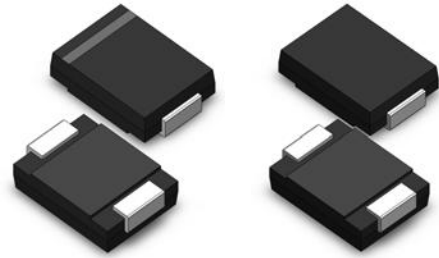


### 1.Description

AEC series, 1500W transient voltage suppressor (TVS) in DO-214AB package, designed to protect electronic circuit which induced by lightning surge or other transient voltage situation.



### 2.Features

- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Meets MSL level 1, per J-STD-020
- 1500W peak pulse power capability at 10/1000 $\mu$ s waveform, repetition rate (duty cycle): 0.01%
- Fast response time
- Typical IR less than 1 $\mu$ A above 10V
- Plastic package has underwriters laboratory flammability 94V-0
- High Temperature soldering: 260 $^{\circ}$ C/10 seconds at terminals

### 3.Mechanical Data

- Case: JEDEC DO-214AB. Molded plastic over glass passivated junction
- Terminal: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denotes cathode except bi-directional models
- Standard Packaging: 12mm tape
- Weight: 0.25g

### 4.Maximum Ratings and Characteristics

Ratings at 25 $^{\circ}$ C ambient temperature unless otherwise specified

| Rating                                                                                            | Symbol                             | Value        | Units          |
|---------------------------------------------------------------------------------------------------|------------------------------------|--------------|----------------|
| Peak pulse power dissipation at 10/1000us waveform                                                | P <sub>PPM</sub>                   | Minimum 1500 | W              |
| Peak pulse current of at 10/1000us waveform                                                       | I <sub>PPM</sub>                   | See Table    | A              |
| Steady state power dissipation at TA=50 $^{\circ}$ C                                              | P <sub>M(AV)</sub>                 | 6.5          | W              |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | I <sub>FSM</sub>                   | 200          | A              |
| Operating junction and Storage Temperature Range                                                  | T <sub>J</sub> , T <sub>STG</sub>  | -65 to 150   | $^{\circ}$ C   |
| Typical thermal resistance junction to lead                                                       | R <sub><math>\theta</math>JL</sub> | 15           | $^{\circ}$ C/W |
| Typical thermal resistance junction to ambient                                                    | R <sub><math>\theta</math>JA</sub> | 75           | $^{\circ}$ C/W |

## Notes:

1. Non-repetitive current pulse, per Fig.3 and derated above TA=25°C per Fig.2.
2. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.
3. Mounted on 8.0mm×8.0mm copper pads to each terminal.

