



## DO-214AA SMBJ Transient Suppression Diodes TVS SMBJ15CA Components

Our Product Introduction

### Basic Information

- Place of Origin: Shenzhen, Guangdong, China
- Brand Name: SOCAY
- Certification: UL, REACH, RoHS, ISO
- Model Number: SMBJ15CA
- Minimum Order Quantity: 5000PCS
- Price: Negotiable
- Packaging Details: tape reel
- Delivery Time: 1-2weeks
- Payment Terms: T/T, Western Union, MoneyGram
- Supply Ability: 1000000pcs



### Product Specification

- SMBJ15CA Name: TVS Diodes
- SMBJ15CA Package Type: DO-214AA/SMB
- SMBJ15CA V<sub>rw</sub>m: 15V
- SMBJ15CA V<sub>br</sub>@I<sub>t</sub> (Min.): 16.7V
- SMBJ15CA V<sub>br</sub>@I<sub>t</sub> (Max.): 18.5V
- SMBJ15CA I<sub>t</sub>: 1mA
- SMBJ15CA V<sub>c</sub>@I<sub>pp</sub>: 24.4V
- Storage Temperature Range: -55 To +150
- Highlight: Transient Suppression Diodes TVS, SMBJ Transient Suppression Diodes, SMBJ15CA



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## Product Description

### DO-214AA SMBJ Transient Suppression Diodes TVS SMBJ15CA Components

**TVS SMBJ15CA DATASHEET: [SMBJ\\_v88.2.pdf](#)**

#### TVS SMBJ15CA Features:

SMAJ15CA series TVS transient suppression diode products adopt standard surface mount SMA package and have a peak rated power of 400W. The product has extremely fast response time (sub-nanosecond) and very high stability. Designed specifically for the protection of various interfaces in electronic circuit applications from transient voltages caused by lightning strikes and other transient voltage events

#### Product Features

Available in standard surface mount SMA package

Fast response time: typically less than 1.0ps from 0 volts to VBR minimum

Peak pulse power at 10×1000μs waveform is 400W

Fast response time: typically less than 1.0ps from 0 volts to VBR minimum

Halogen-free and compliant with RoHS and Reach testing standards

#### Applications

Power supply protection

Automotive application

Industrial application

Power management

| TVS SMBJ15CA Part Number |          | TVS SMBJ15CA Marking |    | TVS SMBJ15CA Reverse Stand-Off Voltage VRWM (V) | TVS SMBJ15CA Breakdown Voltage VBR (V) @IT |       | TVS SMBJ15CA Test Current IT (mA) | TVS SMBJ15CA Maximum Clamping Voltage VC @IPP (V) | TVS SMBJ15CA Maximum Peak Pulse Current IPP (A) | Maximum Reverse Leakage IR @VRWM (μA) |
|--------------------------|----------|----------------------|----|-------------------------------------------------|--------------------------------------------|-------|-----------------------------------|---------------------------------------------------|-------------------------------------------------|---------------------------------------|
| Uni                      | Bi       | Uni                  | Bi |                                                 | MIN                                        | MAX   |                                   |                                                   |                                                 |                                       |
| SMBJ15A                  | SMBJ15CA | LM                   | BM | 15.0                                            | 16.70                                      | 18.50 | 1                                 | 24.4                                              | 24.59                                           | 5                                     |

