



Micro Commercial Components



Micro Commercial Components  
20736 Marilla Street Chatsworth  
CA 91311

Phone: (818) 701-4933  
Fax: (818) 701-4939

# SA5.0(C)(A) THRU SA170(C)(A)

**500WATTS TRANSIENT  
VOLTAGE SUPPRESSOR  
5.0 TO 170 VOLTS**

## Features

- Glass passivated chip
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- UL Recognized file # E331408
- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Fast Response Time
- Halogen free available upon request by adding suffix "-HF"

## MECHANICAL DATA

- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking: Unidirectional-type number and cathode band  
Bidirectional-type number only
- Weight: 0.4 grams

## Maximum Ratings

- Operating Temperature: -55°C to +175°C
- Storage Temperature: -55°C to +175°C
- For capacitive load, derate current by 20%

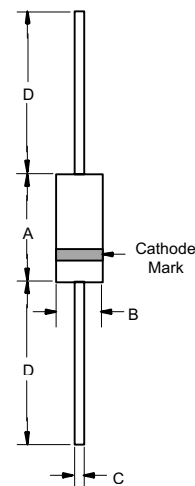
## Electrical Characteristics @ 25°C Unless Otherwise Specified

|                                       |                    |      |  |
|---------------------------------------|--------------------|------|--|
| Peak Pulse Power Dissipation          | P <sub>PPM</sub>   | 500W | T <sub>A</sub> =25°C                           |
| Maximum Instantaneous Forward Voltage | V <sub>F</sub>     | 3.5V | I <sub>FM</sub> =35A;<br>T <sub>J</sub> =25°C* |
| Steady State Power Dissipation        | P <sub>M(AV)</sub> | 3.0W | T <sub>L</sub> =75°C                           |

\*Pulse test: Pulse width 300 usec, Duty cycle 1%

Note: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7(a).

DO-15



| DIM | DIMENSIONS |       |       |       | NOTE |
|-----|------------|-------|-------|-------|------|
|     | INCHES     |       | MM    |       |      |
|     | MIN        | MAX   | MIN   | MAX   |      |
| A   | 0.230      | 0.300 | 5.80  | 7.60  |      |
| B   | 0.104      | 0.140 | 2.60  | 3.60  |      |
| C   | 0.026      | 0.034 | 0.70  | 0.90  |      |
| D   | 1.000      | ----- | 25.40 | ----- |      |

