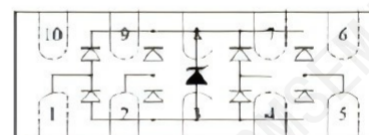


## DESCRIPTION

PUSB3FR4-JSM is an ultra-low capacitance Transient Voltage Suppressor (TVS) designed to protection for high-speed data interfaces. With typical capacitance of 0.2pF (I/O to I/O) only, PUSB3FR4-JSM is designed to protect parasitic-sensitive systems against over-voltage and over current transient events. It complies with IEC 61000-4-2(ESD), Level 4 ( $\pm 15\text{KV}$  air,  $\pm 8\text{KV}$  contact discharge), IEC 61000-4-4 (electrical fast transient-EFT) (40A, 5/50ns), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc. PUSB3FR4-JSM uses ultra-small DFN2510 package. Each PUSB3FR4-JSM device can protect four high-speed data lines. The combined features of ultra-low capacitance, ultra-small size and high ESD robustness make PUSB3FR4-JSM ideal for high-speed data ports and high frequency lines (e.g., HDMI & DVI) applications. The low clamping voltage of the PUSB3FR4-JSM guarantees a minimum stress on the protected IC.



## FEATURES

- ◆ Transient protection for high-speed data lines  
IEC 61000-4-2(ESD)  $\pm 25\text{KV}$  (Air)  
 $\pm 20\text{KV}$  (Contact)  
IEC 61000-4-4(EFT) 40A(5/50ns)  
Cable Discharge Event(CDE)
- ◆ Package optimized for high-speed lines
- ◆ Ultra-small package (2.5mm\*1.0mm\*0.5mm)
- ◆ Protects four data lines
- ◆ Low capacitance: 0.2pF (I/O to I/O)
- ◆ Low leakage current
- ◆ Low clamping voltage
- ◆ Each I/O pin can withstand over 1000 ESD strikes for  $\pm 8\text{KV}$  contact discharge

## APPLICATIONS

- ◆ Serial ATA
- ◆ PCI Express
- ◆ Desktops, Servers and Notebooks
- ◆ MDDI Ports
- ◆ USB 2.0/3.0 Power and Data Line Protection
- ◆ Display Ports
- ◆ High Definition Multi-Media Interface (HDMI)
- ◆ Digital Visual Interface (DVI)

## MACHANICAL DATA

- ◆ DFN2510 package
- ◆ Terminal: Matte tin plated.
- ◆ Packaging: Tape and Reel
- ◆ High temperature soldering guaranteed: 260°C/10s
- ◆ Reel size: 7 inch

