

## Socay TVS Diodes SMF Series TVS 200W 51V Surface Mount Transient Voltage Suppressors

Our Product Introduction

### Basic Information

- Place of Origin: Shenzhen, Guangdong, China
- Brand Name: Socay
- Certification: UL, REACH, RoHS, ISO
- Model Number: SMF51A
- Minimum Order Quantity: 5000PCS
- Price: Negotiable
- Delivery Time: 5-8 work days



### Product Specification

- Package Type: SOD-123
- SMF51A Reverse Stand-Off Voltage VRWM: 51.0
- SMF51A Breakdown Voltage VBR(V) @IT MIN: 56.70
- SMF51A Breakdown Voltage VBR(V) @IT MAX: 62.70
- SMF51A Test Current IT (mA): 1
- SMF51A Maximum Clamping Voltage VC@IPP (V): 82.4
- SMF51A Maximum Peak Pulse Current IPP (A): 2.43
- SMF51A Maximum Reverse Leakage IR @VRWM (μA): 1
- Highlight: **SMF51A TVS Diodes, 200W 51V TVS Diodes, Surface Mount Transient Voltage Suppressors**

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## Product Description

### Socay TVS Diodes SMF Series TVS 200W 51V Surface Mount Transient Voltage Suppressors

**SMF51A DATASHEET: [SMF Series\\_v2211.1.pdf](#)**

#### SMF51A Description:

The SMF series of transient voltage suppressors is designed to protect sensitive electronic equipment from transient voltages caused by lightning and other transient voltage events that can damage electronic equipment and interfere with normal use of the equipment.

