

# ESDF5V4

## Ultra Low Capacitance TVS Arrays

### Description

The ESDF5V4 are ultra low capacitance TVS arrays designed to protect high speed data interfaces. This series has been specifically designed to protect sensitive components which are connected to high-speed data and transmission lines from overvoltage caused by ESD(electrostatic discharge),CDE(Cable Discharge Events),and EFT(electrical fast transients).

### Features

- Package design optimized for high speed lines
- Flow-Through design
- Protects four I/O lines
- Low capacitance: 0.3pF typical (I/O to I/O)
- Low clamping voltage
- Low operating voltage: 5V
- Solid-state silicon-avalanche technology
- RoHS compliant package

### Application

- High Definition Multi-Media Interface (HDMI).
- Digital Visual Interface (DVI)
- DisplayPort™ Interface
- MDDI Ports
- LVDS
- Serial ATA
- PCI Express

### Complies with the following standards

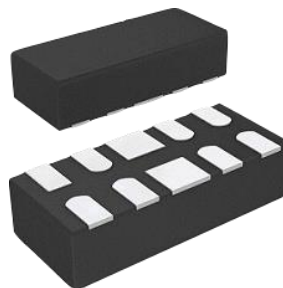
- IEC61000-4-2
- Level 4 15 kV (air discharge)  
8 kV(contact discharge)
- MIL STD 883E - Method 3015-7 Class 3  
25 kV HBM (Human Body Model)

### Mechanical Data

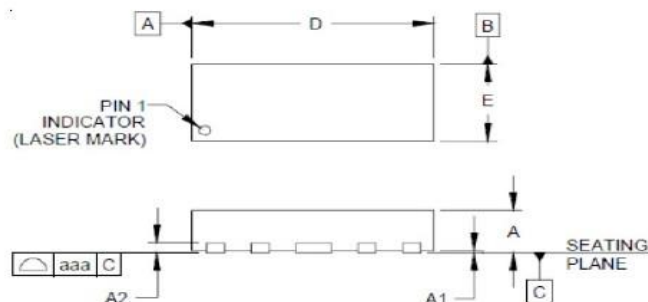
Case : DFN 10 Molded Plastic

### Packing & Order Information

3,000/Reel

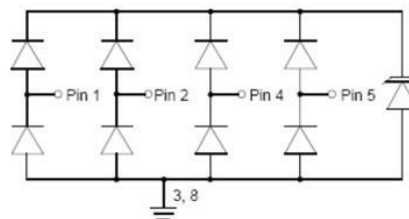
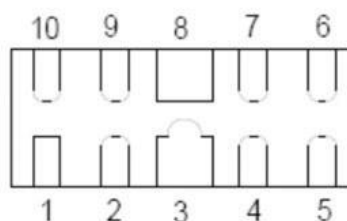


**RoHS  
COMPLIANT**



DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.020	0.023	0.026	0.500	0.580	0.650
A1	0.000	0.001	0.002	0.000	0.030	0.050
A2	0.005			0.130		
b	0.006	0.008	0.010	0.150	0.200	0.250
b1	0.014	0.016	0.018	0.350	0.400	0.450
D	0.102	0.106	0.110	2.600	2.700	2.800
E	0.035	0.039	0.043	0.900	1.000	1.100
e	0.020 BSC			0.50BSC		
e1	0.024 BSC			0.60BSC		
L	0.120	0.150	0.170	0.300	0.380	0.425
N	10.000			10.000		
aaa	0.003			0.080		
bbb	0.004			0.100		

### Graphic symbol



Pin	Identification
1, 2, 4, 5	Input Lines
6, 7, 9, 10	Output Lines (No Internal Connection)
3, 8	Ground

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### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

#### Maximum ratings (limiting value)

Symbol	Parameter	Value	Unit
PD	Peak Pulse Power ( $t_p = 8/20\mu s$ ) @ $T_A=25^\circ C$	150	W
IPP	Peak Pulse Power ( $t_p = 8/20\mu s$ )	5	A
TJ, TSTG	Junction and Storage Temperature Range	-55 to +125	$^\circ C$

