

**Surface Mount Transient Voltage Suppressor Rectifiers**  
**Reverse Voltage 11 ~ 440 V 5000 Watt Peak Pulse Power**

**FEATURES**

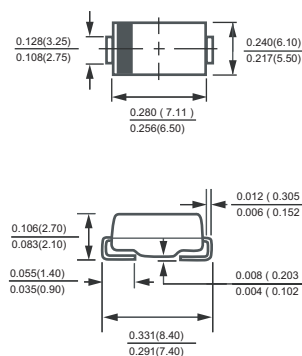
- \* Excellent clamping capability
- \* Glass passivated chip construction
- \* 5000 W peak pulse power capability with a 10/1000 us waveform, repetitive rate (duty cycle):0.01 %
- \* Low zener impedance
- \* Fast response time
- \* P/N suffix V means AEC-Q101 qualified, e.g:5.0SMCJ11AV
- \* P/N suffix V means Halogen-free

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified.



**DO-214AB**



Dimensions in inches and (millimeters)

**Maximum Ratings & Characteristics** Ratings at 25 °C ambient temperature unless otherwise specified.

| Parameter                                                                                  | Symbols                           | Value          | Unit             |
|--------------------------------------------------------------------------------------------|-----------------------------------|----------------|------------------|
| Peak power dissipation with a 10/1000 us waveform <sup>(1)</sup>                           | P <sub>PP</sub>                   | 5000           | W                |
| Peak pulse current with a 10/1000 us waveform <sup>(1)</sup>                               | I <sub>PP</sub>                   | See Next Table | A                |
| Power dissipation on infinite heatsink at TL = 75 °C                                       | P <sub>D</sub>                    | 6.5            | W                |
| Peak forward surge current, 8.3 ms single half sinewave unidirectional only <sup>(2)</sup> | I <sub>FSM</sub>                  | 300            | A                |
| Typical Current Squared Time                                                               | I <sup>2</sup> t                  | 374            | A <sup>2</sup> S |
| Maximum instantaneous forward voltage at 100 A for unidirectional only <sup>(3)</sup>      | V <sub>F</sub>                    | 3.5/6.5        | V                |
| Operating junction and storage temperature range                                           | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150    |                  |

Note:

- 1)Non-repetitive current pulse per Fig.5 and derated above TA= 25 °C per Fig.1 ;
- 2)Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum ;
- 3)V<sub>F</sub><3.5V for devices of VBR<200V and V<sub>F</sub><6.5V for devices of VBR>201V.

