



## SSCTXXX4XD1 Series

Surface Mount Unidirectional and Bidirectional Transient Voltage Suppressors

### ● Description

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

### ● Features

- ✧ 400W peak pulse power ( $t_P = 10/1000\mu s$ )
- ✧ SMF/SOD-123FL Package
- ✧ Working voltage: 3.3V-58V
- ✧ Glass passivated or planar junction
- ✧ Excellent clamping capability
- ✧ Repetition rate (duty cycle): 0.01%
- ✧ Low profile package and low inductance
- ✧ Fast response time: typically less than 1.0ps from 0V to VBR min
- ✧ High temperature soldering: 260°C/10s at terminals
- ✧ Plastic package has Underwriters Laboratory Flammability 94V-0
- ✧ For surface mounted applications in order to optimize board space

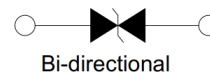
### ● Applications

- ✧ I/O Interface
- ✧ DVI & HDMI Port Protection
- ✧ AC/DC Power supply
- ✧ Mobile Handsets
- ✧ Digital Cameras and camcorders
- ✧ Low frequency signal transmission line (RS232, RS485, etc.)
- ✧ Digital TV and Set-top Boxes

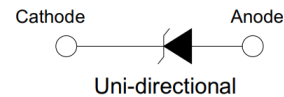
### ● PIN configuration



**SMF/SOD-123FL**



Bi-directional



Uni-directional

**Circuit Diagram**



**Marking (Top View)**

### ● Mechanical Characteristics

- ✧ Case Material: “Green” Molding Compound
- ✧ UL Flammability Classification Rating 94V-0
- ✧ Polarity: Color band denotes cathode except bi-directional models
- ✧ Weight: 0.017g
- ✧ Moisture Sensitivity: Level 3 per J-STD-020



# SSCTXXX4XD1

● Absolute maximum rating @T<sub>A</sub>=25°C

| Parameter   | Symbol           | Value    | Units |
|---|------------------|----------|-------|
| Peak Pulse Power (10/1000μs)                                    | P <sub>PP</sub>  | 400      | W     |
| Storage Temperature   | T <sub>STG</sub> | -55/+150 | °C    |
| Operating Temperature   | T <sub>J</sub>   | -55/+150 | °C    |
| Maximum Instantaneous Forward Voltage at 30A for Unidirectional | V <sub>F</sub>   | 6.5      | V     |

