

### Features

- Peak power dissipation  
1500W@10 x 1000 us Pluse
- Low incremental surge resistance
- Excellent clamping capability
- Fast response time
- Low leakage current
- Halogen free and RoHS compliant

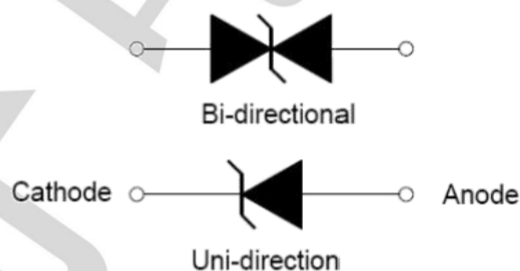
### Applications

- Personal digital assistants (PDA)
- Cellular handsets & Accessories
- Handhelds and notebooks
- Portable instrumentation

### Mechanical Characteristics

- SMC surface mount package

### Dimensions and Pin Configuration



### Pin Configuration

### Maximum Ratings& Thermal Characteristics

(Tamb=25°C unless otherwise specified)

| Parameter                                              | Symbol                            | Value     | Unit |
|--------------------------------------------------------|-----------------------------------|-----------|------|
| Peak pulse power (tp=10/1000μs waveform)               | P <sub>PPM</sub>                  | 1500      | W    |
| Steady state power dissipation at T <sub>A</sub> =50°C | P <sub>M(AV)</sub>                | 6.5       | W    |
| Peak Pulse Current of on 10/1000us Waveform            | I <sub>PPM</sub>                  | See Table | A    |
| Typical thermal resistance junction to ambient         | R <sub>θJA</sub>                  | 75        | °C/W |
| Storage & operating temperature range                  | T <sub>STG</sub> , T <sub>J</sub> | -55~+150  | °C   |