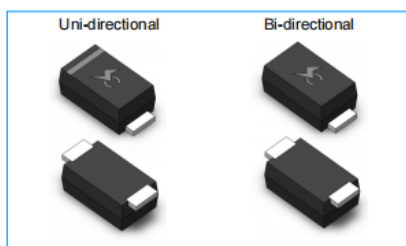
| Part Number |          | Marking |    | Reverse Stand-Off Voltage VRWM (V) | Breakdown Voltage VBR (V) @IT |       | Test Current IT (mA) | Maximum Clamping Voltage VC @IPP (V) | Maximum Peak Pulse Current IPP (A) | Maximum Reverse Leakage IR @VRWM (μA) |
|-------------|----------|---------|----|------------------------------------|-------------------------------|-------|----------------------|--------------------------------------|------------------------------------|---------------------------------------|
| Uni         | Bi       | Uni     | Bi |                                    | MIN                           | MAX   |                      |                                      |                                    |                                       |
| SMF5.0A     | SMF5.0CA | FE      | KE | 5.0                                | 6.40                          | 7.00  | 10                   | 9.2                                  | 21.74                              | 400                                   |
| SMF6.0A     | SMF6.0CA | FG      | KG | 6.0                                | 6.67                          | 7.37  | 10                   | 10.3                                 | 19.42                              | 400                                   |
| SMF6.5A     | SMF6.5CA | FK      | KK | 6.5                                | 7.22                          | 7.98  | 10                   | 11.2                                 | 17.86                              | 200                                   |
| SMF7.0A     | SMF7.0CA | FM      | KM | 7.0                                | 7.78                          | 8.60  | 10                   | 12.0                                 | 16.67                              | 100                                   |
| SMF7.5A     | SMF7.5CA | FP      | KP | 7.5                                | 8.33                          | 9.21  | 1                    | 12.9                                 | 15.50                              | 50                                    |
| SMF8.0A     | SMF8.0CA | FR      | KR | 8.0                                | 8.89                          | 9.83  | 1                    | 13.6                                 | 14.71                              | 25                                    |
| SMF8.5A     | SMF8.5CA | FT      | KT | 8.5                                | 9.44                          | 10.40 | 1                    | 14.4                                 | 13.89                              | 10                                    |
| SMF9.0A     | SMF9.0CA | FV      | KV | 9.0                                | 10.00                         | 11.10 | 1                    | 15.4                                 | 12.99                              | 5                                     |
| SMF10A      | SMF10CA  | FX      | KX | 10.0                               | 11.10                         | 12.30 | 1                    | 17.0                                 | 11.76                              | 2.5                                   |
| SMF11A      | SMF11CA  | FZ      | KZ | 11.0                               | 12.20                         | 13.50 | 1                    | 18.2                                 | 10.99                              | 2.5                                   |
| SMF12A      | SMF12CA  | HE      | LE | 12.0                               | 13.30                         | 14.70 | 1                    | 19.9                                 | 10.05                              | 2.5                                   |
| SMF13A      | SMF13CA  | HG      | LG | 13.0                               | 14.40                         | 15.90 | 1                    | 21.5                                 | 9.30                               | 1                                     |
| SMF14A      | SMF14CA  | HK      | LK | 14.0                               | 15.60                         | 17.20 | 1                    | 23.2                                 | 8.62                               | 1                                     |
| SMF15A      | SMF15CA  | HM      | LM | 15.0                               | 16.70                         | 18.50 | 1                    | 24.4                                 | 8.20                               | 1                                     |
| SMF16A      | SMF16CA  | HP      | LP | 16.0                               | 17.80                         | 19.70 | 1                    | 26.0                                 | 7.69                               | 1                                     |