2018-11/31  
REV:B

## RATING AND CHARACTERISTICS CURVES (5.0SMCJ SERIES)

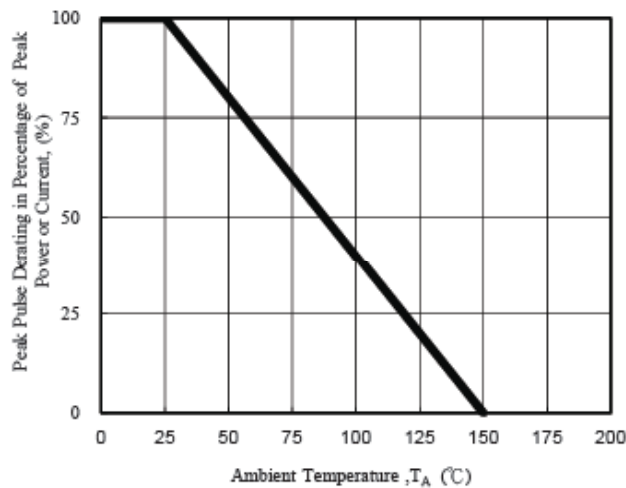


Fig. 1 - Pulse Derating Curve

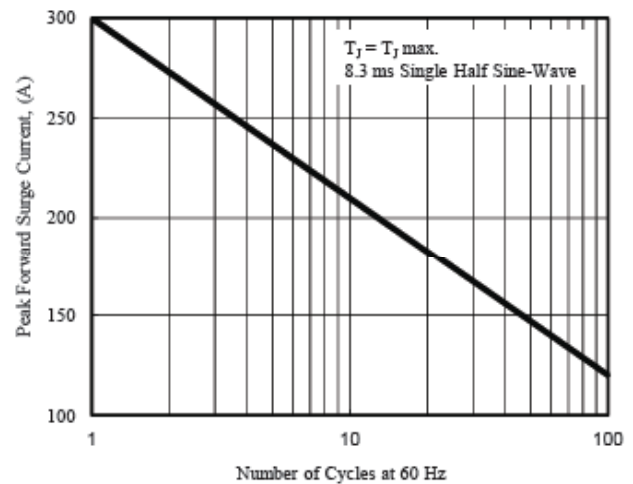


Fig. 2 - Maximum Non-Repetitive Surge Current

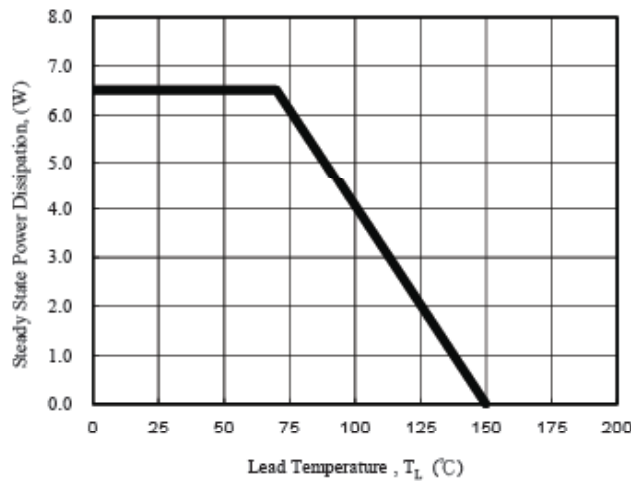


