.00 11.10 1 1 5 9.0 12.9 SMF1.0A SMF1.0CA FV KV 10.00 11.10 1 1 5 9.0 1 1 1 10.0 10.99 18.2 SMF1.0A SMF1.0CA HM LK LK 15.60 17.20 1 1 1 14.0 8.62 23.2 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 14.0 8.62 23.2 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 14.0 8.62 23.2 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 1.00 0 6.54 30.6 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 1.00 0 6.54 30.6 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 1.00 0 6.54 30.6 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 1.00 0 6.54 30.6 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 1.00 0 6.64 30.6 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 1.00 0 6.64 30.6 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 1.00 0 6.64 30.6 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 1.00 0 6.64 30.6 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 1.00 0 6.64 30.6 SMF1.0A SMF1.0CA HM LK LK 15.00 17.20 1 1 1 1.00 0 1.00 1.10 1.00 1.00 1.10 1.00 1.10 1.00 1.10 1.00 1.10 1.00 1.10 1.00 1.10 1.10 1	(CIII)	(BI)						$@V_{RWM}$	$V_{RWM}$	Current I <sub>PP</sub>	$@I_{PP}$	
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SMF24A SMF24CA HZ LZ 26.70 29.50 1 1 24.0 5.14 38.9 SMF26A SMF26CA JE ME 28.90 31.90 1 1 26.0 4.75 42.1 SMF26A SMF26CA JE MG 28.90 31.90 1 1 26.0 4.75 42.1 28.0 SMF28CA JG MG 31.10 34.40 1 1 28.0 4.41 45.4 SMF30A SMF30CA JK MK 33.30 36.80 1 1 30.0 4.13 48.4 SMF30A SMF33CA JK MK 33.30 36.80 1 1 30.0 4.13 48.4 SMF33A SMF33CA JM MM 36.70 40.60 1 1 33.0 3.75 53.3 SMF36CA JP MP 40.00 44.20 1 1 1 36.0 3.44 S8.1 SMF36A SMF36CA JP MP 40.00 44.20 1 1 1 36.0 3.44 S8.1 SMF40A SMF40CA JR MR 44.40 49.10 1 1 40.0 3.10 64.5 SMF43A SMF43CA JV MV 50.00 55.30 1 1 43.0 2.88 69.4 SMF45CA JV MV 50.00 55.30 1 1 445.0 2.75 72.7 SMF48A SMF45CA JV MV 50.00 55.30 1 1 48.0 2.58 77.4 SMF51A SMF51CA JZ MZ 56.70 62.70 1 1 51.0 2.43 82.4 SMF58A SMF58CA XG NG 64.40 71.20 1 1 58.0 2.14 93.6 SMF58A SMF58CA XG NG 64.40 71.20 1 1 58.0 2.14 93.6 SMF60CA XK NK 66.70 73.70 1 1 60.0 2.07 96.8 SMF60CA XK NK MK 66.70 73.70 1 1 60.0 2.07 96.8 SMF60CA XK NK NK 66.70 73.70 1 1 60.0 2.07 96.8 SMF60CA XK NK NK 66.70 73.70 1 1 60.0 2.07 96.8 SMF60CA XK NK NK 66.70 73.70 1 1 60.0 2.07 96.8 SMF60CA XK NK NK 66.70 73.70 1 1 60.0 2.07 96.8 SMF60CA XK NK NK 66.70 73.70 1 1 60.0 2.07 96.8 SMF60CA XK NK NK 66.70 73.70 1 1 60.0 1.77 113.0 SMF75A SMF5TSCA XR NR 83.30 92.10 1 1 75.0 1.65 121.0 SMF75A SMF5CCA XR NR 83.30 92.10 1 1 75.0 1.65 121.0 SMF75A SMF5CCA XR NR 83.30 92.10 1 1 75.0 1.65 121.0 SMF75A SMF5CCA XR NR 83.30 92.10 1 1 75.0 1.65 121.0 SMF75A SMF5CCA XR NR 83.30 92.10 1 1 75.0 1.65 121.0 SMF75CA XR NR 83.30 92.10 1 1 75.0 1.65 121.0 SMF75CA XR NR 83.30 92.0 1 1 1 10.0 1.13 177.0 SMF75A SMF5CCA XR NR 83.30 92.0 1 1 1 10.0 1.13 177.0 SMF75A SMF5CCA XR NR 83.30 92.0 1 1 1 10.0 0 1.37 146.0 SMF10CA XR NR NR 83.30 92.0 1 1 1 10.0 0 1.37 146.0 SMF10CA XR NR NR 83.30 92.0 1 1 1 10.0 0 1.37 146.0 SMF10CA XR NR NR 83.30 92.0 1 1 1 10.0 0 1.37 146.0 SMF10CA XR NR NR 83.30 12.0 0 1 1 10.0 0 0.65 30.8 SMF10CA XR NR NR 83.30 12.0 0 1 1 10.0 0 0.66 30.8 SMF10CA XR NR NR 189.00 12.0 0 1 1 10.0 0 0.66 30.8 SMF10CA XR NR NR 189.00 12.0 0 1 1 1 10.0 0 0.66 30.8 SMF10CA XR												
SMF26A         SMF26CA         JE         ME         28.90         31.90         1         1         26.0         4.75         42.1           SMF28A         SMF28CA         JG         MG         31.10         34.40         1         1         28.0         4.41         45.4           SMF30CA         JK         MK         33.30         33.68         1         1         30.0         4.13         48.4           SMF33A         SMF36CA         JP         MP         40.00         1         1         33.0         3.75         53.3           SMF36CA         JP         MP         40.00         44.20         1         1         36.0         3.44         58.1           SMF4OA         JR         MR         44.40         49.10         1         40.0         3.10         64.5           SMF4SA         SMF4SCA         JV         MV         50.00         55.30         1         1         45.0         2.75         72.7           SMF48A         SMF4SCA         JX         MX         53.30         58.90         1         1         48.0         2.58         77.4           SMF51A         SMF51CA         JZ         MZ <td></td>												
