

Working Voltage: 5.0 to 440 V
Peak Pulse Power: 3000 W

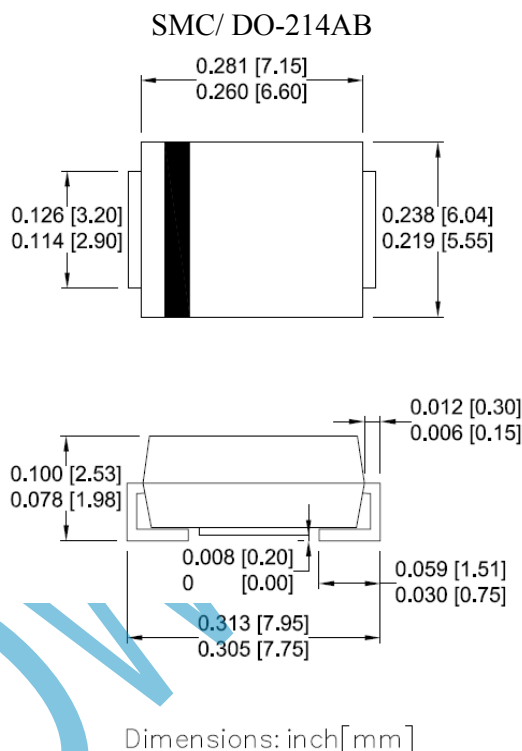
Surface Mount Transient Voltage Suppressors

Features

- Glass passivated chip
- 3000 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01 %
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

Mechanical Data

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any



Maximum Ratings($T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | UNIT |
|---|----------------|----------------|------------------|
| Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾ | P_{PP} | 3000 | W |
| Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾ | I_{PP} | See Next Table | A |
| Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$ | P_D | 6.5 | W |
| Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾ | I_{FSM} | 300 | A |
| Maximum instantaneous forward voltage at 100A for unidirectional only ⁽³⁾ | V_F | 3.5/5.0 | V |
| Operating junction and storage temperature range | T_J, T_{STG} | - 55 to +150 | $^\circ\text{C}$ |

Note:

(1)Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ 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) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$

