

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

| Type        | Breakdown Voltage @ $I_T^{(1)}$ |       |       | Working Peak Reverse Voltage | Maximum Reverse Leakage @ $V_{WM}$ | Maximum Clamping Voltage @ $I_{PPM}$ | Maximum Peak Pulse Surge Current |
|-------------|---------------------------------|-------|-------|------------------------------|------------------------------------|--------------------------------------|----------------------------------|
|             | $V_{BR}$ (V)                    |       | $I_T$ | $V_{RWM}$                    | $I_R$                              | $V_C$                                | $I_{PPM}$                        |
|             | Min.                            | Max.  | (mA)  | (V)                          | ( $\mu$ A)                         | (V)                                  | (A)                              |
| 3.0SMCJ5.0  | 6.4                             | 7.55  | 10    | 5.0                          | 1000                               | 9.6                                  | 312.5                            |
| 3.0SMCJ5.0A | 6.4                             | 7.25  | 10    | 5.0                          | 1000                               | 9.2                                  | 326                              |
| 3.0SMCJ6.0  | 6.67                            | 8.45  | 10    | 6.0                          | 1000                               | 11.4                                 | 263.2                            |
| 3.0SMCJ6.0A | 6.67                            | 7.67  | 10    | 6.0                          | 1000                               | 10.3                                 | 291.3                            |
| 3.0SMCJ6.5  | 7.22                            | 9.14  | 10    | 6.5                          | 500                                | 12.3                                 | 243.9                            |
| 3.0SMCJ6.5A | 7.22                            | 8.30  | 10    | 6.5                          | 500                                | 11.2                                 | 267.9                            |
| 3.0SMCJ7.0  | 7.78                            | 9.86  | 10    | 7.0                          | 200                                | 13.3                                 | 225.6                            |
| 3.0SMCJ7.0A | 7.78                            | 8.95  | 10    | 7.0                          | 200                                | 12.0                                 | 250                              |
| 3.0SMCJ7.5  | 8.33                            | 10.67 | 1.0   | 7.5                          | 100                                | 14.3                                 | 209.8                            |
| 3.0SMCJ7.5A | 8.33                            | 9.58  | 1.0   | 7.5                          | 100                                | 12.9                                 | 232.6                            |
| 3.0SMCJ8.0  | 8.89                            | 11.30 | 1.0   | 8.0                          | 50                                 | 15.0                                 | 200                              |
| 3.0SMCJ8.0A | 8.89                            | 10.23 | 1.0   | 8.0                          | 50                                 | 13.6                                 | 220.6                            |
| 3.0SMCJ8.5  | 9.44                            | 11.92 | 1.0   | 8.5                          | 25                                 | 15.9                                 | 188.8                            |
| 3.0SMCJ8.5A | 9.44                            | 10.82 | 1.0   | 8.5                          | 25                                 | 14.4                                 | 208.4                            |
| 3.0SMCJ9.0  | 10.0                            | 12.6  | 1.0   | 9.0                          | 10                                 | 16.9                                 | 177.4                            |
| 3.0SMCJ9.0A | 10.0                            | 11.5  | 1.0   | 9.0                          | 10                                 | 15.4                                 | 194.8                            |
| 3.0SMCJ10   | 11.1                            | 14.1  | 1.0   | 10                           | 5                                  | 18.8                                 | 159.6                            |
| 3.0SMCJ10A  | 11.1                            | 12.8  | 1.0   | 10                           | 5                                  | 17.0                                 | 176.4                            |
| 3.0SMCJ11   | 12.2                            | 15.4  | 1.0   | 11                           | 5                                  | 20.1                                 | 149.2                            |
| 3.0SMCJ11A  | 12.2                            | 14.0  | 1.0   | 11                           | 5                                  | 18.2                                 | 184.8                            |
| 3.0SMCJ12   | 13.3                            | 16.9  | 1.0   | 12                           | 5                                  | 22.0                                 | 136.4                            |
| 3.0SMCJ12A  | 13.3                            | 15.3  | 1.0   | 12                           | 5                                  | 19.9                                 | 150.6                            |
| 3.0SMCJ13   | 14.4                            | 18.2  | 1.0   | 13                           | 5                                  | 23.8                                 | 126.0                            |
| 3.0SMCJ13A  | 14.4                            | 16.5  | 1.0   | 13                           | 5                                  | 21.5                                 | 139.4                            |
| 3.0SMCJ14   | 15.6                            | 19.8  | 1.0   | 14                           | 5                                  | 25.8                                 | 116.2                            |