SMF28A         SMF28CA         JG         MG         31.10         34.40         1         1         28.0         4.41         45.4           SMF30A         SMF30CA         JK         MK         33.30         36.80         1         1         30.0         4.13         48.4           SMF3AS         SMF3ACA         JM         MM         36.70         40.60         1         1         30.0         3.75         53.3           SMF36A         SMF36CA         JP         MP         40.00         44.20         1         1         36.0         3.44         58.1           SMF4OA         SMF4OCA         JR         MR         44.40         49.10         1         40.0         3.10         64.5           SMF43A         SMF4BCA         JY         MV         50.00         55.30         1         1         45.0         2.75         72.7         72.7           SMF48A         SMF4BCA         JX         MX         53.30         58.90         1         1         48.0         2.58         77.4           SMF51A         SMF5CA         XE         NE         60.00         66.30         1         1         54.0         2.30 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
SMF30A         SMF30CA         JK         MK         33.30         36.80         1         1         30.0         4.13         48.4           SMF3AA         SMF3CA         JM         MM         36.70         40.60         1         1         33.0         3.75         53.3           SMF3AA         SMF3CA         JP         MP         40.00         1         1         36.0         3.44         58.1           SMF4OA         SMF4OCA         JR         MR         44.00         44.20         1         1         36.0         3.44         58.1           SMF4OA         SMF4CA         JR         MR         44.40         49.10         1         40.0         3.10         64.5           SMF43A         SMF4CA         JX         MY         50.00         55.30         1         1         43.0         2.28         69.4           SMF4AA         SMF4CA         JX         MX         53.30         58.90         1         1         45.0         2.25         77.2         72.7           SMF51A         SMF5ACA         JX         MX         53.30         58.90         1         1         54.0         2.3         82.4 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
SMF33A         SMF33CA         JM         MM         36.70         40.60         1         1         33.0         3.75         53.3           SMF36A         SMF36CA         JP         MP         40.00         44.20         I         1         36.0         3.44         58.1           SMF40A         SMF40CA         JR         MR         44.40         49.10         1         40.0         3.10         64.5           SMF43A         SMF43CA         JT         MT         47.80         52.80         1         43.0         2.88         69.4           SMF4SA         SMF4SCA         JV         MV         50.00         55.30         1         1         45.0         2.75         72.7           SMF48A         SMF51CA         JZ         MZ         MZ         53.30         58.90         1         1         48.0         2.28         77.4           SMF51A         SMF51CA         JZ         MZ         MZ         53.30         58.90         1         1         48.0         2.28         87.4           SMF54A         SMF5CA         XE         NE         66.00         66.30         1         1         54.0         2.3												
SMF36A         SMF36CA         JP         MP         40.00         44.20         I         1         36.0         3.44         58.1           SMF40A         SMF40CA         JR         MR         44.40         49.10         1         40.0         3.10         64.5           SMF43A         SMF43CA         JT         MT         47.80         52.80         1         43.0         2.88         69.4           SMF4ASA         SMF4SCA         JV         MV         50.00         55.30         1         1         45.0         2.75         72.7           SMF48A         SMF4BCA         JX         MX         53.30         58.90         1         1         48.0         2.58         77.4           SMF51A         SMF51CA         JZ         MZ         56.70         62.70         1         1         51.0         2.43         82.4           SMF58A         SMF54CA         XE         NE         60.00         70.7         1         1         54.0         2.30         87.1           SMF58A         SMF60CA         XK         NK         66.70         73.70         1         1         60.0         2.07         96.8           <												