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

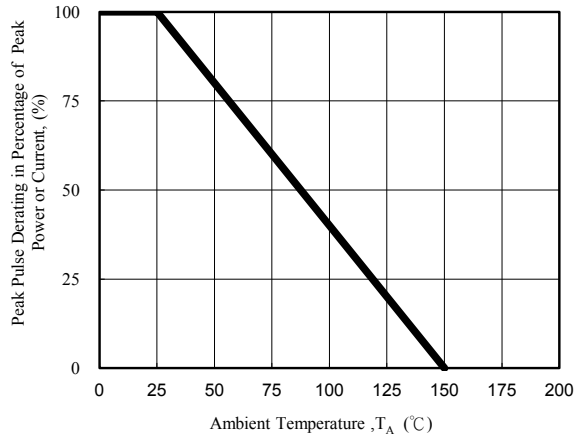


Fig. 1 - Pulse Derating Curve

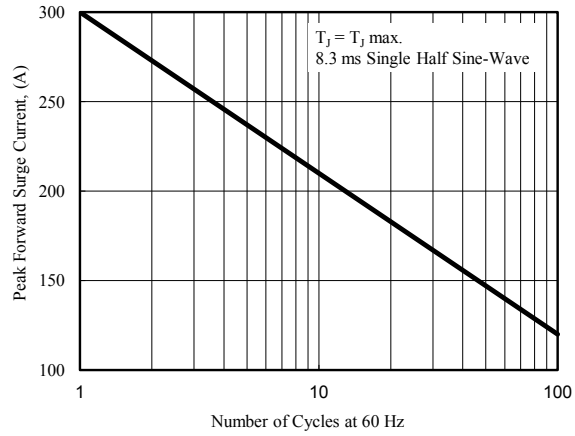


Fig. 2 - Maximum Non-Repetitive Surge Current

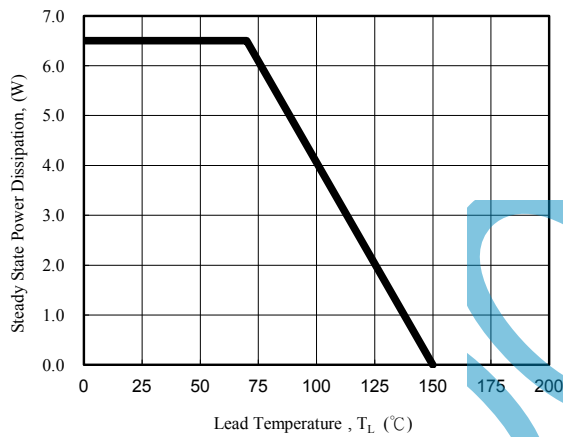


Fig. 3 - Steady State Power Derating Curve

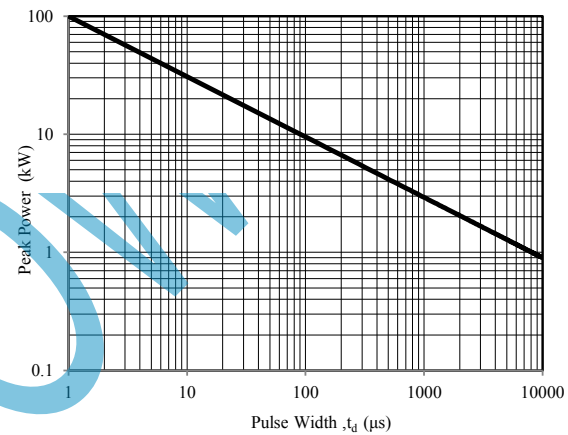


Fig. 4 - Peak Pulse Power Rating Curve

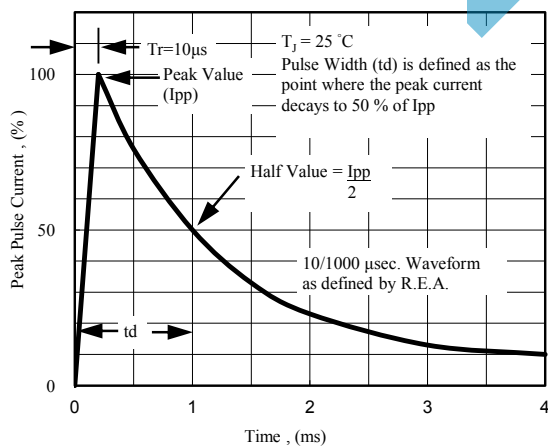


Fig. 5 - Pulse Waveform

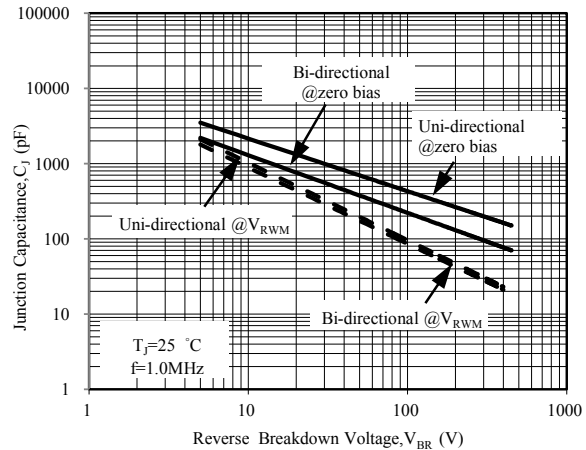


Fig. 6 - Typical Junction Capacitance

Electrical Characteristics($T_A=25^\circ\text{C}$ unless otherwise noted)