### Electrical Characteristics (TA=25°C unless otherwise specified)

| Part Number    |               | Reverse Stand-Off Voltage | Breakdown Voltage @I <sub>T</sub> | Test Current        | Maximum Clamping Voltage@I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RWM</sub> |
|----------------|---------------|---------------------------|-----------------------------------|---------------------|------------------------------------------|---------------------|-----------------------------------|
| Unidirectional | Bidirectional | V <sub>RWM</sub> (V)      | V <sub>BR</sub> (V)               | I <sub>T</sub> (mA) | V <sub>C</sub> (V)                       | I <sub>PP</sub> (A) | I <sub>R</sub> (μA)               |
| 1.5SMC6.8A     | 1.5SMC6.8CA   | 5.80                      | 6.45~7.14                         | 10                  | 10.5                                     | 144.8               | 1000                              |
| 1.5SMC7.5A     | 1.5SMC7.5CA   | 6.40                      | 7.13~7.88                         | 10                  | 11.3                                     | 134.5               | 500                               |
| 1.5SMC8.2A     | 1.5SMC8.2CA   | 7.02                      | 7.79~8.61                         | 10                  | 12.1                                     | 125.6               | 200                               |
| 1.5SMC9.1A     | 1.5SMC9.1CA   | 7.78                      | 8.65~9.55                         | 1                   | 13.4                                     | 113.4               | 50                                |
| 1.5SMC10A      | 1.5SMC10CA    | 8.55                      | 9.50~10.50                        | 1                   | 14.5                                     | 104.8               | 10                                |
| 1.5SMC11A      | 1.5SMC11CA    | 9.40                      | 10.50~11.60                       | 1                   | 15.6                                     | 97.4                | 5                                 |
| 1.5SMC12A      | 1.5SMC12CA    | 10.20                     | 11.40~12.60                       | 1                   | 16.7                                     | 91.0                | 5                                 |
| 1.5SMC13A      | 1.5SMC13CA    | 11.10                     | 12.40~13.70                       | 1                   | 18.2                                     | 83.5                | 1                                 |
| 1.5SMC15A      | 1.5SMC15CA    | 12.80                     | 14.30~15.80                       | 1                   | 21.2                                     | 71.7                | 1                                 |
| 1.5SMC16A      | 1.5SMC16CA    | 13.60                     | 15.20~16.80                       | 1                   | 22.5                                     | 67.6                | 1                                 |
| 1.5SMC18A      | 1.5SMC18CA    | 15.30                     | 17.10~18.90                       | 1                   | 25.2                                     | 60.3                | 1                                 |
| 1.5SMC20A      | 1.5SMC20CA    | 17.10                     | 19.00~21.00                       | 1                   | 27.7                                     | 54.9                | 1                                 |
| 1.5SMC22A      | 1.5SMC22CA    | 18.80                     | 20.90~23.10                       | 1                   | 30.6                                     | 49.7                | 1                                 |
| 1.5SMC24A      | 1.5SMC24CA    | 20.50                     | 22.80~25.20                       | 1                   | 33.2                                     | 45.8                | 1                                 |
| 1.5SMC27A      | 1.5SMC27CA    | 23.10                     | 25.70~28.40                       | 1                   | 37.5                                     | 40.5                | 1                                 |
| 1.5SMC30A      | 1.5SMC30CA    | 25.60                     | 28.50~31.50                       | 1                   | 41.4                                     | 36.7                | 1                                 |
| 1.5SMC33A      | 1.5SMC33CA    | 28.20                     | 31.40~34.70                       | 1                   | 45.7                                     | 33.3                | 1                                 |
| 1.5SMC36A      | 1.5SMC36CA    | 30.80                     | 34.20~37.80                       | 1                   | 49.9                                     | 30.5                | 1                                 |
| 1.5SMC39A      | 1.5SMC39CA    | 33.30                     | 37.10~41.00                       | 1                   | 53.9                                     | 28.2                | 1                                 |
| 1.5SMC43A      | 1.5SMC43CA    | 36.80                     | 40.90~45.20                       | 1                   | 59.3                                     | 25.6                | 1                                 |
| 1.5SMC47A      | 1.5SMC47CA    | 40.20                     | 44.70~49.40                       | 1                   | 64.8                                     | 23.5                | 1                                 |
| 1.5SMC51A      | 1.5SMC51CA    | 43.60                     | 48.50~53.60                       | 1                   | 70.1                                     | 21.7                | 1                                 |
| 1.5SMC56A      | 1.5SMC56CA    | 47.80                     | 53.20~58.80                       | 1                   | 77.0                                     | 19.7                | 1                                 |
| 1.5SMC62A      | 1.5SMC62CA    | 53.00                     | 58.90~65.10                       | 1                   | 85.0                                     | 17.9                | 1                                 |
| 1.5SMC68A      | 1.5SMC68CA    | 58.10                     | 64.60~71.40                       | 1                   | 92.0                                     | 16.5                | 1                                 |
| 1.5SMC75A      | 1.5SMC75CA    | 64.10                     | 71.30~78.80                       | 1                   | 103.0                                    | 14.8                | 1                                 |