SMF40A         SMF40CA         JR         MR         44.40         49.10         1         40.0         3.10         64.5           SMF43A         SMF43CA         JT         MT         47.80         52.80         1         1         43.0         2.88         69.4           SMF45A         SMF45CA         JV         MV         50.00         55.30         1         1         45.0         2.75         72.7           SMF48A         SMF48CA         JX         MX         53.30         58.90         1         1         48.0         2.58         77.4           SMF51A         SMF51CA         JZ         MZ         56.70         62.70         1         1         51.0         2.43         82.4           SMF54A         SMF54CA         XE         NE         60.00         66.30         1         1         54.0         2.30         87.1           SMF58A         SMF58CA         XG         NG         64.40         71.20         1         1         54.0         2.214         93.6           SMF6OA         SMF6OCA         XK         NK         66.70         73.70         1         1         60.0         2.07         96.8 <td></td>												
SMF43A         SMF43CA         JT         MT         47.80         52.80         1         1         43.0         2.88         69.4           SMF45A         SMF45CA         JV         MV         50.00         55.30         1         1         45.0         2.75         72.7           SMF4BA         SMF4CA         JX         MX         53.30         58.90         1         1         48.0         2.58         77.4           SMF51A         SMF51CA         JZ         MZ         56.70         62.70         1         1         51.0         2.43         82.4           SMF54A         SMF54CA         XE         NE         60.00         66.30         1         1         54.0         2.30         87.1           SMF58A         SMF6CA         XE         NE         60.00         66.30         1         1         54.0         2.30         87.1           SMF58A         SMF6CA         XK         NK         66.70         73.70         1         1         60.0         2.07         96.8           SMF70A         SMF76CA         XR         NR         83.30         92.10         1         1         75.0         1.65         121							I	1				
SMF45A         SMF45CA         JV         MV         50.00         55.30         1         1         45.0         2.75         72.7           SMF48A         SMF48CA         JX         MX         53.30         58.90         1         1         48.0         2.58         77.4           SMF51A         SMF51CA         JZ         MZ         D. 56.70         66.70         1         1         51.0         2.43         82.4           SMF51A         SMF54CA         XE         NE         60.00         66.30         1         1         54.0         2.30         87.1           SMF58A         SMF58CA         XG         NG         64.40         71.20         1         1         58.0         2.14         93.6           SMF60A         SMF60CA         XK         NK         66.70         73.70         1         1         60.0         2.07         96.8           SMF70A         SMF70CA         XP         NP         77.80         86.00         1         1         70.0         1.77         113.6           SMF75A         SMF75CA         XR         NR         83.30         92.10         1         1         75.0         1.65								1				
SMF48A         SMF48CA         JX         MX         53.30         58.90         1         1         48.0         2.58         77.4           SMF51A         SMF51CA         JZ         MZ         56.70         62.70         1         1         51.0         2.43         82.4           SMF54A         SMF54CA         XE         NE         60.00         66.30         1         1         54.0         2.30         87.1           SMF58A         SMF58CA         XG         NG         64.40         71.20         1         1         58.0         2.14         93.6           SMF60A         SMF60CA         XK         NK         66.70         73.70         1         1         60.0         2.07         96.8           SMF64A         SMF64CA         XM         NM         71.10         78.60         1         1         64.0         1.94         103.0           SMF70A         SMF90CA         XP         NP         77.80         86.00         1         1         75.0         1.65         121.0           SMF75A         SMF8CA         XT         NT         86.70         95.80         1         1         78.0         1.59 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>												