## 5.Electrical Characteristics (TA=25°C)

| Part Number | Part Number | Marking |     | Reverse Stand off Voltage V <sub>R</sub> (Volts) | Breakdown Voltage V <sub>BR</sub> (Volts) @ I <sub>T</sub> |      | Test Current I <sub>T</sub> (mA) | Maximum Clamping Voltage V <sub>C</sub> @ I <sub>pp</sub> (V) | Maximum Peak Pulse Current I <sub>pp</sub> (A) | Maximum Reverse Leakage I <sub>R</sub> @ V <sub>R</sub> (μA) | ROHS2.0 |
|-------------|-------------|---------|-----|--------------------------------------------------|------------------------------------------------------------|------|----------------------------------|---------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------|---------|
|             |             | UNI     | BI  |                                                  | MIN                                                        | MAX  |                                  |                                                               |                                                |                                                              |         |
| AEC5.0AA0   | AEC5.0CAA0  | GDE     | BDE | 5                                                | 6.4                                                        | 7    | 10                               | 9.2                                                           | 163                                            | 400                                                          | y       |
| AEC6.0AA0   | AEC6.0CAA0  | GDG     | BDG | 6                                                | 6.67                                                       | 7.37 | 10                               | 10.3                                                          | 145.7                                          | 400                                                          | y       |
| AEC6.5AA0   | AEC6.5CAA0  | GDK     | BDK | 6.5                                              | 7.22                                                       | 7.98 | 10                               | 11.2                                                          | 134                                            | 250                                                          | y       |
| AEC7.0AA0   | AEC7.0CAA0  | GDM     | BDM | 7                                                | 7.78                                                       | 8.6  | 10                               | 12                                                            | 125                                            | 100                                                          | y       |
| AEC7.5AA0   | AEC7.5CAA0  | GDP     | BDP | 7.5                                              | 8.33                                                       | 9.21 | 1                                | 12.9                                                          | 116.3                                          | 80                                                           | y       |
| AEC8.0AA0   | AEC8.0CAA0  | GDR     | BDR | 8                                                | 8.89                                                       | 9.83 | 1                                | 13.6                                                          | 110.3                                          | 50                                                           | y       |
| AEC8.5AA0   | AEC8.5CAA0  | GDT     | BDT | 8.5                                              | 9.44                                                       | 10.4 | 1                                | 14.4                                                          | 104.2                                          | 20                                                           | y       |
| AEC9.0AA0   | AEC9.0CAA0  | GDV     | BDV | 9                                                | 10                                                         | 11.1 | 1                                | 15.4                                                          | 97.4                                           | 10                                                           | y       |
| AEC10AA0    | AEC10CAA0   | GDX     | BDX | 10                                               | 11                                                         | 12.3 | 1                                | 17                                                            | 88.3                                           | 5                                                            | y       |
| AEC11AA0    | AEC11CAA0   | GDZ     | BDZ | 11                                               | 12.2                                                       | 13.5 | 1                                | 18.2                                                          | 82.5                                           | 1                                                            | y       |
| AEC12AA0    | AEC12CAA0   | GEE     | BEE | 12                                               | 13.3                                                       | 14.7 | 1                                | 19.9                                                          | 75.4                                           | 1                                                            | y       |
| AEC13AA0    | AEC13CAA0   | GEG     | BEG | 13                                               | 14.4                                                       | 15.9 | 1                                | 21.5                                                          | 69.8                                           | 1                                                            | y       |
