



®

# SMBJ5.0 THRU SMBJ440CA

## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

*Breskdown voltage: 5.0-440 Volts    Peak pulse power: 600 W allts*

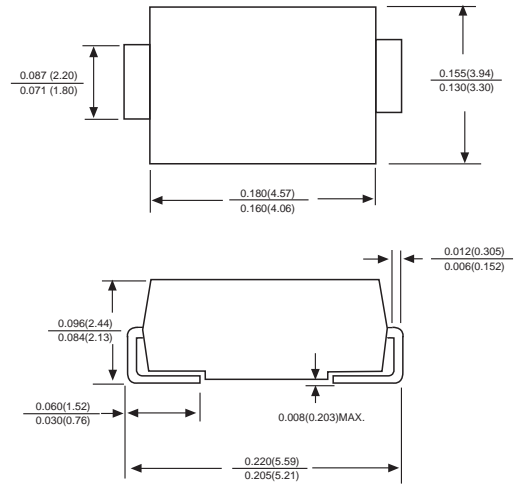
### FEATURE

- Optimized for LAN protection applications
- Ideal for ESD protection of data lines in accordance with IEC 1000-4-2(IEC801-2)
- Ideal for EFT protection of data lines in accordance with IEC1000-4-4(IEC801-2)
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Glass passivated junction
- 600w peak pulse power capability
- Excellent clamping capability
- Low incremental surge resistance
- Fast response time: typically less than 1.0ps from 0v to  $V_{(BR)}$  min
- High temperature soldering guaranteed: 265°C/10S at terminals

### MECHANICAL DATA

- Case:** JEDEC DO-214AA molded plastic body over passivated junction
- Terminals:** Solder plated , solderable per MIL-STD 750, method 2026
- Polarity:** Color band denotes cathode except for bidirectional types
- Mounting Position:** Any
- Weight:** 0.003 ounce,0.093 grams

DO-214AA



Dimensions in inches and (millimeters)

### DEVICES FOR BIDIRECTIONAL APPLICATIONS

For bidirectional use suffix C or CA for types SMBJ5.0 thru SMBJ170 (e.g. SMBJ5.0C,SMBJ170CA)  
Electrical characteristics apply in both directions.

### MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

|  | SYMBOLS                          | VALUE        | UNITS |
|--|----------------------------------|--------------|-------|
| Peak pulse power dissipation with a 10/1000μs wavetorm(NOTE 1,2,FIG.1)     | P <sub>PPM</sub>                 | Minimum 600  | Watts |
| Peak forward surge current (Note 1,2,3)                                    | I <sub>FSM</sub>                 | 100.0        | Amps  |
| Peak pulse current with a 10/1000μs waveform(NOTE 1)                       | I <sub>PPM</sub>                 | See Table 1  | Amps  |
| Steady state power dissipation (Note 3)                                    | P <sub>M(AV)</sub>               | 5.0          | Watts |
| Maximum instantaneous forward voltage at 50A(Note 3,4) unidirectional only | V <sub>F</sub>                   | 3.5/5.0      | Volts |
| Operating junction and storage temperature range                           | T <sub>STG</sub> ,T <sub>J</sub> | -55 to + 150 | °C    |

- 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<sup>2</sup> copper pads to each terminal
  - 3.Measured on 8.3ms single half sine-wine.For uni-directional devices only.
  - 4.V<sub>F</sub>=3.5V on SMB-5.0 thru SMB-90 devices and V<sub>F</sub>=5.0V on SMB-100 thru SMB-170 devices