# SA5.0(C)(A) THRU SA170(C)(A)

Micro Commercial Components

| MCC PART NUMBER |          | REVERSE STAND- OFF VOLTAGE VRWM(V) | BREAKDOWN VOLTAGE VBR(V) MIN.@IT | BREAKDOWN VOLTAGE VBR(V) MAX.@IT | TEST CURRENT IT (mA) | MAXIMUM CLAMPING VOLTAGE @Ipp Vc(V) | PEAK PULSE CURRENT Ipp (A) | REVERSE LEAKAGE @ VRWM IR(μ A) | Maxium Temperature Coefficient of V <sub>(BR)</sub> (mV/°C) |
|-----------------|----------|------------------------------------|----------------------------------|----------------------------------|----------------------|-------------------------------------|----------------------------|--------------------------------|---|
| UNI-Polar       | BI-Polar |                                    |                                  |                                  |                      |                                     |                            |                                |   |
| SA5.0A          | SA5.0CA  | 5.0                                | 6.40                             | 7.00                             | 10                   | 9.2                                 | 55.4                       | 600                            | 5   |
| SA6.0A          | SA6.0CA  | 6.0                                | 6.67                             | 7.37                             | 10                   | 10.3                                | 49.5                       | 600                            | 5   |
| SA6.5A          | SA6.5CA  | 6.5                                | 7.22                             | 7.98                             | 10                   | 11.2                                | 45.5                       | 400                            | 5   |
| SA7.0A          | SA7.0CA  | 7.0                                | 7.78                             | 8.60                             | 10                   | 12                                  | 42.5                       | 150                            | 6   |
| SA7.5A          | SA7.5CA  | 7.5                                | 8.33                             | 9.21                             | 1                    | 12.9                                | 39.5                       | 50                             | 7   |
| SA8.0A          | SA8.0CA  | 8.0                                | 8.89                             | 9.83                             | 1                    | 13.6                                | 37.5                       | 25                             | 7   |
| SA8.5A          | SA8.5CA  | 8.5                                | 9.44                             | 10.40                            | 1                    | 14.4                                | 35.4                       | 10                             | 8   |
| SA9.0A          | SA9.0CA  | 9.0                                | 10.00                            | 11.10                            | 1                    | 15.4                                | 33.1                       | 5                              | 9   |
| SA10A           | SA10CA   | 10.0                               | 11.10                            | 12.30                            | 1                    | 17                                  | 30                         | 1                              | 10  |
| SA11A           | SA11CA   | 11.0                               | 12.20                            | 13.50                            | 1                    | 18.2                                | 28                         | 1                              | 11  |
| SA12A           | SA12CA   | 12.0                               | 13.30                            | 14.70                            | 1                    | 19.9                                | 25.6                       | 1                              | 12  |
| SA13A           | SA13CA   | 13.0                               | 14.40                            | 15.90                            | 1                    | 21.5                                | 23.7                       | 1                              | 13  |
| SA14A           | SA14CA   | 14.0                               | 15.60                            | 17.20                            | 1                    | 23.2                                | 22                         | 1                              | 14  |
| SA15A           | SA15CA   | 15.0                               | 16.70                            | 18.50                            | 1                    | 24.4                                | 20.9                       | 1                              | 16  |
| SA16A           | SA16CA   | 16.0                               | 17.80                            | 19.70                            | 1                    | 26                                  | 19.6                       | 1                              | 17  |
| SA17A           | SA17CA   | 17.0                               | 18.90                            | 20.90                            | 1                    | 27.6                                | 18.5                       | 1                              | 19  |
| SA18A           | SA18CA   | 18.0                               | 20.00                            | 22.10                            | 1                    | 29.2                                | 17.5                       | 1                              | 20  |
| SA20A           | SA20CA   | 20.0                               | 22.20                            | 24.50                            | 1                    | 32.4                                | 15.7                       | 1                              | 23  |
| SA22A           | SA22CA   | 22.0                               | 24.40                            | 26.90                            | 1                    | 35.5                                | 14.4                       | 1                              | 25  |
| SA24A           | SA24CA   | 24.0                               | 26.70                            | 29.50                            | 1                    | 38.9                                | 13.1                       | 1                              | 28  |
| SA26A           | SA26CA   | 26.0                               | 28.90                            | 31.90                            | 1                    | 42.1                                | 12.1                       | 1                              | 30  |