| SMF17A      | SMF17CA  | HR      | LR | 17.0                               | 18.90                         | 20.90 | 1                    | 27.6                                 | 7.25                               | 1                                     |
| SMF18A      | SMF18CA  | HT      | LT | 18.0                               | 20.00                         | 22.10 | 1                    | 29.2                                 | 6.85                               | 1                                     |
| SMF19A      | SMF19CA  | HB      | LB | 19.0                               | 21.10                         | 23.30 | 1                    | 30.6                                 | 6.54                               | 1                                     |
| SMF20A      | SMF20CA  | HV      | LV | 20.0                               | 22.20                         | 24.50 | 1                    | 32.4                                 | 6.17                               | 1                                     |
| SMF22A      | SMF22CA  | HX      | LX | 22.0                               | 24.0                          | 26.90 | 1                    | 35.5                                 | 5.63                               | 1                                     |
| SMF24A      | SMF24CA  | HZ      | LZ | 24.0                               | 26.70                         | 29.50 | 1                    | 38.9                                 | 5.14                               | 1                                     |
| SMF26A      | SMF26CA  | JE      | ME | 26.0                               | 28.90                         | 31.90 | 1                    | 42.1                                 | 4.75                               | 1                                     |
| SMF28A      | SMF28CA  | JG      | MG | 28.0                               | 31.10                         | 34.40 | 1                    | 45.4                                 | 4.41                               | 1                                     |
| SMF30A      | SMF30CA  | JK      | MK | 30.0                               | 33.30                         | 36.80 | 1                    | 48.4                                 | 4.13                               | 1                                     |
| SMF33A      | SMF33CA  | JM      | MM | 33.0                               | 36.70                         | 40.60 | 1                    | 53.3                                 | 3.75                               | 1                                     |
| SMF36A      | SMF36CA  | JP      | MP | 36.0                               | 40.00                         | 44.20 | 1                    | 58.1                                 | 3.44                               | 1                                     |
| SMF40A      | SMF40CA  | JR      | MR | 40.0                               | 44.40                         | 49.10 | 1                    | 64.5                                 | 3.10                               | 1                                     |
| SMF43A      | SMF43CA  | JT      | MT | 43.0                               | 47.80                         | 52.80 | 1                    | 69.4                                 | 2.88                               | 1                                     |
| SMF45A      | SMF45CA  | JV      | MV | 45.0                               | 50.00                         | 55.30 | 1                    | 72.7                                 | 2.75                               | 1                                     |
| SMF48A      | SMF48CA  | JX      | MX | 48.0                               | 53.30                         | 58.90 | 1                    | 77.4                                 | 2.58                               | 1                                     |
| SMF51A      | SMF51CA  | JZ      | MZ | 51.0                               | 56.70                         | 62.70 | 1                    | 82.4                                 | 2.43                               | 1                                     |
| SMF54A      | SMF54CA  | XE      | NE | 54.0                               | 60.00                         | 66.30 | 1                    | 87.4                                 | 2.30                               | 1                                     |
| SMF58A      | SMF58CA  | XG      | NG | 58.0                               | 64.40                         | 71.20 | 1                    | 93.6                                 | 2.14                               | 1                                     |