| Part Number (Uni) | Part Number (Bi) | Device Marking Code | | Breakdown Voltage V_{BR} @ I_T | | | Maximum Reverse Leakage I_R @ V_{RWM} (uA) | Working Peak Reverse Voltage V_{RWM} (V) | Maximum Reverse Surge Current I_{PP} (A) | Maximum Clamping Voltage V_C @ I_{PP} (V) |
|-------------------|------------------|---------------------|-----|------------------------------------|---------|------------|--|--|--|---|
| | | Uni | Bi | Min (V) | Max (V) | I_T (mA) | | | | |
| SMDJ5.0 | SMDJ5.0C | RDD | DDD | 6.40 | 7.30 | 10 | 800 | 5.0 | 312.50 | 9.6 |
| SMDJ5.0A | SMDJ5.0CA | RDE | DDE | 6.40 | 7.00 | 10 | 800 | 5.0 | 326.09 | 9.2 |
| SMDJ6.0 | SMDJ6.0C | RDF | DDF | 6.67 | 8.15 | 10 | 800 | 6.0 | 263.16 | 11.4 |
| SMDJ6.0A | SMDJ6.0CA | RDG | DDG | 6.67 | 7.37 | 10 | 800 | 6.0 | 291.26 | 10.3 |
| SMDJ6.5 | SMDJ6.5C | RDH | DDH | 7.22 | 8.82 | 10 | 500 | 6.5 | 243.90 | 12.3 |
| SMDJ6.5A | SMDJ6.5CA | RDK | DDK | 7.22 | 7.98 | 10 | 500 | 6.5 | 267.86 | 11.2 |
| SMDJ7.0 | SMDJ7.0C | RDL | DDL | 7.78 | 9.51 | 10 | 200 | 7.0 | 225.56 | 13.3 |
| SMDJ7.0A | SMDJ7.0CA | PDM | DDM | 7.78 | 8.60 | 10 | 200 | 7.0 | 250.00 | 12.0 |
| SMDJ7.5 | SMDJ7.5C | PDN | DDN | 8.33 | 10.20 | 1 | 100 | 7.5 | 209.79 | 14.3 |
| SMDJ7.5A | SMDJ7.5CA | PDP | DDP | 8.33 | 9.21 | 1 | 100 | 7.5 | 232.56 | 12.9 |
| SMDJ8.0 | SMDJ8.0C | PDQ | DDQ | 8.89 | 10.90 | 1 | 50 | 8.0 | 200.00 | 15.0 |
| SMDJ8.0A | SMDJ8.0CA | PDR | DDR | 8.89 | 9.83 | 1 | 50 | 8.0 | 220.59 | 13.6 |
| SMDJ8.5 | SMDJ8.5C | PDS | DDS | 9.44 | 11.50 | 1 | 20 | 8.5 | 188.68 | 15.9 |
| SMDJ8.5A | SMDJ8.5CA | PDT | DDT | 9.44 | 10.40 | 1 | 20 | 8.5 | 208.33 | 14.4 |
| SMDJ9.0 | SMDJ9.0C | PDU | DDU | 10.00 | 12.20 | 1 | 10 | 9.0 | 177.51 | 16.9 |
| SMDJ9.0A | SMDJ9.0CA | PDV | DDV | 10.00 | 11.10 | 1 | 10 | 9.0 | 194.81 | 15.4 |
| SMDJ10 | SMDJ10C | PDW | DDW | 11.10 | 13.60 | 1 | 5 | 10.0 | 159.57 | 18.8 |
| SMDJ10A | SMDJ10CA | PDX | DDX | 11.10 | 12.30 | 1 | 5 | 10.0 | 176.47 | 17.0 |
| SMDJ11 | SMDJ11C | PDY | DDY | 12.20 | 14.90 | 1 | 2 | 11.0 | 149.25 | 20.1 |
| SMDJ11A | SMDJ11CA | PDZ | DDZ | 12.20 | 13.50 | 1 | 2 | 11.0 | 164.84 | 18.2 |
| SMDJ12 | SMDJ12C | PED | DED | 13.30 | 16.30 | 1 | 2 | 12.0 | 136.36 | 22.0 |
| SMDJ12A | SMDJ12CA | PEE | DEE | 13.30 | 14.70 | 1 | 2 | 12.0 | 150.75 | 19.9 |
| SMDJ13 | SMDJ13C | PEF | DEF | 14.40 | 17.60 | 1 | 2 | 13.0 | 126.05 | 23.8 |