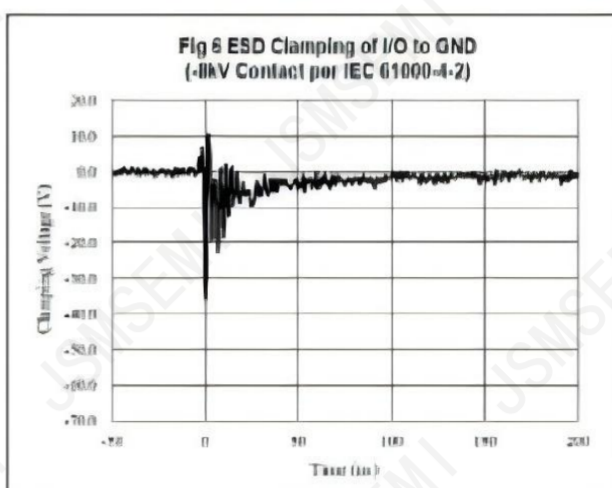
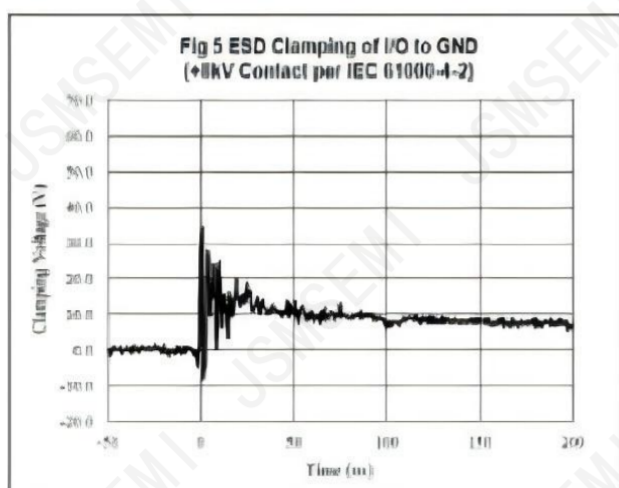
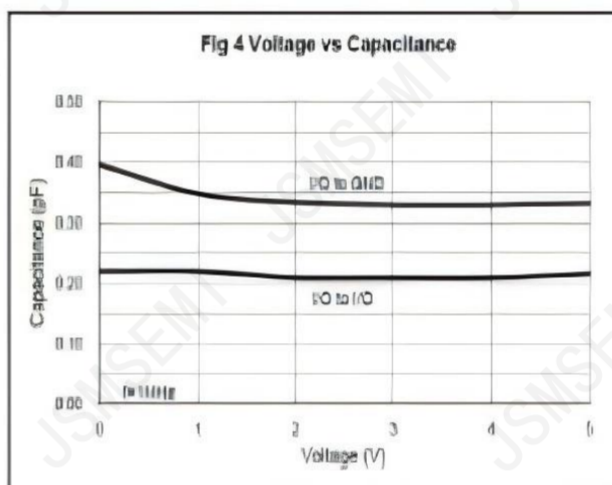
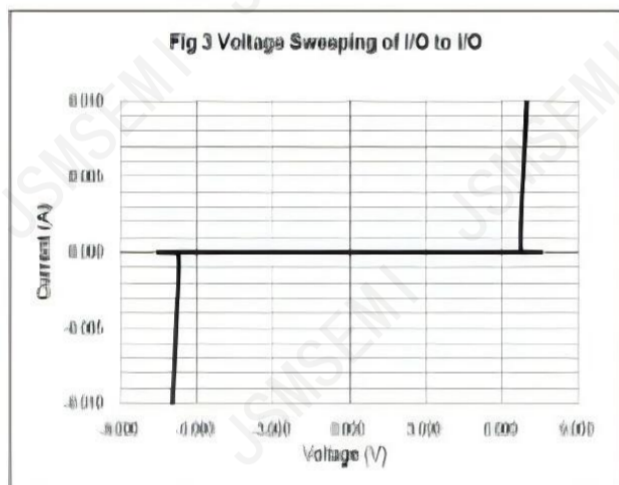
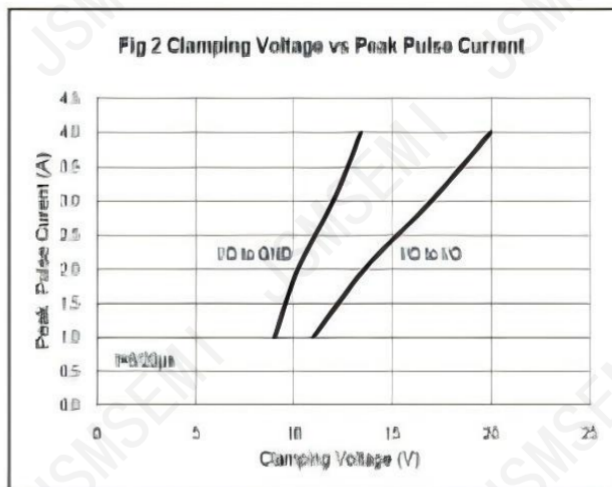
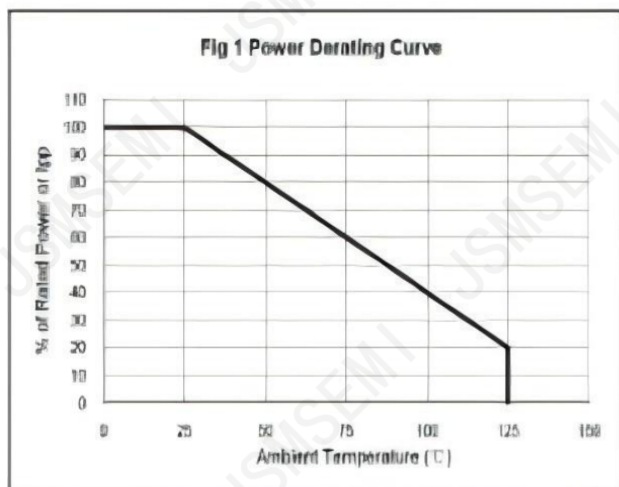
## ABSOLUTE MAXIMUM RATING

| Symbol           | Parameter                                                    | Value      | Units |
|------------------|--------------------------------------------------------------|------------|-------|
| P <sub>pp</sub>  | Peak Pulse Power (8/20μs)                                    | 60         | W     |
| V <sub>ESD</sub> | ESD per IEC 61000-4-2(Air)<br>ESD per IEC 61000-4-2(Contact) | ±25<br>±20 | kV    |
| T <sub>OPT</sub> | Operating Temperature                                        | -55/+125   | °C    |
| T <sub>STG</sub> | Storage Temperature                                          | -55/+150   | °C    |