| AEC14AA0    | AEC14CAA0   | GEK     | BEK | 14                                               | 15.6                                                       | 17.2 | 1                                | 23.2                                                          | 64.7                                           | 1                                                            | y       |
| AEC15AA0    | AEC15CAA0   | GEM     | BEM | 15                                               | 16.7                                                       | 18.5 | 1                                | 24.4                                                          | 61.5                                           | 1                                                            | y       |
| AEC16AA0    | AEC16CAA0   | GEP     | BEP | 16                                               | 17.8                                                       | 19.7 | 1                                | 26                                                            | 57.7                                           | 1                                                            | y       |
| AEC17AA0    | AEC17CAA0   | GER     | BER | 17                                               | 18.9                                                       | 20.9 | 1                                | 27.6                                                          | 54.4                                           | 1                                                            | y       |
| AEC18AA0    | AEC18CAA0   | GET     | BET | 18                                               | 20                                                         | 22.1 | 1                                | 29.2                                                          | 51.4                                           | 1                                                            | y       |
| AEC20AA0    | AEC20CAA0   | GEV     | BEV | 20                                               | 22.2                                                       | 24.5 | 1                                | 32.4                                                          | 46.3                                           | 1                                                            | y       |
| AEC22AA0    | AEC22CAA0   | GEX     | BEX | 22                                               | 24.4                                                       | 26.9 | 1                                | 35.5                                                          | 42.3                                           | 1                                                            | y       |
| AEC24AA0    | AEC24CAA0   | GEZ     | BEZ | 24                                               | 26.7                                                       | 29.5 | 1                                | 38.9                                                          | 38.6                                           | 1                                                            | y       |
| AEC26AA0    | AEC26CAA0   | GFE     | BFE | 26                                               | 28.9                                                       | 31.9 | 1                                | 42.1                                                          | 35.7                                           | 1                                                            | y       |
| AEC28AA0    | AEC28CAA0   | GFG     | BFG | 28                                               | 31.1                                                       | 34.4 | 1                                | 45.4                                                          | 33.1                                           | 1                                                            | y       |
| AEC30AA0    | AEC30CAA0   | GFK     | BFK | 30                                               | 33.3                                                       | 36.8 | 1                                | 48.4                                                          | 31                                             | 1                                                            | y       |
| AEC33AA0    | AEC33CAA0   | GFM     | BFM | 33                                               | 36.7                                                       | 40.6 | 1                                | 53.3                                                          | 28.2                                           | 1                                                            | y       |
| AEC36AA0    | AEC36CAA0   | GFP     | BFP | 36                                               | 40                                                         | 44.2 | 1                                | 58.1                                                          | 25.9                                           | 1                                                            | y       |
| AEC40AA0    | AEC40CAA0   | GFR     | BFR | 40                                               | 44.4                                                       | 49.1 | 1                                | 64.5                                                          | 23.3                                           | 1                                                            | y       |
| AEC43AA0    | AEC43CAA0   | GFT     | BFT | 43                                               | 47.8                                                       | 52.8 | 1                                | 69.4                                                          | 21.7                                           | 1                                                            | y       |