#### SMF51A Features:

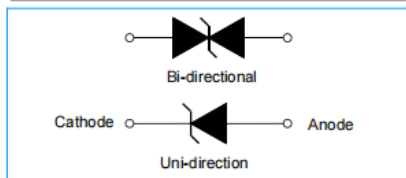
- Low leakage
- Uni-directional and Bi-directional unit
- Passivated junction glass
- Low inductance
- Excellent ability to clamp and unclamp
- Matt Tin Lead Free
- Halogen free and RoHS compliant
- Compatible with industrial standard package SOD-123
- For optimising board space in surface mount applications
- High Temperature soldering: 260 /40 seconds at terminals
- Typical maximum temperature coefficient  $\Delta VBR = 0.1\% \times VBR @ 25 \times \Delta T$
- Plastic package has Underwriters Laboratory Flammability 94V-0
- Typical failure mode is short due to over voltage or over current.
- 200W Peak power capability at  $10 \times 1000\mu s$  waveform Repetition rate (duty cycle):0.01%
- Fast response time: typically less than 1.0ps from 0 Volts to VBR min
- Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c
- IEC-61000-4-2 ESD 15kV(Air), 8kV (Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2 (IEC801-2)
- EFT protection of data lines in accordance with IEC 61000-4-4 (IEC801-4)

### SMF51A Applications:

TVS devices are ideally suited to telecommunications, consumer electronics, computer and industrial applications for the protection of I/O interfaces, VCC buses and other sensitive circuits.



### Functional Diagram



### Applications

TVS devices are ideal for the protection of I/O interfaces, VCC bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications.

### Maximum Ratings (TA=25°C unless otherwise noted)

| Parameter                                                                        | Symbol                            | Value          | Unit    |
|----------------------------------------------------------------------------------|-----------------------------------|----------------|---------|
| Peak Pulse Power Dissipation with a 10/1000µs waveform (Fig.1)(Note 1), (Note 2) | P <sub>PPM</sub>                  | 200            | Watts   |
| Peak Pulse Power Dissipation with a 8/20µs waveform (Fig.1)(Note 1), (Note 2)    | P <sub>PPM</sub>                  | 1000           | Watts   |
| Peak Pulse Current with a 10/1000µs waveform.(Note1, Fig.3)                      | I <sub>PP</sub>                   | See Next Table | Amps    |
| Power Dissipation on Infinite Heat Sink at T <sub>L</sub> =75°C                  | P <sub>DM</sub> (W)               | 0.4            | Watt    |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)                 | I <sub>FSM</sub>                  | 20             | Amps    |
| Maximum Instantaneous Forward Voltage at 25A for Unidirectional Only (Note 4)    | V <sub>F</sub>                    | 3.5            | Voltage |
| Operating junction and Storage Temperature Range.                                | T <sub>J</sub> , T <sub>STG</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 x 5.0mm (0.03mm thick) Copper Pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.
4. V<sub>F</sub> < 3.5V for V<sub>RM</sub> < 200V and V<sub>F</sub> < 6.5V for V<sub>RM</sub> > 201V.