SMF51A         SMF51CA         JZ         MZ         56.70         62.70         1         1         51.0         2.43         82.4           SMF54A         SMF54CA         XE         NE         60.00         66.30         1         1         54.0         2.30         87.1           SMF58A         SMF60CA         XK         NK         66.70         73.70         1         1         54.0         2.30         87.1           SMF60A         SMF60CA         XK         NK         66.70         73.70         1         1         60.0         2.07         96.8           SMF64A         SMF64CA         XM         NM         71.10         78.60         1         1         60.0         2.07         96.8           SMF70A         SMF70CA         XP         NP         77.80         86.00         1         1         70.0         1.77         113.0           SMF75A         SMF75CA         XR         NR         83.30         92.10         1         1         75.0         1.65         121.0           SMF78A         SMF8CA         XR         NR         83.30         97.60         1         1         80.0         1.55 <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>												
SMF54A         SMF54CA         XE         NE         60.00         66.30         1         1         54.0         2.30         87.1           SMF58A         SMF58CA         XG         NG         64.40         71.20         1         1         58.0         2.14         93.6           SMF60A         SMF60CA         XK         NK         66.70         73.70         1         1         60.0         2.07         96.8           SMF60A         SMF60CA         XK         NK         66.70         73.70         1         1         60.0         2.07         96.8           SMF70A         SMF70CA         XM         NM         71.10         78.60         1         1         60.0         1.94         103.0           SMF75A         SMF70CA         XR         NR         83.30         92.10         1         1         75.0         1.65         121.0           SMF78A         SMF78CA         XT         NT         86.70         95.80         1         1         78.0         1.59         126.0           SMF8OA         SMF80CA         XB         NB         88.80         97.60         1         1         80.0         1.55         <												
SMF58A         SMF58CA         XG         NG         64.40         71.20         1         1         58.0         2.14         93.6           SMF60A         SMF60CA         XK         NK         66.70         73.70         1         1         60.0         2.07         96.8           SMF64A         SMF64CA         XM         NM         71.10         78.60         1         1         64.0         1.94         103.0           SMF70A         SMF70CA         XP         NP         77.80         86.00         1         1         70.0         1.77         113.0           SMF75A         SMF75CA         XR         NR         83.30         92.10         1         1         70.0         1.77         113.0           SMF78A         SMF78CA         XT         NT         86.70         95.80         1         1         78.0         1.59         126.0           SMF80A         SMF80CA         XB         NB         88.80         97.60         1         1         80.0         1.55         129.0           SMF98A         SMF85CA         XV         NV         94.40         104.00         1         1         85.0         1.46												
SMF60A         SMF60CA         XK         NK         66.70         73.70         1         1         60.0         2.07         96.8           SMF64A         SMF64CA         XM         NM         71.10         78.60         1         1         64.0         1.94         103.0           SMF70A         SMF70CA         XP         NP         77.80         86.00         1         1         70.0         1.77         113.0           SMF75A         SMF75CA         XR         NR         83.30         92.10         1         1         75.0         1.65         121.0           SMF78A         SMF78CA         XT         NT         86.70         95.80         1         1         78.0         1.59         126.0           SMF80A         SMF80CA         XB         NB         88.80         97.60         1         1         80.0         1.55         129.0           SMF85A         SMF85CA         XV         NV         94.40         104.00         1         1         85.0         1.46         137.0           SMF100A         SMF10CA         XZ         NZ         111.00         123.00         1         1         100.0         1.23												
SMF64A         SMF64CA         XM         NM         71.10         78.60         1         1         64.0         1.94         103.0           SMF70A         SMF70CA         XP         NP         77.80         86.00         1         1         70.0         1.77         113.0           SMF75A         SMF75CA         XR         NR         83.30         92.10         1         1         75.0         1.65         121.0           SMF78A         SMF78CA         XT         NT         86.70         95.80         1         1         78.0         1.59         126.0           SMF80A         SMF80CA         XB         NB         88.80         97.60         1         1         80.0         1.55         129.0           SMF85A         SMF85CA         XV         NV         94.40         104.00         1         1         85.0         1.46         137.0           SMF90A         SMF90CA         XX         NX         100.00         111.00         1         1         90.0         1.37         146.0           SMF10A         SMF10OCA         XZ         NZ         111.00         123.00         1         1         10.0         1.13							1					
