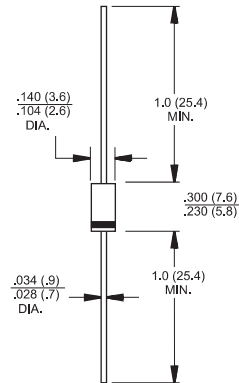




### DO-15



Dimensions in inches and (millimeters)

## Features

- ✧ Constructed with Glass Passivated Die
- ✧ Excellent Clamping Capability
- ✧ 500W Peak Pulse Power Dissipation
- ✧ Fast Response Time
- ✧ 100% Tested at Rated Peak Pulse Power
- ✧ Voltage Range 5.0 - 170 Volts
- ✧ Unidirectional and Bi-directional Versions
- ✧ Available (Note 1)

## Mechanical Data

- ✧ Case: Transfer Molded Epoxy
- ✧ Plastic Case Material has UL Flammability Classification Rating 94V-0
- ✧ Moisture sensitivity: Level 1 per J-STD-020A
- ✧ Leads: Plated Leads, Solderable per MIL-STD-202, Method 208
- ✧ Marking: Unidirectional: Type Number and Cathode Band
- ✧ Marking Bi-directional: Type Number Only
- ✧ Approx. Weight: 0.4 grams

## Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic                                                                                                                  | Symbol         | Value       | Unit             |
|---------------------------------------------------------------------------------------------------------------------------------|----------------|-------------|------------------|
| Peak Power Dissipation, $T_p = 1.0\text{ms}$<br>(Non repetitive current pulse, derated above $T_A = 25^\circ\text{C}$ )         | $P_{pk}$       | 500         | W                |
| Steady State Power Dissipation at $T_L = 75^\circ\text{C}$<br>Lead Lengths 9.5 mm (Board mounted)                               | $P_d$          | 1.0         | W                |
| Peak Forward Surge Current, 8.3 Single Half Sine Wave<br>Superimposed on Rated Load<br>Duty Cycle = 4 pulses per minute maximum | $I_{FSM}$      | 70          | A                |
| Forward Voltage @ $I_F = 35\text{A}$ 300 $\mu\text{s}$ Square Wave Pulse,<br>Unidirectional Only                                | $V_F$          | 3.5         | V                |
| Operating and Storage Temperature Range                                                                                         | $T_J, T_{STG}$ | -65 to +175 | $^\circ\text{C}$ |

- Notes:
1. Suffix "A" denotes unidirectional, suffix "CA" denotes bi-directional device.
  2. For bi-directional devices having  $V_R$  of 10 volts and under, the  $I_R$  limit is doubled.