● Electrical Characteristics @T<sub>A</sub>=25°C

| Part Number |             | Marking Code |     | V <sub>RWM</sub> | V <sub>BR</sub> @ I <sub>T</sub> (V) |       | I <sub>T</sub> | I <sub>R</sub> @ V <sub>RWM</sub> | V <sub>C(Max)</sub> | I <sub>PP(Max)</sub> <sup>®</sup> |
|-------------|-------------|--------------|-----|------------------|--------------------------------------|-------|----------------|-----------------------------------|---------------------|-----------------------------------|
| Uni-polar   | Bi-polar    | Uni          | Bi  | (V)              | Min                                  | Max   | (mA)           | (uA)                              | (V)                 | (A)                               |
| SSCT3V341D1 | SSCT3V342D1 | EHD          | ETD | 3.3              | 4.10                                 | 4.75  | 10             | 400                               | 7.3                 | 54.7                              |
| SSCT5V041D1 | SSCT5V042D1 | EHE          | ETE | 5.0              | 6.40                                 | 7.00  | 10             | 400                               | 9.2                 | 43.5                              |
| SSCT6V041D1 | SSCT6V042D1 | EHG          | ETG | 6.0              | 6.67                                 | 7.37  | 10             | 400                               | 10.3                | 38.8                              |
| SSCT6V541D1 | SSCT6V542D1 | EHK          | ETK | 6.5              | 7.22                                 | 7.98  | 10             | 250                               | 11.2                | 35.7                              |
| SSCT7V041D1 | SSCT7V042D1 | EHM          | ETM | 7.0              | 7.78                                 | 8.60  | 10             | 100                               | 12.0                | 33.3                              |
| SSCT7V541D1 | SSCT7V542D1 | EHP          | ETP | 7.5              | 8.33                                 | 9.21  | 1              | 50                                | 12.9                | 31.0                              |
| SSCT8V041D1 | SSCT8V042D1 | EHR          | ETR | 8.0              | 8.89                                 | 9.83  | 1              | 25                                | 13.6                | 29.4                              |
| SSCT8V541D1 | SSCT8V542D1 | EHT          | ETT | 8.5              | 9.44                                 | 10.40 | 1              | 10                                | 14.4                | 27.8                              |
| SSCT9V041D1 | SSCT9V042D1 | EHV          | ETV | 9.0              | 10.00                                | 11.10 | 1              | 5                                 | 15.4                | 26.0                              |
| SSCT10V41D1 | SSCT10V42D1 | EHX          | ETX | 10.0             | 11.10                                | 12.30 | 1              | 2.5                               | 17.0                | 23.5                              |
| SSCT11V41D1 | SSCT11V42D1 | EHZ          | ETZ | 11.0             | 12.20                                | 13.50 | 1              | 2.5                               | 18.2                | 22.0                              |
| SSCT12V41D1 | SSCT12V42D1 | EIE          | EUE | 12.0             | 13.30                                | 14.70 | 1              | 2.5                               | 18.9                | 20.1                              |
| SSCT13V41D1 | SSCT13V42D1 | EIG          | EUG | 13.0             | 14.40                                | 15.90 | 1              | 1                                 | 21.5                | 18.6                              |
| SSCT14V41D1 | SSCT14V42D1 | EIK          | EUK | 14.0             | 15.60                                | 17.20 | 1              | 1                                 | 23.2                | 17.2                              |
| SSCT15V41D1 | SSCT15V42D1 | EIM          | EUM | 15.0             | 16.70                                | 18.50 | 1              | 1                                 | 24.4                | 16.4                              |
| SSCT16V41D1 | SSCT16V42D1 | EIP          | EUP | 16.0             | 17.80                                | 19.70 | 1              | 1                                 | 26.0                | 15.4                              |
| SSCT17V41D1 | SSCT17V42D1 | EIR          | EUR | 17.0             | 18.90                                | 20.90 | 1              | 1                                 | 27.6                | 14.5                              |
| SSCT18V41D1 | SSCT18V42D1 | EIT          | EUT | 18.0             | 20.00                                | 22.10 | 1              | 1                                 | 29.2                | 13.7                              |
| SSCT20V41D1 | SSCT20V42D1 | EIV          | EUV | 20.0             | 22.20                                | 24.50 | 1              | 1                                 | 32.4                | 12.3                              |
| SSCT22V41D1 | SSCT22V42D1 | EIX          | EUX | 22.0             | 24.40                                | 26.90 | 1              | 1                                 | 35.5                | 11.3                              |
| SSCT24V41D1 | SSCT24V42D1 | EIZ          | EUZ | 24.0             | 26.70                                | 29.50 | 1              | 1                                 | 38.9                | 10.3                              |
| SSCT26V41D1 | SSCT26V42D1 | EJE          | EVE | 26.0             | 28.90                                | 31.90 | 1              | 1                                 | 42.1                | 9.5                               |
| SSCT28V41D1 | SSCT28V42D1 | EJG          | EVG | 28.0             | 31.10                                | 34.40 | 1              | 1                                 | 45.4                | 8.8                               |
| SSCT30V41D1 | SSCT30V42D1 | EJK          | EVK | 30.0             | 33.30                                | 36.80 | 1              | 1                                 | 48.4                | 8.3                               |
| SSCT33V41D1 | SSCT33V42D1 | EJM          | EVM | 33.0             | 36.70                                | 40.60 | 1              | 1                                 | 53.3                | 7.5                               |
| SSCT36V41D1 | SSCT36V42D1 | EJP          | EVP | 36.0             | 40.00                                | 44.20 | 1              | 1                                 | 58.1                | 6.9                               |
| SSCT40V41D1 | SSCT40V42D1 | EJR          | EVR | 40.0             | 44.40                                | 49.10 | 1              | 1                                 | 64.5                | 6.2                               |
| SSCT43V41D1 | SSCT43V42D1 | EJT          | EVT | 43.0             | 47.80                                | 52.80 | 1              | 1                                 | 69.4                | 5.8                               |
| SSCT45V41D1 | SSCT45V42D1 | EJV          | EVV | 45.0             | 50.00                                | 55.30 | 1              | 1                                 | 72.7                | 5.5                               |
| SSCT48V41D1 | SSCT48V42D1 | EJX          | EVX | 48.0             | 53.30                                | 58.90 | 1              | 1                                 | 77.4                | 5.2                               |
| SSCT51V41D1 | SSCT51V42D1 | EJZ          | EVZ | 51.0             | 56.70                                | 62.7  | 1              | 1                                 | 82.4                | 4.9                               |