| SMDJ13A | SMDJ13CA | PEG | DEG | 14.40 | 15.90 | 1 | 2 | 13.0 | 139.53 | 21.5 |
| SMDJ14 | SMDJ14C | PEH | DEH | 15.60 | 19.10 | 1 | 2 | 14.0 | 116.28 | 25.8 |
| SMDJ14A | SMDJ14CA | PEK | DEK | 15.60 | 17.20 | 1 | 2 | 14.0 | 129.31 | 23.2 |
| SMDJ15 | SMDJ15C | PEL | DEL | 16.70 | 20.40 | 1 | 2 | 15.0 | 111.52 | 26.9 |
| SMDJ15A | SMDJ15CA | PEM | DEM | 16.70 | 18.50 | 1 | 2 | 15.0 | 122.95 | 24.4 |
| SMDJ16 | SMDJ16C | PEN | DEN | 17.80 | 21.80 | 1 | 2 | 16.0 | 104.17 | 28.8 |
| SMDJ16A | SMDJ16CA | PEP | DEP | 17.80 | 19.70 | 1 | 2 | 16.0 | 115.38 | 26.0 |
| SMDJ17 | SMDJ17C | PEQ | DEQ | 18.90 | 23.10 | 1 | 2 | 17.0 | 98.36 | 30.5 |
| SMDJ17A | SMDJ17CA | PER | DER | 18.90 | 20.90 | 1 | 2 | 17.0 | 108.70 | 27.6 |
| SMDJ18 | SMDJ18C | PES | DES | 20.00 | 24.40 | 1 | 2 | 18.0 | 93.17 | 32.2 |
| SMDJ18A | SMDJ18CA | PET | DET | 20.00 | 22.10 | 1 | 2 | 18.0 | 102.74 | 29.2 |
| SMDJ19 | SMDJ19C | PEA | DEA | 21.13 | 25.76 | 1 | 2 | 19.0 | 88.21 | 34.0 |
| SMDJ19A | SMDJ19CA | PEB | DEB | 21.10 | 23.30 | 1 | 2 | 19.0 | 97.47 | 30.8 |
| SMDJ20 | SMDJ20C | PEU | DEU | 22.20 | 27.10 | 1 | 2 | 20.0 | 83.80 | 35.8 |
| SMDJ20A | SMDJ20CA | PEV | DEV | 22.20 | 24.50 | 1 | 2 | 20.0 | 92.59 | 32.4 |
| SMDJ22 | SMDJ22C | PEW | DEW | 24.40 | 29.80 | 1 | 2 | 22.0 | 76.14 | 39.4 |
| SMDJ22A | SMDJ22CA | PEX | DEX | 24.40 | 26.90 | 1 | 2 | 22.0 | 84.51 | 35.5 |
| SMDJ24 | SMDJ24C | PEY | DEY | 26.70 | 32.60 | 1 | 2 | 24.0 | 69.77 | 43.0 |
| SMDJ24A | SMDJ24CA | PEZ | DEZ | 26.70 | 29.50 | 1 | 2 | 24.0 | 77.12 | 38.9 |
| SMDJ26 | SMDJ26C | PFD | DFD | 28.90 | 35.30 | 1 | 2 | 26.0 | 64.38 | 46.6 |
| SMDJ26A | SMDJ26CA | PFE | DFE | 28.90 | 31.90 | 1 | 2 | 26.0 | 71.26 | 42.1 |
| SMDJ28 | SMDJ28C | PFF | DFE | 31.10 | 38.00 | 1 | 2 | 28.0 | 60.00 | 50.0 |
| SMDJ28A | SMDJ28CA | PFG | DFG | 31.10 | 34.40 | 1 | 2 | 28.0 | 66.08 | 45.4 |
| SMDJ30 | SMDJ30C | PFH | DFH | 33.30 | 40.70 | 1 | 2 | 30.0 | 56.07 | 53.5 |
| SMDJ30A | SMDJ30CA | PFK | DFK | 33.30 | 36.80 | 1 | 2 | 30.0 | 61.98 | 48.4 |
| SMDJ33 | SMDJ33C | PFL | DFL | 36.70 | 44.90 | 1 | 2 | 33.0 | 50.85 | 59.0 |
| SMDJ33A | SMDJ33CA | PFM | DFM | 36.70 | 40.60 | 1 | 2 | 33.0 | 56.29 | 53.3 |
| SMDJ36 | SMDJ36C | PFN | DFN | 40.00 | 48.90 | 1 | 2 | 36.0 | 46.66 | 64.3 |
| SMDJ36A | SMDJ36CA | PFP | DFP | 40.00 | 44.20 | 1 | 2 | 36.0 | 51.64 | 58.1 |