Fig. 3 - Steady State Power Derating Curve

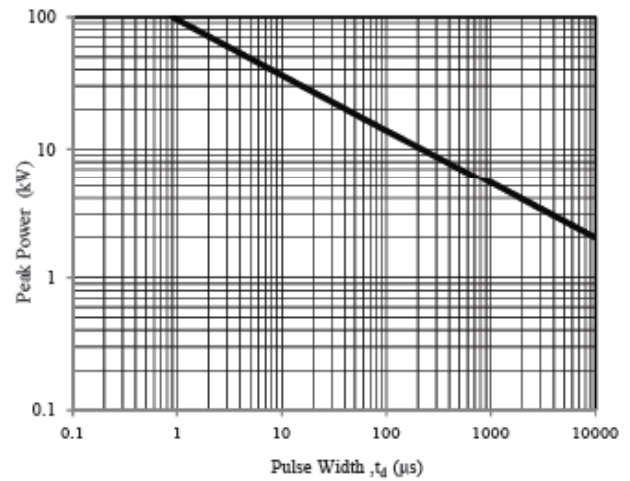


Fig. 4 - Peak Pulse Power Rating Curve

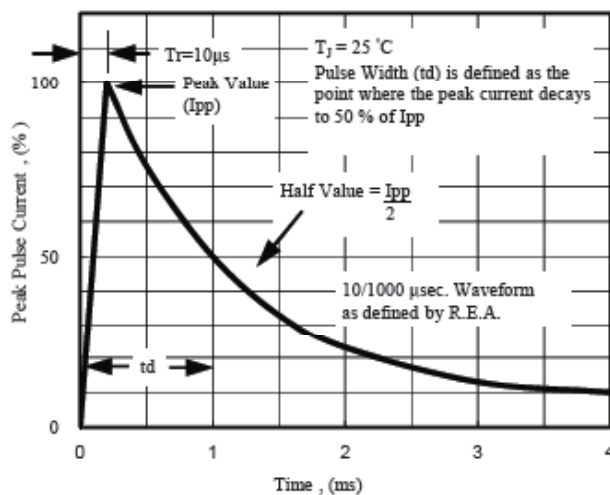


Fig. 5 - Pulse Waveform

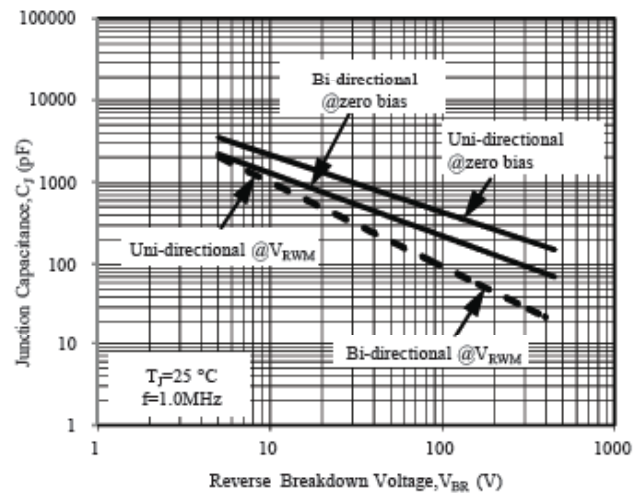
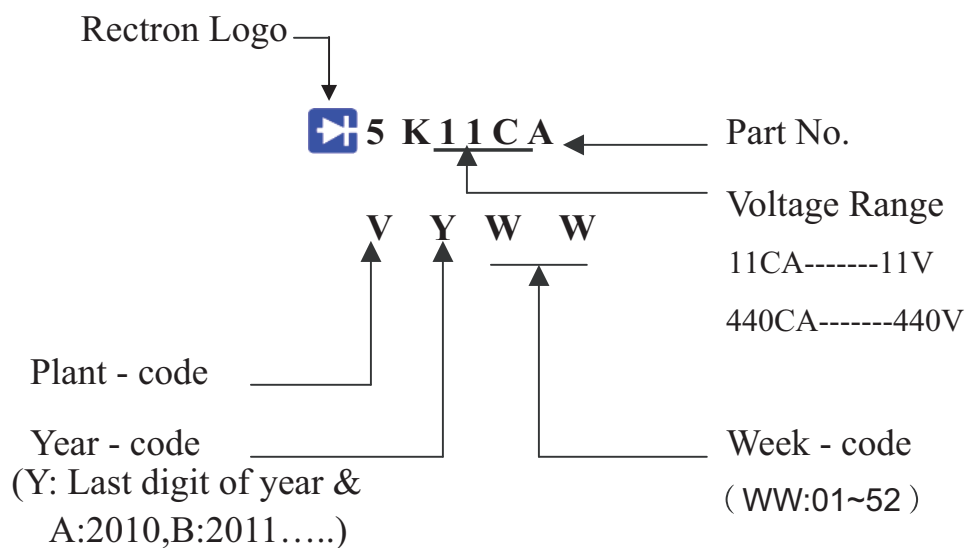
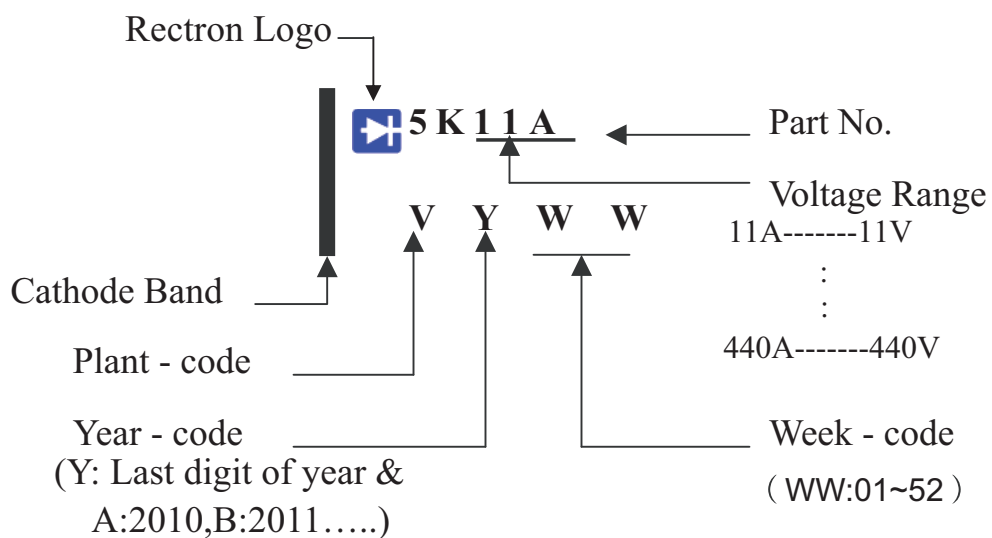