| 3.0SMCJ14A  | 15.6                            | 17.9  | 1.0   | 14                           | 5                                  | 23.2                                 | 129.4                            |
| 3.0SMCJ15   | 16.7                            | 21.1  | 1.0   | 15                           | 5                                  | 26.9                                 | 111.6                            |
| 3.0SMCJ15A  | 16.7                            | 19.2  | 1.0   | 15                           | 5                                  | 24.4                                 | 123.0                            |
| 3.0SMCJ16   | 17.8                            | 22.6  | 1.0   | 16                           | 5                                  | 28.8                                 | 104.2                            |
| 3.0SMCJ16A  | 17.8                            | 20.5  | 1.0   | 16                           | 5                                  | 26.0                                 | 115.4                            |
| 3.0SMCJ17   | 18.9                            | 23.9  | 1.0   | 17                           | 5                                  | 30.5                                 | 98.4                             |
| 3.0SMCJ17A  | 18.9                            | 21.7  | 1.0   | 17                           | 5                                  | 27.6                                 | 106.6                            |
| 3.0SMCJ18   | 20.0                            | 25.3  | 1.0   | 18                           | 5                                  | 32.2                                 | 93.2                             |
| 3.0SMCJ18A  | 20.0                            | 23.3  | 1.0   | 18                           | 5                                  | 29.2                                 | 102.8                            |
| 3.0SMCJ20   | 22.2                            | 28.1  | 1.0   | 20                           | 5                                  | 35.8                                 | 83.8                             |
| 3.0SMCJ20A  | 22.2                            | 25.5  | 1.0   | 20                           | 5                                  | 32.4                                 | 92.6                             |
| 3.0SMCJ22   | 24.4                            | 30.9  | 1.0   | 22                           | 5                                  | 39.4                                 | 76.2                             |
| 3.0SMCJ22A  | 24.4                            | 28.0  | 1.0   | 22                           | 5                                  | 35.5                                 | 84.4                             |
| 3.0SMCJ24   | 26.7                            | 33.8  | 1.0   | 24                           | 5                                  | 43.0                                 | 69.8                             |
| 3.0SMCJ24A  | 26.7                            | 30.7  | 1.0   | 24                           | 5                                  | 38.9                                 | 77.2                             |
| 3.0SMCJ26   | 28.9                            | 36.6  | 1.0   | 26                           | 5                                  | 46.6                                 | 64.4                             |
| 3.0SMCJ26A  | 28.9                            | 33.2  | 1.0   | 26                           | 5                                  | 42.1                                 | 71.2                             |
| 3.0SMCJ28   | 31.1                            | 39.4  | 1.0   | 28                           | 5                                  | 50.0                                 | 60.0                             |
| 3.0SMCJ28A  | 31.1                            | 35.8  | 1.0   | 28                           | 5                                  | 45.4                                 | 66.0                             |
| 3.0SMCJ30   | 33.3                            | 42.2  | 1.0   | 30                           | 5                                  | 53.5                                 | 56.0                             |
| 3.0SMCJ30A  | 33.3                            | 38.3  | 1.0   | 30                           | 5                                  | 48.4                                 | 62.0                             |
| 3.0SMCJ33   | 36.7                            | 46.5  | 1.0   | 33                           | 5                                  | 59.0                                 | 50.4                             |
| 3.0SMCJ33A  | 36.7                            | 42.2  | 1.0   | 33                           | 5                                  | 53.3                                 | 56.2                             |
| 3.0SMCJ36   | 40.0                            | 50.7  | 1.0   | 36                           | 5                                  | 64.3                                 | 46.6                             |
| 3.0SMCJ36A  | 40.0                            | 46.0  | 1.0   | 36                           | 5                                  | 58.1                                 | 51.6                             |
| 3.0SMCJ40   | 44.4                            | 56.3  | 1.0   | 40                           | 5                                  | 71.4                                 | 42.0                             |
| 3.0SMCJ40A  | 44.4                            | 51.1  | 1.0   | 40                           | 5                                  | 64.5                                 | 46.4                             |
| 3.0SMCJ43   | 47.8                            | 60.5  | 1.0   | 43                           | 5                                  | 76.7                                 | 39.2                             |
| 3.0SMCJ43A  | 47.8                            | 54.9  | 1.0   | 43                           | 5                                  | 69.4                                 | 43.2                             |

