



## Features

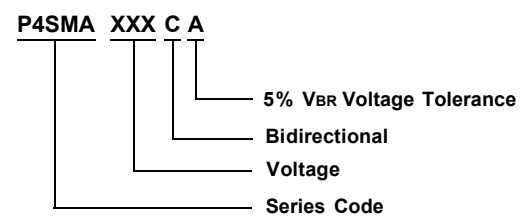
- 400W Peak Pulse Power Dissipation
- 6.8V - 550V Standoff Voltages
- Uni- and Bi-Directional Versions Available Excellent Clamping Capability
- Glass Passivated Die Construction
- Low inductance
- Fast Response Time
- Plastic Material: UL Flammability Classification Rating 94V-0



## Mechanical Data

- Case: SMA Molded plastic body
- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator)
- Marking: Data Code and Marking Code
- Weight: 0.00095ounce, 0.027grams

## Part Number Code



## Applications

- I/O interface
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

## Maxmim Ratings (Ta=25°C unless otherwise noted)

|                                                                                                                   |                                   |             |      |
|-------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------|------|
| Peak pulse power dissipation at 10/1000μs waveform (Note1, Note2, Fig.1)                                          | P <sub>PPM</sub>                  | 400         | W    |
| Peak pulse current of at 10/1000μs waveform (Note 1, Fig.3)                                                       | I <sub>PPM</sub>                  | See Tale    | A    |
| Steady state power dissipation at T <sub>A</sub> =50°C (Fig.5)                                                    | P <sub>M(AV)</sub>                | 3.3         | W    |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note3, Fig.6) | I <sub>FSM</sub>                  | 60          | A    |
| Operating junction and Storage Temperature Range.                                                                 | T <sub>J</sub> , T <sub>STG</sub> | -65 to +150 | °C   |
| Typical thermal resistance junction to lead                                                                       | R <sub>θJL</sub>                  | 30          | °C/W |
| Typical thermal resistance junction to ambient                                                                    | R <sub>θJA</sub>                  | 100         | °C/W |

Notes:1. Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub>=25°C per Fig.2.

2. Mounted on 5.0mm×5.0mm (0.03mm thick) copper pads to each terminal.

3. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.