Fig. 6 - Typical Junction Capacitance

| TYPE        |              | Reverse Stand-off Voltage | Breakdown Voltage V <sub>br</sub> @IT |            | Test current | Maximum Clamping Voltage@ I <sub>pp</sub> | Max.Peak Pulse Current | Max.Reverse Leakage@ V <sub>rw</sub> |
|-------------|--------------|---------------------------|---------------------------------------|------------|--------------|-------------------------------------------|------------------------|--------------------------------------|
| UNI-POLAR   | BI-POLAR     | V <sub>rw</sub> (Volts)   | Min(Volts)                            | Max(Volts) | IT(mA)       | V <sub>c</sub> Max(Volts)                 | I <sub>pp</sub> (A)    | IR(μA)                               |
| 5.0SMCJ11A  | 5.0SMCJ11CA  | 11                        | 12.2                                  | 13.5       | 10           | 18.2                                      | 274.7                  | 800                                  |
| 5.0SMCJ12A  | 5.0SMCJ12CA  | 12                        | 13.3                                  | 14.7       | 10           | 19.9                                      | 251.3                  | 800                                  |
| 5.0SMCJ13A  | 5.0SMCJ13CA  | 13                        | 14.4                                  | 15.9       | 10           | 21.5                                      | 232.6                  | 500                                  |
| 5.0SMCJ14A  | 5.0SMCJ14CA  | 14                        | 15.6                                  | 17.2       | 10           | 23.2                                      | 215.5                  | 200                                  |
| 5.0SMCJ15A  | 5.0SMCJ15CA  | 15                        | 16.7                                  | 18.5       | 1            | 24.4                                      | 204.9                  | 100                                  |
| 5.0SMCJ16A  | 5.0SMCJ16CA  | 16                        | 17.8                                  | 19.7       | 1            | 26                                        | 192.3                  | 50                                   |
| 5.0SMCJ17A  | 5.0SMCJ17CA  | 17                        | 18.9                                  | 20.9       | 1            | 27.6                                      | 181.2                  | 20                                   |
| 5.0SMCJ18A  | 5.0SMCJ18CA  | 18                        | 20                                    | 22.1       | 1            | 29.2                                      | 171.2                  | 10                                   |
| 5.0SMCJ20A  | 5.0SMCJ20CA  | 20                        | 22.2                                  | 24.5       | 1            | 32.4                                      | 154.3                  | 5                                    |
| 5.0SMCJ22A  | 5.0SMCJ22CA  | 22                        | 24.4                                  | 26.9       | 1            | 35.5                                      | 140.8                  | 5                                    |
| 5.0SMCJ24A  | 5.0SMCJ24CA  | 24                        | 26.7                                  | 29.5       | 1            | 38.9                                      | 128.5                  | 5                                    |
| 5.0SMCJ26A  | 5.0SMCJ26CA  | 26                        | 28.9                                  | 31.9       | 1            | 42.1                                      | 118.8                  | 5                                    |
| 5.0SMCJ28A  | 5.0SMCJ28CA  | 28                        | 31.1                                  | 34.4       | 1            | 45.4                                      | 110.1                  | 5                                    |
| 5.0SMCJ30A  | 5.0SMCJ30CA  | 30                        | 33.3                                  | 36.8       | 1            | 48.4                                      | 103.3                  | 5                                    |
| 5.0SMCJ33A  | 5.0SMCJ33CA  | 33                        | 36.7                                  | 40.6       | 1            | 53.3                                      | 93.8                   | 5                                    |
| 5.0SMCJ36A  | 5.0SMCJ36CA  | 36                        | 40                                    | 44.2       | 1            | 58.1                                      | 86.1                   | 5                                    |
| 5.0SMCJ40A  | 5.0SMCJ40CA  | 40                        | 44.4                                  | 49.1       | 1            | 64.5                                      | 77.5                   | 5                                    |
| 5.0SMCJ43A  | 5.0SMCJ43CA  | 43                        | 47.8                                  | 52.8       | 1            | 69.4                                      | 72                     | 5                                    |
| 5.0SMCJ45A  | 5.0SMCJ45CA  | 45                        | 50                                    | 55.3       | 1            | 72.7                                      | 68.8                   | 5                                    |
| 5.0SMCJ48A  | 5.0SMCJ48CA  | 48                        | 53.3                                  | 58.9       | 1            | 77.4                                      | 64.6                   | 5                                    |
| 5.0SMCJ51A  | 5.0SMCJ51CA  | 51                        | 56.7                                  | 62.7       | 1            | 82.4                                      | 60.7                   | 5                                    |
| 5.0SMCJ54A  | 5.0SMCJ54CA  | 54                        | 60                                    | 66.3       | 1            | 87.1                                      | 57.4                   | 5                                    |
| 5.0SMCJ58A  | 5.0SMCJ58CA  | 58                        | 64.4                                  | 71.2       | 1            | 93.6                                      | 53.4                   | 5                                    |