### Electrical Characteristics (TA=25°C unless otherwise specified)

| Part Number    |               | Reverse Stand-Off Voltage | Breakdown Voltage @I <sub>T</sub> | Test Current        | Maximum Clamping Voltage@I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RWM</sub> |
|----------------|---------------|---------------------------|-----------------------------------|---------------------|------------------------------------------|---------------------|-----------------------------------|
| Unidirectional | Bidirectional | V <sub>RWM</sub> (V)      | V <sub>BR</sub> (V)               | I <sub>T</sub> (mA) | V <sub>C</sub> (V)                       | I <sub>PP</sub> (A) | I <sub>R</sub> (μA)               |
| 1.5SMC82A      | 1.5SMC82CA    | 70.10                     | 77.90~86.10                       | 1                   | 113.0                                    | 13.5                | 1                                 |
| 1.5SMC91A      | 1.5SMC91CA    | 77.80                     | 86.50~95.50                       | 1                   | 125.0                                    | 12.2                | 1                                 |
| 1.5SMC100A     | 1.5SMC100CA   | 85.50                     | 95.00~105.00                      | 1                   | 137.0                                    | 11.1                | 1                                 |
| 1.5SMC110A     | 1.5SMC110CA   | 94.00                     | 105.00~116.00                     | 1                   | 152.0                                    | 10.0                | 1                                 |
| 1.5SMC120A     | 1.5SMC120CA   | 102.00                    | 114.00~126.00                     | 1                   | 165.0                                    | 9.2                 | 1                                 |
| 1.5SMC130A     | 1.5SMC130CA   | 111.00                    | 124.00~137.00                     | 1                   | 179.0                                    | 8.5                 | 1                                 |
| 1.5SMC150A     | 1.5SMC150CA   | 128.00                    | 143.00~158.00                     | 1                   | 207.0                                    | 7.3                 | 1                                 |
| 1.5SMC160A     | 1.5SMC160CA   | 136.00                    | 152.00~168.00                     | 1                   | 219.0                                    | 6.9                 | 1                                 |
| 1.5SMC170A     | 1.5SMC170CA   | 145.00                    | 162.00~179.00                     | 1                   | 234.0                                    | 6.5                 | 1                                 |
| 1.5SMC180A     | 1.5SMC180CA   | 154.00                    | 171.00~189.00                     | 1                   | 246.0                                    | 6.2                 | 1                                 |
| 1.5SMC200A     | 1.5SMC200CA   | 171.00                    | 190.00~210.00                     | 1                   | 274.0                                    | 5.5                 | 1                                 |
| 1.5SMC220A     | 1.5SMC220CA   | 185.00                    | 209.00~231.00                     | 1                   | 328.0                                    | 4.6                 | 1                                 |
| 1.5SMC250A     | 1.5SMC250CA   | 214.00                    | 237.00~263.00                     | 1                   | 344.0                                    | 4.4                 | 1                                 |
| 1.5SMC300A     | 1.5SMC300CA   | 256.00                    | 285.00~315.00                     | 1                   | 414.0                                    | 3.7                 | 1                                 |
| 1.5SMC350A     | 1.5SMC350CA   | 300.00                    | 332.00~368.00                     | 1                   | 482.0                                    | 3.2                 | 1                                 |
| 1.5SMC400A     | 1.5SMC400CA   | 342.00                    | 380.00~420.00                     | 1                   | 548.0                                    | 2.8                 | 1                                 |
| 1.5SMC440A     | 1.5SMC440CA   | 376.00                    | 418.00~462.00                     | 1                   | 602.0                                    | 2.5                 | 1                                 |
| 1.5SMC480A     | 1.5SMC480CA   | 408.00                    | 456.00~504.00                     | 1                   | 658.0                                    | 2.3                 | 1                                 |
| 1.5SMC510A     | 1.5SMC510CA   | 434.00                    | 485.00~535.00                     | 1                   | 698.0                                    | 2.1                 | 1                                 |
| 1.5SMC530A     | 1.5SMC530CA   | 450.00                    | 503.50~556.50                     | 1                   | 725.0                                    | 2.1                 | 1                                 |
| 1.5SMC540A     | 1.5SMC540CA   | 459.00                    | 513.00~567.00                     | 1                   | 740.0                                    | 2.0                 | 1                                 |
| 1.5SMC550A     | 1.5SMC550CA   | 467.00                    | 522.50~577.50                     | 1                   | 760.0                                    | 2.0                 | 1                                 |

Notes: For bidirectional type having V<sub>RWM</sub> of 10V and less, the I<sub>R</sub> limit is double.