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

| Part Number<br>(Uni) | Part Number<br>(Bi) | Device<br>Marking<br>Code |    | Breakdown Voltage $V_{BR} @ I_T$ |         |            | Maximum<br>Reverse<br>Leakage $I_R$<br>@ $V_{RWM}$<br>( $\mu\text{A}$ ) | Working<br>Peak Reverse<br>Voltage<br>$V_{RWM}$<br>(V) | Maximum<br>Reverse<br>Surge<br>Current $I_{PP}$<br>(A) | Maximum<br>Clamping<br>Voltage $V_C$<br>@ $I_{PP}$<br>(V) |
|----------------------|---------------------|---------------------------|----|----------------------------------|---------|------------|---|--|--|---|
|                      |                     | Uni                       | Bi | Min (V)                          | Max (V) | $I_T$ (mA) |   |  |  |   |
| SMBJ5.0              | SMBJ5.0C            | KD                        | AD | 6.40                             | 7.30    | 10         | 800   | 5.0  | 62.50  | 9.6   |
| SMBJ5.0A             | SMBJ5.0CA           | KE                        | AE | 6.40                             | 7.00    | 10         | 800   | 5.0  | 65.22  | 9.2   |
| SMBJ6.0              | SMBJ6.0C            | KF                        | AF | 6.67                             | 8.15    | 10         | 800   | 6.0  | 52.63  | 11.4  |
| SMBJ6.0A             | SMBJ6.0CA           | KG                        | AG | 6.67                             | 7.37    | 10         | 800   | 6.0  | 58.25  | 10.3  |
| SMBJ6.5              | SMBJ6.5C            | KH                        | AH | 7.22                             | 8.82    | 10         | 500   | 6.5  | 48.78  | 12.3  |
| SMBJ6.5A             | SMBJ6.5CA           | KK                        | AK | 7.22                             | 7.98    | 10         | 500   | 6.5  | 53.57  | 11.2  |
| SMBJ7.0              | SMBJ7.0C            | KL                        | AL | 7.78                             | 9.51    | 10         | 200   | 7.0  | 45.11  | 13.3  |
| SMBJ7.0A             | SMBJ7.0CA           | KM                        | AM | 7.78                             | 8.60    | 10         | 200   | 7.0  | 50.00  | 12.0  |
| SMBJ7.5              | SMBJ7.5C            | KN                        | AN | 8.33                             | 10.20   | 1          | 100   | 7.5  | 41.96  | 14.3  |
| SMBJ7.5A             | SMBJ7.5CA           | KP                        | AP | 8.33                             | 9.21    | 1          | 100   | 7.5  | 46.51  | 12.9  |
| SMBJ8.0              | SMBJ8.0C            | KQ                        | AQ | 8.89                             | 10.90   | 1          | 50  | 8.0  | 40.00  | 15.0  |
| SMBJ8.0A             | SMBJ8.0CA           | KR                        | AR | 8.89                             | 9.83    | 1          | 50  | 8.0  | 44.12  | 13.6  |
| SMBJ8.5              | SMBJ8.5C            | KS                        | AS | 9.44                             | 11.50   | 1          | 10  | 8.5  | 37.74  | 15.9  |
| SMBJ8.5A             | SMBJ8.5CA           | KT                        | AT | 9.44                             | 10.40   | 1          | 10  | 8.5  | 41.67  | 14.4  |
| SMBJ9.0              | SMBJ9.0C            | KU                        | AU | 10.00                            | 12.20   | 1          | 5   | 9.0  | 35.50  | 16.9  |
| SMBJ9.0A             | SMBJ9.0CA           | KV                        | AV | 10.00                            | 11.10   | 1          | 5   | 9.0  | 38.96  | 15.4  |
| SMBJ10               | SMBJ10C             | KW                        | AW | 11.10                            | 13.60   | 1          | 5   | 10.0   | 31.91  | 18.8  |
| SMBJ10A              | SMBJ10CA            | KX                        | AX | 11.10                            | 12.30   | 1          | 5   | 10.0   | 35.29  | 17.0  |
| SMBJ11               | SMBJ11C             | KY                        | AY | 12.20                            | 14.90   | 1          | 1   | 11.0   | 29.85  | 20.1  |
| SMBJ11A              | SMBJ11CA            | KZ                        | AZ | 12.20                            | 13.50   | 1          | 1   | 11.0   | 32.97  | 18.2  |
| SMBJ12               | SMBJ12C             | LD                        | BD | 13.30                            | 16.30   | 1          | 1   | 12.0   | 27.27  | 22.0  |
| SMBJ12A              | SMBJ12CA            | LE                        | BE | 13.30                            | 14.70   | 1          | 1   | 12.0   | 30.15  | 19.9  |
| SMBJ13               | SMBJ13C             | LF                        | BF | 14.40                            | 17.60   | 1          | 1   | 13.0   | 25.21  | 23.8  |
| SMBJ13A              | SMBJ13CA            | LG                        | BG | 14.40                            | 15.90   | 1          | 1   | 13.0   | 27.91  | 21.5  |