SMF70A         SMF70CA         XP         NP         77.80         86.00         1         1         70.0         1.77         113.0           SMF75A         SMF75CA         XR         NR         83.30         92.10         1         1         75.0         1.65         121.0           SMF78A         SMF78CA         XT         NT         86.70         95.80         1         1         78.0         1.59         126.0           SMF80A         SMF80CA         XB         NB         88.80         97.60         1         1         80.0         1.55         129.0           SMF85A         SMF85CA         XV         NV         94.40         104.00         1         1         85.0         1.46         137.0           SMF90A         SMF90CA         XX         NX         100.00         111.00         1         1         90.0         1.37         146.0           SMF100A         SMF100CA         XZ         NZ         111.00         123.00         1         1         100.0         1.23         162.0           SMF120A         SMF130CA         TG         PG         133.00         147.00         1         1         110.0         1.							1					
SMF75A         SMF75CA         XR         NR         83.30         92.10         1         1         75.0         1.65         121.0           SMF78A         SMF78CA         XT         NT         86.70         95.80         1         1         78.0         1.59         126.0           SMF80A         SMF80CA         XB         NB         88.80         97.60         1         1         80.0         1.55         129.0           SMF85A         SMF85CA         XV         NV         94.40         104.00         1         1         85.0         1.46         137.0           SMF90A         SMF90CA         XX         NX         100.00         111.00         1         1         90.0         1.37         146.0           SMF10A         SMF10CA         XZ         NZ         111.00         123.00         1         1         100.0         1.23         162.0           SMF110A         SMF110CA         TE         PE         122.00         135.00         1         1         110.0         1.13         177.0           SMF120A         SMF130CA         TK         PK         144.00         159.00         1         1         130.0 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td></td></td<>							1					
SMF78A         SMF78CA         XT         NT         86.70         95.80         1         1         78.0         1.59         126.0           SMF80A         SMF80CA         XB         NB         88.80         97.60         1         1         80.0         1.55         129.0           SMF85A         SMF85CA         XV         NV         94.40         104.00         1         1         85.0         1.46         137.0           SMF90A         SMF90CA         XX         NX         100.00         111.00         1         1         90.0         1.37         146.0           SMF100A         SMF100CA         XZ         NZ         111.00         123.00         1         1         100.0         1.23         162.0           SMF10A         SMF10CA         TE         PE         122.00         135.00         1         1         100.0         1.13         177.0           SMF120A         SMF130CA         TG         PG         133.00         147.00         1         1         120.0         1.04         193.6           SMF130A         SMF140CA         TB         PB         155.00         171.00         1         1         140.0												
SMF80A         SMF80CA         XB         NB         88.80         97.60         1         1         80.0         1.55         129.0           SMF85A         SMF85CA         XV         NV         94.40         104.00         1         1         85.0         1.46         137.0           SMF90A         SMF90CA         XX         NX         100.00         111.00         1         1         90.0         1.37         146.0           SMF100A         SMF100CA         XZ         NZ         111.00         123.00         1         1         100.0         1.23         162.0           SMF110A         SMF110CA         TE         PE         122.00         135.00         1         1         100.0         1.23         162.0           SMF120A         SMF120CA         TG         PG         133.00         147.00         1         1         100.0         1.04         193.0           SMF130A         SMF130CA         TK         PK         144.00         159.00         1         1         140.0         0.89         224.0           SMF150A         SMF150CA         TM         PM         167.00         185.00         1         1         150.0												