### Typical Characteristics Curves

Figure 1. Peak Pulse Power Rating Curve

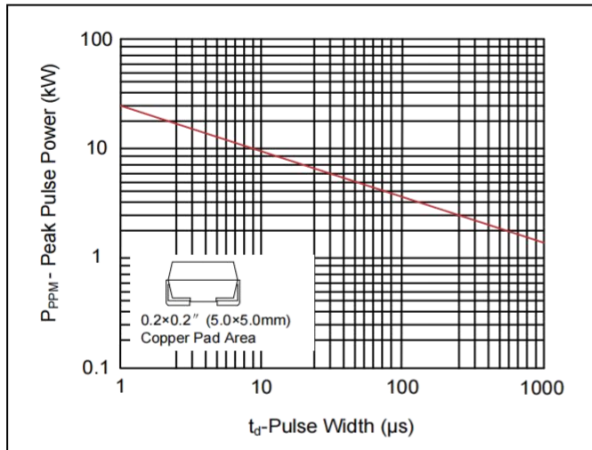


Figure 2. Pulse Derating Curve

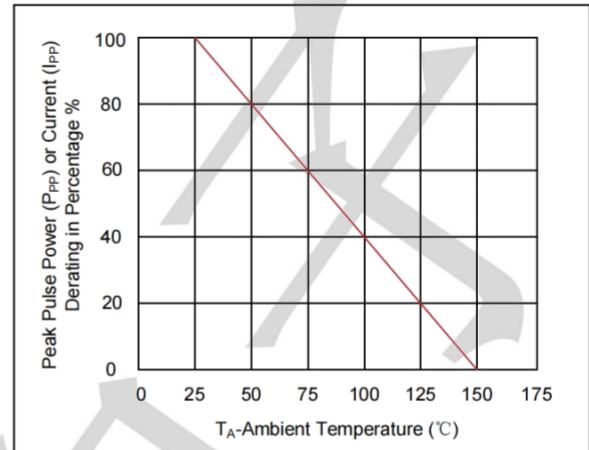


Figure 3. Pulse Waveform

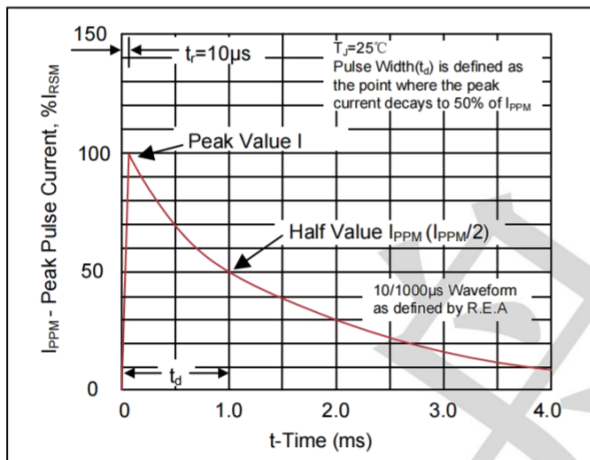