**Electrical Characteristics (Ta=25°C)**

| Part Number    |               | Device Marking Code |      | 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 | UNI                 | BI   | 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)               |
| P4SMA6.8A      | P4SMA6.8CA    | 6V8A                | 6V8C | 5.80                      | 6.45~7.14                         | 10                  | 10.5                                      | 39.0                | 1000                              |
| P4SMA7.5A      | P4SMA7.5CA    | 7V5A                | 7V5C | 6.40                      | 7.13~7.88                         | 10                  | 11.3                                      | 36.3                | 500                               |
| P4SMA8.2A      | P4SMA8.2CA    | 8V2A                | 8V2C | 7.02                      | 7.79~8.61                         | 10                  | 12.1                                      | 33.9                | 200                               |
| P4SMA9.1A      | P4SMA9.1CA    | 9V1A                | 9V1C | 7.78                      | 8.65~9.55                         | 1                   | 13.4                                      | 30.6                | 50                                |
| P4SMA10A       | P4SMA10CA     | 10A                 | 10C  | 8.55                      | 9.50~10.50                        | 1                   | 14.5                                      | 28.3                | 10                                |
| P4SMA11A       | P4SMA11CA     | 11A                 | 11C  | 9.40                      | 10.50~11.60                       | 1                   | 15.6                                      | 26.3                | 5                                 |
| P4SMA12A       | P4SMA12CA     | 12A                 | 12C  | 10.20                     | 11.40~12.60                       | 1                   | 16.7                                      | 24.6                | 5                                 |
| P4SMA13A       | P4SMA13CA     | 13A                 | 13C  | 11.10                     | 12.40~13.70                       | 1                   | 18.2                                      | 22.5                | 1                                 |
| P4SMA15A       | P4SMA15CA     | 15A                 | 15C  | 12.80                     | 14.30~15.80                       | 1                   | 21.2                                      | 19.3                | 1                                 |
| P4SMA16A       | P4SMA16CA     | 16A                 | 16C  | 13.60                     | 15.20~16.80                       | 1                   | 22.5                                      | 18.2                | 1                                 |
| P4SMA18A       | P4SMA18CA     | 18A                 | 18C  | 15.30                     | 17.10~18.90                       | 1                   | 25.2                                      | 16.1                | 1                                 |
| P4SMA20A       | P4SMA20CA     | 20A                 | 20C  | 17.10                     | 19.00~21.00                       | 1                   | 27.7                                      | 14.8                | 1                                 |
| P4SMA22A       | P4SMA22CA     | 22A                 | 22C  | 18.80                     | 20.90~23.10                       | 1                   | 30.6                                      | 13.4                | 1                                 |
| P4SMA24A       | P4SMA24CA     | 24A                 | 24C  | 20.50                     | 22.80~25.20                       | 1                   | 33.2                                      | 12.3                | 1                                 |
| P4SMA27A       | P4SMA27CA     | 27A                 | 27C  | 23.10                     | 25.70~28.40                       | 1                   | 37.5                                      | 10.9                | 1                                 |
| P4SMA30A       | P4SMA30CA     | 30A                 | 30C  | 25.60                     | 28.50~31.50                       | 1                   | 41.4                                      | 9.9                 | 1                                 |
| P4SMA33A       | P4SMA33CA     | 33A                 | 33C  | 28.20                     | 31.40~34.70                       | 1                   | 45.7                                      | 9.0                 | 1                                 |
| P4SMA36A       | P4SMA36CA     | 36A                 | 36C  | 30.80                     | 34.20~37.80                       | 1                   | 49.9                                      | 8.2                 | 1                                 |
| P4SMA39A       | P4SMA39CA     | 39A                 | 39C  | 33.30                     | 37.10~41.00                       | 1                   | 53.9                                      | 7.6                 | 1                                 |
| P4SMA43A       | P4SMA43CA     | 43A                 | 43C  | 36.80                     | 40.90~45.20                       | 1                   | 59.3                                      | 6.9                 | 1                                 |
| P4SMA47A       | P4SMA47CA     | 47A                 | 47C  | 40.20                     | 44.70~49.40                       | 1                   | 64.8                                      | 6.3                 | 1                                 |
| P4SMA51A       | P4SMA51CA     | 51A                 | 51C  | 43.60                     | 48.50~53.60                       | 1                   | 70.1                                      | 5.8                 | 1                                 |
| P4SMA56A       | P4SMA56CA     | 56A                 | 56C  | 47.80                     | 53.20~58.80                       | 1                   | 77.0                                      | 5.3                 | 1                                 |
| P4SMA62A       | P4SMA62CA     | 62A                 | 62C  | 53.00                     | 58.90~65.10                       | 1                   | 85.0                                      | 4.8                 | 1                                 |
| P4SMA68A       | P4SMA68CA     | 68A                 | 68C  | 58.10                     | 64.60~71.40                       | 1                   | 92.0                                      | 4.5                 | 1                                 |
| P4SMA75A       | P4SMA75CA     | 75A                 | 75C  | 64.10                     | 71.30~78.80                       | 1                   | 103.0                                     | 4.0                 | 1                                 |
| P4SMA82A       | P4SMA82CA     | 82A                 | 82C  | 70.10                     | 77.90~86.10                       | 1                   | 113.0                                     | 3.6                 | 1                                 |
| P4SMA91A       | P4SMA91CA     | 91A                 | 91C  | 77.80                     | 86.50~95.50                       | 1                   | 125.0                                     | 3.3                 | 1                                 |
| P4SMA100A      | P4SMA100CA    | 100A                | 100C | 85.50                     | 95.00~105.00                      | 1                   | 137.0                                     | 3.0                 | 1                                 |