| Part Number |          | Marking |    | Reverse Stand-Off Voltage $V_{RMS}$ (V) | Breakdown Voltage $V_{BR}$ (V) @ $I_T$ |       | Test Current $I_T$ (mA) | Maximum Clamping Voltage $V_C$ @ $I_{CP}$ (V) | Maximum Peak Pulse Current $I_{PP}$ (A) | Maximum Reverse Leakage $I_R$ @ $V_{RMS}$ ( $\mu$ A) |
|-------------|----------|---------|----|-----------------------------------------|----------------------------------------|-------|-------------------------|-----------------------------------------------|-----------------------------------------|------------------------------------------------------|
| Uni         | BI       | Uni     | BI |                                         | MIN                                    | MAX   |                         |                                               |                                         |                                                      |
| SMF5.0A     | SMF5.0CA | FE      | KE | 5.0                                     | 6.40                                   | 7.00  | 10                      | 9.2                                           | 21.74                                   | 400                                                  |
| SMF6.0A     | SMF6.0CA | FG      | KG | 6.0                                     | 6.67                                   | 7.37  | 10                      | 10.3                                          | 19.42                                   | 400                                                  |
| SMF6.5A     | SMF6.5CA | FK      | KK | 6.5                                     | 7.22                                   | 7.98  | 10                      | 11.2                                          | 17.86                                   | 250                                                  |
| SMF7.0A     | SMF7.0CA | FM      | KM | 7.0                                     | 7.78                                   | 8.60  | 10                      | 12.0                                          | 16.67                                   | 100                                                  |
| SMF7.5A     | SMF7.5CA | FP      | KP | 7.5                                     | 8.33                                   | 9.21  | 1                       | 12.9                                          | 15.50                                   | 50                                                   |
| SMF8.0A     | SMF8.0CA | FR      | KR | 8.0                                     | 8.89                                   | 9.83  | 1                       | 13.6                                          | 14.71                                   | 25                                                   |
| SMF8.5A     | SMF8.5CA | FT      | KT | 8.5                                     | 9.44                                   | 10.40 | 1                       | 14.4                                          | 13.89                                   | 10                                                   |
| SMF9.0A     | SMF9.0CA | FV      | KV | 9.0                                     | 10.00                                  | 11.10 | 1                       | 15.4                                          | 12.99                                   | 5                                                    |
| SMF10A      | SMF10CA  | FX      | KX | 10.0                                    | 11.10                                  | 12.30 | 1                       | 17.0                                          | 11.76                                   | 2.5                                                  |
| SMF11A      | SMF11CA  | FZ      | KZ | 11.0                                    | 12.20                                  | 13.50 | 1                       | 18.2                                          | 10.99                                   | 2.5                                                  |
| SMF12A      | SMF12CA  | HE      | LE | 12.0                                    | 13.30                                  | 14.70 | 1                       | 19.9                                          | 10.05                                   | 2.5                                                  |
| SMF13A      | SMF13CA  | HG      | LG | 13.0                                    | 14.40                                  | 15.90 | 1                       | 21.5                                          | 9.30                                    | 1                                                    |
| SMF14A      | SMF14CA  | HK      | LK | 14.0                                    | 15.60                                  | 17.20 | 1                       | 23.2                                          | 8.62                                    | 1                                                    |
| SMF15A      | SMF15CA  | HM      | LM | 15.0                                    | 16.70                                  | 18.50 | 1                       | 24.4                                          | 8.20                                    | 1                                                    |
| SMF16A      | SMF16CA  | HP      | LP | 16.0                                    | 17.80                                  | 19.70 | 1                       | 26.0                                          | 7.69                                    | 1                                                    |
| SMF17A      | SMF17CA  | HR      | LR | 17.0                                    | 18.90                                  | 20.90 | 1                       | 27.6                                          | 7.25                                    | 1                                                    |
| SMF18A      | SMF18CA  | HT      | LT | 18.0                                    | 20.00                                  | 22.10 | 1                       | 29.2                                          | 6.85                                    | 1                                                    |
| SMF19A      | SMF19CA  | HB      | LB | 19.0                                    | 21.10                                  | 23.30 | 1                       | 30.6                                          | 6.54                                    | 1                                                    |
| SMF20A      | SMF20CA  | HV      | LV | 20.0                                    | 22.20                                  | 24.50 | 1                       | 32.4                                          | 6.17                                    | 1                                                    |
| SMF22A      | SMF22CA  | HX      | LX | 22.0                                    | 24.40                                  | 26.90 | 1                       | 35.5                                          | 5.63                                    | 1                                                    |
| SMF24A      | SMF24CA  | HZ      | LZ | 24.0                                    | 26.70                                  | 29.50 | 1                       | 38.9                                          | 5.14                                    | 1                                                    |
| SMF26A      | SMF26CA  | JE      | ME | 26.0                                    | 28.90                                  | 31.90 | 1                       | 42.1                                          | 4.75                                    | 1                                                    |
| SMF28A      | SMF28CA  | JG      | MG | 28.0                                    | 31.10                                  | 34.40 | 1                       | 45.4                                          | 4.41                                    | 1                                                    |
| SMF30A      | SMF30CA  | JK      | MK | 30.0                                    | 33.30                                  | 36.80 | 1                       | 48.4                                          | 4.13                                    | 1                                                    |
| SMF33A      | SMF33CA  | JM      | MM | 33.0                                    | 36.70                                  | 40.60 | 1                       | 53.3                                          | 3.75                                    | 1                                                    |
| SMF36A      | SMF36CA  | JP      | MP | 36.0                                    | 40.00                                  | 44.20 | 1                       | 58.1                                          | 3.44                                    | 1                                                    |
| SMF40A      | SMF40CA  | JR      | MR | 40.0                                    | 44.40                                  | 49.10 | 1                       | 64.5                                          | 3.10                                    | 1                                                    |
| SMF43A      | SMF43CA  | JT      | MT | 43.0                                    | 47.80                                  | 52.80 | 1                       | 69.4                                          | 2.88                                    | 1                                                    |
| SMF45A      | SMF45CA  | JV      | MV | 45.0                                    | 50.00                                  | 55.30 | 1                       | 72.7                                          | 2.75                                    | 1                                                    |
| SMF48A      | SMF48CA  | JX      | MX | 48.0                                    | 53.30                                  | 58.90 | 1                       | 77.4                                          | 2.58                                    | 1                                                    |