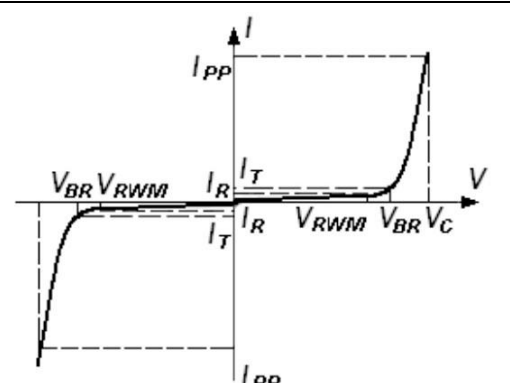
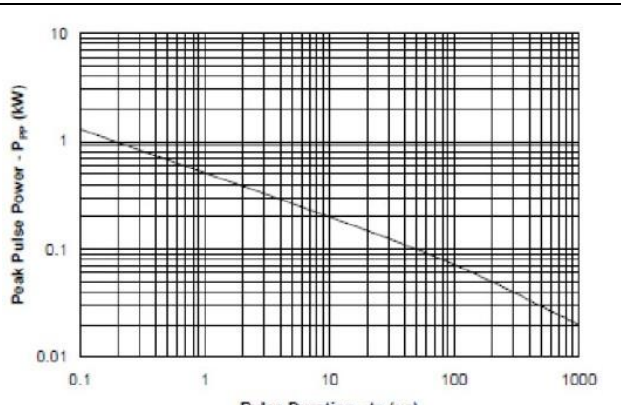
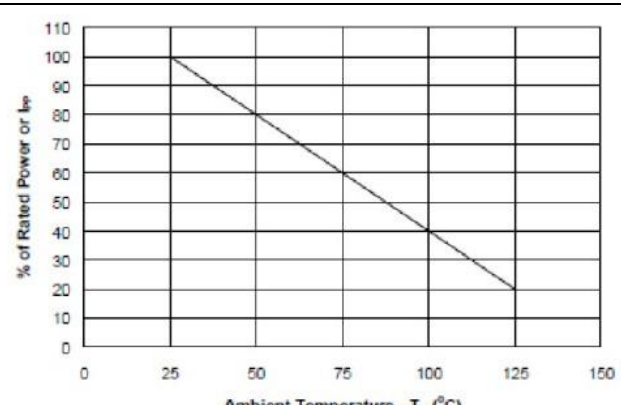
#### Maximum ratings (limiting value)

Symbol	Parameter	Value	Unit
VESD	ESD per IEC 61000-4-2 (Air)	+/- 17	KV
	ESD per IEC 61000-4-2 (Contact)	+/- 12	

#### Electrical Characteristics

Part Numbers	VBR min	VC	VRWM	VF Max	IRwm	Cj TYP
	V	V	V	V	$\mu A$	PF
ESDF5V4	6	15	5	1	1	0.3

