# 200 Watt, Uni-Directional TVS Diode

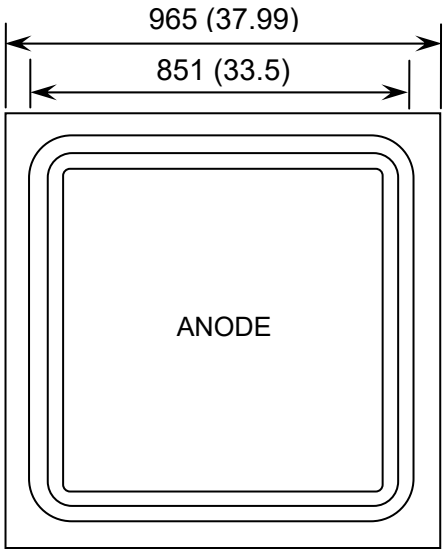
**Rev 1.0**
**02/12/24**

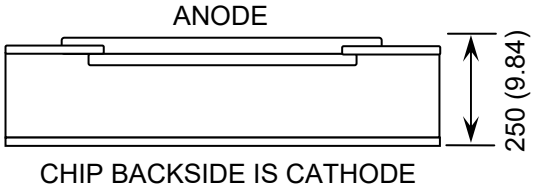
**Silicon Transient Voltage Suppressor diode in bare die form**

## Features:

- 200W peak pulse power dissipation
- Excellent clamping capabilities
- Very fast response time
- Metalized for Wire Bonding
- High Reliability tested grades.

## Die Dimensions in µm (mils)




CHIP BACKSIDE IS CATHODE

## Ordering Information

The following part suffixes apply:

- No suffix - MIL-STD-750 /2073 Visual Inspection
- "**H**" - MIL-STD-750 /2073 Visual Inspection
  + MIL-PRF-38534 Class H LAT
- "**K**" - MIL-STD-750 /2072 Visual Inspection
  + MIL-PRF-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

www.siliconsupplies.com\quality\bare-die-lot-qualification

## Supply Formats:

- Default – Die in Waffle Pack (400 per tray capacity)
- Sawn Wafer on Tape – By specific request
- Unsawn Wafer – By specific request
- With additional electrical selection – By specific request

## Mechanical Specification

| | | |
|---|---|---|
| Die Size (Unsawn) | 965 x 965<br>37.99 x 37.99 | µm<br>mils |
| Anode Pad Size | 851 x 851<br>33.5 x 33.5 | µm<br>mils |
| Die Thickness | 250 (±20)<br>9.84 (±0.79) | µm<br>mils |
| Top Metal Composition | Al ≥ 4µm | |
| Back Metal Composition | NiTi/Ag (0.2/0.8 µm) | |

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## Absolute Maximum Ratings $T_J$ = 25°C unless otherwise stated

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Peak power dissipation 10/1000 µs waveform[1] | $P_{PP}$ | 200 | W |
| Peak forward surge current, 8.3ms single half sine-wave[2] | $I_{FSM}$ | 20 | A |
| ESD IEC61000-4-2 (Air)[3] | $V_{ESD}$ | ±30V | kV |
| ESD IEC61000-4-2 (Contact)[3] | | | |
| Operating Temperature Range | $T_J$ | -55 to +150 | °C |
| Storage Temperature Range | $T_S$ | -65 to +200 | °C |

**1.** Performance at die level dependent on assembly method and substrate choice. **2.** Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum. **3.** Tested in SOD-123FL package.