| Part Number |           | Marking |    | Reverse Stand-Off Voltage VRWM (V) | Breakdown Voltage VBR (V) @IT |       | Test Current IT (mA) | Maximum Clamping Voltage VC @IPP (V) | Maximum Peak Pulse Current IPP (A) | Maximum Reverse Leakage IR @VRWM (μA) |
|-------------|-----------|---------|----|------------------------------------|-------------------------------|-------|----------------------|--------------------------------------|------------------------------------|---------------------------------------|
| Uni         | Bi        | Uni     | Bi |                                    | MIN                           | MAX   |                      |                                      |                                    |                                       |
| SMBJ3A      | —         | K1      | —  | 3.3                                | 5.20                          | 6.50  | 10                   | 8.0                                  | 75.00                              | 600                                   |
| SMBJ5.0A    | SMBJ5.0CA | KE      | AE | 5.0                                | 6.40                          | 7.00  | 10                   | 9.2                                  | 65.22                              | 800                                   |
| SMBJ6.0A    | SMBJ6.0CA | KG      | AG | 6.0                                | 6.67                          | 7.37  | 10                   | 10.3                                 | 58.25                              | 800                                   |
| SMBJ6.5A    | SMBJ6.5CA | KK      | AK | 6.5                                | 7.22                          | 7.98  | 10                   | 11.2                                 | 53.57                              | 500                                   |
| SMBJ7.0A    | SMBJ7.0CA | KM      | AM | 7.0                                | 7.78                          | 8.60  | 10                   | 12.0                                 | 50.00                              | 200                                   |
| SMBJ7.5A    | SMBJ7.5CA | KP      | AP | 7.5                                | 8.33                          | 9.21  | 1                    | 12.9                                 | 46.51                              | 100                                   |
| SMBJ8.0A    | SMBJ8.0CA | KR      | AR | 8.0                                | 8.89                          | 9.83  | 1                    | 13.6                                 | 44.12                              | 50                                    |
| SMBJ8.5A    | SMBJ8.5CA | KT      | AT | 8.5                                | 9.44                          | 10.40 | 1                    | 14.4                                 | 41.67                              | 10                                    |
| SMBJ9.0A    | SMBJ9.0CA | KV      | AV | 9.0                                | 10.00                         | 11.10 | 1                    | 15.4                                 | 38.96                              | 5                                     |
| SMBJ10A     | SMBJ10CA  | KX      | AX | 10.0                               | 11.10                         | 12.30 | 1                    | 17.0                                 | 35.29                              | 5                                     |
| SMBJ11A     | SMBJ11CA  | KZ      | WZ | 11.0                               | 12.20                         | 13.50 | 1                    | 18.2                                 | 32.97                              | 5                                     |
| SMBJ12A     | SMBJ12CA  | LE      | BE | 12.0                               | 13.30                         | 14.70 | 1                    | 19.9                                 | 30.15                              | 5                                     |
| SMBJ13A     | SMBJ13CA  | LG      | BG | 13.0                               | 14.40                         | 15.90 | 1                    | 21.5                                 | 27.91                              | 5                                     |
| SMBJ14A     | SMBJ14CA  | LK      | BK | 14.0                               | 15.60                         | 17.20 | 1                    | 23.2                                 | 25.86                              | 5                                     |
| SMBJ15A     | SMBJ15CA  | LM      | BM | 15.0                               | 16.70                         | 18.50 | 1                    | 24.4                                 | 24.59                              | 5                                     |
| SMBJ16A     | SMBJ16CA  | LP      | BP | 16.0                               | 17.80                         | 19.70 | 1                    | 26.0                                 | 23.08                              | 5                                     |
| SMBJ17A     | SMBJ17CA  | LR      | BR | 17.0                               | 18.90                         | 20.90 | 1                    | 27.6                                 | 21.74                              | 5                                     |
| SMBJ18A     | SMBJ18CA  | LT      | BT | 18.0                               | 20.00                         | 22.10 | 1                    | 29.2                                 | 20.55                              | 5                                     |
| SMBJ19A     | SMBJ19CA  | LB      | BB | 19.0                               | 21.10                         | 23.30 | 1                    | 30.8                                 | 19.49                              | 5                                     |
| SMBJ20A     | SMBJ20CA  | LV      | BV | 20.0                               | 22.20                         | 24.50 | 1                    | 32.4                                 | 18.52                              | 5                                     |
| SMBJ22A     | SMBJ22CA  | LX      | BX | 22.0                               | 24.40                         | 26.90 | 1                    | 35.5                                 | 16.90                              | 5                                     |
| SMBJ24A     | SMBJ24CA  | LZ      | BZ | 24.0                               | 26.70                         | 29.50 | 1                    | 38.9                                 | 15.42                              | 5                                     |
| SMBJ26A     | SMBJ26CA  | ME      | CE | 26.0                               | 28.90                         | 31.90 | 1                    | 42.1                                 | 14.25                              | 5                                     |
| SMBJ28A     | SMBJ28CA  | MG      | CG | 28.0                               | 31.10                         | 34.40 | 1                    | 45.4                                 | 13.22                              | 5                                     |
| SMBJ30A     | SMBJ30CA  | MK      | CK | 30.0                               | 33.30                         | 36.80 | 1                    | 48.4                                 | 12.40                              | 5                                     |
| SMBJ33A     | SMBJ33CA  | MM      | CM | 33.0                               | 36.70                         | 40.60 | 1                    | 53.3                                 | 11.26                              | 5                                     |
| SMBJ36A     | SMBJ36CA  | MP      | CP | 36.0                               | 40.00                         | 44.20 | 1                    | 58.1                                 | 10.33                              | 5                                     |
| SMBJ40A     | SMBJ40CA  | MR      | CR | 40.0                               | 44.40                         | 49.10 | 1                    | 64.5                                 | 9.30                               | 5                                     |
| SMBJ43A     | SMBJ43CA  | MT      | CT | 43.0                               | 47.80                         | 52.80 | 1                    | 69.4                                 | 8.65                               | 5                                     |

