

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

Product data sheet

[www.msksemi.com](http://www.msksemi.com)

Other Data

Body  
End termination  
Packaging  
Complies with Standard

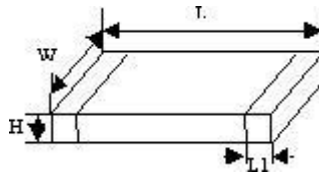
ZnO  
Ag/Ni/Sn  
Tape  
IEC61000-4-2、IEC61000-4-5

Notes:

- \*1 AC voltage at 50~60Hz
- \*2 Varistor voltage
- \*3 Capacitance
- \*4 Maximum clamping voltage
- \*5 Rated peak single pulse transient current

Measured at 1mA DC  
Measured at f=1kHz, Vrms=0.5V  
Measured at 1A by 8/20μs Pulse  
Measured by 8/20μs Pulse

| Size: |            | Unit: mm  |            |                  |
|-------|------------|-----------|------------|------------------|
| PKG   | Length (L) | Width (W) | High (H)   | Termination (L1) |
| 0402  | 1.00±0.20  | 0.50±0.20 | 0.70 (max) | 0.30±0.20        |



Standards

MS      0402      ESDA      XX  
①      ②      ③      ④

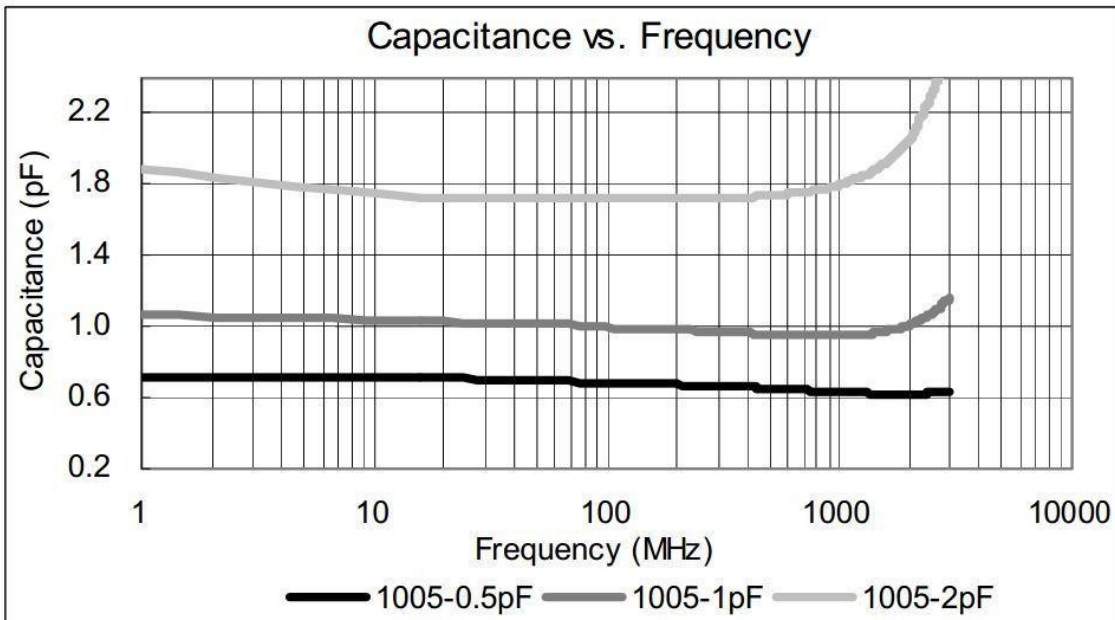
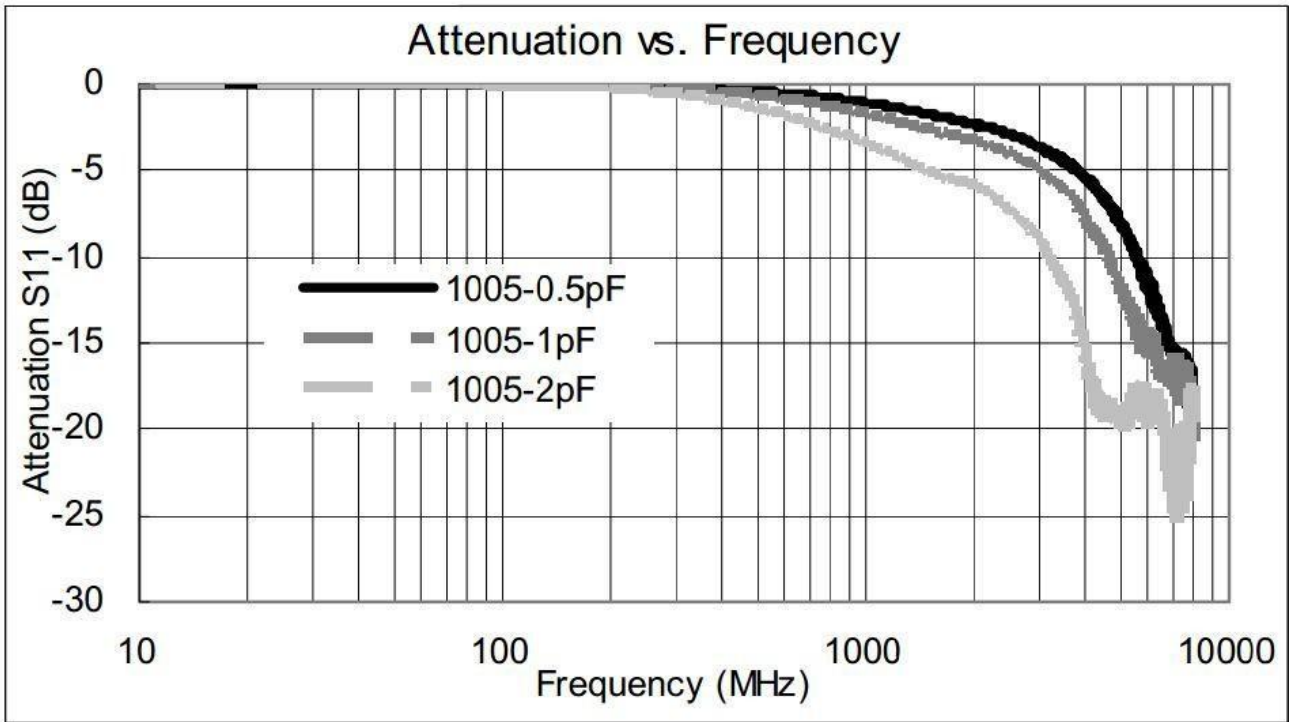
- ① production series: msksemi
- ② size: 0402
- ③ type: ESD高分子保护器件
- ④ V<sub>DC</sub> : 5V 9V 12V 14V 18V 24V