SMF85A         SMF85CA         XV         NV         94.40         104.00         1         1         85.0         1.46         137.0           SMF90A         SMF90CA         XX         NX         100.00         111.00         1         1         90.0         1.37         146.0           SMF100A         SMF100CA         XZ         NZ         111.00         123.00         1         1         100.0         1.23         162.0           SMF110A         SMF110CA         TE         PE         122.00         135.00         1         1         110.0         1.13         177.0           SMF120A         SMF120CA         TG         PG         133.00         147.00         1         1         120.0         1.04         193.0           SMF130A         SMF130CA         TK         PK         144.00         159.00         1         1         130.0         0.96         209.0           SMF140A         SMF140CA         TB         PB         155.00         171.00         1         1         140.0         0.89         224.0           SMF150A         SMF160CA         TM         PM         167.00         185.00         1         1         150.0												
SMF90A         SMF90CA         XX         NX         100.00         111.00         1         1         90.0         1.37         146.0           SMF100A         SMF100CA         XZ         NZ         111.00         123.00         1         1         100.0         1.23         162.0           SMF110A         SMF110CA         TE         PE         122.00         135.00         1         1         110.0         1.13         177.0           SMF120A         SMF120CA         TG         PG         133.00         147.00         1         1         120.0         1.04         193.0           SMF130A         SMF130CA         TK         PK         144.00         159.00         1         1         130.0         0.96         209.0           SMF140A         SMF140CA         TB         PB         155.00         171.00         1         1         140.0         0.89         224.0           SMF150A         SMF150CA         TM         PM         167.00         185.00         1         1         150.0         0.82         243.0           SMF160A         SMF160CA         TP         PP         178.00         197.00         1         1         1												
SMF100A         SMF100CA         XZ         NZ         111.00         123.00         1         1         100.0         1.23         162.0           SMF110A         SMF110CA         TE         PE         122.00         135.00         1         1         110.0         1.13         177.0           SMF120A         SMF120CA         TG         PG         133.00         147.00         1         1         120.0         1.04         193.0           SMF130A         SMF130CA         TK         PK         144.00         159.00         1         1         130.0         0.96         209.0           SMF140A         SMF140CA         TB         PB         155.00         171.00         1         1         140.0         0.89         224.0           SMF150A         SMF150CA         TM         PM         167.00         185.00         1         1         150.0         0.82         243.0           SMF160A         SMF160CA         TP         PP         178.00         197.00         1         1         160.0         0.77         259.0           SMF170A         SMF180CA         TR         PR         189.00         209.00         1         1 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
SMF110A         SMF110CA         TE         PE         122.00         135.00         1         1         110.0         1.13         177.0           SMF120A         SMF120CA         TG         PG         133.00         147.00         1         1         120.0         1.04         193.0           SMF130A         SMF130CA         TK         PK         144.00         159.00         1         1         130.0         0.96         209.0           SMF140A         SMF140CA         TB         PB         155.00         171.00         1         1         140.0         0.89         224.0           SMF150A         SMF150CA         TM         PM         167.00         185.00         1         1         150.0         0.82         243.0           SMF160A         SMF160CA         TP         PP         178.00         197.00         1         1         160.0         0.77         259.0           SMF170A         SMF170CA         TR         PR         189.00         209.00         1         1         170.0         0.73         275.0           SMF180A         SMF180CA         TT         PT         200.00         220.00         1         1 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