| SA28A           | SA28CA   | 28.0                               | 31.10                            | 34.40                            | 1                    | 45.4                                | 11.2                       | 1                              | 31  |
| SA30A           | SA30CA   | 30.0                               | 33.30                            | 36.80                            | 1                    | 48.4                                | 10.5                       | 1                              | 36  |
| SA33A           | SA33CA   | 33.0                               | 36.70                            | 40.60                            | 1                    | 53.3                                | 9.6                        | 1                              | 39  |
| SA36A           | SA36CA   | 36.0                               | 40.00                            | 44.20                            | 1                    | 58.1                                | 8.8                        | 1                              | 41  |
| SA40A           | SA40CA   | 40.0                               | 44.40                            | 49.10                            | 1                    | 64.5                                | 7.9                        | 1                              | 46  |
| SA43A           | SA43CA   | 43.0                               | 47.80                            | 52.80                            | 1                    | 69.4                                | 7.3                        | 1                              | 50  |
| SA45A           | SA45CA   | 45.0                               | 50.00                            | 55.30                            | 1                    | 72.7                                | 7                          | 1                              | 52  |
| SA48A           | SA48CA   | 48.0                               | 53.30                            | 58.90                            | 1                    | 77.4                                | 6.6                        | 1                              | 56  |
| SA51A           | SA51CA   | 51.0                               | 56.70                            | 62.70                            | 1                    | 82.4                                | 6.2                        | 1                              | 61  |
| SA54A           | SA54CA   | 54.0                               | 60.00                            | 66.30                            | 1                    | 87.1                                | 5.9                        | 1                              | 65  |
| SA58A           | SA58CA   | 58.0                               | 64.40                            | 71.20                            | 1                    | 93.6                                | 5.4                        | 1                              | 70  |
| SA60A           | SA60CA   | 60.0                               | 66.70                            | 73.70                            | 1                    | 96.8                                | 5.3                        | 1                              | 71  |
| SA64A           | SA64CA   | 64.0                               | 71.10                            | 78.60                            | 1                    | 103                                 | 5                          | 1                              | 76  |
| SA70A           | SA70CA   | 70.0                               | 77.80                            | 86.00                            | 1                    | 113                                 | 4.5                        | 1                              | 85  |
| SA75A           | SA75CA   | 75.0                               | 83.30                            | 92.10                            | 1                    | 121                                 | 4.2                        | 1                              | 91  |
| SA78A           | SA78CA   | 78.0                               | 86.70                            | 95.80                            | 1                    | 126                                 | 4                          | 1                              | 95  |
| SA85A           | SA85CA   | 85.0                               | 94.40                            | 104.00                           | 1                    | 137                                 | 3.7                        | 1                              | 103   |
| SA90A           | SA90CA   | 90.0                               | 100.00                           | 111.00                           | 1                    | 146                                 | 3.5                        | 1                              | 110   |
| SA100A          | SA100CA  | 100.0                              | 111.00                           | 123.00                           | 1                    | 162                                 | 3.1                        | 1                              | 123   |
| SA110A          | SA110CA  | 110.0                              | 122.00                           | 135.00                           | 1                    | 177                                 | 2.9                        | 1                              | 133   |
| SA120A          | SA120CA  | 120.0                              | 133.00                           | 147.00                           | 1                    | 193                                 | 2.6                        | 1                              | 146   |
| SA130A          | SA130CA  | 130.0                              | 144.00                           | 159.00                           | 1                    | 209                                 | 2.4                        | 1                              | 158   |
| SA150A          | SA150CA  | 150.0                              | 167.00                           | 185.00                           | 1                    | 243                                 | 2.1                        | 1                              | 184   |
| SA160A          | SA160CA  | 160.0                              | 178.00                           | 197.00                           | 1                    | 259                                 | 2                          | 1                              | 196   |
| SA170A          | SA170CA  | 170.0                              | 189.00                           | 209.00                           | 1                    | 275                                 | 1.9                        | 1                              | 208   |