| SMBJ14               | SMBJ14C             | LH                        | BH | 15.60                            | 19.10   | 1          | 1   | 14.0   | 23.26  | 25.8  |
| SMBJ14A              | SMBJ14CA            | LK                        | BK | 15.60                            | 17.20   | 1          | 1   | 14.0   | 25.86  | 23.2  |
| SMBJ15               | SMBJ15C             | LL                        | BL | 16.70                            | 20.40   | 1          | 1   | 15.0   | 22.30  | 26.9  |
| SMBJ15A              | SMBJ15CA            | LM                        | BM | 16.70                            | 18.50   | 1          | 1   | 15.0   | 24.59  | 24.4  |
| SMBJ16               | SMBJ16C             | LN                        | BN | 17.80                            | 21.80   | 1          | 1   | 16.0   | 20.83  | 28.8  |
| SMBJ16A              | SMBJ16CA            | LP                        | BP | 17.80                            | 19.70   | 1          | 1   | 16.0   | 23.08  | 26.0  |
| SMBJ17               | SMBJ17C             | LQ                        | BQ | 18.90                            | 23.10   | 1          | 1   | 17.0   | 19.67  | 30.5  |
| SMBJ17A              | SMBJ17CA            | LR                        | BR | 18.90                            | 20.90   | 1          | 1   | 17.0   | 21.74  | 27.6  |
| SMBJ18               | SMBJ18C             | LS                        | BS | 20.00                            | 24.40   | 1          | 1   | 18.0   | 18.63  | 32.2  |
| SMBJ18A              | SMBJ18CA            | LT                        | BT | 20.00                            | 22.10   | 1          | 1   | 18.0   | 20.55  | 29.2  |
| SMBJ19               | SMBJ19C             | LA                        | BA | 21.13                            | 25.76   | 1          | 1   | 19.0   | 17.64  | 34.0  |
| SMBJ19A              | SMBJ19CA            | LB                        | BB | 21.10                            | 23.30   | 1          | 1   | 19.0   | 19.49  | 30.8  |
| SMBJ20               | SMBJ20C             | LU                        | BU | 22.20                            | 27.10   | 1          | 1   | 20.0   | 16.76  | 35.8  |
| SMBJ20A              | SMBJ20CA            | LV                        | BV | 22.20                            | 24.50   | 1          | 1   | 20.0   | 18.52  | 32.4  |
| SMBJ22               | SMBJ22C             | LW                        | BW | 24.40                            | 29.80   | 1          | 1   | 22.0   | 15.23  | 39.4  |
| SMBJ22A              | SMBJ22CA            | LX                        | BX | 24.40                            | 26.90   | 1          | 1   | 22.0   | 16.90  | 35.5  |
| SMBJ24               | SMBJ24C             | LY                        | BY | 26.70                            | 32.60   | 1          | 1   | 24.0   | 13.95  | 43.0  |
| SMBJ24A              | SMBJ24CA            | LZ                        | BZ | 26.70                            | 29.50   | 1          | 1   | 24.0   | 15.42  | 38.9  |
| SMBJ26               | SMBJ26C             | MD                        | CD | 28.90                            | 35.30   | 1          | 1   | 26.0   | 12.88  | 46.6  |
| SMBJ26A              | SMBJ26CA            | ME                        | CE | 28.90                            | 31.90   | 1          | 1   | 26.0   | 14.25  | 42.1  |
| SMBJ28               | SMBJ28C             | MF                        | CF | 31.10                            | 38.00   | 1          | 1   | 28.0   | 12.00  | 50.0  |
| SMBJ28A              | SMBJ28CA            | MG                        | CG | 31.10                            | 34.40   | 1          | 1   | 28.0   | 13.22  | 45.4  |
| SMBJ30               | SMBJ30C             | MH                        | CH | 33.30                            | 40.70   | 1          | 1   | 30.0   | 11.21  | 53.5  |
| SMBJ30A              | SMBJ30CA            | MK                        | CK | 33.30                            | 36.80   | 1          | 1   | 30.0   | 12.40  | 48.4  |
| SMBJ33               | SMBJ33C             | ML                        | CL | 36.70                            | 44.90   | 1          | 1   | 33.0   | 10.17  | 59.0  |
| SMBJ33A              | SMBJ33CA            | MM                        | CM | 36.70                            | 40.60   | 1          | 1   | 33.0   | 11.26  | 53.3  |
| SMBJ36               | SMBJ36C             | MN                        | CN | 40.00                            | 48.90   | 1          | 1   | 36.0   | 9.33   | 64.3  |
| SMBJ36A              | SMBJ36CA            | MP                        | CP | 40.00                            | 44.20   | 1          | 1   | 36.0   | 10.33  | 58.1  |