SMF120A         SMF120CA         TG         PG         133.00         147.00         1         1         120.0         1.04         193.0           SMF130A         SMF130CA         TK         PK         144.00         159.00         1         1         130.0         0.96         209.0           SMF140A         SMF140CA         TB         PB         155.00         171.00         1         1         140.0         0.89         224.0           SMF150A         SMF150CA         TM         PM         167.00         185.00         1         1         150.0         0.82         243.0           SMF160A         SMF160CA         TP         PP         178.00         197.00         1         1         160.0         0.77         259.0           SMF170A         SMF170CA         TR         PR         189.00         209.00         1         1         170.0         0.73         275.0           SMF180A         SMF180CA         TT         PT         200.00         220.00         1         1         180.0         0.68         292.0           SMF190A         SMF190CA         TV         PV         211.00         232.00         1         1 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
SMF130A         SMF130CA         TK         PK         144.00         159.00         1         1         130.0         0.96         209.0           SMF140A         SMF140CA         TB         PB         155.00         171.00         1         1         140.0         0.89         224.0           SMF150A         SMF150CA         TM         PM         167.00         185.00         1         1         150.0         0.82         243.0           SMF160A         SMF160CA         TP         PP         178.00         197.00         1         1         160.0         0.77         259.0           SMF170A         SMF170CA         TR         PR         189.00         209.00         1         1         170.0         0.73         275.0           SMF180A         SMF180CA         TT         PT         200.00         220.00         1         1         180.0         0.68         292.0           SMF190A         SMF190CA         TV         PV         211.00         232.00         1         1         190.0         0.65         308.0           SMF200A         SMF200CA         TX         PX         224.00         247.00         1         1 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>												
SMF140A         SMF140CA         TB         PB         155.00         171.00         1         1         140.0         0.89         224.0           SMF150A         SMF150CA         TM         PM         167.00         185.00         1         1         150.0         0.82         243.0           SMF160A         SMF160CA         TP         PP         178.00         197.00         1         1         160.0         0.77         259.0           SMF170A         SMF170CA         TR         PR         189.00         209.00         1         1         170.0         0.73         275.0           SMF180A         SMF180CA         TT         PT         200.00         220.00         1         1         180.0         0.68         292.0           SMF190A         SMF190CA         TV         PV         211.00         232.00         1         1         190.0         0.65         308.0           SMF200A         SMF20CA         TX         PX         224.00         247.00         1         1         200.0         0.62         324.0           SMF20A         SMF20CA         TZ         PZ         246.00         272.00         1         1         2												
SMF150A         SMF150CA         TM         PM         167.00         185.00         1         1         150.0         0.82         243.0           SMF160A         SMF160CA         TP         PP         178.00         197.00         1         1         160.0         0.77         259.0           SMF170A         SMF170CA         TR         PR         189.00         209.00         1         1         170.0         0.73         275.0           SMF180A         SMF180CA         TT         PT         200.00         220.00         1         1         180.0         0.68         292.0           SMF190A         SMF190CA         TV         PV         211.00         232.00         1         1         190.0         0.65         308.0           SMF200A         SMF20CA         TX         PX         224.00         247.00         1         1         200.0         0.62         324.0           SMF20A         SMF20CA         TZ         PZ         246.00         272.00         1         1         220.0         0.56         356.0           SMF250A         YE         279.00         309.00         1         1         250.0         0.50         40												