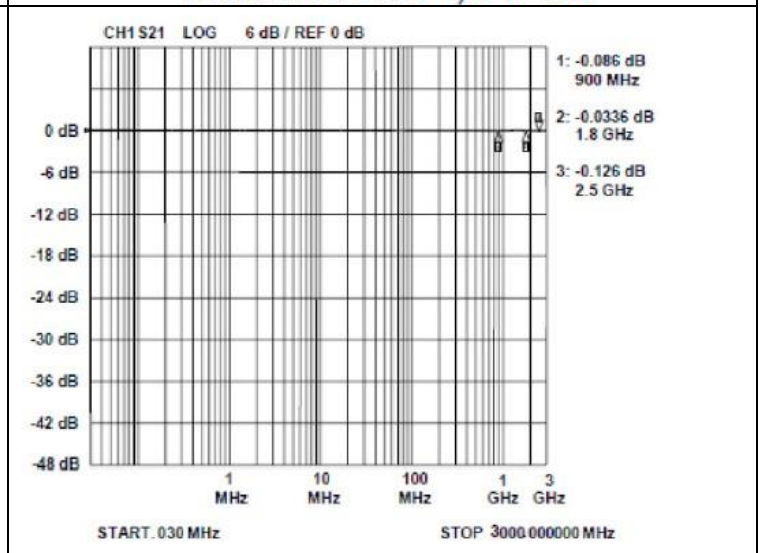
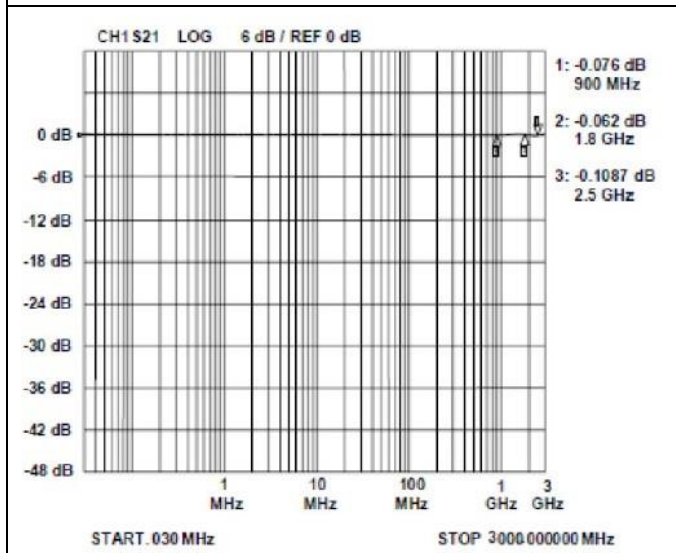
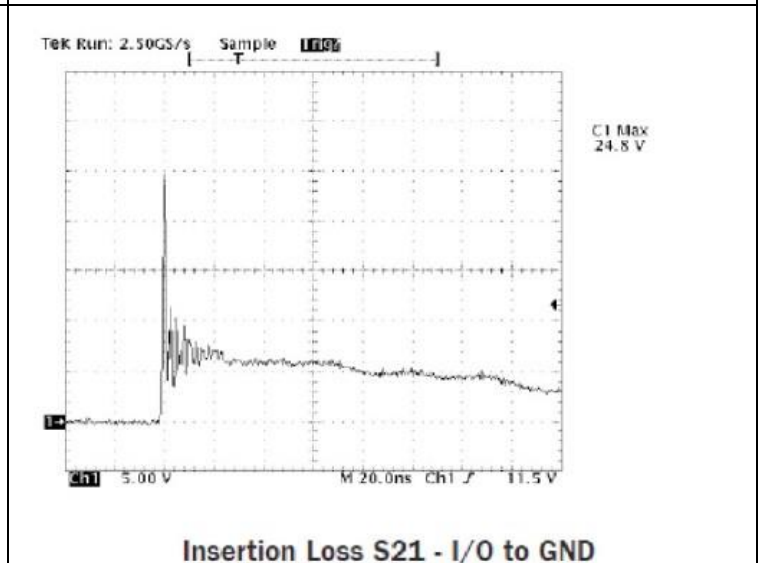
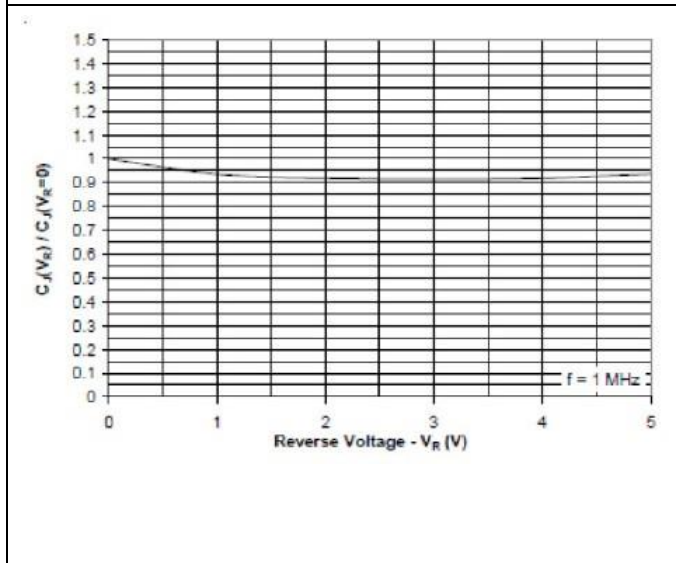
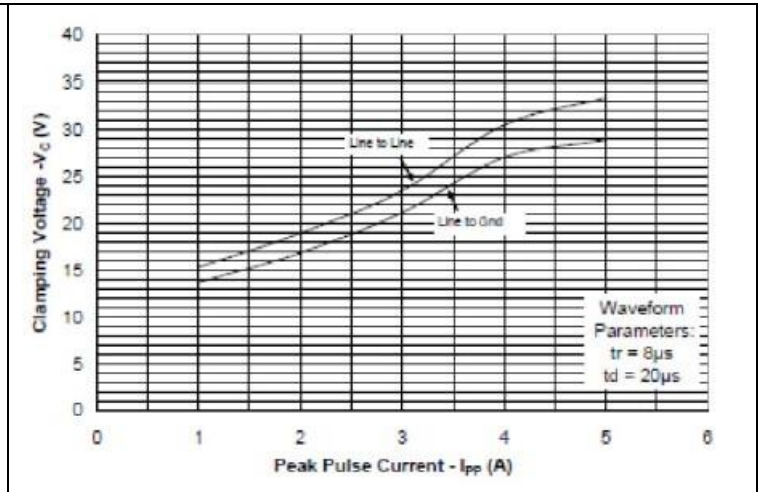
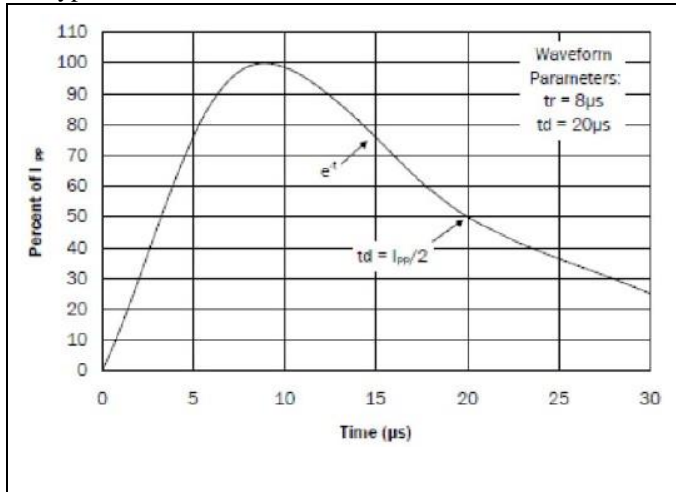
1. Capacitance is measured at  $f=1MHz$ ,  $V_R=0V$
2. VBR is measured with a pulse test current  $I_T$  at an ambient temperature of  $25^\circ C$ .