| Part Number |          | Marking |    | Reverse Stand-Off Voltage $V_{RMS}$ (V) | Breakdown Voltage $V_{BR}$ (V) @ $I_T$ |        | Test Current $I_T$ (mA) | Maximum Clamping Voltage $V_C$ @ $I_{CP}$ (V) | Maximum Peak Pulse Current $I_{PP}$ (A) | Maximum Reverse Leakage $I_R$ @ $V_{RMS}$ ( $\mu$ A) |
|-------------|----------|---------|----|-----------------------------------------|----------------------------------------|--------|-------------------------|-----------------------------------------------|-----------------------------------------|------------------------------------------------------|
| Uni         | BI       | Uni     | BI |                                         | MIN                                    | MAX    |                         |                                               |                                         |                                                      |
| SMF51A      | SMF51CA  | JZ      | MZ | 51.0                                    | 56.70                                  | 62.70  | 1                       | 82.4                                          | 2.43                                    | 1                                                    |
| SMF54A      | SMF54CA  | XE      | NE | 54.0                                    | 60.00                                  | 66.30  | 1                       | 87.1                                          | 2.30                                    | 1                                                    |
| SMF58A      | SMF58CA  | XG      | NG | 58.0                                    | 64.40                                  | 71.20  | 1                       | 93.6                                          | 2.14                                    | 1                                                    |
| SMF60A      | SMF60CA  | XK      | NK | 60.0                                    | 66.70                                  | 73.70  | 1                       | 96.8                                          | 2.07                                    | 1                                                    |
| SMF64A      | SMF64CA  | XM      | NM | 64.0                                    | 71.10                                  | 78.60  | 1                       | 103.0                                         | 1.94                                    | 1                                                    |
| SMF70A      | SMF70CA  | XP      | NP | 70.0                                    | 77.80                                  | 86.00  | 1                       | 113.0                                         | 1.77                                    | 1                                                    |
| SMF75A      | SMF75CA  | XR      | NR | 75.0                                    | 83.30                                  | 92.10  | 1                       | 121.0                                         | 1.65                                    | 1                                                    |
| SMF78A      | SMF78CA  | XT      | NT | 78.0                                    | 86.70                                  | 95.80  | 1                       | 126.0                                         | 1.59                                    | 1                                                    |
| SMF80A      | SMF80CA  | XB      | NB | 80.0                                    | 88.80                                  | 97.60  | 1                       | 129.0                                         | 1.55                                    | 1                                                    |
| SMF85A      | SMF85CA  | XV      | NV | 85.0                                    | 94.40                                  | 104.00 | 1                       | 137.0                                         | 1.46                                    | 1                                                    |
| SMF90A      | SMF90CA  | XX      | NX | 90.0                                    | 100.00                                 | 111.00 | 1                       | 146.0                                         | 1.37                                    | 1                                                    |
| SMF100A     | SMF100CA | XZ      | NZ | 100.0                                   | 111.00                                 | 123.00 | 1                       | 162.0                                         | 1.23                                    | 1                                                    |
| SMF110A     | SMF110CA | TE      | PE | 110.0                                   | 122.00                                 | 135.00 | 1                       | 177.0                                         | 1.13                                    | 1                                                    |
| SMF120A     | SMF120CA | TG      | PG | 120.0                                   | 133.00                                 | 147.00 | 1                       | 193.0                                         | 1.04                                    | 1                                                    |
| SMF130A     | SMF130CA | TK      | PK | 130.0                                   | 144.00                                 | 159.00 | 1                       | 209.0                                         | 0.96                                    | 1                                                    |
| SMF140A     | SMF140CA | TB      | PB | 140.0                                   | 155.00                                 | 171.00 | 1                       | 224.0                                         | 0.89                                    | 1                                                    |
| SMF150A     | SMF150CA | TM      | PM | 150.0                                   | 167.00                                 | 185.00 | 1                       | 243.0                                         | 0.82                                    | 1                                                    |
| SMF160A     | SMF160CA | TP      | PP | 160.0                                   | 178.00                                 | 197.00 | 1                       | 259.0                                         | 0.77                                    | 1                                                    |
| SMF170A     | SMF170CA | TR      | PR | 170.0                                   | 189.00                                 | 209.00 | 1                       | 275.0                                         | 0.73                                    | 1                                                    |
| SMF180A     | SMF180CA | TT      | PT | 180.0                                   | 200.00                                 | 220.00 | 1                       | 292.0                                         | 0.69                                    | 1                                                    |
| SMF190A     | SMF190CA | TV      | PV | 190.0                                   | 211.00                                 | 232.00 | 1                       | 308.0                                         | 0.69                                    | 1                                                    |
| SMF200A     | SMF200CA | TX      | PX | 200.0                                   | 224.00                                 | 247.00 | 1                       | 324.0                                         | 0.62                                    | 1                                                    |
| SMF220A     | SMF220CA | TZ      | PZ | 220.0                                   | 246.00                                 | 272.00 | 1                       | 356.0                                         | 0.56                                    | 1                                                    |
| SMF250A     | SMF250CA | YE      | QE | 250.0                                   | 279.00                                 | 309.00 | 1                       | 405.0                                         | 0.50                                    | 1                                                    |
| SMF300A     | SMF300CA | YG      | QG | 300.0                                   | 335.00                                 | 371.00 | 1                       | 486.0                                         | 0.41                                    | 1                                                    |
| SMF350A     | SMF350CA | YK      | QK | 350.0                                   | 391.00                                 | 432.00 | 1                       | 567.0                                         | 0.36                                    | 1                                                    |

