

## General description

These dual monolithic silicon surge protection diodes are designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment. as computers, printers, business machines, communication systems, medical equipment and other applications. Their bi-directional double ESD design protects two separate lines using only one package. These devices are ideal for situations where board space is at a premium.

## Features and benefits

- Bi-directional ESD protection of 2 lines
- Reverse stand-off voltage: 3.3V Max
- Low clamping voltage
- Low leakage current: nA Level
- Response time is typically < 1 ns
- ESD Protection: 30kV(air)/ 30kV(contact) ( IEC61000-4-2)

## Application information

- Cellular handsets and accessories
- Portable electronics
- Computers and peripherals
- Communication systems
- Audio and video equipment.

## Ordering information

| Device | Package | Packaging        | Reel Size |
|--------|---------|------------------|-----------|
| SM03CC | SOT23   | 3000/Tape & Reel | 7 inch    |

## Schematic & Pin configuration

| Circuit diagraml | Pinning                                                        |
|------------------|----------------------------------------------------------------|
|                  | <p>PIN1 Lines 1</p> <p>PIN2 Lines 2</p> <p>PIN3 common pin</p> |

### Maximum Ratings (T<sub>OP</sub> = 25 °C, unless otherwise specified)

| Parameter                                         | Symbol           | Value       | Unit |
|---------------------------------------------------|------------------|-------------|------|
| Peak Pulse Power (tp = 8/20 μ s)                  | P <sub>PPM</sub> | 450         | W    |
| Peak Pulse Current(tp = 8/20 μ s)                 | I <sub>PPM</sub> | 38          | A    |
| Maximum lead temperature for soldering during 10s | T <sub>L</sub>   | 260         | °C   |
| Storage Temperature Range                         | T <sub>stg</sub> | -55 to +150 | °C   |
| Operating Temperature Range                       | T <sub>OP</sub>  | -40 to +125 | °C   |
| Maximum junction temperature                      | T <sub>j</sub>   | 150         | °C   |
| ESD voltage IEC 61000-4-2 (air discharge)         | V <sub>ESD</sub> | 30          | kV   |
| ESD voltage IEC 61000-4-2 (contact discharge)     | V <sub>ESD</sub> | 30          | kV   |

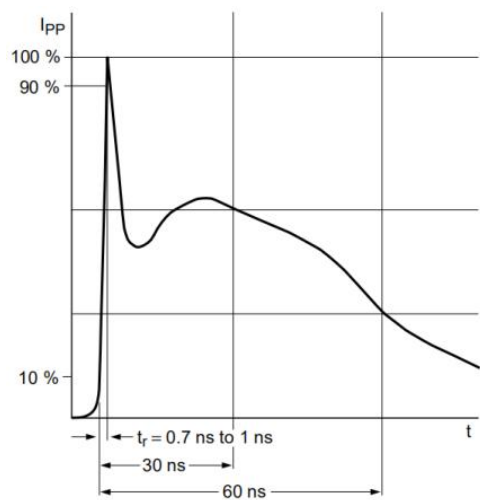
### Electrical Characteristics (T<sub>OP</sub> = 25 °C, unless otherwise specified)

| Parameter                         | Symbol           | Min | Typ | Max  | Unit | Condition                       |
|-----------------------------------|------------------|-----|-----|------|------|---------------------------------|
| Reverse Working Voltage           | V <sub>RWM</sub> | --  | --  | 3.3  | V    |                                 |
| Breakdown Voltage                 | V <sub>BR</sub>  | 4.0 | --  | 6.0  | V    | I <sub>T</sub> =1mA             |
| Leakage Current I <sub>Leak</sub> | I <sub>R</sub>   | --  | --  | 200  | nA   | V <sub>RWM</sub> =3.3V          |
| Clamping Voltage                  | V <sub>C</sub>   | --  | --  | 8.5  | V    | I <sub>PP</sub> =20A, Tp=8/20μs |
|                                   |                  | --  | --  | 12.0 |      | I <sub>PP</sub> =38A, Tp=8/20μs |
| Dynamic Resistance                | R <sub>DYN</sub> | --  | 0.1 | --   | Ω    | T <sub>LP</sub> =0.2/100ns      |
| Junction Capacitance              | C <sub>J</sub>   | --  | 66  | 70   | pF   | V <sub>R</sub> =0V, f=1MHz      |

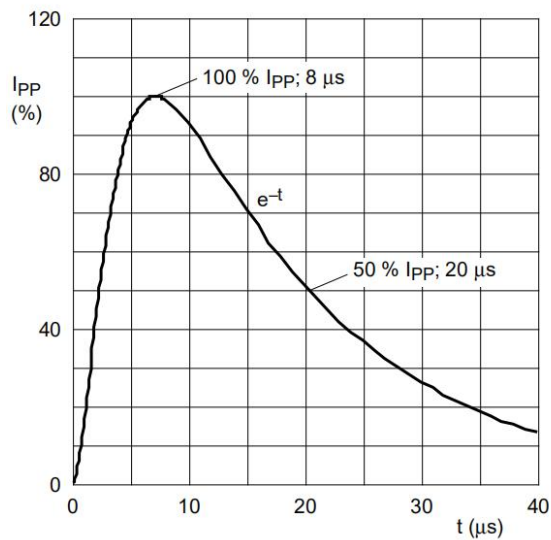
Note:

TLP Setting: tp=100ns, tr=0.2ns, ITLP and VTLP sample window:t1=70ns to t2=90ns.

Typical Characteristics



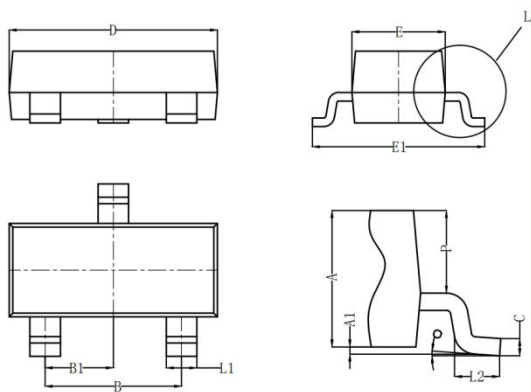
IEC61000-4-2 Waveform



IEC 61000-4-5 Waveform( 8/20μs pulse)

Package Outline Dimensions

SOT23



| Symbol | Dimensions (mm) |       |        |
|--------|-----------------|-------|--------|
|        | Min             | Typ   | Max    |
| A      | 0.900           | 1.000 | 1.1100 |
| A1     | 0.000           | 0.050 | 0.100  |
| L1     | 0.350           | 0.400 | 0.500  |
| C      | 0.100           | 0.110 | 0.120  |
| D      | 2.800           | 2.900 | 3.000  |
| E      | 1.250           | 1.300 | 1.350  |
| E1     | 2.250           | 2.400 | 2.550  |
| B      | 1.800           | 1.900 | 2.000  |
| B1     | 0.950 Typ       |       |        |
| L2     | 0.200           | 0.350 | 0.450  |
| P      | 0.550           | 0.575 | 0.600  |