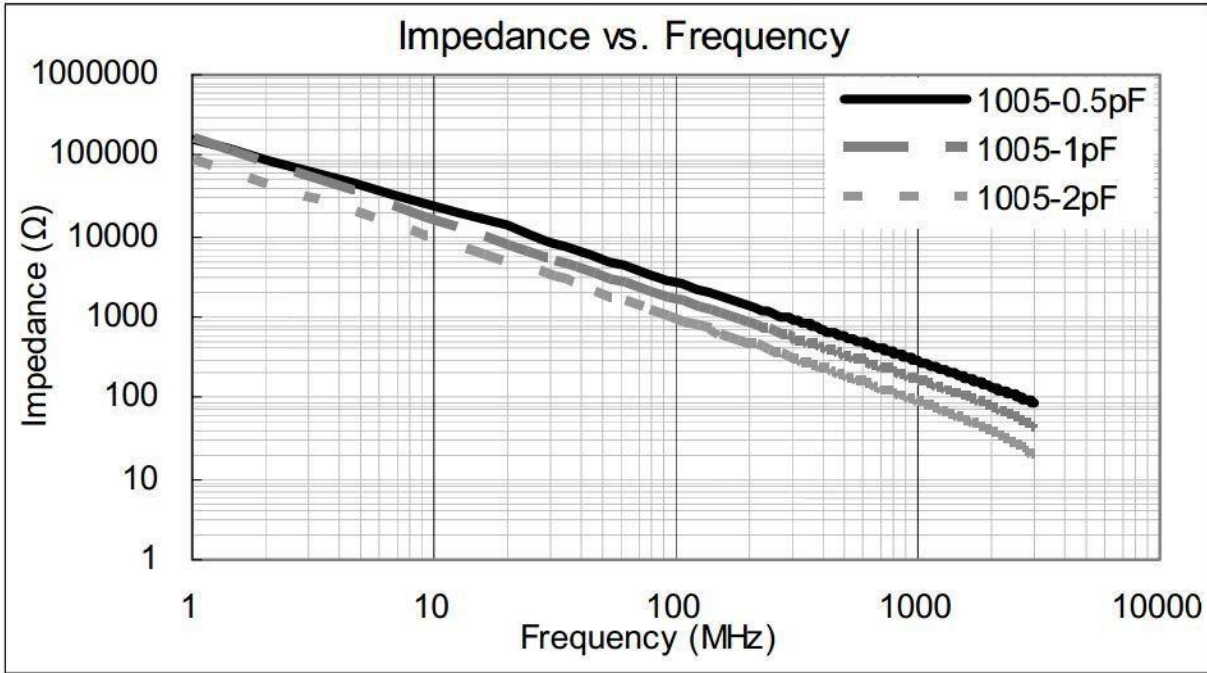
| Technical Data                          | Symbol          | Value | Unit |
|---|-----------------|-------|------|
| Maximum allowable continuous DC voltage | V <sub>DC</sub> | 5.0   | V    |
| Varistor voltage Measured*2             | V <sub>B</sub>  | 130   | V    |
| Varistor voltage tolerance              |                 | ±20   | %    |
| Typical capacitance value measured*3    | C               | 1.0   | pF   |
| Typical capacitance value tolerance     |                 | ±0.3  | PF   |
| Maximum clamping voltage measured*4     | V <sub>C</sub>  | 250   | V    |

