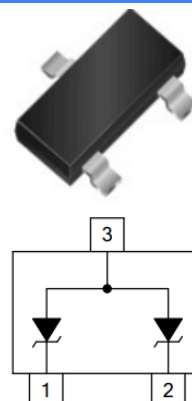


## ESD12VAPH

### Features

- SOT-23 package
- Operating voltage: 12V
- Low leakage current
- Low clamping voltage
- Response time is typically < 1ns
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 10A (8/20 $\mu\text{s}$ )

### Circuit Diagram



### Description

The ESD12VAPH TVS Diode Array is designed to protect sensitive equipment from damage due to electrostatic discharge (ESD), electrical fast transients (EFT), and lightning induced surges.

### Applications

- Automotive Applications
- Industrial Equipment
- Motor Controls
- Legacy Ports (RS-232, RS-485)

### Absolute Maximum Ratings

Tamb=25°C unless otherwise specified

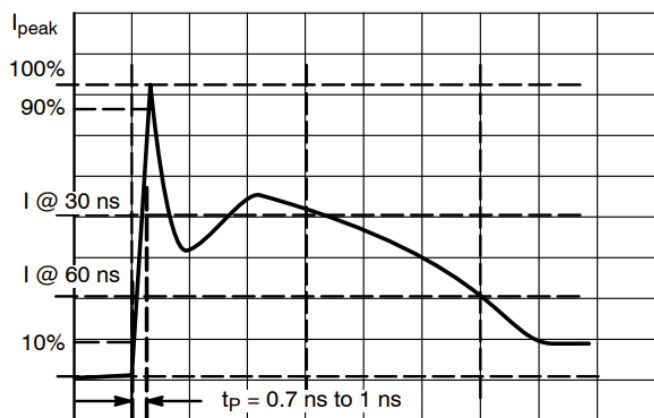
| Parameter                              | Symbol             | Value       | Unit |
|----------------------------------------|--------------------|-------------|------|
| Peak Pulse Power (8/20 $\mu\text{s}$ ) | P <sub>pp</sub>    | 500         | W    |
| Maximum Reverse Peak Pulse Current     | I <sub>PP</sub> *1 | 10          | A    |
| ESD per IEC 61000-4-2 (Air)            | V <sub>ESD</sub>   | $\pm 30$    | KV   |
| ESD per IEC 61000-4-2 (Contact)        |                    | $\pm 30$    |      |
| Storage Temperature Range              | T <sub>STJ</sub>   | -55 to +150 | °C   |
| Operating Temperature Range            | T <sub>J</sub>     | -55 to +125 | °C   |

### Electrical Characteristics

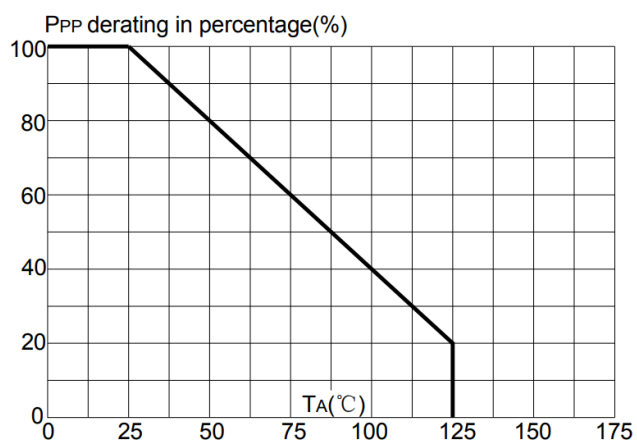
TA=25°C unless otherwise specified

| Symbol           | Parameter                    | Conditions                                               | Min  | Typ  | Max  | Units         |
|------------------|------------------------------|----------------------------------------------------------|------|------|------|---------------|
| V <sub>RWM</sub> | Reverse Working Peak Voltage | -                                                        |      |      | 12.0 | V             |
| V <sub>F</sub>   | Forward Voltage              | I <sub>F</sub> =10mA                                     |      |      | 1.1  | V             |
| V <sub>BR</sub>  | Reverse Breakdown Voltage    | I <sub>T</sub> = 1mA                                     | 13.5 | 14.3 | 15.5 | V             |
| I <sub>R</sub>   | Reverse Current              | V <sub>RWM</sub> = 12V                                   |      |      | 0.1  | $\mu\text{A}$ |
| V <sub>C</sub>   | Clamping Voltage             | I <sub>PP</sub> =1A, t <sub>P</sub> =8/20 $\mu\text{s}$  |      |      | 17   | V             |
| V <sub>C</sub>   | Clamping Voltage             | I <sub>PP</sub> =10A, t <sub>P</sub> =8/20 $\mu\text{s}$ |      |      | 22   | V             |
| V <sub>C</sub>   | Clamping Voltage             | I <sub>PP</sub> =20A, t <sub>P</sub> =8/20 $\mu\text{s}$ |      | 26   | 28   | V             |
| C <sub>D</sub>   | Diode Capacitance            | V <sub>R</sub> = 0V, f = 1MHz                            |      | 115  | 150  | pF            |