| Part Number    |               | Device Marking Code |      | Reverse Stand-Off Voltage | Breakdown Voltage @ $I_T$ | Test Current | Maximum Clamping Voltage @ $I_{PP}$ | Peak Pulse Current | Reverse Leakage @ $V_{RWM}$ |
|----------------|---------------|---------------------|------|---------------------------|---------------------------|--------------|-------------------------------------|--------------------|-----------------------------|
| Unidirectional | Bidirectional | UNI                 | BI   | $V_{RWM}(V)$              | $V_{BR}(V)$               | $I_T(mA)$    | $V_C(V)$                            | $I_{PP}(A)$        | $I_R(\mu A)$                |
| P4SMA110A      | P4SMA110CA    | 110A                | 110C | 94.00                     | 105.00~116.00             | 1            | 152.0                               | 2.7                | 1                           |
| P4SMA120A      | P4SMA120CA    | 120A                | 120C | 102.00                    | 114.00~126.00             | 1            | 165.0                               | 2.5                | 1                           |
| P4SMA130A      | P4SMA130CA    | 130A                | 130C | 111.00                    | 124.00~137.0              | 1            | 179.0                               | 2.3                | 1                           |
| P4SMA150A      | P4SMA150CA    | 150A                | 150C | 128.00                    | 143.00~158.0              | 1            | 207.0                               | 2.0                | 1                           |
| P4SMA160A      | P4SMA160CA    | 160A                | 160C | 136.00                    | 152.00~168.0              | 1            | 219.0                               | 1.9                | 1                           |
| P4SMA170A      | P4SMA170CA    | 170A                | 170C | 145.00                    | 162.00~179.0              | 1            | 234.0                               | 1.8                | 1                           |
| P4SMA180A      | P4SMA180CA    | 180A                | 180C | 154.00                    | 171.00~189.0              | 1            | 246.0                               | 1.7                | 1                           |
| P4SMA200A      | P4SMA200CA    | 200A                | 200C | 171.00                    | 190.00~210.0              | 1            | 274.0                               | 1.5                | 1                           |
| P4SMA220A      | P4SMA220CA    | 220A                | 220C | 185.00                    | 209.00~231.0              | 1            | 328.0                               | 1.3                | 1                           |
| P4SMA250A      | P4SMA250CA    | 250A                | 250C | 214.00                    | 237.00~263.0              | 1            | 344.0                               | 1.2                | 1                           |
| P4SMA300A      | P4SMA300CA    | 300A                | 300C | 256.00                    | 285.00~315.0              | 1            | 414.0                               | 1.0                | 1                           |
| P4SMA350A      | P4SMA350CA    | 350A                | 350C | 300.00                    | 332.00~368.0              | 1            | 482.0                               | 0.85               | 1                           |
| P4SMA400A      | P4SMA400CA    | 400A                | 400C | 342.00                    | 380.00~420.0              | 1            | 548.0                               | 0.75               | 1                           |
| P4SMA440A      | P4SMA440CA    | 440A                | 440C | 376.00                    | 418.00~462.0              | 1            | 602.0                               | 0.68               | 1                           |
| P4SMA480A      | P4SMA480CA    | 480A                | 480C | 408.00                    | 456.00~504.0              | 1            | 658.0                               | 0.61               | 1                           |
| P4SMA510A      | P4SMA510CA    | 510A                | 510C | 434.00                    | 485.00~535.0              | 1            | 698.0                               | 0.57               | 1                           |
| P4SMA530A      | P4SMA530CA    | 530A                | 530C | 450.00                    | 503.50~556.5              | 1            | 725.0                               | 0.55               | 1                           |
| P4SMA540A      | P4SMA540CA    | 540A                | 540C | 459.00                    | 513.00~567.0              | 1            | 740.0                               | 0.54               | 1                           |
| P4SMA550A      | P4SMA550CA    | 550A                | 550C | 467.00                    | 522.50~577.5              | 1            | 760.0                               | 0.52               | 1                           |
| P4SMA600A      | P4SMA600CA    | 600A                | 600C | 510.00                    | 570.00~630.0              | 1            | 828.0                               | 0.48               | 1                           |