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

| Part Number |           | Marking |    | Reverse Stand-Off Voltage<br>V <sub>RRM</sub> (V) | Breakdown Voltage V <sub>BR</sub> (V)<br>@I <sub>R</sub> |        | Test Current<br>I <sub>T</sub> (mA) | Maximum Clamping Voltage<br>V <sub>C</sub> @I <sub>CC</sub> (V) | Maximum Peak Pulse Current<br>I <sub>PP</sub> (A) | Maximum Reverse Leakage I <sub>R</sub> @V <sub>RRM</sub> (μA) |
|-------------|-----------|---------|----|---------------------------------------------------|----------------------------------------------------------|--------|-------------------------------------|-----------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------------------|
| Uni         | BI        | Uni     | BI |                                                   | MIN                                                      | MAX    |                                     |                                                                 |                                                   |                                                               |
| SMBJ45A     | SMBJ45CA  | MV      | CV | 45.0                                              | 50.00                                                    | 55.30  | 1                                   | 72.7                                                            | 8.25                                              | 5                                                             |
| SMBJ48A     | SMBJ48CA  | MX      | CX | 48.0                                              | 53.30                                                    | 58.90  | 1                                   | 77.4                                                            | 7.75                                              | 5                                                             |
| SMBJ51A     | SMBJ51CA  | MZ      | CZ | 51.0                                              | 56.70                                                    | 62.70  | 1                                   | 82.4                                                            | 7.28                                              | 5                                                             |
| SMBJ54A     | SMBJ54CA  | NE      | DE | 54.0                                              | 60.00                                                    | 66.30  | 1                                   | 87.1                                                            | 6.89                                              | 5                                                             |
| SMBJ58A     | SMBJ58CA  | NG      | DG | 58.0                                              | 64.40                                                    | 71.20  | 1                                   | 93.6                                                            | 6.41                                              | 5                                                             |
| SMBJ60A     | SMBJ60CA  | NK      | DK | 60.0                                              | 66.70                                                    | 73.70  | 1                                   | 96.8                                                            | 6.20                                              | 5                                                             |
| SMBJ64A     | SMBJ64CA  | NM      | DM | 64.0                                              | 71.10                                                    | 78.60  | 1                                   | 103.0                                                           | 5.83                                              | 5                                                             |
| SMBJ70A     | SMBJ70CA  | NP      | DP | 70.0                                              | 77.80                                                    | 86.00  | 1                                   | 113.0                                                           | 5.31                                              | 5                                                             |
| SMBJ75A     | SMBJ75CA  | NR      | DR | 75.0                                              | 83.30                                                    | 92.10  | 1                                   | 121.0                                                           | 4.96                                              | 5                                                             |
| SMBJ78A     | SMBJ78CA  | NT      | DT | 78.0                                              | 86.70                                                    | 95.80  | 1                                   | 126.0                                                           | 4.76                                              | 5                                                             |
| SMBJ80A     | SMBJ80CA  | NB      | DB | 80.0                                              | 88.80                                                    | 97.60  | 1                                   | 129.6                                                           | 4.63                                              | 5                                                             |
| SMBJ85A     | SMBJ85CA  | NV      | DV | 85.0                                              | 94.40                                                    | 104.00 | 1                                   | 137.0                                                           | 4.38                                              | 5                                                             |
| SMBJ90A     | SMBJ90CA  | NX      | DX | 90.0                                              | 100.00                                                   | 111.00 | 1                                   | 146.0                                                           | 4.11                                              | 5                                                             |
| SMBJ100A    | SMBJ100CA | NZ      | DZ | 100.0                                             | 111.00                                                   | 123.00 | 1                                   | 162.0                                                           | 3.70                                              | 5                                                             |