**Electrical Characteristics(T<sub>A</sub>=25°C unless otherwise noted)**

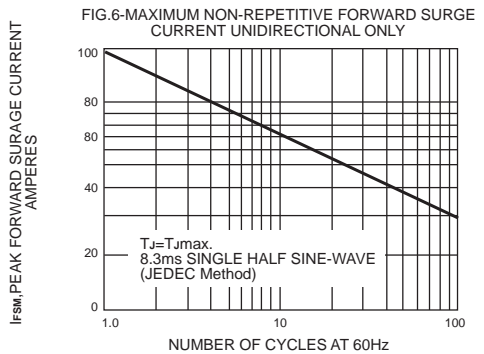
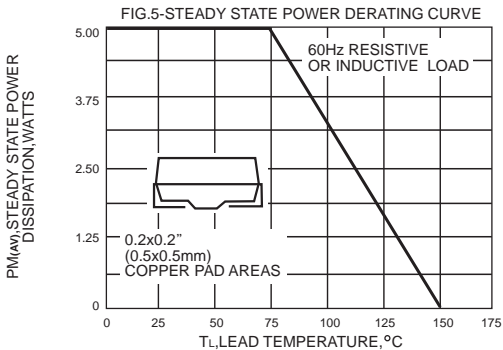
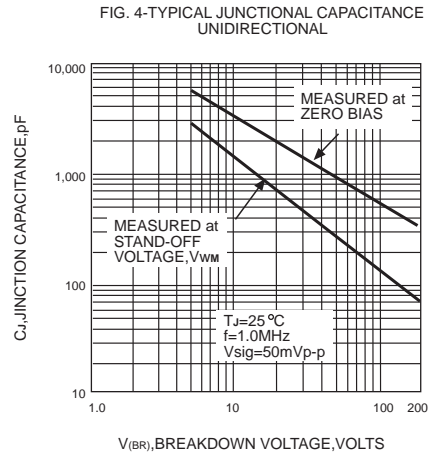
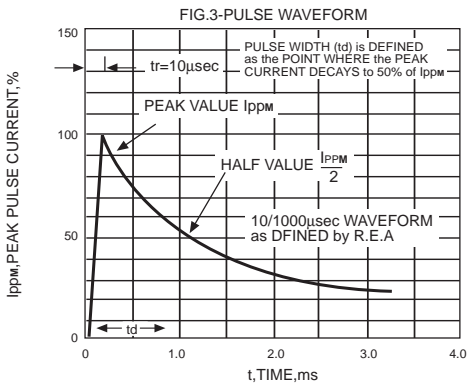
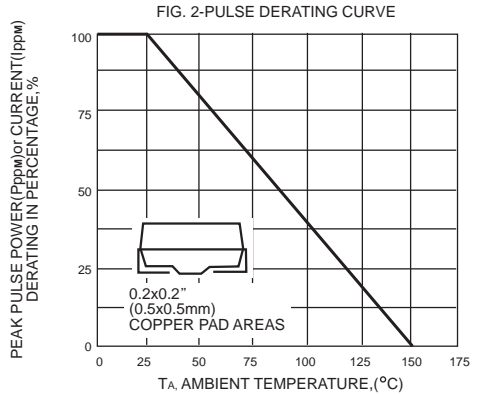
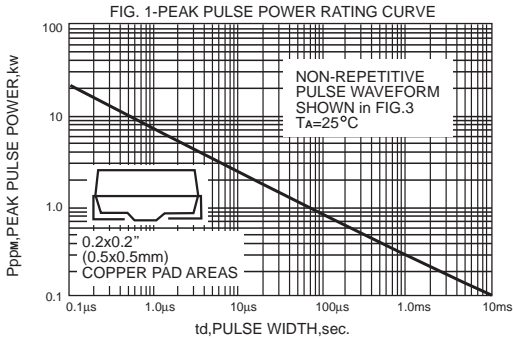
| Part Number<br>(Uni) | Part Number<br>(Bi) | Device<br>Marking<br>Code |    | Breakdown Voltage V <sub>BR</sub> @I <sub>T</sub> |         |                     | Maximum<br>Reverse<br>Leakage I <sub>R</sub><br>@V <sub>RWM</sub><br>(uA) | Working<br>Peak Reverse<br>Voltage<br>V <sub>RWM</sub><br>(V) | Maximum<br>Reverse<br>Surge<br>Current I <sub>PP</sub><br>(A) | Maximum<br>Clamping<br>Voltage V <sub>C</sub><br>@I <sub>PP</sub><br>(V) |
|----------------------|---------------------|---------------------------|----|---|---------|---------------------|---|---|---|--|
|                      |                     | Uni                       | Bi | Min (V)   | Max (V) | I <sub>T</sub> (mA) |   |   |   |  |
| SMBJ40               | SMBJ40C             | MQ                        | CQ | 44.40   | 54.30   | 1                   | 1   | 40.0  | 8.40  | 71.4   |
| SMBJ40A              | SMBJ40CA            | MR                        | CR | 44.40   | 49.10   | 1                   | 1   | 40.0  | 9.30  | 64.5   |
| SMBJ43               | SMBJ43C             | MS                        | CS | 47.80   | 58.40   | 1                   | 1   | 43.0  | 7.82  | 76.7   |
| SMBJ43A              | SMBJ43CA            | MT                        | CT | 47.80   | 52.80   | 1                   | 1   | 43.0  | 8.65  | 69.4   |
| SMBJ45               | SMBJ45C             | MU                        | CU | 50.00   | 61.10   | 1                   | 1   | 45.0  | 7.47  | 80.3   |
| SMBJ45A              | SMBJ45CA            | MV                        | CV | 50.00   | 55.30   | 1                   | 1   | 45.0  | 8.25  | 72.7   |
| SMBJ48               | SMBJ48C             | MW                        | CW | 53.30   | 65.10   | 1                   | 1   | 48.0  | 7.02  | 85.5   |
| SMBJ48A              | SMBJ48CA            | MX                        | CX | 53.30   | 58.90   | 1                   | 1   | 48.0  | 7.75  | 77.4   |
| SMBJ51               | SMBJ51C             | MY                        | CY | 56.70   | 69.30   | 1                   | 1   | 51.0  | 6.59  | 91.1   |
| SMBJ51A              | SMBJ51CA            | MZ                        | CZ | 56.70   | 62.70   | 1                   | 1   | 51.0  | 7.28  | 82.4   |