# SA5V0(C)A-SA170(C)A

500W Transient Voltage Suppressor

| Type Number<br>(Suffix C =<br>Bidirectional)<br>(Note 1) | Reverse<br>Standoff<br>Voltage | Breakdown Voltage<br>$V_{BR}$ @ $I_t$ |         | Test<br>Current | Max.<br>Clamping<br>Voltage<br>@ $I_{PP}$ | Max.<br>Peak<br>Pulse Current | Max.<br>Reverse<br>Leakage<br>@ $V_R$<br>(Note 2) | Max. Voltage<br>Temp.<br>Variation of $V_{BR}$ |
|----------------------------------------------------------|--------------------------------|---------------------------------------|---------|-----------------|-------------------------------------------|-------------------------------|---------------------------------------------------|------------------------------------------------|
|                                                          | $V_R$ (V)                      | Min (V)                               | Max (V) | $I_t$ (mA)      | $V_C$ (V)                                 | $I_{PP}$ (A)                  | $I_R$ ( $\mu$ A)                                  | mV/°C                                          |
| SA5V0(C)A                                                | 5.0                            | 6.40                                  | 7.00    | 10              | 9.2                                       | 54.3                          | 600                                               | 5.0                                            |
| SA6V0(C)A                                                | 6.0                            | 6.67                                  | 7.37    | 10              | 10.3                                      | 48.5                          | 600                                               | 5.0                                            |
| SA6V5(C)A                                                | 6.5                            | 7.22                                  | 7.98    | 10              | 11.2                                      | 44.7                          | 400                                               | 5.0                                            |
| SA7V0(C)A                                                | 7.0                            | 7.78                                  | 8.60    | 10              | 12.0                                      | 41.7                          | 150                                               | 6.0                                            |
| SA7V5(C)A                                                | 7.5                            | 8.33                                  | 9.21    | 1.0             | 12.9                                      | 38.8                          | 50                                                | 7.0                                            |
| SA8V0(C)A                                                | 8.0                            | 8.89                                  | 9.83    | 1.0             | 13.6                                      | 36.7                          | 25                                                | 7.0                                            |
| SA8V5(C)A                                                | 8.5                            | 9.44                                  | 10.4    | 1.0             | 14.4                                      | 34.7                          | 10                                                | 8.0                                            |
| SA9V0(C)A                                                | 9.0                            | 10.0                                  | 11.1    | 1.0             | 15.4                                      | 32.5                          | 5.0                                               | 9.0                                            |
| SA10(C)A                                                 | 10                             | 11.1                                  | 12.3    | 1.0             | 17.0                                      | 29.4                          | 3.0                                               | 10                                             |
| SA11(C)A                                                 | 11                             | 12.2                                  | 13.5    | 1.0             | 18.2                                      | 27.4                          | 3.0                                               | 11                                             |
| SA12(C)A                                                 | 12                             | 13.3                                  | 14.7    | 1.0             | 19.9                                      | 25.1                          | 3.0                                               | 12                                             |
| SA13(C)A                                                 | 13                             | 14.4                                  | 15.9    | 1.0             | 21.5                                      | 23.2                          | 3.0                                               | 13                                             |
| SA14(C)A                                                 | 14                             | 15.6                                  | 17.2    | 1.0             | 23.2                                      | 21.5                          | 3.0                                               | 14                                             |
| SA15(C)A                                                 | 15                             | 16.7                                  | 18.5    | 1.0             | 24.4                                      | 20.6                          | 3.0                                               | 16                                             |
| SA16(C)A                                                 | 16                             | 17.8                                  | 19.7    | 1.0             | 26.0                                      | 19.2                          | 3.0                                               | 17                                             |
| SA17(C)A                                                 | 17                             | 18.9                                  | 20.9    | 1.0             | 27.6                                      | 18.1                          | 3.0                                               | 19                                             |
| SA18(C)A                                                 | 18                             | 20.0                                  | 22.1    | 1.0             | 29.2                                      | 17.2                          | 3.0                                               | 20                                             |
| SA20(C)A                                                 | 20                             | 22.2                                  | 24.5    | 1.0             | 32.4                                      | 15.4                          | 3.0                                               | 23                                             |
| SA22(C)A                                                 | 22                             | 24.4                                  | 26.9    | 1.0             | 35.5                                      | 14.1                          | 3.0                                               | 25                                             |
| SA24(C)A                                                 | 24                             | 26.7                                  | 29.5    | 1.0             | 38.9                                      | 12.8                          | 3.0                                               | 28                                             |
| SA26(C)A                                                 | 26                             | 28.9                                  | 31.9    | 1.0             | 42.1                                      | 11.9                          | 3.0                                               | 30                                             |