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|-------------|---------------------------------|-------|------------------------------|------------------------------------|--------------------------------------|----------------------------------|
|             | $V_{BR}$ (V)                    |       | $V_{RWM}$                    | $I_R$                              | $V_C$                                | $I_{PPM}$                        |
|             | Min.                            | Max.  | (mA)                         | (V)                                | ( $\mu A$ )                          | (A)                              |
| 3.0SMCJ45   | 50.0                            | 63.3  | 1.0                          | 45                                 | 5                                    | 37.4                             |
| 3.0SMCJ45A  | 50.0                            | 57.5  | 1.0                          | 45                                 | 5                                    | 41.2                             |
| 3.0SMCJ48   | 53.3                            | 67.5  | 1.0                          | 48                                 | 5                                    | 35.0                             |
| 3.0SMCJ48A  | 53.3                            | 61.3  | 1.0                          | 48                                 | 5                                    | 38.8                             |
| 3.0SMCJ51   | 56.7                            | 71.8  | 1.0                          | 51                                 | 5                                    | 37.0                             |
| 3.0SMCJ51A  | 56.7                            | 65.2  | 1.0                          | 51                                 | 5                                    | 36.4                             |
| 3.0SMCJ54   | 60.0                            | 76.0  | 1.0                          | 54                                 | 5                                    | 31.2                             |
| 3.0SMCJ54A  | 60.0                            | 69.0  | 1.0                          | 54                                 | 5                                    | 34.4                             |
| 3.0SMCJ58   | 64.4                            | 81.6  | 1.0                          | 58                                 | 5                                    | 39.2                             |
| 3.0SMCJ58A  | 64.4                            | 74.1  | 1.0                          | 58                                 | 5                                    | 32.0                             |
| 3.0SMCJ60   | 66.7                            | 84.5  | 1.0                          | 60                                 | 5                                    | 28.0                             |
| 3.0SMCJ60A  | 66.7                            | 76.7  | 1.0                          | 60                                 | 5                                    | 31.0                             |
| 3.0SMCJ64   | 71.1                            | 90.1  | 1.0                          | 64                                 | 5                                    | 26.4                             |
| 3.0SMCJ64A  | 71.1                            | 81.8  | 1.0                          | 64                                 | 5                                    | 29.2                             |
| 3.0SMCJ70   | 77.8                            | 98.6  | 1.0                          | 70                                 | 5                                    | 24.0                             |
| 3.0SMCJ70A  | 77.8                            | 89.5  | 1.0                          | 70                                 | 5                                    | 26.6                             |
| 3.0SMCJ75   | 83.3                            | 105.7 | 1.0                          | 75                                 | 5                                    | 22.4                             |
| 3.0SMCJ75A  | 83.3                            | 95.8  | 1.0                          | 75                                 | 5                                    | 24.8                             |
| 3.0SMCJ78   | 86.7                            | 109.8 | 1.0                          | 78                                 | 5                                    | 21.6                             |
| 3.0SMCJ78A  | 86.7                            | 99.7  | 1.0                          | 78                                 | 5                                    | 22.8                             |
| 3.0SMCJ85   | 94.4                            | 119.2 | 1.0                          | 85                                 | 5                                    | 19.8                             |
| 3.0SMCJ85A  | 94.4                            | 108.2 | 1.0                          | 85                                 | 5                                    | 20.8                             |
| 3.0SMCJ90   | 100                             | 126.5 | 1.0                          | 90                                 | 5                                    | 18.8                             |
| 3.0SMCJ90A  | 100                             | 115.5 | 1.0                          | 90                                 | 5                                    | 20.6                             |
| 3.0SMCJ100  | 111                             | 141.0 | 1.0                          | 100                                | 5                                    | 16.6                             |
| 3.0SMCJ100A | 111                             | 128.0 | 1.0                          | 100                                | 5                                    | 18.6                             |
| 3.0SMCJ110  | 122                             | 154.5 | 1.0                          | 110                                | 5                                    | 15.4                             |
| 3.0SMCJ110A | 122                             | 140.5 | 1.0                          | 110                                | 5                                    | 16.8                             |
| 3.0SMCJ120  | 133                             | 169.0 | 1.0                          | 120                                | 5                                    | 14.0                             |
| 3.0SMCJ120A | 133                             | 153.0 | 1.0                          | 120                                | 5                                    | 15.6                             |
| 3.0SMCJ130  | 144                             | 182.5 | 1.0                          | 130                                | 5                                    | 13.0                             |
| 3.0SMCJ130A | 144                             | 165.5 | 1.0                          | 130                                | 5                                    | 14.4                             |
| 3.0SMCJ150  | 167                             | 211.5 | 1.0                          | 150                                | 5                                    | 11.2                             |
| 3.0SMCJ150A | 167                             | 192.5 | 1.0                          | 150                                | 5                                    | 12.4                             |
| 3.0SMCJ160  | 178                             | 226.0 | 1.0                          | 160                                | 5                                    | 10.4                             |
| 3.0SMCJ160A | 178                             | 205.0 | 1.0                          | 160                                | 5                                    | 11.6                             |
| 3.0SMCJ170  | 189                             | 239.5 | 1.0                          | 170                                | 5                                    | 9.8                              |
| 3.0SMCJ170A | 189                             | 217.5 | 1.0                          | 170                                | 5                                    | 11.0                             |
| 3.0SMCJ180  | 198                             | 253.8 | 1.0                          | 180                                | 5                                    | 9.3                              |
| 3.0SMCJ180A | 198                             | 230.4 | 1.0                          | 180                                | 5                                    | 10.3                             |
| 3.0SMCJ190  | 209                             | 267.9 | 1.0                          | 190                                | 5                                    | 8.8                              |
| 3.0SMCJ190A | 209                             | 243.2 | 1.0                          | 190                                | 5                                    | 9.7                              |
| 3.0SMCJ200  | 220                             | 282.0 | 1.0                          | 200                                | 5                                    | 8.4                              |
| 3.0SMCJ200A | 220                             | 256.0 | 1.0                          | 200                                | 5                                    | 9.3                              |
| 3.0SMCJ210  | 231                             | 296.1 | 1.0                          | 210                                | 5                                    | 7.8                              |
| 3.0SMCJ210A | 231                             | 268.8 | 1.0                          | 210                                | 5                                    | 8.8                              |
| 3.0SMCJ220  | 242                             | 310.2 | 1.0                          | 220                                | 5                                    | 7.6                              |
| 3.0SMCJ220A | 242                             | 281.6 | 1.0                          | 220                                | 5                                    | 8.4                              |