| SMBJ110A    | SMBJ110CA | PE      | EE | 110.0                                             | 122.00                                                   | 135.00 | 1                                   | 177.0                                                           | 3.39                                              | 5                                                             |
| SMBJ120A    | SMBJ120CA | PG      | EG | 120.0                                             | 133.00                                                   | 147.00 | 1                                   | 193.0                                                           | 3.11                                              | 5                                                             |
| SMBJ130A    | SMBJ130CA | PK      | EK | 130.0                                             | 144.00                                                   | 159.00 | 1                                   | 209.0                                                           | 2.87                                              | 5                                                             |
| SMBJ140A    | SMBJ140CA | PB      | EB | 140.0                                             | 155.00                                                   | 171.00 | 1                                   | 226.8                                                           | 2.65                                              | 5                                                             |
| SMBJ150A    | SMBJ150CA | PM      | EM | 150.0                                             | 167.00                                                   | 185.00 | 1                                   | 243.0                                                           | 2.47                                              | 5                                                             |
| SMBJ160A    | SMBJ160CA | PP      | EP | 160.0                                             | 178.00                                                   | 197.00 | 1                                   | 259.0                                                           | 2.32                                              | 5                                                             |
| SMBJ170A    | SMBJ170CA | PR      | ER | 170.0                                             | 189.00                                                   | 209.00 | 1                                   | 275.0                                                           | 2.18                                              | 5                                                             |
| SMBJ180A    | SMBJ180CA | PT      | ET | 180.0                                             | 201.00                                                   | 220.00 | 1                                   | 291.6                                                           | 2.06                                              | 5                                                             |
| SMBJ190A    | SMBJ190CA | PV      | EV | 190.0                                             | 211.00                                                   | 232.00 | 1                                   | 307.8                                                           | 1.95                                              | 5                                                             |
| SMBJ200A    | SMBJ200CA | PW      | EW | 200.0                                             | 224.00                                                   | 247.00 | 1                                   | 324.0                                                           | 1.85                                              | 5                                                             |
| SMBJ220A    | SMBJ220CA | PX      | EX | 220.0                                             | 246.00                                                   | 272.00 | 1                                   | 356.0                                                           | 1.69                                              | 5                                                             |
| SMBJ250A    | SMBJ250CA | PZ      | EZ | 250.0                                             | 279.00                                                   | 309.00 | 1                                   | 405.0                                                           | 1.48                                              | 5                                                             |
| SMBJ300A    | SMBJ300CA | QE      | FE | 300.0                                             | 335.00                                                   | 371.00 | 1                                   | 486.0                                                           | 1.23                                              | 5                                                             |
| SMBJ350A    | SMBJ350CA | QG      | FG | 350.0                                             | 391.00                                                   | 432.00 | 1                                   | 567.0                                                           | 1.06                                              | 5                                                             |
| SMBJ400A    | SMBJ400CA | QK      | FK | 400.0                                             | 447.00                                                   | 494.00 | 1                                   | 648.0                                                           | 0.93                                              | 5                                                             |
| SMBJ440A    | SMBJ440CA | QM      | FM | 440.0                                             | 492.00                                                   | 543.00 | 1                                   | 713.0                                                           | 0.84                                              | 5                                                             |