| SA28(C)A                                                 | 28                             | 31.1                                  | 34.4    | 1.0             | 45.4                                      | 11.0                          | 3.0                                               | 31                                             |
| SA30(C)A                                                 | 30                             | 33.3                                  | 36.8    | 1.0             | 48.4                                      | 10.3                          | 3.0                                               | 36                                             |
| SA33(C)A                                                 | 33                             | 36.7                                  | 40.6    | 1.0             | 53.3                                      | 9.4                           | 3.0                                               | 39                                             |
| SA36(C)A                                                 | 36                             | 40.0                                  | 44.2    | 1.0             | 58.1                                      | 8.6                           | 3.0                                               | 41                                             |
| SA40(C)A                                                 | 40                             | 44.4                                  | 49.1    | 1.0             | 64.5                                      | 7.8                           | 3.0                                               | 46                                             |
| SA43(C)A                                                 | 43                             | 47.8                                  | 52.8    | 1.0             | 69.4                                      | 7.2                           | 3.0                                               | 50                                             |
| SA45(C)A                                                 | 45                             | 50.0                                  | 55.3    | 1.0             | 72.7                                      | 6.9                           | 3.0                                               | 52                                             |
| SA48(C)A                                                 | 48                             | 53.3                                  | 58.9    | 1.0             | 77.4                                      | 6.5                           | 3.0                                               | 56                                             |
| SA51(C)A                                                 | 51                             | 56.7                                  | 62.7    | 1.0             | 82.4                                      | 6.1                           | 3.0                                               | 61                                             |
| SA54(C)A                                                 | 54                             | 60.0                                  | 66.3    | 1.0             | 87.1                                      | 5.7                           | 3.0                                               | 65                                             |
| SA58(C)A                                                 | 58                             | 64.4                                  | 71.2    | 1.0             | 93.6                                      | 5.3                           | 3.0                                               | 70                                             |
| SA60(C)A                                                 | 60                             | 66.7                                  | 73.7    | 1.0             | 96.8                                      | 5.2                           | 3.0                                               | 71                                             |
| SA64(C)A                                                 | 64                             | 71.1                                  | 78.6    | 1.0             | 103.0                                     | 4.9                           | 3.0                                               | 76                                             |
| SA70(C)A                                                 | 70                             | 77.8                                  | 86.0    | 1.0             | 113.0                                     | 4.4                           | 3.0                                               | 85                                             |
| SA75(C)A                                                 | 75                             | 83.3                                  | 92.1    | 1.0             | 121.0                                     | 4.1                           | 3.0                                               | 91                                             |
| SA78(C)A                                                 | 78                             | 86.7                                  | 95.8    | 1.0             | 126.0                                     | 4.0                           | 3.0                                               | 95                                             |
| SA85(C)A                                                 | 85                             | 94.4                                  | 104.0   | 1.0             | 137.0                                     | 3.6                           | 3.0                                               | 103                                            |
| SA90(C)A                                                 | 90                             | 100                                   | 111.0   | 1.0             | 146.0                                     | 3.4                           | 3.0                                               | 110                                            |
| SA100(C)A                                                | 100                            | 111                                   | 123.0   | 1.0             | 162.0                                     | 3.1                           | 3.0                                               | 123                                            |
| SA110(C)A                                                | 110                            | 122                                   | 135.0   | 1.0             | 177.0                                     | 2.8                           | 3.0                                               | 133                                            |
| SA120(C)A                                                | 120                            | 133                                   | 147.0   | 1.0             | 193.0                                     | 2.6                           | 3.0                                               | 146                                            |
| SA130(C)A                                                | 130                            | 144                                   | 159.0   | 1.0             | 209.0                                     | 2.4                           | 3.0                                               | 158                                            |
| SA150(C)A                                                | 150                            | 167                                   | 185.0   | 1.0             | 243.0                                     | 2.1                           | 3.0                                               | 184                                            |
| SA160(C)A                                                | 160                            | 178                                   | 197.0   | 1.0             | 259.0                                     | 1.9                           | 3.0                                               | 196                                            |
| SA170(C)A                                                | 170                            | 189                                   | 209.0   | 1.0             | 275.0                                     | 1.8                           | 3.0                                               | 208                                            |