| SMBJ54               | SMBJ54C             | ND                        | DD | 60.00   | 73.30   | 1                   | 1   | 54.0  | 6.23  | 96.3   |
| SMBJ54A              | SMBJ54CA            | NE                        | DE | 60.00   | 66.30   | 1                   | 1   | 54.0  | 6.89  | 87.1   |
| SMBJ58               | SMBJ58C             | NF                        | DF | 64.40   | 78.70   | 1                   | 1   | 58.0  | 5.83  | 103.0  |
| SMBJ58A              | SMBJ58CA            | NG                        | DG | 64.40   | 71.20   | 1                   | 1   | 58.0  | 6.41  | 93.6   |
| SMBJ60               | SMBJ60C             | NH                        | DH | 66.70   | 81.50   | 1                   | 1   | 60.0  | 5.61  | 107.0  |
| SMBJ60A              | SMBJ60CA            | NK                        | DK | 66.70   | 73.70   | 1                   | 1   | 60.0  | 6.20  | 96.8   |
| SMBJ64               | SMBJ64C             | NL                        | DL | 71.10   | 86.90   | 1                   | 1   | 64.0  | 5.26  | 114.0  |
| SMBJ64A              | SMBJ64CA            | NM                        | DM | 71.10   | 78.60   | 1                   | 1   | 64.0  | 5.83  | 103.0  |
| SMBJ70               | SMBJ70C             | NN                        | DN | 77.80   | 95.10   | 1                   | 1   | 70.0  | 4.80  | 125.0  |
| SMBJ70A              | SMBJ70CA            | NP                        | DP | 77.80   | 86.00   | 1                   | 1   | 70.0  | 5.31  | 113.0  |
| SMBJ75               | SMBJ75C             | NQ                        | DQ | 83.30   | 102.00  | 1                   | 1   | 75.0  | 4.48  | 134.0  |
| SMBJ75A              | SMBJ75CA            | NR                        | DR | 83.30   | 92.10   | 1                   | 1   | 75.0  | 4.96  | 121.0  |
| SMBJ78               | SMBJ78C             | NS                        | DS | 86.70   | 106.00  | 1                   | 1   | 78.0  | 4.32  | 139.0  |
| SMBJ78A              | SMBJ78CA            | NT                        | DT | 86.70   | 95.80   | 1                   | 1   | 78.0  | 4.76  | 126.0  |
| SMBJ80               | SMBJ80C             | NA                        | DA | 88.96   | 108.80  | 1                   | 1   | 80.0  | 4.19  | 143.2  |
| SMBJ80A              | SMBJ80CA            | NB                        | DB | 88.80   | 97.60   | 1                   | 1   | 80.0  | 4.63  | 129.6  |
| SMBJ85               | SMBJ85C             | NU                        | DU | 94.40   | 115.00  | 1                   | 1   | 85.0  | 3.97  | 151.0  |