## Ratings and Characteristic Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

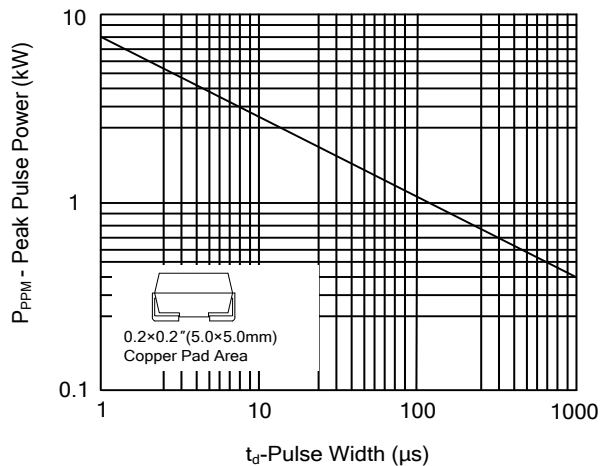


Figure 2. Pulse Derating Curve

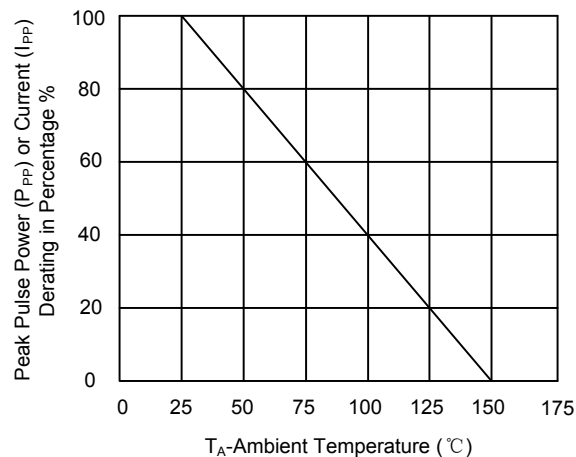


Figure 3. Pulse Waveform

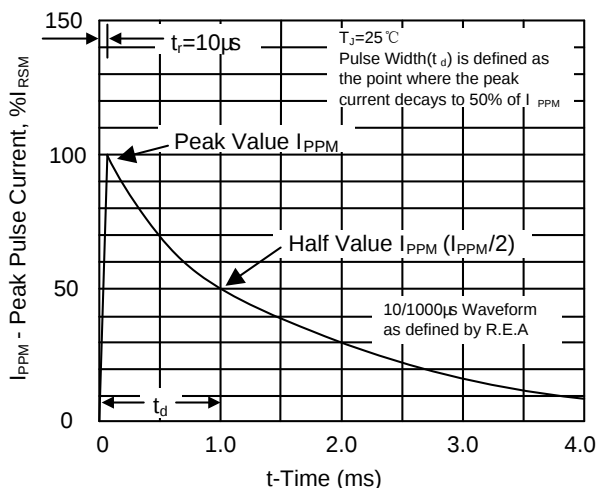


Figure 4. Typical Junction Capacitance

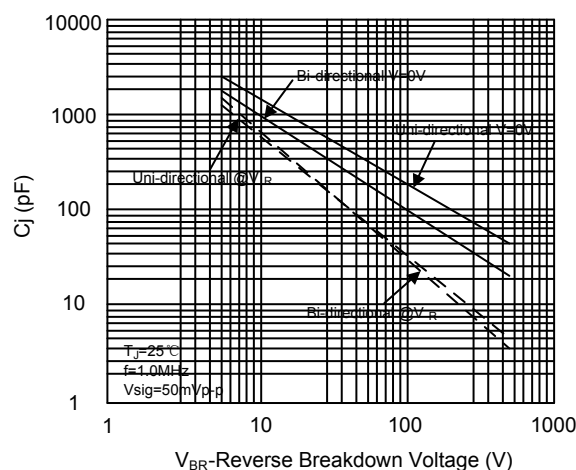