Reference Data

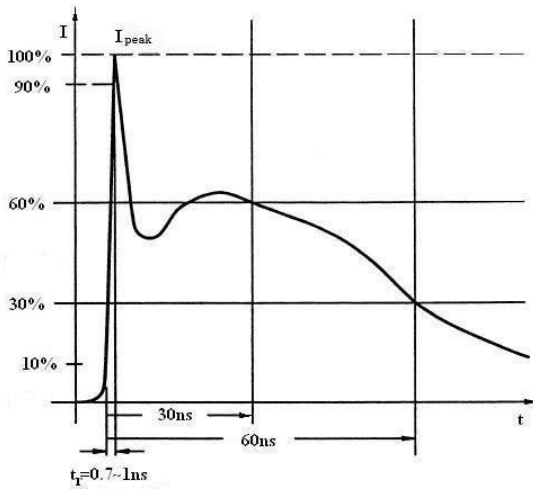
|  |                   |              |    |
|--|-------------------|--------------|----|
| Response time  | T <sub>rise</sub> | <1           | ns |
| Leakage current at V <sub>B</sub> ×80%(At initial state)       | I <sub>LVB</sub>  | <20          | μA |
| Leakage current at V <sub>B</sub> ×80%(After reliability Test) | I <sub>LVBA</sub> | <100         | μA |
| Operating ambient temperature                                  |                   | -<br>55~+125 | °C |
| Storage temperature  |                   | -<br>40~+125 | °C |
| Reflow temperature profile(Recommend)                          |                   | 260          | °C |

V-I characteristic





**Esd Wave Form**



IEC61000-4-2 Standards

| SEVERITY LEVEL | AIRDIRCHARGE | DIRECT ISCHARGE |
|----------------|--------------|-----------------|
| 1              | 2 kV         | 2 kV            |
| 2              | 4 kV         | 4 kV            |
| 3              | 8 kV         | 6 kV            |
| 4              | 15 kV        | 8 kV            |

IEC61000-4-2 Compliant ESD Current Pulse Waveform

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