For bidirectional type having Vrwm of 10 volts and less, the IR limit is double.

For parts without A , the VBR is +/-10%

SA5.0(C)(A) THRU SA170(C)(A)

Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)

Fig.1 - Peak Pulse Power Rating Curve

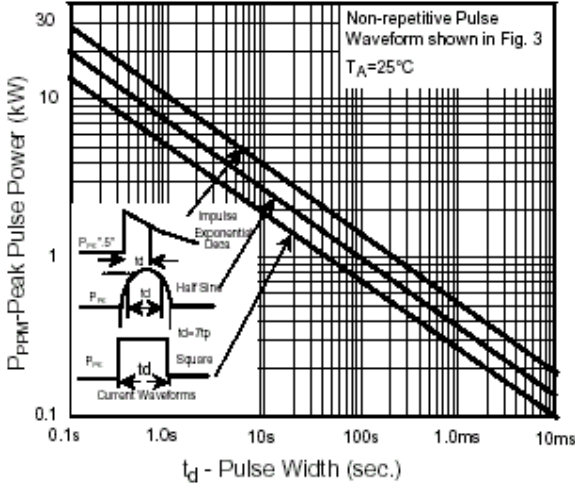


Fig.2-Power Derating Curve

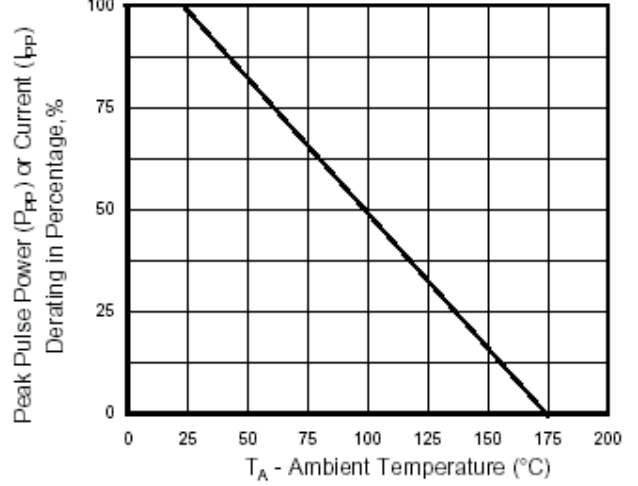


Fig.3 - Pulse Waveform



Fig.4 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

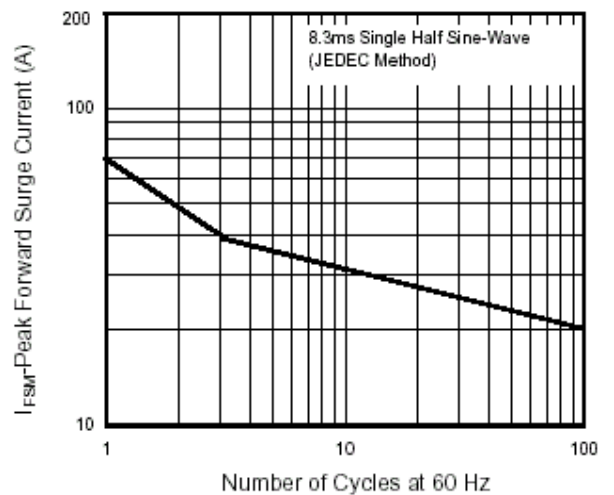


Fig. 5 - Steady State Power Derating Curve

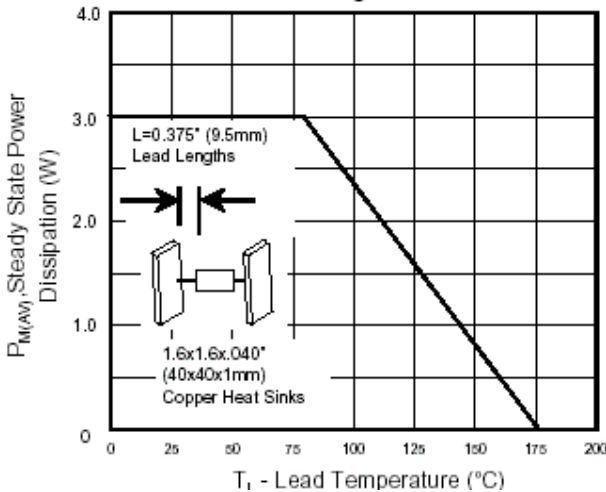
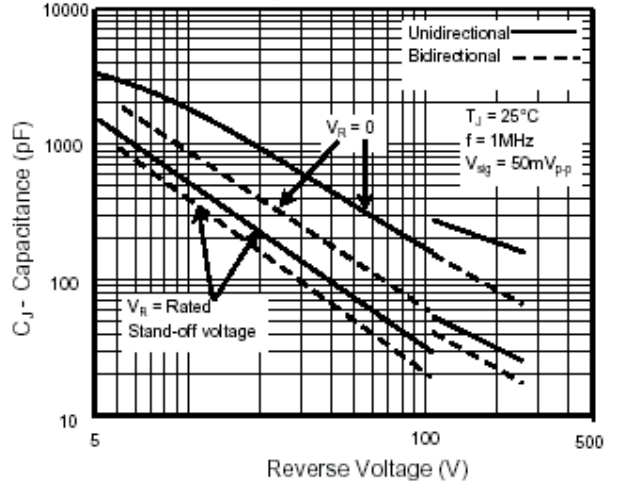


Fig. 6 - Capacitance





Micro Commercial Components

### Ordering Information :

| Device         | Packing                      |
|----------------|------------------------------|
| Part Number-TP | Tape&Reel: 4Kpcs/Reel        |
| Part Number-AP | Ammo Packing: 3Kpcs/Ammo Box |
| Part Number-BP | Bulk: 25Kpcs/Carton          |

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.

[www.mccsemi.com](http://www.mccsemi.com)

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## [Micro Commercial Components \(MCC\):](#)

[SA10CA-TP](#) [SA12CA-TP](#) [SA15CA-TP](#) [SA16A-TP](#) [SA16CA-TP](#) [SA20A-TP](#) [SA20CA-TP](#) [SA30A-TP](#) [SA30CA-TP](#)  
[SA33A-TP](#) [SA33CA-TP](#) [SA5.0A-TP](#) [SA6.5CA-TP](#) [SA6.0CA-TP](#) [SA15A-TP](#) [SA6.5A-TP](#) [SA10A-TP](#) [SA6.0A-TP](#)  
[SA12A-TP](#)