| Part Number | Part Number | Marking |     | Reverse Stand off Voltage $V_R$ (Volts) | Breakdown Voltage $V_{BR}$ (Volts) @ $I_T$ |      | Test Current $I_T$ (mA) | Maximum Clamping Voltage $V_C @ I_{PP}$ (V) | Maximum Peak Pulse Current $I_{PP}$ (A) | Maximum Reverse Leakage $I_R @ V_R$ ( $\mu A$ ) | ROHS2.0 |
|-------------|-------------|---------|-----|-----------------------------------------|--------------------------------------------|------|-------------------------|---------------------------------------------|-----------------------------------------|-------------------------------------------------|---------|
|             |             |         |     |                                         |                                            |      |                         |                                             |                                         |                                                 |         |
| UNI         | BI          | UNI     | BI  | (Volts)                                 | MIN                                        | MAX  | (mA)                    | (V)                                         |                                         |                                                 |         |
| AEC45AA0    | AEC45CAA0   | GFV     | BFV | 45                                      | 50                                         | 55.3 | 1                       | 72.7                                        | 20.6                                    | 1                                               | y       |
| AEC48AA0    | AEC48CAA0   | GFX     | BFX | 48                                      | 53.3                                       | 58.9 | 1                       | 77.4                                        | 19.4                                    | 1                                               | y       |
| AEC51AA0    | AEC51CAA0   | GFZ     | BFZ | 51                                      | 56.7                                       | 62.7 | 1                       | 82.4                                        | 18.2                                    | 1                                               | y       |
| AEC54AA0    | AEC54CAA0   | GGE     | BGE | 54                                      | 60                                         | 66.3 | 1                       | 87.1                                        | 17.3                                    | 1                                               | y       |
| AEC58AA0    | AEC58CAA0   | GGG     | BGG | 58                                      | 64.4                                       | 71.2 | 1                       | 93.6                                        | 16.1                                    | 1                                               | y       |
| AEC60AA0    | AEC60CAA0   | GGK     | BGK | 60                                      | 66.7                                       | 73.7 | 1                       | 96.8                                        | 15.5                                    | 1                                               | y       |
| AEC64AA0    | AEC64CAA0   | GGM     | BGM | 64                                      | 71.1                                       | 78.6 | 1                       | 103                                         | 14.6                                    | 1                                               | y       |
| AEC70AA0    | AEC70CAA0   | GGP     | BGP | 70                                      | 77.8                                       | 86   | 1                       | 113                                         | 13.3                                    | 1                                               | y       |
| AEC75AA0    | AEC75CAA0   | GGR     | BGR | 75                                      | 83.3                                       | 92.1 | 1                       | 121                                         | 12.4                                    | 1                                               | y       |
| AEC78AA0    | AEC78CAA0   | GGT     | BGT | 78                                      | 86.7                                       | 95.8 | 1                       | 126                                         | 11.9                                    | 1                                               | y       |
| AEC85AA0    | AEC85CAA0   | GGV     | BGV | 85                                      | 94.4                                       | 104  | 1                       | 137                                         | 11                                      | 1                                               | y       |
| AEC90AA0    | AEC90CAA0   | GGX     | BGX | 90                                      | 100                                        | 111  | 1                       | 146                                         | 10.3                                    | 1                                               | y       |
| AEC100AA0   | AEC100CAA0  | GGZ     | BGZ | 100                                     | 111                                        | 123  | 1                       | 162                                         | 9.3                                     | 1                                               | y       |
| AEC110AA0   | AEC110CAA0  | GHE     | BHE | 110                                     | 122                                        | 135  | 1                       | 177                                         | 8.5                                     | 1                                               | y       |
| AEC120AA0   | AEC120CAA0  | GHG     | BHG | 120                                     | 133                                        | 147  | 1                       | 193                                         | 7.8                                     | 1                                               | y       |
| AEC130AA0   | AEC130CAA0  | GHK     | BHK | 130                                     | 144                                        | 159  | 1                       | 209                                         | 7.2                                     | 1                                               | y       |
| AEC150AA0   | AEC150CAA0  | GHM     | BHM | 150                                     | 167                                        | 185  | 1                       | 243                                         | 6.2                                     | 1                                               | y       |
| AEC160AA0   | AEC160CAA0  | GHP     | BHP | 160                                     | 178                                        | 197  | 1                       | 259                                         | 5.8                                     | 1                                               | y       |
| AEC170AA0   | AEC170CAA0  | GHR     | BHR | 170                                     | 189                                        | 209  | 1                       | 275                                         | 5.5                                     | 1                                               | y       |
| AEC180AA0   | AEC180CAA0  | GHT     | BHT | 180                                     | 201                                        | 222  | 1                       | 292                                         | 5.1                                     | 1                                               | y       |
| AEC200AA0   | AEC200CAA0  | GHV     | BHV | 200                                     | 224                                        | 247  | 1                       | 324                                         | 4.6                                     | 1                                               | y       |
| AEC220AA0   | AEC220CAA0  | GHX     | BHX | 220                                     | 246                                        | 272  | 1                       | 356                                         | 4.2                                     | 1                                               | y       |
| AEC250AA0   | AEC250CAA0  | GHZ     | BHZ | 250                                     | 279                                        | 309  | 1                       | 405                                         | 3.7                                     | 1                                               | y       |
| AEC300AA0   | AEC300CAA0  | GJE     | BJE | 300                                     | 335                                        | 371  | 1                       | 486                                         | 3.1                                     | 1                                               | y       |
| AEC350AA0   | AEC350CAA0  | GJG     | BJG | 350                                     | 391                                        | 432  | 1                       | 567                                         | 2.6                                     | 1                                               | y       |
| AEC400AA0   | AEC400CAA0  | GJK     | BJK | 400                                     | 447                                        | 494  | 1                       | 648                                         | 2.3                                     | 1                                               | y       |
| AEC440AA0   | AEC440CAA0  | GJM     | BJM | 440                                     | 492                                        | 543  | 1                       | 713                                         | 2.1                                     | 1                                               | y       |