Notes:  
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  $V_P$  of 10 volts and under, the  $I_R$  limit is double.

Figure 1 - Peak Pulse Power Rating Curve

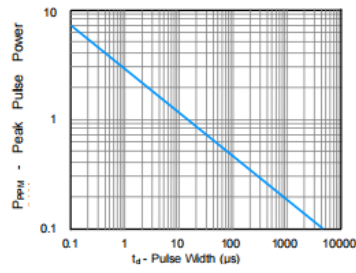


Figure 2 - Pulse Derating Curve

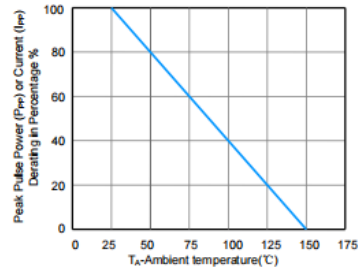


Figure 3 - Pulse Waveform

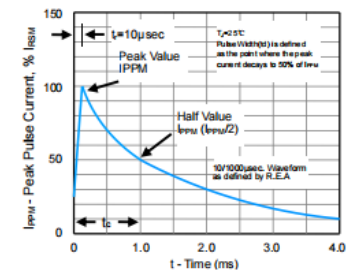


Figure 4 - Typical Junction Capacitance

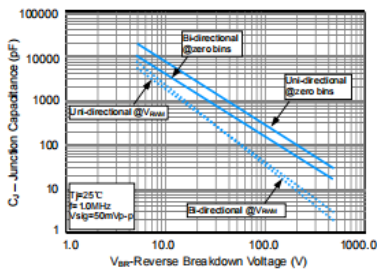


Figure 5 - Steady State Power Derating Curve

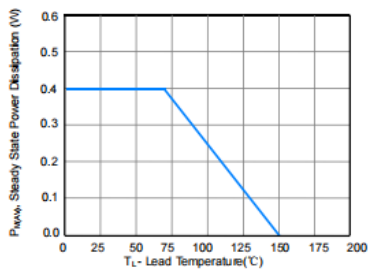
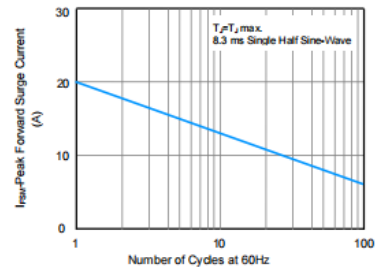
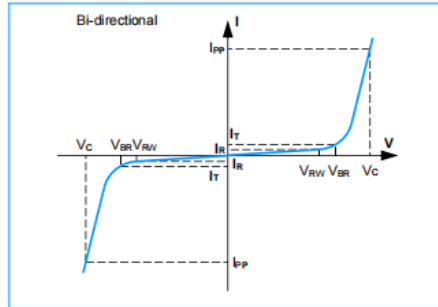
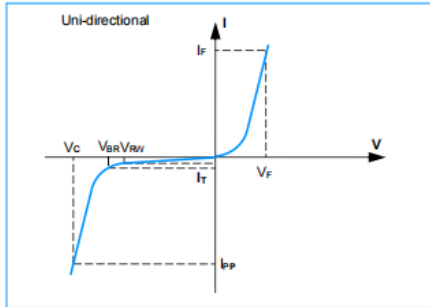


