

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

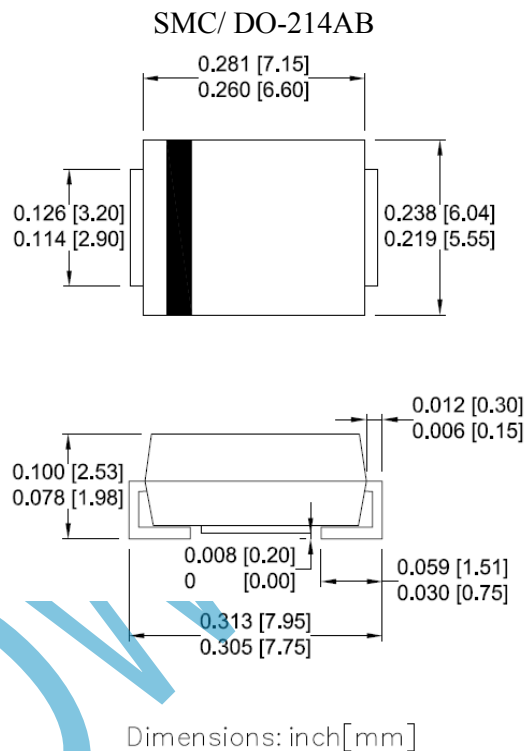
## Surface Mount Transient Voltage Suppressors

### Features

- Glass passivated chip
- 3000 W peak pulse power capability with a 10/1000  $\mu$ 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 $\mu$ s waveform <sup>(1)</sup>                       | $P_{PP}$       | 3000           | W                |
| Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>                           | $I_{PP}$       | 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 <sup>(2)</sup> | $I_{FSM}$      | 300            | A                |
| Maximum instantaneous forward voltage at 100A for unidirectional only <sup>(3)</sup>        | $V_F$          | 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)

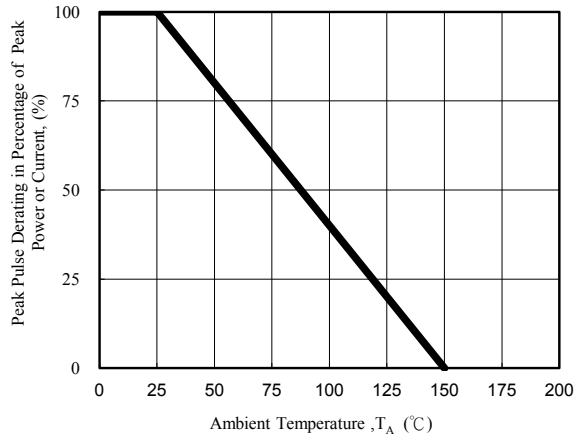


Fig. 1 - Pulse Derating Curve

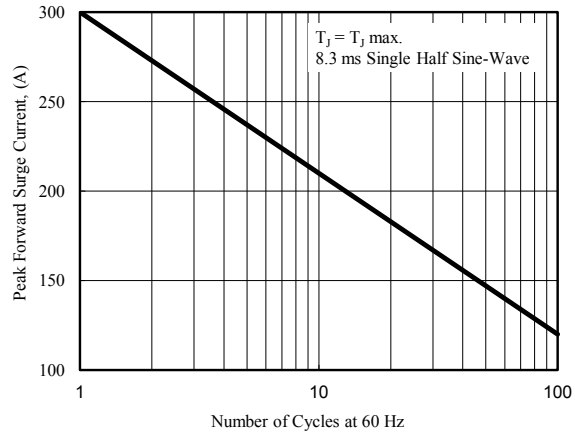


Fig. 2 - Maximum Non-Repetitive Surge Current

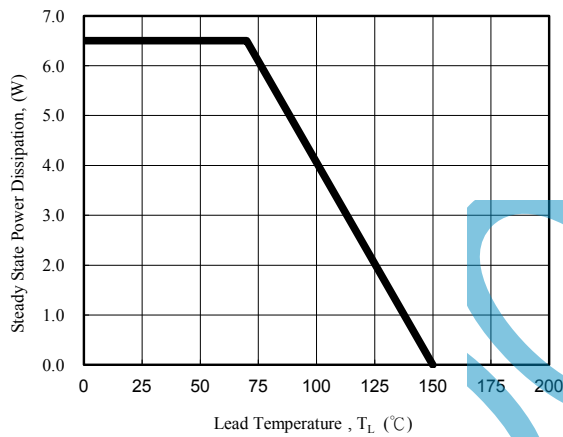


Fig. 3 - Steady State Power Derating Curve

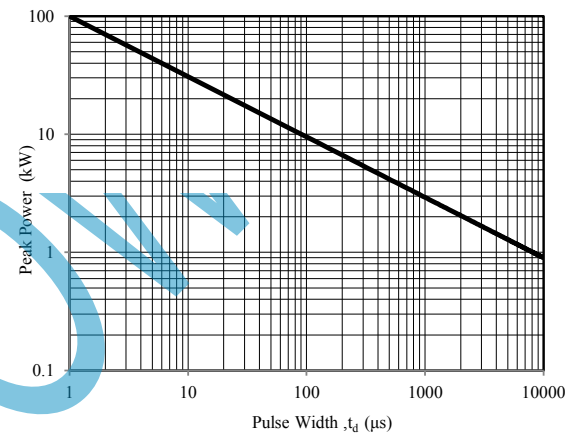


Fig. 4 - Peak Pulse Power Rating Curve

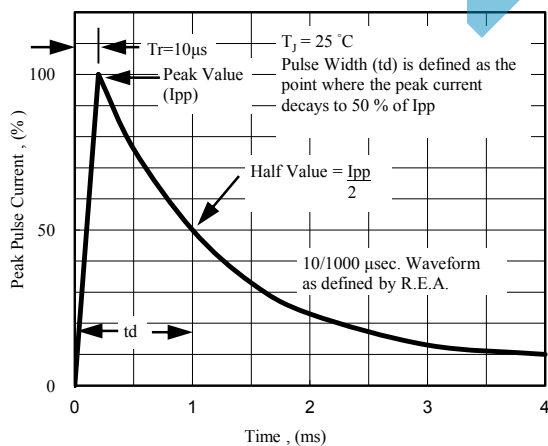


Fig. 5 - Pulse Waveform

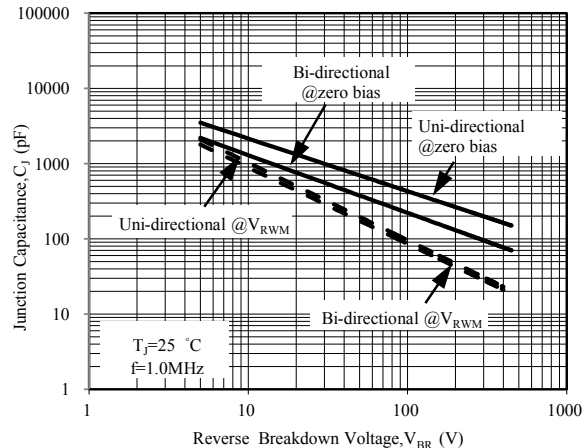


Fig. 6 - Typical Junction Capacitance

## 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   |