| SMBJ85A              | SMBJ85CA            | NV                        | DV | 94.40   | 104.00  | 1                   | 1   | 85.0  | 4.38  | 137.0  |
| SMBJ90               | SMBJ90C             | NW                        | DW | 100.00  | 122.00  | 1                   | 1   | 90.0  | 3.75  | 160.0  |
| SMBJ90A              | SMBJ90CA            | NX                        | DX | 100.00  | 111.00  | 1                   | 1   | 90.0  | 4.11  | 146.0  |
| SMBJ100              | SMBJ100C            | NY                        | DY | 111.00  | 136.00  | 1                   | 1   | 100.0   | 3.35  | 179.0  |
| SMBJ100A             | SMBJ100CA           | NZ                        | DZ | 111.00  | 123.00  | 1                   | 1   | 100.0   | 3.70  | 162.0  |
| SMBJ110              | SMBJ110C            | PD                        | ED | 122.00  | 149.00  | 1                   | 1   | 110.0   | 3.06  | 196.0  |
| SMBJ110A             | SMBJ110CA           | PE                        | EE | 122.00  | 135.00  | 1                   | 1   | 110.0   | 3.39  | 177.0  |
| SMBJ120              | SMBJ120C            | PF                        | EF | 133.00  | 163.00  | 1                   | 1   | 120.0   | 2.80  | 214.0  |
| SMBJ120A             | SMBJ120CA           | PG                        | EG | 133.00  | 147.00  | 1                   | 1   | 120.0   | 3.11  | 193.0  |
| SMBJ130              | SMBJ130C            | PH                        | EH | 144.00  | 176.00  | 1                   | 1   | 130.0   | 2.60  | 231.0  |
| SMBJ130A             | SMBJ130CA           | PK                        | EK | 144.00  | 159.00  | 1                   | 1   | 130.0   | 2.87  | 209.0  |
| SMBJ140              | SMBJ140C            | PA                        | EA | 155.68  | 190.40  | 1                   | 1   | 140.0   | 2.39  | 250.6  |
| SMBJ140A             | SMBJ140CA           | PB                        | EB | 155.00  | 171.00  | 1                   | 1   | 140.0   | 2.65  | 226.8  |
| SMBJ150              | SMBJ150C            | PL                        | EL | 167.00  | 204.00  | 1                   | 1   | 150.0   | 2.24  | 268.0  |
| SMBJ150A             | SMBJ150CA           | PM                        | EM | 167.00  | 185.00  | 1                   | 1   | 150.0   | 2.47  | 243.0  |
| SMBJ160              | SMBJ160C            | PN                        | EN | 178.00  | 218.00  | 1                   | 1   | 160.0   | 2.09  | 287.0  |