SMF160A         SMF160CA         TP         PP         178.00         197.00         1         1         160.0         0.77         259.0           SMF170A         SMF170CA         TR         PR         189.00         209.00         1         1         170.0         0.73         275.0           SMF180A         SMF180CA         TT         PT         200.00         220.00         1         1         180.0         0.68         292.0           SMF190A         SMF190CA         TV         PV         211.00         232.00         1         1         190.0         0.65         308.0           SMF200A         SMF20CA         TX         PX         224.00         247.00         1         1         200.0         0.62         324.0           SMF20A         SMF20CA         TZ         PZ         246.00         272.00         1         1         220.0         0.56         356.0           SMF250A         YE         279.00         309.00         1         1         250.0         0.50         405.0												
SMF170A         SMF170CA         TR         PR         189.00         209.00         1         1         170.0         0.73         275.0           SMF180A         SMF180CA         TT         PT         200.00         220.00         1         1         180.0         0.68         292.0           SMF190A         SMF190CA         TV         PV         211.00         232.00         1         1         190.0         0.65         308.0           SMF200A         SMF20CA         TX         PX         224.00         247.00         1         1         200.0         0.62         324.0           SMF220A         SMF220CA         TZ         PZ         246.00         272.00         1         1         220.0         0.56         356.0           SMF250A         YE         279.00         309.00         1         1         250.0         0.50         405.0												
SMF180A         SMF180CA         TT         PT         200.00         220.00         1         1         180.0         0.68         292.0           SMF190A         SMF190CA         TV         PV         211.00         232.00         1         1         190.0         0.65         308.0           SMF200A         SMF200CA         TX         PX         224.00         247.00         1         1         200.0         0.62         324.0           SMF220A         SMF220CA         TZ         PZ         246.00         272.00         1         1         220.0         0.56         356.0           SMF250A         YE         279.00         309.00         1         1         250.0         0.50         405.0												
SMF190A         SMF190CA         TV         PV         211.00         232.00         1         1         190.0         0.65         308.0           SMF200A         SMF200CA         TX         PX         224.00         247.00         1         1         200.0         0.62         324.0           SMF220A         SMF220CA         TZ         PZ         246.00         272.00         1         1         220.0         0.56         356.0           SMF250A         YE         279.00         309.00         1         1         250.0         0.50         405.0												
SMF200A         SMF200CA         TX         PX         224.00         247.00         1         1         200.0         0.62         324.0           SMF20A         SMF20CA         TZ         PZ         246.00         272.00         1         1         220.0         0.56         356.0           SMF250A         YE         279.00         309.00         1         1         250.0         0.50         405.0												
SMF220A         SMF220CA         TZ         PZ         246.00         272.00         1         1         220.0         0.56         356.0           SMF250A         YE         279.00         309.00         1         1         250.0         0.50         405.0												
SMF250A YE 279.00 309.00 1 1 250.0 0.50 405.0												
		SMF220CA		PZ			1	1				
SMITSOUA [ 1G   353.00   3/1.00   1   1   300.0   0.41   486.0							1	1				
SMF350A YK 391.00 432.00 1 1 350.0 0.36 567.0											486.0 567.0	

- Note: 1. The available parts are "A" type only,the parts without  $A(V_{BR} \text{ is } \pm 10\%)$  is not available
- 2. Add suffix 'C 'or ' CA ' after part number to specify Bi-directional devices
- 3. For Bi-Directional devices having  $V_{R}$  of 10 volts and under, the  $I_{R}$  limit is double