# SSCTXXX4XD1

| Part Number |             | Marking Code |     | $V_{RWM}$ | $V_{BR} @ I_T$ (V) |      | $I_T$ | $I_R @ V_{RWM}$ | $V_C(Max)$ | $I_{PP}(Max)^{\circ}$ |
|-------------|-------------|--------------|-----|-----------|--------------------|------|-------|-----------------|------------|-----------------------|
| Uni-polar   | Bi-polar    | Uni          | Bi  | (V)       | Min                | Max  | (mA)  | (uA)            | (V)        | (A)                   |
| SSCT54V41D1 | SSCT54V42D1 | ERE          | EWE | 54.0      | 60.0               | 66.3 | 1     | 1               | 87.1       | 4.6                   |
| SSCT58V41D1 | SSCT58V42D1 | ERG          | EWG | 58.0      | 64.4               | 71.2 | 1     | 1               | 93.6       | 4.3                   |

① Surge waveform: 10/1000 $\mu$ s

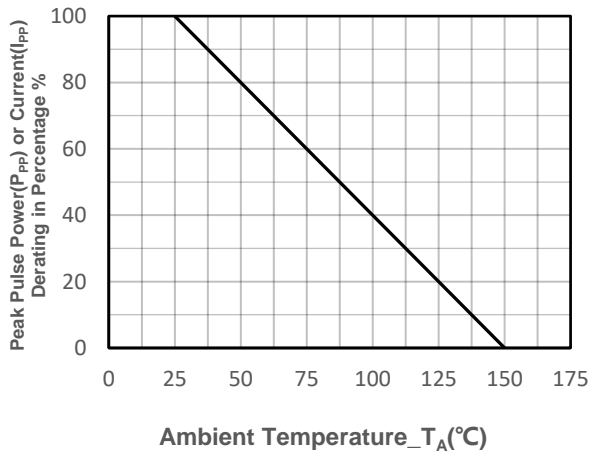
$V_R$  : Stand-off Voltage -- Maximum voltage that can be applied

$V_{BR}$ : Breakdown Voltage

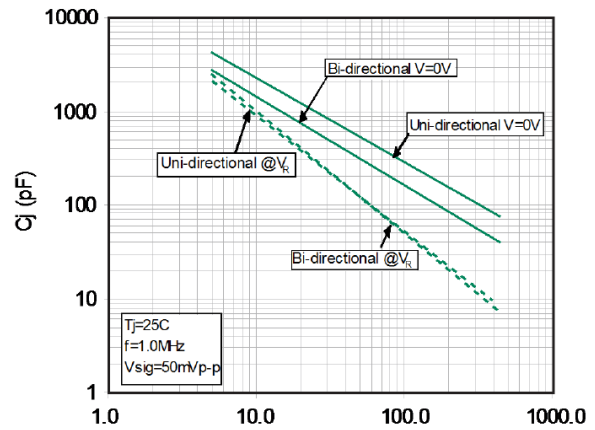
$V_C$ : Clamping Voltage -- Peak voltage measured across the suppressor at a specified  $I_{PP}$