Figure 5. Steady State Power Dissipation Derating Curve

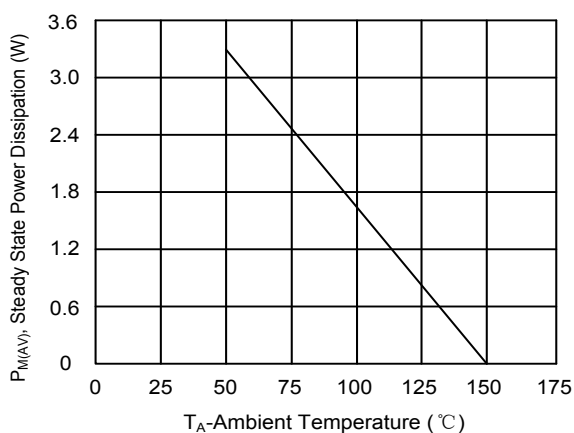
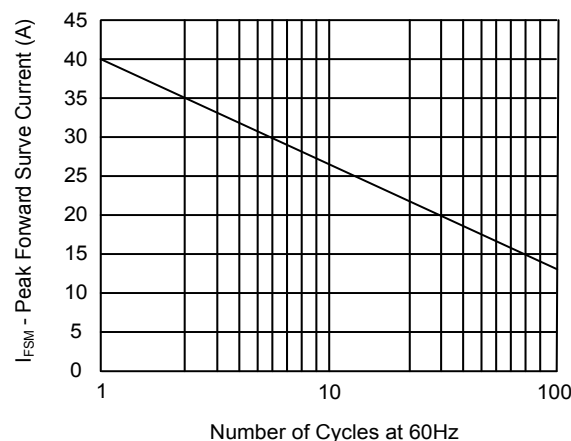
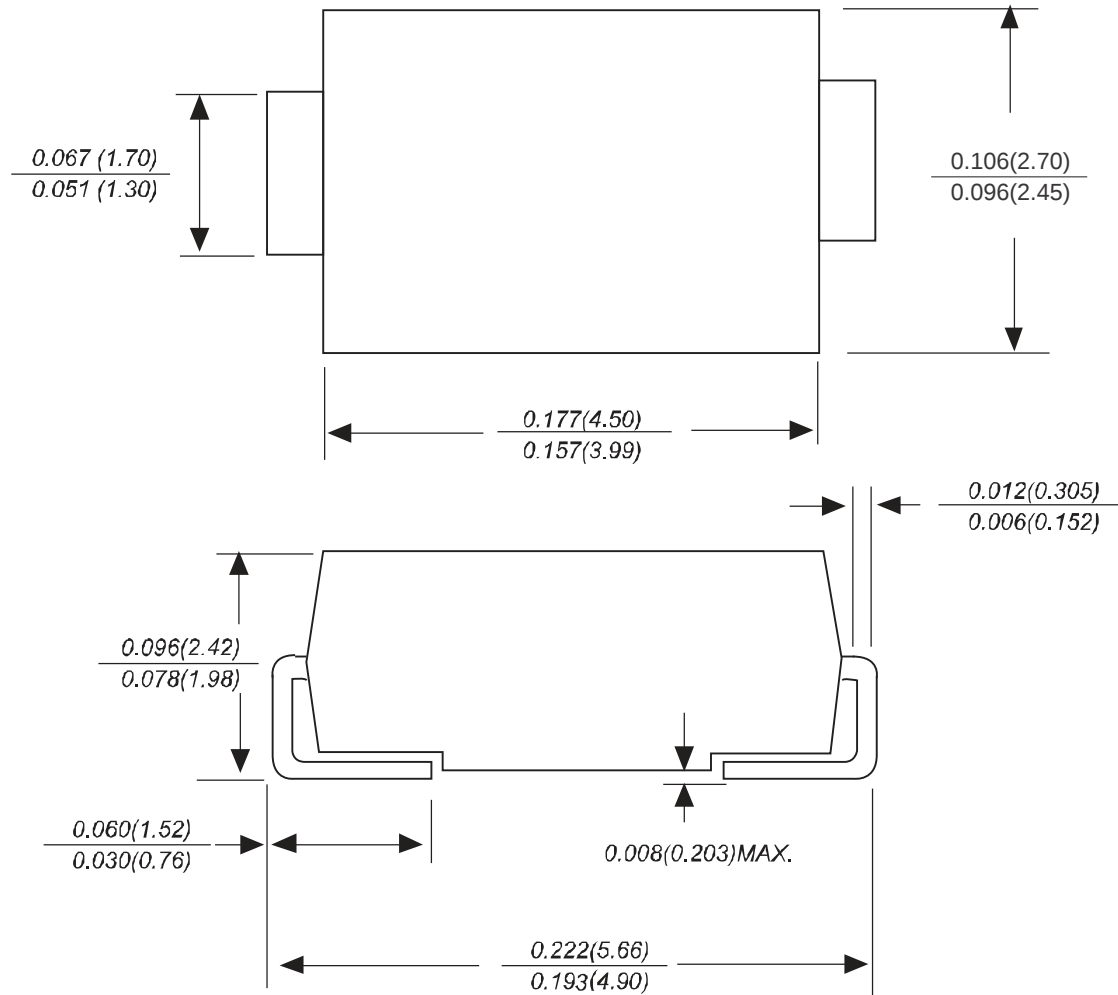


Figure 6. Maximum Non-Repetitive Forward Surge Current Uni-Directional Only





## Package Outline Dimensions SMA(DO-214AC)



*Dimensions in inches and (millimeters)*



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