## Electrical Characteristics $T_J$ = 25°C unless otherwise stated

| DEVICE[4] | REVERSE STAND-OFF VOLTAGE | BREAKDOWN VOLTAGE @ $I_T$ | | TEST CURRENT | MAX CLAMPING VOLTAGE $V_C$ @ $I_{PP}$ | PEAK PULSE CURRENT | REVERSE LEAKAGE $I_R$ @ $V_{RRM}$ |
|---|---|---|---|---|---|---|---|
| | $V_{RRM}$ | $V_{BR(MIN)}$ (V) | $V_{BR(MAX)}$ (V) | $I_T$ | $V_C$ | $I_{PP}$ | $I_R$ |
| | V | V | V | mA | V | A | µA |
| SSL3.3A | 3.3 | 5.23 | 5.97 | 10 | 8.0 | 23.5 | 30 |
| SSL5.0A | 5 | 6.43 | 6.97 | 10 | 9.2 | 21.7 | 4 |
| SSL6.0A | 6 | 6.70 | 7.34 | 10 | 10.3 | 19.4 | 1 |
| SSL6.5A | 6.5 | 7.25 | 7.95 | 10 | 11.2 | 17.9 | 1 |
| SSL7.0A | 7 | 7.81 | 8.57 | 10 | 12.0 | 16.7 | 1 |
| SSL7.5A | 7.5 | 8.36 | 9.18 | 1 | 12.9 | 15.5 | 1 |
| SSL8.0A | 8 | 8.92 | 9.80 | 1 | 13.6 | 14.7 | 1 |
| SSL8.5A | 8.5 | 9.47 | 10.37 | 1 | 14.4 | 13.9 | 1 |
| SSL9.0A | 9 | 10.03 | 11.07 | 1 | 15.4 | 13.0 | 0.25 |
| SSL10A | 10 | 11.13 | 12.27 | 1 | 17.0 | 11.8 | 0.25 |
| SSL11A | 11 | 12.23 | 13.47 | 1 | 18.2 | 11.0 | 0.25 |
| SSL12A | 12 | 13.33 | 14.67 | 1 | 19.9 | 10.1 | 0.25 |
| SSL13A | 13 | 14.43 | 15.87 | 1 | 21.5 | 9.3 | 0.08 |
| SSL14A | 14 | 15.63 | 17.17 | 1 | 23.2 | 8.6 | 0.08 |
| SSL15A | 15 | 16.73 | 18.29 | 1 | 24.4 | 8.2 | 0.08 |
| SSL16A | 16 | 17.83 | 19.67 | 1 | 26.0 | 7.7 | 0.08 |
| SSL17A | 17 | 18.93 | 20.87 | 1 | 27.6 | 7.2 | 0.08 |
| SSL18A | 18 | 20.03 | 22.07 | 1 | 29.2 | 6.8 | 0.08 |
| SSL20A | 20 | 22.23 | 24.47 | 1 | 32.4 | 6.2 | 0.08 |
| SSL22A | 22 | 24.43 | 26.87 | 1 | 35.5 | 5.6 | 0.08 |

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| DEVICE[4] | REVERSE STAND-OFF VOLTAGE | BREAKDOWN VOLTAGE @ $I_T$ | | TEST CURRENT | MAX CLAMPING VOLTAGE $V_C$ @ $I_{PP}$ | PEAK PULSE CURRENT | REVERSE LEAKAGE $I_R$ @ $V_{RRM}$ |
|---|---|---|---|---|---|---|---|
| | $V_{RRM}$ | $V_{BR(MIN)}$ (V) | $V_{BR(MAX)}$ (V) | $I_T$ | $V_C$ | $I_{PP}$ | $I_R$ |
| | V | V | V | mA | V | A | µA |
| SSL24A | 24 | 26.73 | 29.47 | 1 | 38.9 | 5.1 | 0.8 |
| SSL26A | 26 | 28.93 | 31.87 | 1 | 42.1 | 4.8 | 0.8 |
| SSL28A | 28 | 31.13 | 34.37 | 1 | 45.4 | 4.4 | 0.8 |
| SSL30A | 30 | 33.33 | 36.77 | 1 | 48.4 | 4.1 | 0.8 |
| SSL33A | 33 | 36.73 | 40.57 | 1 | 53.3 | 3.8 | 0.8 |
| SSL36A | 36 | 40.03 | 44.17 | 1 | 58.1 | 3.4 | 0.8 |
| SSL40A | 40 | 44.40 | 49.10 | 1 | 64.5 | 3.1 | 0.8 |

**4.** Suffix “A” denotes 5% tolerance of $V_{BR}$