## Ratings and Characteristic Curves (T<sub>A</sub>=25°C unless otherwise noted)

Figure 1 - Peak Pulse Power Rating Curve



Figure 2 - Pulse Derating Curve



Figure 3 - Pulse Waveform

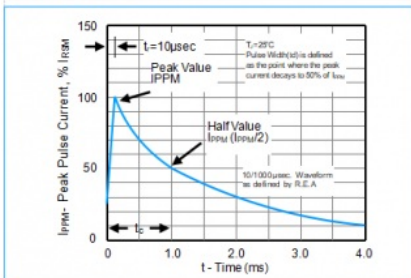


Figure 4 - Typical Junction Capacitance

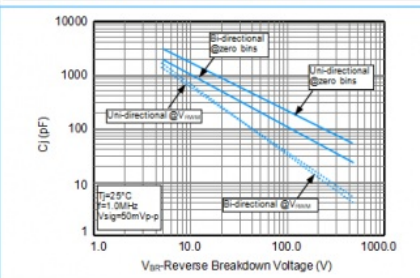


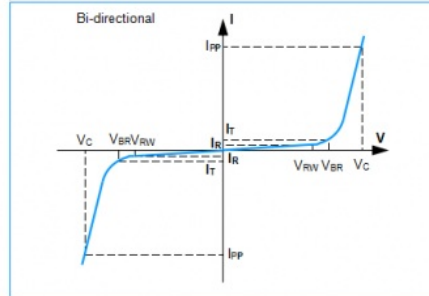
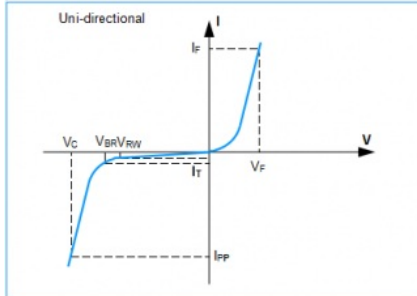
Figure 5 - Steady State Power Derating Curve



Figure 6 - Maximum Non-Repetitive Surge Current



## I-V Curve Characteristics



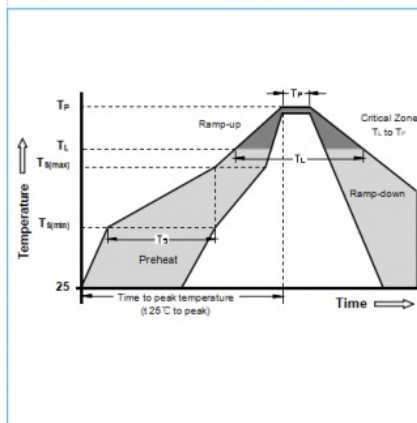
## Physical Specifications

|          |                                                              |
|----------|--------------------------------------------------------------|
| Weight   | 0.003 ounce, 0.093 gram                                      |
| Case     | JEDEC DO-214AA Molded Plastic over glass passivated junction |
| Polarity | Color band denotes cathode except Bipolar                    |
| Terminal | Matte Tin-plated leads, Solderable per JESD22-B102D          |

## Environmental Specifications

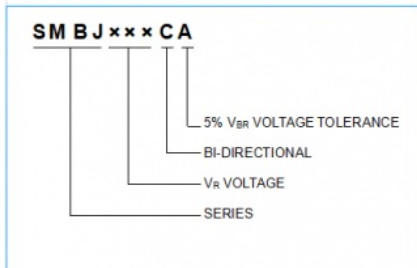
|                    |             |
|--------------------|-------------|
| Temperature Cycle  | JESD22-A104 |
| Pressure Cooker    | JESD22-A102 |
| High Temp. Storage | JESD22-A103 |
| HTRB               | JESD22-A108 |
| Thermal Shock      | JESD22-A106 |