Note:

1. Suffix 'A' denotes 5% tolerance device. Without 'A' denotes 10% tolerance device
2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
3. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double

Electrical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Part Number (Uni) | Part Number (Bi) | Device Marking Code | | Breakdown Voltage V_{BR} @ I_T | | | Maximum Reverse Leakage I_R @ V_{RWM} (uA) | Working Peak Reverse Voltage V_{RWM} (V) | Maximum Reverse Surge Current I_{PP} (A) | Maximum Clamping Voltage V_C @ I_{PP} (V) |
|-------------------|------------------|---------------------|-----|------------------------------------|---------|------------|--|--|--|---|
| | | Uni | Bi | Min (V) | Max (V) | I_T (mA) | | | | |
| SMDJ40 | SMDJ40C | PFQ | DFQ | 44.40 | 54.30 | 1 | 2 | 40.0 | 42.02 | 71.4 |
| SMDJ40A | SMDJ40CA | PFR | DFR | 44.40 | 49.10 | 1 | 2 | 40.0 | 46.51 | 64.5 |
| SMDJ43 | SMDJ43C | PFS | DFS | 47.80 | 58.40 | 1 | 2 | 43.0 | 39.11 | 76.7 |
| SMDJ43A | SMDJ43CA | PFT | DFT | 47.80 | 52.80 | 1 | 2 | 43.0 | 43.23 | 69.4 |
| SMDJ45 | SMDJ45C | PFU | DFU | 50.00 | 61.10 | 1 | 2 | 45.0 | 37.36 | 80.3 |
| SMDJ45A | SMDJ45CA | PFV | DFV | 50.00 | 55.30 | 1 | 2 | 45.0 | 41.27 | 72.7 |
| SMDJ48 | SMDJ48C | PFW | DFW | 53.30 | 65.10 | 1 | 2 | 48.0 | 35.09 | 85.5 |
| SMDJ48A | SMDJ48CA | PFX | DFX | 53.30 | 58.90 | 1 | 2 | 48.0 | 38.76 | 77.4 |
| SMDJ51 | SMDJ51C | PFY | DFY | 56.70 | 69.30 | 1 | 2 | 51.0 | 32.93 | 91.1 |
| SMDJ51A | SMDJ51CA | PFZ | DFZ | 56.70 | 62.70 | 1 | 2 | 51.0 | 36.41 | 82.4 |
| SMDJ54 | SMDJ54C | RGD | DGD | 60.00 | 73.30 | 1 | 2 | 54.0 | 31.15 | 96.3 |
| SMDJ54A | SMDJ54CA | RGE | DGE | 60.00 | 66.30 | 1 | 2 | 54.0 | 34.44 | 87.1 |
| SMDJ58 | SMDJ58C | RGF | DGF | 64.40 | 78.70 | 1 | 2 | 58.0 | 29.13 | 103.0 |
| SMDJ58A | SMDJ58CA | PGG | DGG | 64.40 | 71.20 | 1 | 2 | 58.0 | 32.05 | 93.6 |
| SMDJ60 | SMDJ60C | RGH | DGH | 66.70 | 81.50 | 1 | 2 | 60.0 | 28.04 | 107.0 |
| SMDJ60A | SMDJ60CA | PGK | DGK | 66.70 | 73.70 | 1 | 2 | 60.0 | 30.99 | 96.8 |
| SMDJ64 | SMDJ64C | PGL | DGL | 71.10 | 86.90 | 1 | 2 | 64.0 | 26.32 | 114.0 |
| SMDJ64A | SMDJ64CA | PGM | DGM | 71.10 | 78.60 | 1 | 2 | 64.0 | 29.13 | 103.0 |
| SMDJ70 | SMDJ70C | PGN | DGN | 77.80 | 95.10 | 1 | 2 | 70.0 | 24.00 | 125.0 |
| SMDJ70A | SMDJ70CA | PGP | DGP | 77.80 | 86.00 | 1 | 2 | 70.0 | 26.55 | 113.0 |
| SMDJ75 | SMDJ75C | PGQ | DGQ | 83.30 | 102.00 | 1 | 2 | 75.0 | 22.39 | 134.0 |
| SMDJ75A | SMDJ75CA | PGR | DGR | 83.30 | 92.10 | 1 | 2 | 75.0 | 24.79 | 121.0 |
| SMDJ78 | SMDJ78C | PGS | DGS | 86.70 | 106.00 | 1 | 2 | 78.0 | 21.58 | 139.0 |
| SMDJ78A | SMDJ78CA | PGT | DGT | 86.70 | 95.80 | 1 | 2 | 78.0 | 23.81 | 126.0 |
| SMDJ80 | SMDJ80C | PGA | DGA | 88.96 | 108.80 | 1 | 2 | 80.0 | 20.95 | 143.2 |