$I_R$ : Reverse Leakage Current

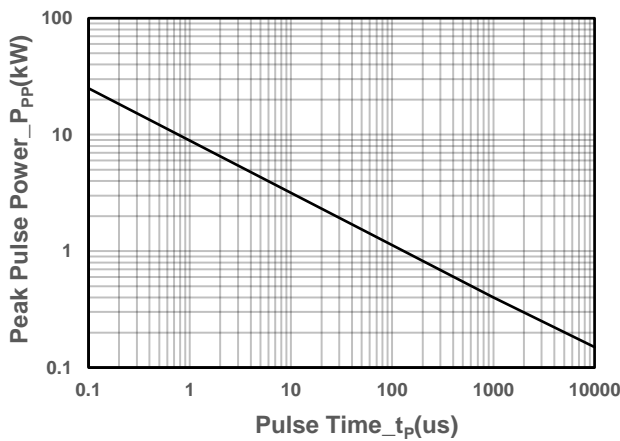
## ● Typical Performance Characteristics ( $T_A=25^{\circ}C$ unless otherwise Specified)



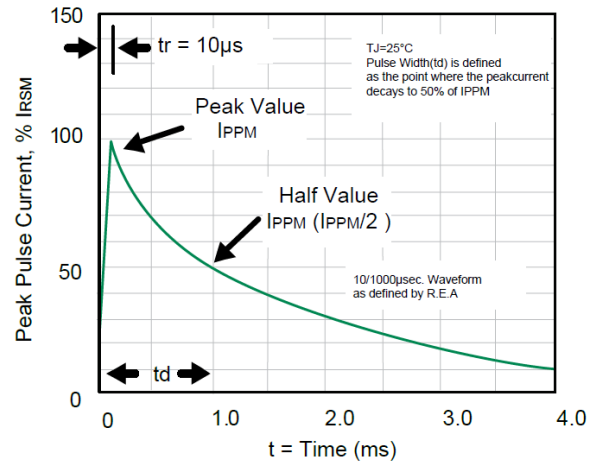
Pulse Derating Curve



Typical Junction Capacitance



Peak Pulse Power vs. Pulse Time



Pulse Waveform



- **Package Information**

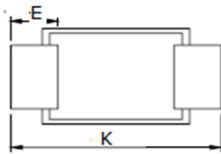
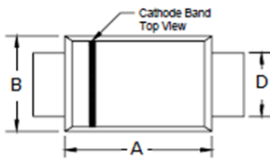
### Ordering Information

| Device      | Package       | Qty per Reel | Reel Size |
|-------------|---------------|--------------|-----------|
| SSCTXXX4XD1 | SMF/SOD-123FL | 3000         | 7 Inch    |

### Mechanical Data

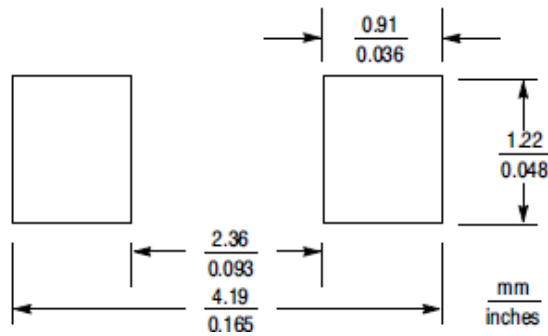
Case: SOD-123FL

Case Material: Molded Plastic. UL Flammability



| Dim | Millimeters |      |
|-----|-------------|------|
|     | Min         | Max  |
| A   | 2.50        | 2.90 |
| B   | 1.50        | 1.90 |
| C   | 0.095       | 1.20 |
| D   | 0.70        | 1.20 |
| E   | 0.35        | 0.85 |
| H   | 0           | 0.1  |
| K   | 3.40        | 3.90 |

### Recommended Pad outline





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