### Notes :

(1) Pulse test :  $t_n \leq 50ms$ .

(2) "SMCJ" will be omitted on marking of the diode.

## RATING AND CHARACTERISTIC CURVES ( 3.0SMCJ5.0 - 220A )

FIG.1 - PULSE DERATING CURVE

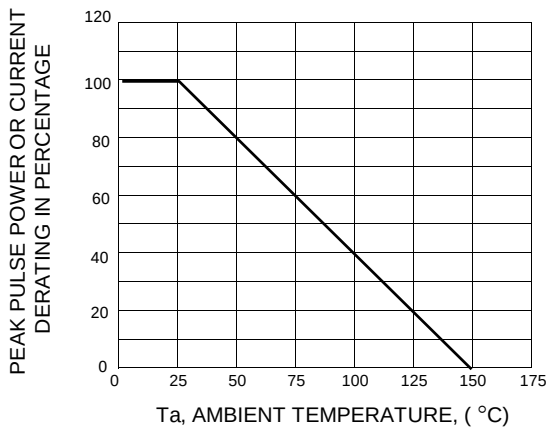


FIG.2 - TYPICAL JUNCTION CAPACITANCE

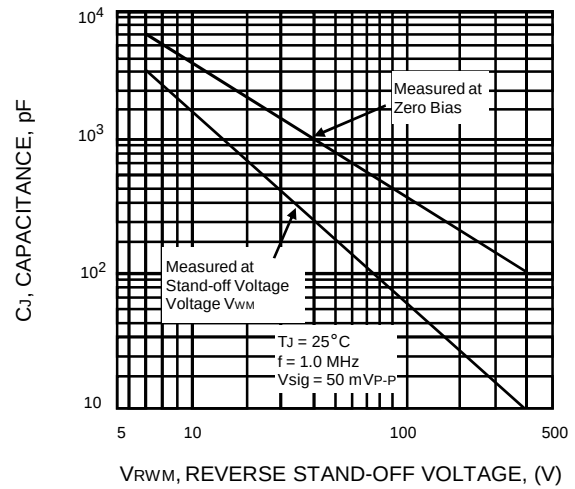


FIG.3 - PULSE WAVEFORM

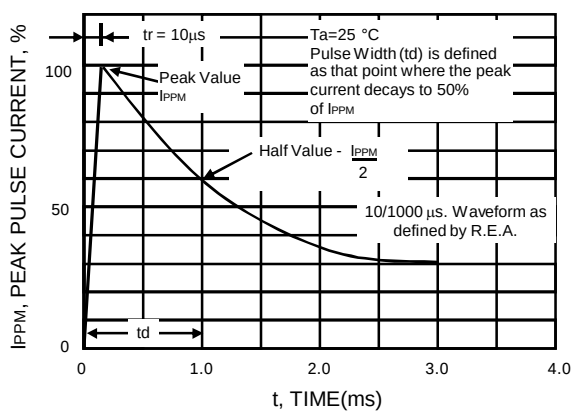


FIG.4 - PEAK PULSE POWER RATING CURVE