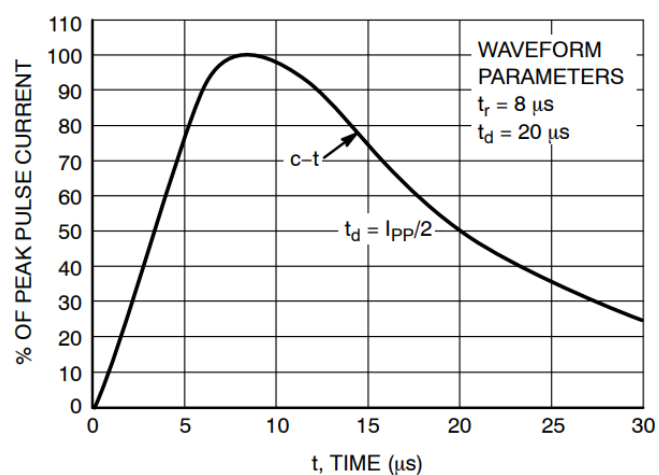
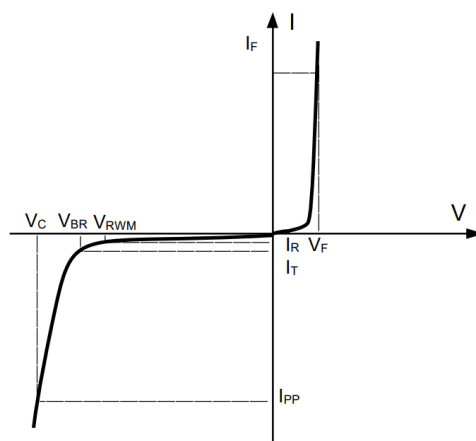
## Characteristic Curves



IEC61000-4-2 Pulse Waveform

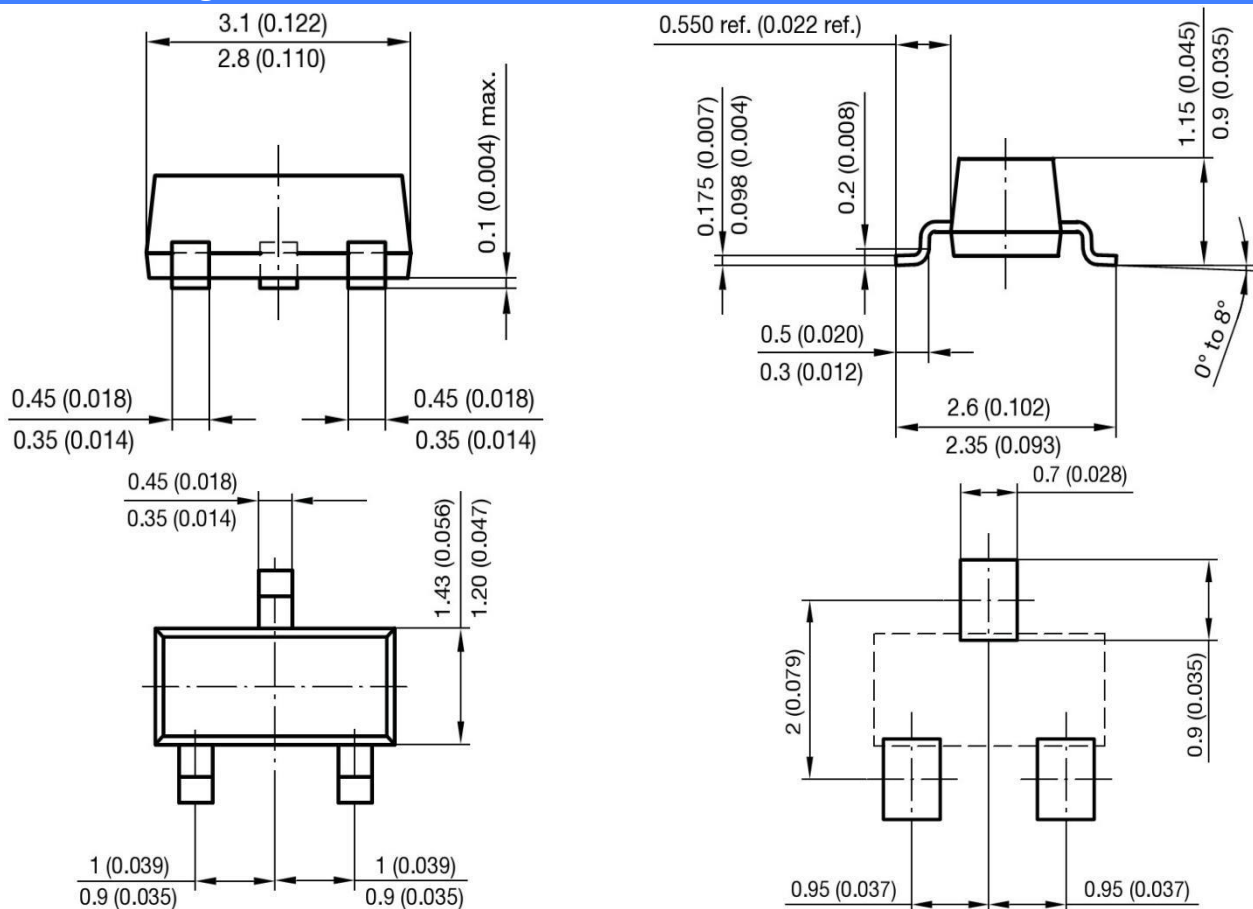


Power Derating Curve


8/20 $\mu\text{s}$  Pulse Waveform


V-I Characteristics for Unidirectional Diode

## SOT-23 Package Outline & Dimensions



**Mounting Pad Layout**

## Disclaimer

Specifications are subject to change without notice.

The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.

Users should verify actual device performance in their specific applications.