| 5.0SMCJ60A  | 5.0SMCJ60CA  | 60                        | 66.7                                  | 73.7       | 1            | 96.8                                      | 51.7                   | 5                                    |
| 5.0SMCJ64A  | 5.0SMCJ64CA  | 64                        | 71.1                                  | 78.6       | 1            | 103                                       | 48.5                   | 5                                    |
| 5.0SMCJ70A  | 5.0SMCJ70CA  | 70                        | 77.8                                  | 86         | 1            | 113                                       | 44.2                   | 5                                    |
| 5.0SMCJ75A  | 5.0SMCJ75CA  | 75                        | 83.3                                  | 92.1       | 1            | 121                                       | 41.3                   | 5                                    |
| 5.0SMCJ78A  | 5.0SMCJ78CA  | 78                        | 86.7                                  | 95.8       | 1            | 126                                       | 39.7                   | 5                                    |
| 5.0SMCJ85A  | 5.0SMCJ85CA  | 85                        | 94.4                                  | 104        | 1            | 137                                       | 36.5                   | 5                                    |
| 5.0SMCJ90A  | 5.0SMCJ90CA  | 90                        | 100                                   | 111        | 1            | 146                                       | 34.2                   | 5                                    |
| 5.0SMCJ100A | 5.0SMCJ100CA | 100                       | 111                                   | 123        | 1            | 162                                       | 30.9                   | 5                                    |
| 5.0SMCJ110A | 5.0SMCJ110CA | 110                       | 122                                   | 135        | 1            | 177                                       | 28.2                   | 5                                    |
| 5.0SMCJ120A | 5.0SMCJ120CA | 120                       | 133                                   | 147        | 1            | 193                                       | 25.9                   | 5                                    |
| 5.0SMCJ130A | 5.0SMCJ130CA | 130                       | 144                                   | 159        | 1            | 209                                       | 23.9                   | 5                                    |
| 5.0SMCJ150A | 5.0SMCJ150CA | 140                       | 155                                   | 171        | 1            | 226                                       | 22                     | 5                                    |
| 5.0SMCJ160A | 5.0SMCJ160CA | 150                       | 167                                   | 185        | 1            | 243                                       | 20.6                   | 5                                    |
| 5.0SMCJ170A | 5.0SMCJ170CA | 160                       | 178                                   | 197        | 1            | 259                                       | 19.3                   | 5                                    |
| 5.0SMCJ180A | 5.0SMCJ180CA | 170                       | 189                                   | 209        | 1            | 275                                       | 18.2                   | 5                                    |
| 5.0SMCJ190A | 5.0SMCJ190CA | 180                       | 200                                   | 220        | 1            | 291.6                                     | 17.1                   | 5                                    |
| 5.0SMCJ200A | 5.0SMCJ200CA | 190                       | 211                                   | 232        | 1            | 307.8                                     | 16.2                   | 5                                    |
| 5.0SMCJ210A | 5.0SMCJ210CA | 200                       | 224                                   | 247        | 1            | 324                                       | 15.4                   | 5                                    |
| 5.0SMCJ220A | 5.0SMCJ220CA | 220                       | 246                                   | 272        | 1            | 356                                       | 14                     | 5                                    |
| 5.0SMCJ250A | 5.0SMCJ250CA | 250                       | 279                                   | 309        | 1            | 405                                       | 12.3                   | 5                                    |
| 5.0SMCJ300A | 5.0SMCJ300CA | 300                       | 335                                   | 371        | 1            | 486                                       | 10.3                   | 5                                    |
| 5.0SMCJ350A | 5.0SMCJ350CA | 350                       | 391                                   | 432        | 1            | 567                                       | 8.8                    | 5                                    |
| 5.0SMCJ400A | 5.0SMCJ400CA | 400                       | 447                                   | 494        | 1            | 648                                       | 7.7                    | 5                                    |
| 5.0SMCJ440A | 5.0SMCJ440CA | 440                       | 492                                   | 543        | 1            | 713                                       | 7                      | 5                                    |



## Marking on the body



## PACKAGING OF DIODE AND BRIDGE RECTIFIERS

### REEL PACK

| PACKAGE | PACKING CODE | EA PER REEL | EA PER INNER BOX | COMPONENT SPACE (mm) | TAPE SPACE (mm) | REEL DIA (mm) | CARTON SIZE (mm) | EA PER CARTON | GROSS WEIGHT(Kg) |
|---------|--------------|-------------|------------------|----------------------|-----------------|---------------|------------------|---------------|------------------|
| SMC     | -W/-T        | 3,000       | 3,000            | ---                  | ---             | 330           | 360*355*360      | 24,000        | 11.50            |

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