For bidirectional type having  $V_R$  of 10 volts and less, the  $I_R$  limit is double.

## 6. Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

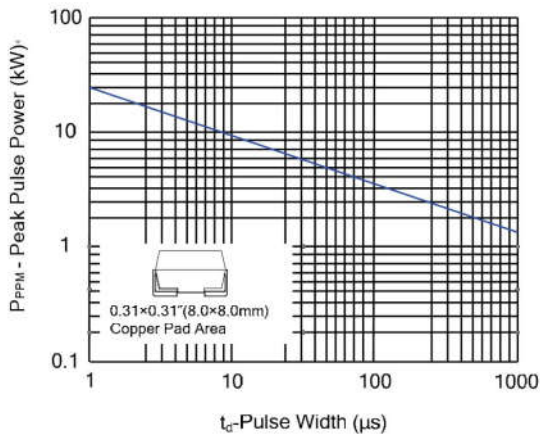


Figure 2 Pulse Derating Curve

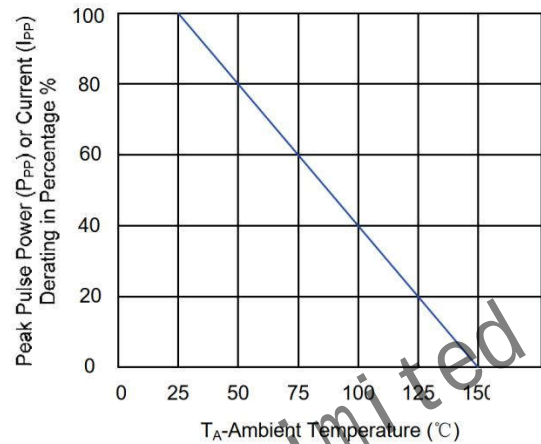


Figure 3 Pulse Waveform

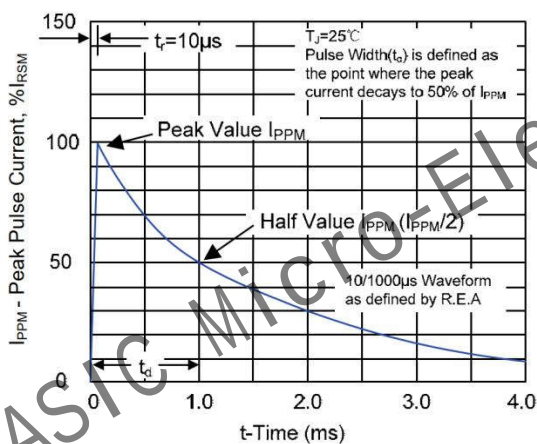


Figure 4 Typical Junction Capacitance

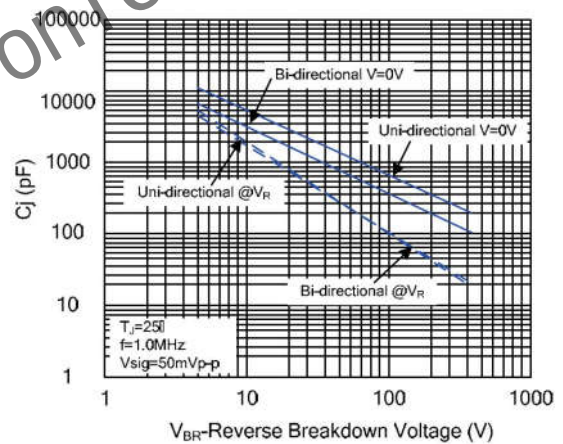


Figure 5 Steady State Power Dissipation Derating Curve

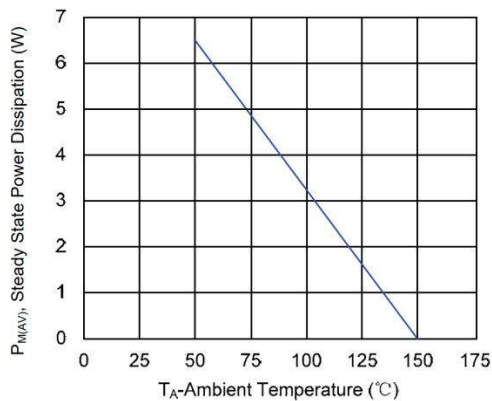
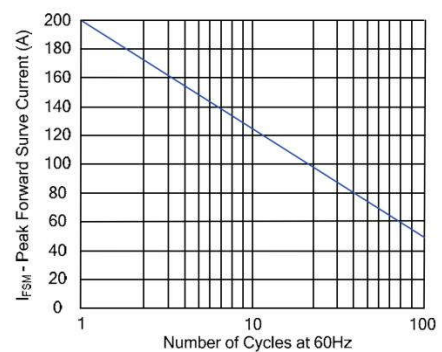
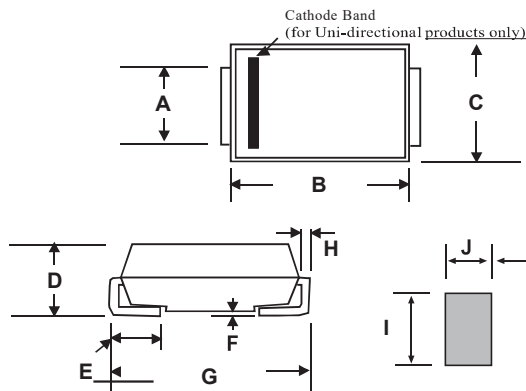