<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Symbol</th> <th>Parameter</th> </tr> </thead> <tbody> <tr> <td><math>I_{PP}</math></td> <td>Maximum Reverse Peak Pulse Current</td> </tr> <tr> <td><math>V_C</math></td> <td>Clamping Voltage @ <math>I_{PP}</math></td> </tr> <tr> <td><math>V_{RWM}</math></td> <td>Working Peak Reverse Voltage</td> </tr> <tr> <td><math>I_R</math></td> <td>Maximum Reverse Leakage Current @ <math>V_{RWM}</math></td> </tr> <tr> <td><math>I_T</math></td> <td>Test Current</td> </tr> <tr> <td><math>V_{BR}</math></td> <td>Breakdown Voltage @ <math>I_T</math></td> </tr> </tbody> </table>	Symbol	Parameter	$I_{PP}$	Maximum Reverse Peak Pulse Current	$V_C$	Clamping Voltage @ $I_{PP}$	$V_{RWM}$	Working Peak Reverse Voltage	$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$	$I_T$	Test Current	$V_{BR}$	Breakdown Voltage @ $I_T$	
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<b>NON-REPETITIVE PEAK PULSE POWER VS. TULSE TIME</b>	<b>POWER DERATION CURVE</b>														

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#### Typical Device Characteristics



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#### Disclaimer

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