Notes: 1. Suffix "A" denotes unidirectional, suffix "CA" denotes bi-directional device.  
2. For bi-directional devices having  $V_R$  of 10 volts and under, the  $I_R$  limit is doubled.

# SA5V0(C)A-SA170(C)A

500W Transient Voltage Suppressor

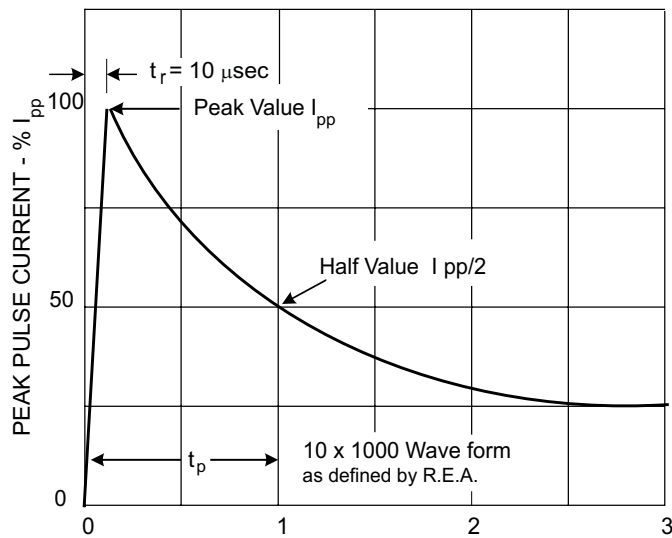


Fig. 1, Pulse Waveform

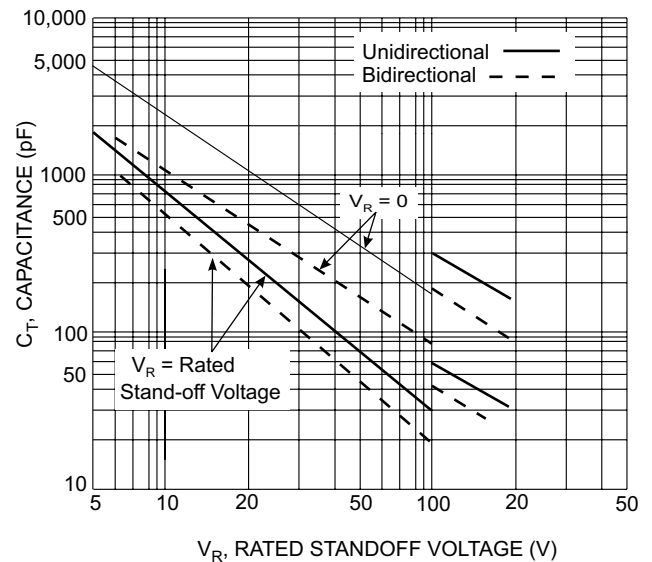


Fig. 2, Typical Total Capacitance

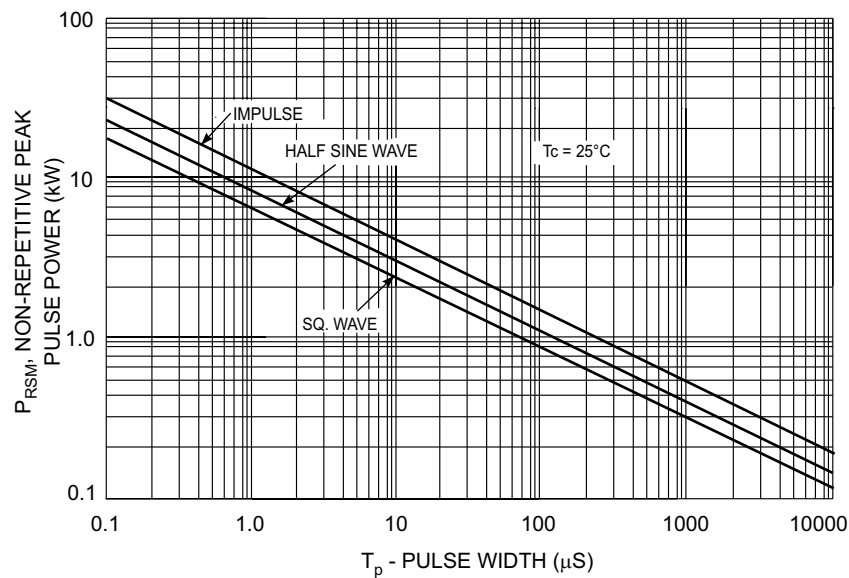


Fig. 3, Peak Pulse Power Derating

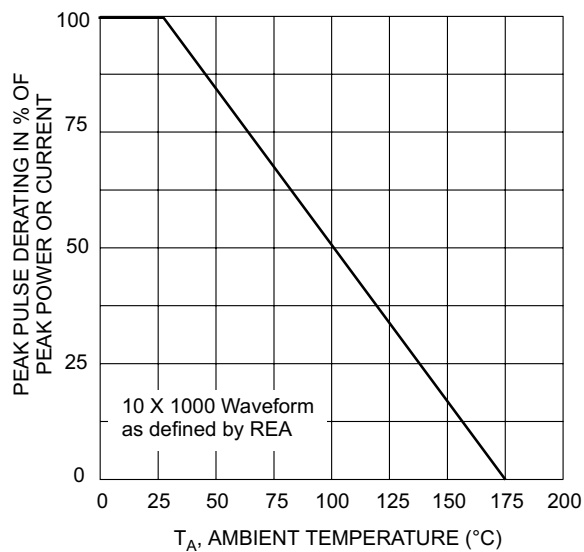


Fig. 4, Derating Curve

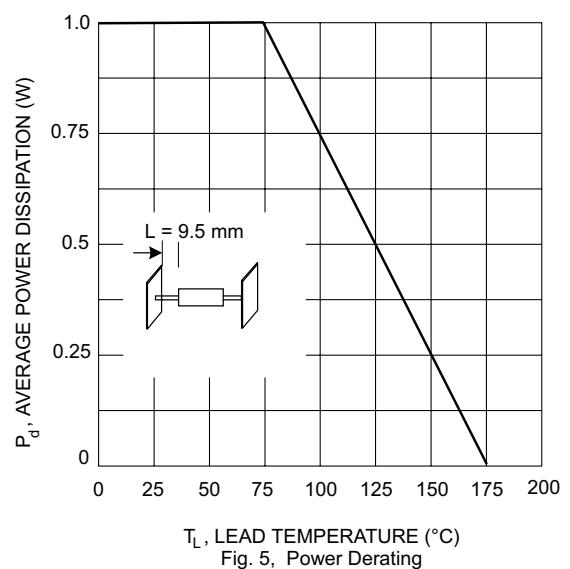


Fig. 5, Power Derating