## Soldering Parameters

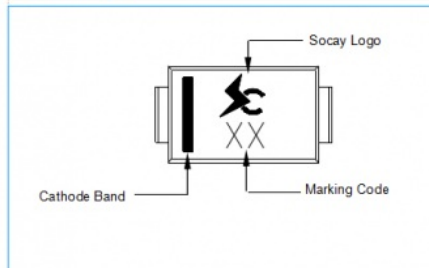


|                                                      |                                               |
|------------------------------------------------------|-----------------------------------------------|
| Reflow Condition                                     | Lead-free assembly                            |
| Pre Heat                                             | -Temperature Min ( $T_{s(min)}$ ) 150°C       |
|                                                      | -Temperature Max ( $T_{s(max)}$ ) 200°C       |
|                                                      | -Time (min to max) ( $T_s$ ) 60 - 180 Seconds |
| Average ramp up rate (Liquidus Temp $T_L$ to peak)   | 3°C/second max                                |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                 | 3°C/second max                                |
| Reflow                                               | -Temperature ( $T_L$ ) (Liquidus) 217°C       |
|                                                      | -Time (min to max) ( $T_L$ ) 60 - 150 Seconds |
| Peak Temperature ( $T_P$ )                           | 260 +0/-5°C                                   |
| Time within 5°C of actual peak Temperature ( $t_p$ ) | 20 - 40 Seconds                               |
| Ramp-down Rate                                       | 6°C/second max                                |
| Time 25°C to peak Temperature ( $T_P$ )              | 8 minutes Max                                 |
| Do not exceed                                        | 280°C                                         |

## Part Numbering

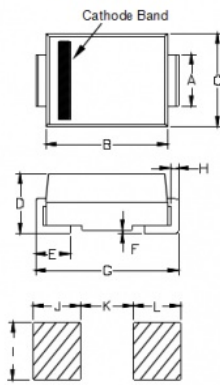


## Part Marking



## Dimensions

DO-214AA (SMB)

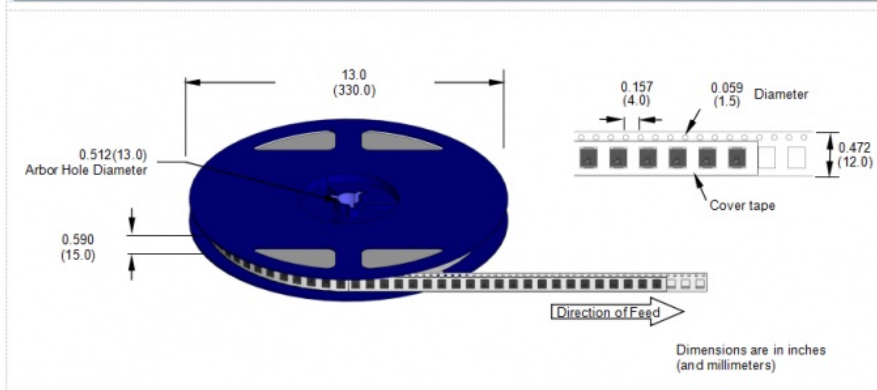


| Dimensions | Inches |       | Millimeters |       |
|------------|--------|-------|-------------|-------|
|            | Min    | Max   | Min         | Max   |
| A          | 0.073  | 0.087 | 1.85        | 2.21  |
| B          | 0.167  | 0.191 | 4.25        | 4.85  |
| C          | 0.130  | 0.155 | 3.30        | 3.94  |
| D          | 0.085  | 0.104 | 2.15        | 2.65  |
| E          | 0.030  | 0.060 | 0.75        | 1.52  |
| F          | --     | 0.008 | --          | 0.203 |
| G          | 0.200  | 0.220 | 5.08        | 5.59  |
| H          | 0.006  | 0.012 | 0.15        | 0.31  |
| I          | 0.089  | -     | 2.26        | -     |
| J          | 0.085  | -     | 2.10        | -     |
| K          | -      | 0.107 | -           | 2.74  |
| L          | 0.085  | -     | 2.10        | -     |

## Packaging

| Part Number | Component Package | Reel (PCS) | Per Carton (PCS) | Packaging Option          | Reel Diameters (mm) |
|-------------|-------------------|------------|------------------|---------------------------|---------------------|
| SMBJXXXXX   | DO-214AA (SMB)    | 3000       | 48000            | Tape & Reel -15mm*13"tape | 330.0               |

## Tape and Reel Specifications



SMAJ15CA series TVS transient suppression diodes are packaged in SMA standard, 5,000 pcs per tray. Samples now available.

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