| SMBJ160A             | SMBJ160CA           | PP                        | EP | 178.00  | 197.00  | 1                   | 1   | 160.0   | 2.32  | 259.0  |
| SMBJ170              | SMBJ170C            | PQ                        | EQ | 189.00  | 231.00  | 1                   | 1   | 170.0   | 1.97  | 304.0  |
| SMBJ170A             | SMBJ170CA           | PR                        | ER | 189.00  | 209.00  | 1                   | 1   | 170.0   | 2.18  | 275.0  |
| SMBJ180              | SMBJ180C            | PS                        | ES | 200.16  | 244.80  | 1                   | 1   | 180.0   | 1.86  | 322.2  |
| SMBJ180A             | SMBJ180CA           | PT                        | ET | 200.00  | 220.00  | 1                   | 1   | 180.0   | 2.06  | 291.6  |
| SMBJ190              | SMBJ190C            | PU                        | EU | 211.28  | 258.40  | 1                   | 1   | 190.0   | 1.76  | 340.1  |
| SMBJ190A             | SMBJ190CA           | PV                        | EV | 211.00  | 232.00  | 1                   | 1   | 190.0   | 1.95  | 307.8  |
| SMBJ200A             | SMBJ200CA           | PW                        | EW | 224.00  | 247.00  | 1                   | 1   | 200.0   | 1.85  | 324.0  |
| SMBJ220A             | SMBJ220CA           | PX                        | EX | 246.00  | 272.00  | 1                   | 1   | 220.0   | 1.69  | 356.0  |
| SMBJ250A             | SMBJ250CA           | PZ                        | EZ | 279.00  | 309.00  | 1                   | 1   | 250.0   | 1.48  | 405.0  |
| SMBJ300A             | SMBJ300CA           | QE                        | FE | 335.00  | 371.00  | 1                   | 1   | 300.0   | 1.23  | 486.0  |
| SMBJ350A             | SMBJ350CA           | QG                        | FG | 391.00  | 432.00  | 1                   | 1   | 350.0   | 1.06  | 567.0  |
| SMBJ400A             | SMBJ400CA           | QK                        | FK | 447.00  | 494.00  | 1                   | 1   | 400.0   | 0.93  | 648.0  |
| SMBJ440A             | SMBJ440CA           | QM                        | FM | 492.00  | 543.00  | 1                   | 1   | 440.0   | 0.84  | 713.0  |

**NOTES:**

- 1.V<sub>(BR)</sub>measured after I<sub>T</sub> applied for 300μs,I<sub>T</sub>=square wave pulse or equivalent
- 2.Surge current waveform per Fig.3 and derated per Fig.2
- 3.For bidirectional types having V<sub>WM</sub> of 10 volts and less,the I<sub>D</sub> limit is doubled
- 4.All items and symbols are consistent with ANSI/IEEE C62.35



# RATINGS AND CHARACTERISTIC CURVES SMBJ5.0 THUR SMBJ440CA



单击下面可查看定价，库存，交付和生命周期等信息

[>>ZG\(中鑫半导体\)](#)