



E480232

## Features

- Glass Passivated Chip
- Excellent Clamping Capability
- Low Leakage
- For Bidirectional Devices Add "C" To The Suffix of The Part Number: i.e.SA5.0CA
- Fast Response Time
- 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)

## Mechanical Data

- Weight: 0.4 Gram(Appx.)

## Maximum Ratings

- For Capacitive Load, Derate Current by 20%
- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C

## Electrical Characteristics @ 25°C Unless Otherwise Specified

|                                       |             |       |                                                    |
|---------------------------------------|-------------|-------|----------------------------------------------------|
| Peak Pulse Power Dissipation          | $P_{PPM}$   | 500W  | $T_A=25^{\circ}\text{C}$                           |
| Steady State Power Dissipation        | $P_{M(AV)}$ | 3.0 W | $T_L=75^{\circ}\text{C}$                           |
| Maximum instantaneous forward voltage | $V_F$       | 3.5V  | $I_{FM}=35\text{A};$<br>$T_J=25^{\circ}\text{C} *$ |

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

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

## Device Marking:

Unidirectional - Type Number and Cathode Band

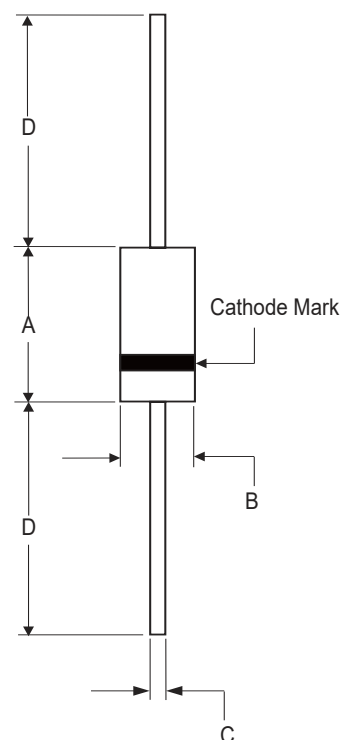
Bidirectional - Type Number Only

## Pin Configuration



**500WATTS TVS**  
**5.0 to 170 VOLTS**

## DO-15



## DIMENSIONS

| DIM | INCHES |       | MM    |       | NOTE |
|-----|--------|-------|-------|-------|------|
|     | 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  | 0.035 | 0.70  | 0.90  |      |
| D   | 1.000  | ----- | 25.40 | ----- |      |

| MCC<br>PART NUMBER |          | REVERSE<br>STAND- OFF<br>VOLTAGE<br>VRWM(V) | BREAKDOWN<br>VOLTAGE<br>VBR(V) MIN.@IT | BREAKDOWN<br>VOLTAGE<br>VBR(V)<br>MAX.@IT | TEST<br>CURRENT<br>IT (mA) | MAXIMUM<br>CLAMPING<br>VOLTAGE<br>@Ipp Vc(V) | PEAK<br>PULSE<br>CURRENT<br>Ipp (A) | REVERSE<br>LEAKAGE<br>@ VRWM<br>IR(μ A) | Maxium<br>Temperature<br>Coefficient of<br>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 V<sub>VRWM</sub> of 10 volts and less, the I<sub>R</sub> limit is double.  
For parts without A , the V<sub>BR</sub> is ± 10%

## Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve

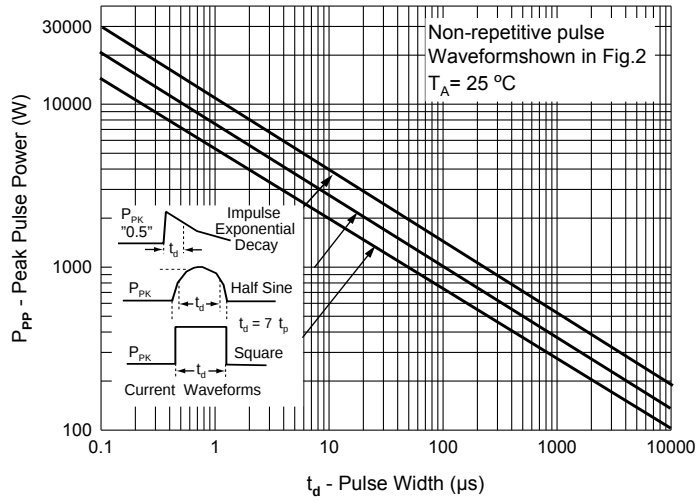


Fig. 2 - Pulse Waveform

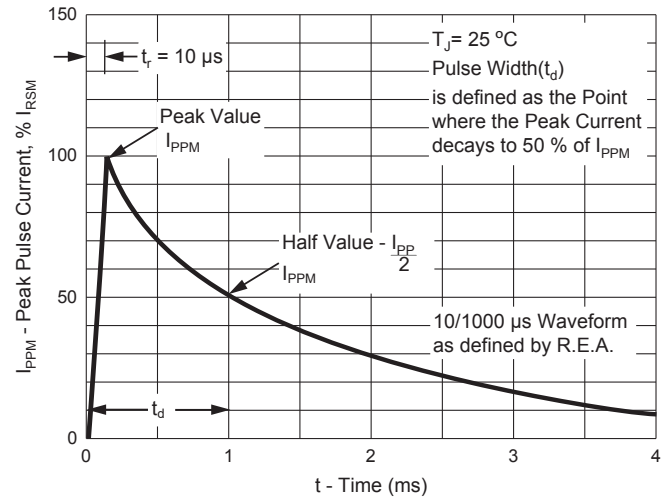
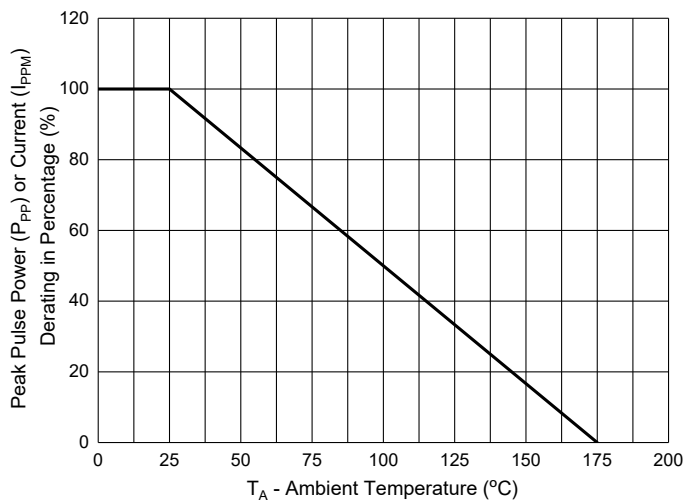


Fig. 3 - Pulse Derating Curve



## Ordering Information

| Device           | Packing                       |
|------------------|-------------------------------|
| (Part Number)-TP | Tape&Reel: 4Kpcs/Reel         |
| (Part Number)-AP | Ammo Packing: 3Kpcs/Ammo Box  |
| (Part Number)-BP | Bulk:500pcs/Box,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. **Micro Commercial Components Corp.** products are sold subject to the general terms and conditions of commercial sale, as published at <https://www.mccsemi.com/Home/TermsAndConditions>.

### \*\*\*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.

# 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](#) [SA110CA-TP](#) [SA13CA-TP](#) [SA160A-TP](#) [SA18CA-TP](#) [SA24A-TP](#) [SA24CA-TP](#) [SA26A-TP](#) [SA26CA-TP](#)  
[SA28A-TP](#) [SA28CA-TP](#) [SA36A-TP](#) [SA36CA-TP](#) [SA40A-TP](#) [SA40CA-TP](#) [SA43A-TP](#) [SA43CA-TP](#) [SA45A-TP](#)  
[SA45CA-TP](#) [SA48A-TP](#) [SA48CA-TP](#) [SA5.0CA-TP](#) [SA51A-TP](#) [SA51CA-TP](#) [SA54A-TP](#) [SA54CA-TP](#) [SA58A-TP](#)  
[SA58CA-TP](#) [SA100A-TP](#) [SA100CA-TP](#) [SA110A-TP](#) [SA11A-TP](#) [SA11CA-TP](#) [SA120A-TP](#) [SA120CA-TP](#) [SA130A-](#)  
[TP](#) [SA130CA-TP](#) [SA13A-TP](#) [SA14A-TP](#) [SA14CA-TP](#) [SA150A-TP](#) [SA150CA-TP](#) [SA160CA-TP](#) [SA170CA-TP](#)  
[SA17A-TP](#) [SA17CA-TP](#) [SA18A-TP](#) [SA22A-TP](#) [SA22CA-TP](#) [SA60A-TP](#) [SA60CA-TP](#) [SA64A-TP](#) [SA64CA-TP](#)  
[SA7.0A-TP](#) [SA7.0CA-TP](#) [SA7.5A-TP](#) [SA7.5CA-TP](#) [SA70CA-TP](#) [SA75A-TP](#) [SA75CA-TP](#) [SA78A-TP](#) [SA78CA-TP](#)  
[SA8.0A-TP](#) [SA8.0CA-TP](#) [SA8.5CA-TP](#) [SA85A-TP](#) [SA85CA-TP](#) [SA9.0A-TP](#) [SA90A-TP](#) [SA170A-TP](#) [SA70A-TP](#)  
[SA8.5A-TP](#) [SA9.0CA-TP](#) [SA90CA-TP](#) [SA100A-AP](#) [SA100A-BP](#) [SA100CA-AP](#) [SA100CA-BP](#) [SA110A-AP](#) [SA110A-](#)  
[BP](#) [SA110CA-AP](#) [SA110CA-BP](#)