Figure 4. Typical Junction Capacitance

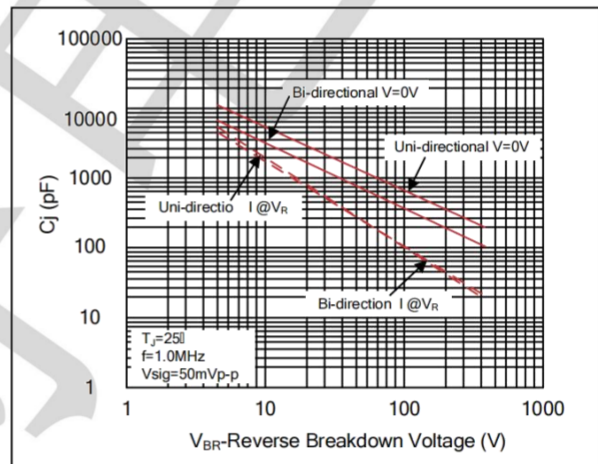


Figure 5. Steady State Power Dissipation Derating Curve

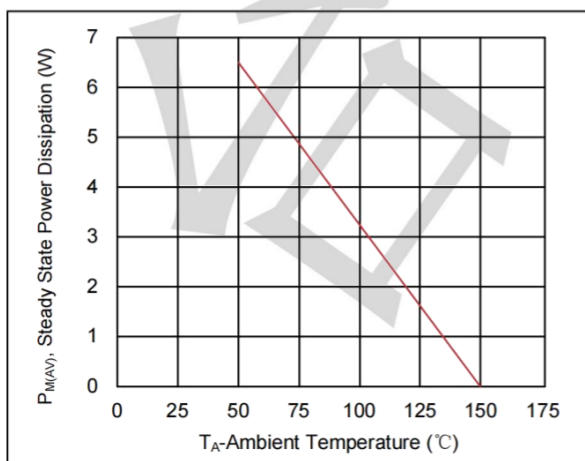
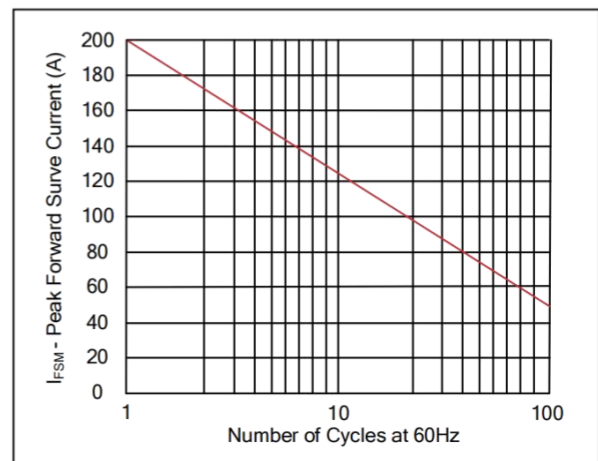
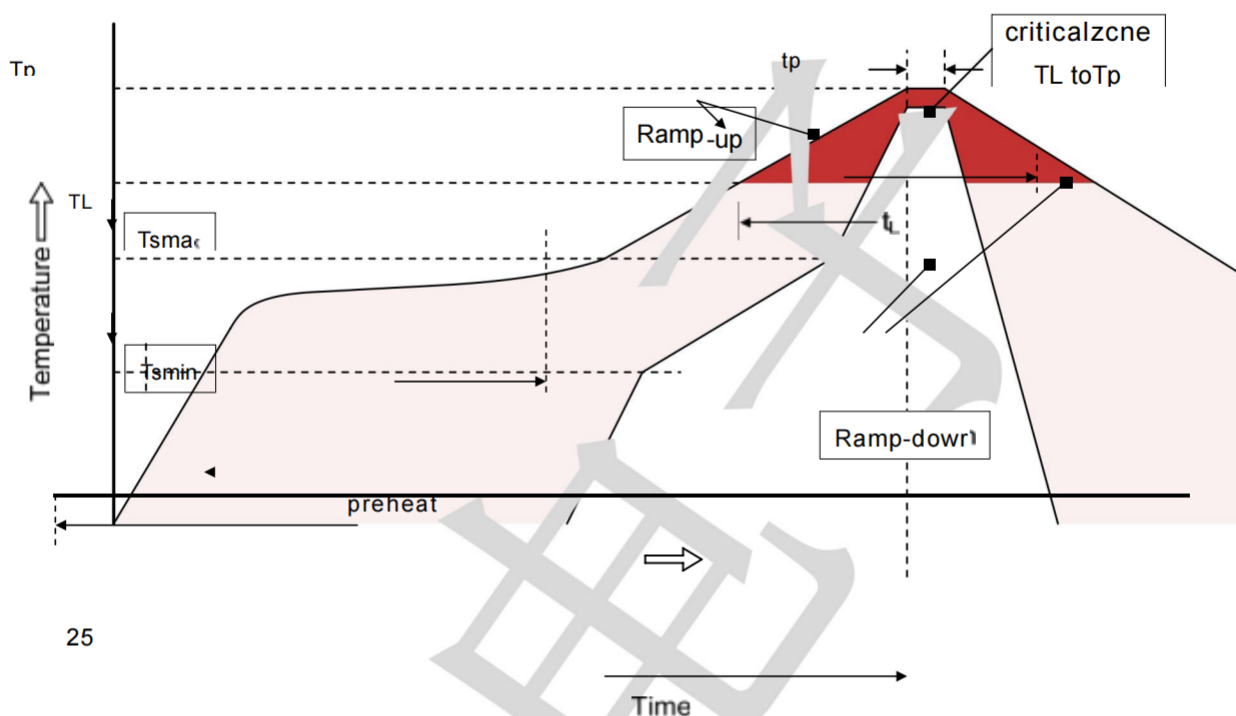