Figure 6 Maximum Non-Repetitive Forward Surge Current  
Uni-Directional Only



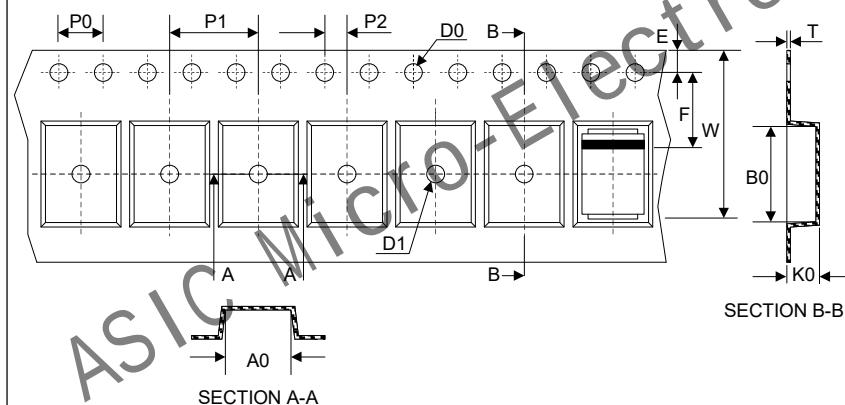
## 7.Dimension (SMC/DO-214AB)



| Dimensions | Inches |       | Millimeters |       |
|------------|--------|-------|-------------|-------|
|            | Min    | Max   | Min         | Max   |
| A          | 0.11   | 0.126 | 2.8         | 3.2   |
| B          | 0.26   | 0.28  | 6.6         | 7.11  |
| C          | 0.22   | 0.245 | 5.59        | 6.22  |
| D          | 0.079  | 0.111 | 2.06        | 2.83  |
| E          | 0.03   | 0.063 | 0.76        | 1.6   |
| F          | -      | 0.012 | -           | 0.3   |
| G          | 0.301  | 0.321 | 7.65        | 8.15  |
| H          | 0.006  | 0.012 | 0.152       | 0.305 |
| I          | 0.129  | -     | 3.3         | -     |
| J          | 0.094  | -     | 2.4         | -     |
| K          | -      | 0.165 | -           | 4.2   |
| L          | 0.094  | -     | 2.4         | -     |

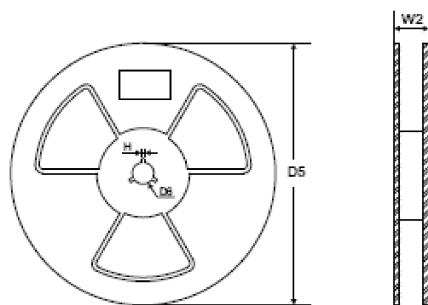
## 8. Packaging

### Tape



| Symbol            | Dimension (mm) |
|-------------------|----------------|
| W                 | 16.00±0.20     |
| P0                | 4.00±0.10      |
| P1                | 8.00±0.10      |
| P2                | 2.00±0.10      |
| D0                | Φ1.5±0.10      |
| D1                | Φ1.5±0.10      |
| E                 | 1.75±0.10      |
| F                 | 7.50±0.10      |
| A0                | 6.27±0.10      |
| B0                | 8.30±0.10      |
| K0                | 3.15±0.15      |
| T                 | 0.30±0.05      |
| D5                | Φ330.0±2.0     |
| D6                | Φ13.5±0.5      |
| H                 | 2.5±1.0        |
| W2                | 20.0±3.0       |
| Quantity: 3000PCS |                |

### 13" Reel



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