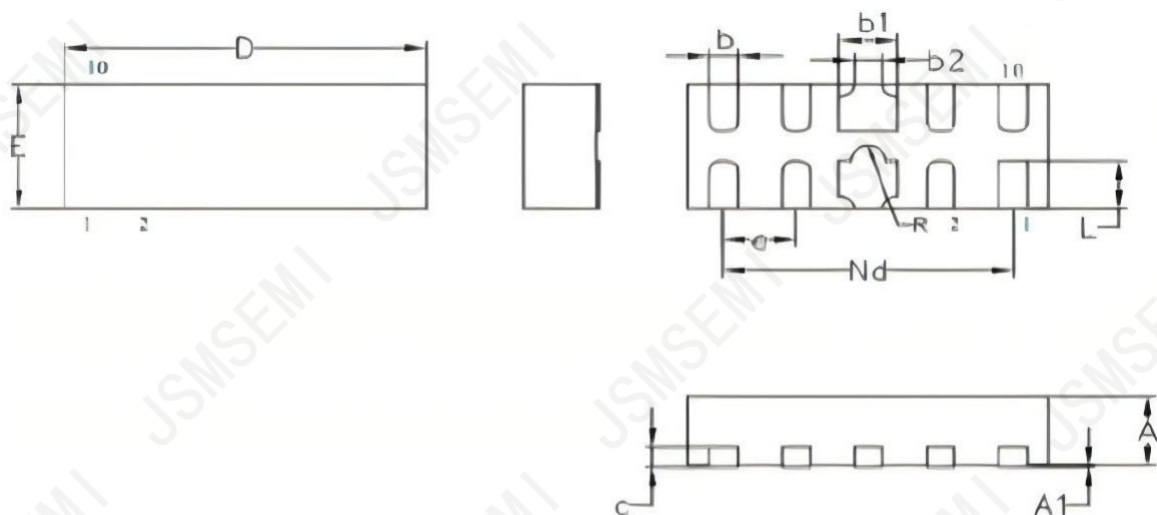
## ELECTRICAL CHARACTERISTICS (T<sub>amb</sub>=25°C)

| Symbol           | Parameter                 | Test Condition                                                    | Min | Typ | Max | Units |
|------------------|---------------------------|-------------------------------------------------------------------|-----|-----|-----|-------|
| V <sub>RWM</sub> | Reverse Working Voltage   | Any I/O pin to GND                                                |     |     | 5.0 | V     |
| V <sub>BR</sub>  | Reverse Breakdown Voltage | I <sub>T</sub> =1mA<br>Any I/O pin to GND                         | 6.0 |     | 9.0 | V     |
| I <sub>R</sub>   | Reverse Leakage Current   | V <sub>RWM</sub> =5V<br>Any I/O pin to GND                        |     |     | 1.0 | μA    |
| V <sub>C</sub>   | Clamping Voltage          | I <sub>pp</sub> =1A, t <sub>o</sub> =8/20μs<br>Any I/O pin to GND |     |     | 10  | V     |
| V <sub>C</sub>   | Clamping Voltage          | I <sub>pp</sub> =4A, t <sub>o</sub> =8/20μs<br>Any I/O pin to GND |     |     | 15  | V     |
| C <sub>ESD</sub> | Parastic Capactance       | V <sub>R</sub> =0V, f=1MHz<br>Between I/O and GND                 |     | 0.4 | 0.5 | pF    |
| C <sub>ESD</sub> | Parasitic Capacitance     | V <sub>R</sub> =0V, f=1MHz<br>Between I/O and I/O                 |     | 02  | 0.3 | pF    |

## ELECTRICAL CHARACTERISTICS CURVE



## PACKAGE OUTLINE DIMENSIONS



| Symbol | Dimensions (mm) |       |      |
|--------|-----------------|-------|------|
|        | Min.            | Nom.  | Max. |
| D      | 2.45            | 2.50  | 2.55 |
| E      | 0.95            | 1.00  | 1.05 |
| b1     | 0.35            | 0.40  | 0.45 |
| b2     | 0.20REF         |       |      |
| b      | 0.15            | 0.20  | 0.25 |
| L      | 0.33            | 0.38  | 0.43 |
| Nd     | 2.00BSC         |       |      |
| e      | 0.50BSC         |       |      |
| R      | 0.10            | 0.125 | 0.15 |
| A      | 0.45            | 0.50  | 0.55 |
| c      | 0.15REF         |       |      |
| A1     | 0.00            | -     | 0.05 |



## Revision History

| Rev. | Change          | Date      |
|------|-----------------|-----------|
| V1.0 | Initial version | 2/23/2024 |
|      |                 |           |

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