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



### Recommended Soldering Conditions

#### Reflow Soldering

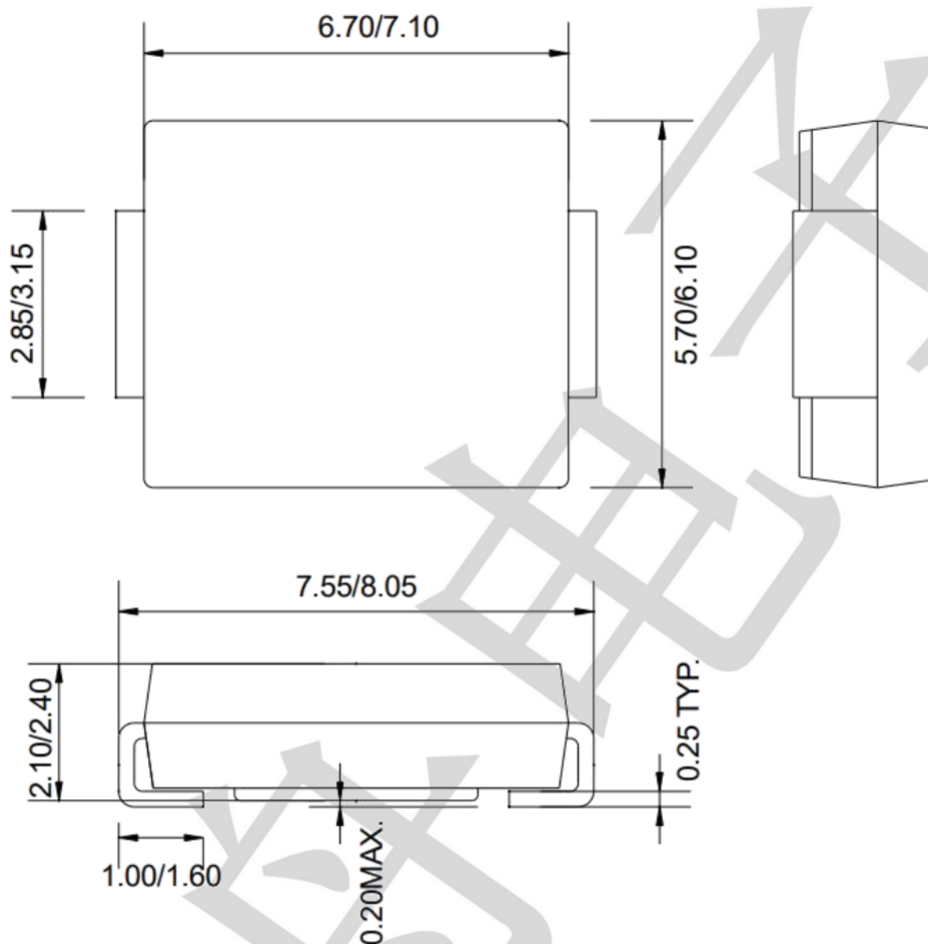


#### Recommended Conditions

| Profile Feature                                      | Pb-Free Assembly |
|------------------------------------------------------|------------------|
| Average ramp-up rate ( $T_L$ to $T_P$ )              | 3°C/second max.  |
| Preheat                                              |                  |
| -Temperature Min ( $T_{Smin}$ )                      | 150°C            |
| -Temperature Max ( $T_{Smax}$ )                      | 200°C            |
| -Time (minto max) ( $t_s$ )                          | 60-180 seconds   |
| $T_{Smax}$ to $T_L$                                  |                  |
| -Ramp-up Rate                                        | 3°C/second max.  |
| Time maintained above:                               |                  |
| -Temperature ( $T_L$ )                               | 217°C            |
| -Time ( $t_L$ )                                      | 60-150 seconds   |
| Peak Temperature ( $T_P$ )                           | 260°C            |
| Time within 5°C of actual Peak Temperature ( $t_p$ ) | 20-40 seconds    |
| Ramp-down Rate                                       | 6°C/second max.  |
| Time 25°C to Peak Temperature                        | 8 minutes max.   |

## Package Outline Dimensions (unit: mm)

DO-214AB (SMC)



## Mounting Pad Layout (unit: mm)