| SMDJ80A | SMDJ80CA | PGB | DGB | 88.80 | 97.60 | 1 | 2 | 80.0 | 23.15 | 129.6 |
| SMDJ85 | SMDJ85C | PGU | DGU | 94.40 | 115.00 | 1 | 2 | 85.0 | 19.87 | 151.0 |
| SMDJ85A | SMDJ85CA | PGV | DGV | 94.40 | 104.00 | 1 | 2 | 85.0 | 21.90 | 137.0 |
| SMDJ90 | SMDJ90C | PGW | DGW | 100.00 | 122.00 | 1 | 2 | 90.0 | 18.75 | 160.0 |
| SMDJ90A | SMDJ90CA | PGX | DGX | 100.00 | 111.00 | 1 | 2 | 90.0 | 20.55 | 146.0 |
| SMDJ100 | SMDJ100C | PGY | DGY | 111.00 | 136.00 | 1 | 2 | 100.0 | 16.76 | 179.0 |
| SMDJ100A | SMDJ100CA | PGZ | DGZ | 111.00 | 123.00 | 1 | 2 | 100.0 | 18.52 | 162.0 |
| SMDJ110 | SMDJ110C | PHD | DHD | 122.00 | 149.00 | 1 | 2 | 110.0 | 15.31 | 196.0 |
| SMDJ110A | SMDJ110CA | PHE | DHE | 122.00 | 135.00 | 1 | 2 | 110.0 | 16.95 | 177.0 |
| SMDJ120 | SMDJ120C | PHF | DHF | 133.00 | 163.00 | 1 | 2 | 120.0 | 14.02 | 214.0 |
| SMDJ120A | SMDJ120CA | PHG | DHG | 133.00 | 147.00 | 1 | 2 | 120.0 | 15.54 | 193.0 |
| SMDJ130 | SMDJ130C | PHH | DHH | 144.00 | 176.00 | 1 | 2 | 130.0 | 12.99 | 231.0 |
| SMDJ130A | SMDJ130CA | PHK | DHK | 144.00 | 159.00 | 1 | 2 | 130.0 | 14.35 | 209.0 |
| SMDJ140 | SMDJ140C | PHA | DHA | 155.68 | 190.40 | 1 | 2 | 140.0 | 11.97 | 250.6 |
| SMDJ140A | SMDJ140CA | PHB | DHB | 155.00 | 171.00 | 1 | 2 | 140.0 | 13.23 | 226.8 |
| SMDJ150 | SMDJ150C | PHL | DHL | 167.00 | 204.00 | 1 | 2 | 150.0 | 11.19 | 268.0 |
| SMDJ150A | SMDJ150CA | PHM | DHM | 167.00 | 185.00 | 1 | 2 | 150.0 | 12.35 | 243.0 |
| SMDJ160 | SMDJ160C | PHN | DHN | 178.00 | 218.00 | 1 | 2 | 160.0 | 10.45 | 287.0 |
| SMDJ160A | SMDJ160CA | PHP | DHP | 178.00 | 197.00 | 1 | 2 | 160.0 | 11.58 | 259.0 |
| SMDJ170 | SMDJ170C | PHQ | DHQ | 189.00 | 231.00 | 1 | 2 | 170.0 | 9.87 | 304.0 |
| SMDJ170A | SMDJ170CA | PHR | DHR | 189.00 | 209.00 | 1 | 2 | 170.0 | 10.91 | 275.0 |
| SMDJ180 | SMDJ180C | PHS | DHS | 200.16 | 244.80 | 1 | 2 | 180.0 | 9.31 | 322.2 |
| SMDJ180A | SMDJ180CA | PHT | DHT | 200.00 | 220.00 | 1 | 2 | 180.0 | 10.29 | 291.6 |
| SMDJ190 | SMDJ190C | PHU | DHU | 211.28 | 258.40 | 1 | 2 | 190.0 | 8.82 | 340.1 |
| SMDJ190A | SMDJ190CA | PHV | DHV | 211.00 | 232.00 | 1 | 2 | 190.0 | 9.75 | 307.8 |
| SMDJ200A | SMDJ200CA | PHW | DHW | 224.00 | 247.00 | 1 | 2 | 200.0 | 9.26 | 324.0 |
| SMDJ220A | SMDJ220CA | PHX | DHX | 246.00 | 272.00 | 1 | 2 | 220.0 | 8.43 | 356.0 |
| SMDJ250A | SMDJ250CA | PHZ | DHZ | 279.00 | 309.00 | 1 | 2 | 250.0 | 7.41 | 405.0 |
| SMDJ300A | SMDJ300CA | PJE | DJE | 335.00 | 371.00 | 1 | 2 | 300.0 | 6.17 | 486.0 |
| SMDJ350A | SMDJ350CA | PJG | DJG | 391.00 | 432.00 | 1 | 2 | 350.0 | 5.29 | 567.0 |
| SMDJ400A | SMDJ400CA | PJK | DJK | 447.00 | 494.00 | 1 | 2 | 400.0 | 4.63 | 648.0 |
| SMDJ440A | SMDJ440CA | PJM | DJM | 492.00 | 543.00 | 1 | 2 | 440.0 | 4.21 | 713.0 |

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