Figure 6 - Maximum Non-Repetitive Surge Current



## I-V Curve Characteristics



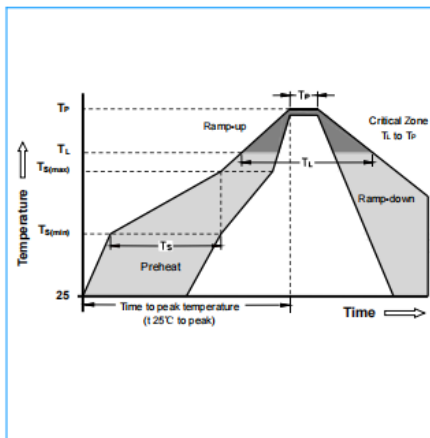
## Physical Specifications

|          |                                                       |
|----------|-------------------------------------------------------|
| Case     | SOD-123 Molded Plastic over glass passivated junction |
| Polarity | Color band denotes cathode except Bipolar             |
| Terminal | Matte Tin-plated leads, Solderable per JESD22-B102D   |

## Environmental Specifications

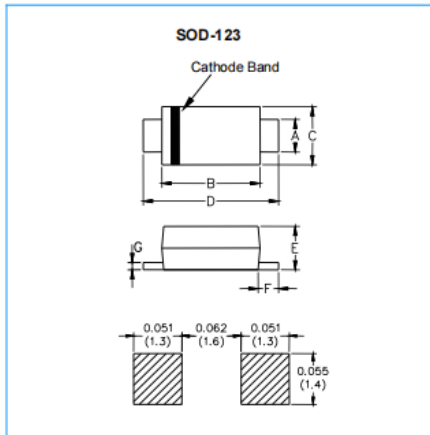
|                    |             |
|--------------------|-------------|
| Temperature Cycle  | JESD22-A104 |
| Pressure Cooker    | JESD22-A102 |
| High Temp. Storage | JESD22-A103 |
| HTRB               | JESD22-A108 |
| Thermal Shock      | JESD22-A106 |

## Soldering Parameters



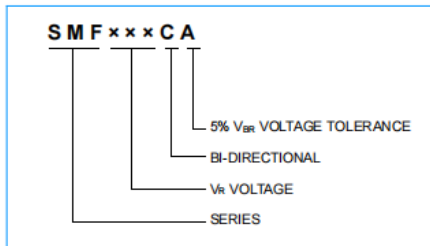
|                                                       |                                                |
|-------------------------------------------------------|------------------------------------------------|
| Reflow Condition                                      | Lead-free assembly                             |
| Pre Heat                                              | - Temperature Min ( $T_{5(min)}$ ) 150°C       |
|                                                       | - Temperature Max ( $T_{5(max)}$ ) 200°C       |
|                                                       | - Time (min to max) ( $T_5$ ) 60 - 180 Seconds |
| Average ramp up rate (Liquidus Temp $T_L$ ) to peak   | 3°C/second max                                 |
| $T_{5(max)}$ 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                                          |

## Dimensions

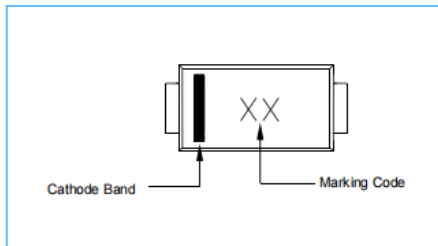


| Dimensions | Inches |       | Millimeters |      |
|------------|--------|-------|-------------|------|
|            | Min    | Max   | Min         | Max  |
| A          | 0.031  | 0.047 | 0.77        | 1.20 |
| B          | 0.098  | 0.118 | 2.50        | 3.00 |
| C          | 0.055  | 0.079 | 1.50        | 2.00 |
| D          | 0.136  | 0.156 | 3.45        | 3.95 |
| E          | 0.037  | 0.053 | 0.93        | 1.33 |
| F          | 0.010  | --    | 0.25        | --   |
| G          | --     | 0.010 | --          | 0.25 |

## Part Numbering



## Part Marking



## Packaging

| P N    | Package | Reel(pcs) | Per Carton(pcs) | MOQ | Packaging Option         | Packaging Specification |
|--------|---------|-----------|-----------------|-----|--------------------------|-------------------------|
| SMFXXX | SOD-123 | 3000      | 48000           | 15K | Tape&Reel - 12mm/7" tape | EIA STD RS-481          |

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