Product Profile

Feature

1. Meet IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
2. Meet IEC61000-4-4 (EFT) rating. 40A (5/50ns)
3. Meet IEC61000-4-5 (Lightning) rating. 10A (8/20μs)
4. Protects four two lines pairs
5. Low capacitance : 4.5pF @ 2.5V (Typical.)
6. Low leakage current : 10nA @ V_{RWM}

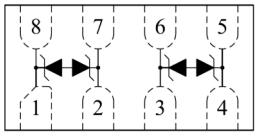
Applications

1. 10/100/100M Ethernet ports
2. LAN/WLAN Equipment
3. Monitors and Flat Panel Displays
4. Telecom equipment, Ethernet port RJ45
5. Audi and Video equipment
6. Communication system

Mechanical Data

1. Case : DFN2010-8L small outline plastic package
2. Molding Compound Flammability Rating : UL 94V-O
3. High temperature soldering guaranteed: 260°C/10second
4. MSL1 and Thermally enhanced

Pin Configuration

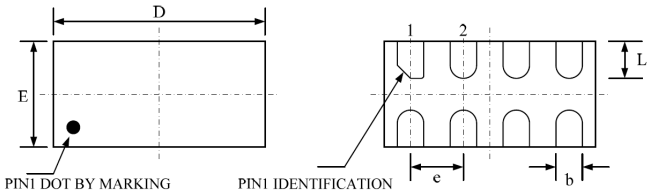


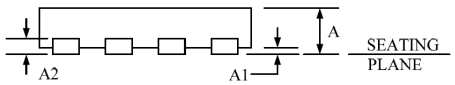
Ordering Information

Package	Part Number	Packing	Marking
DFN2010-8L	ESDSR82V5BJ	3K pcs/7" Reel	2203

Mechanical Profile

Outline Drawing and Dimension





Dimension	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	0.370	0.430	0.015	0.017
A1	0.000	0.050	0.000	0.002
A2	0.130		0.005	
b	0.200	0.300	0.008	0.012
D	1.900	2.100	0.075	0.083
E	0.900	1.100	0.035	0.043
e	0.500 typ.		0.020 typ.	
L	0.300	0.400	0.012	0.016
R	0.050	0.150	0.002	0.006

Maximum Ratings and Electrical Characteristics (Rating at 25°C ambient temperature unless otherwise specified)

Maximum Ratings

Parameter		Symbol	Value	Unit
Peak Pulse Power	(tp=8/20μs waveform) (Note1.)	P_{PP}	100	W
ESD per IEC 61000-4-2 (Note 2.)	(Air)	V_{ESD}	±30	KV
ESD per IEC 61000-4-2	(Contact)		±30	℃
Junction and Storage Temperature Range		T_J, T_{STG}	-55 ~ 150	℃

Electrical Characteristics

Parameters		Symbols	Min	Max	Units
Reverse Stand-Off Voltage		V_{RWM}	-	2.50	V
Reverse Breakdown Voltage (Note 3.)	I_{t1}=1μA	V_{t1}	3.00	4.50	V
Reverse Breakdown Voltage (Note 3.)	I_{h1}=1mA	V_h	3.00	4.00	V
Reverse Leakage Current	V_R=2.5V	I_R	10		nA
Clamping Voltage	I_{PP}=2A	V_C	-	5.00	V
	I_{PP}=10A		-	8.00	V
Junction Capacitance	V_R=2.5V, f=1MHZ	C_J	4.5 (Typ.)		pF

Note 1. Device stressed with ten non-repetitive current pulses (8/20μs exponential decay waveform according to IEC 61000-4-5 and IEC 61643-321). Note 2. Device stressed with ten non-repetitive ESD pulses.
Note 3. Bi-directional TVS characteristic as diagram (1) in the page 2.

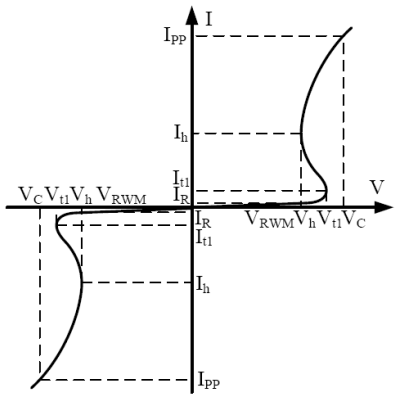
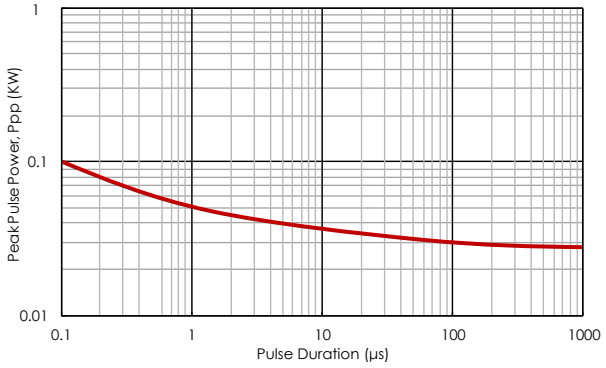
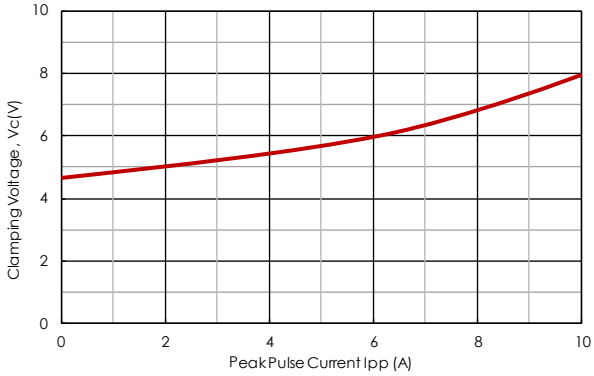
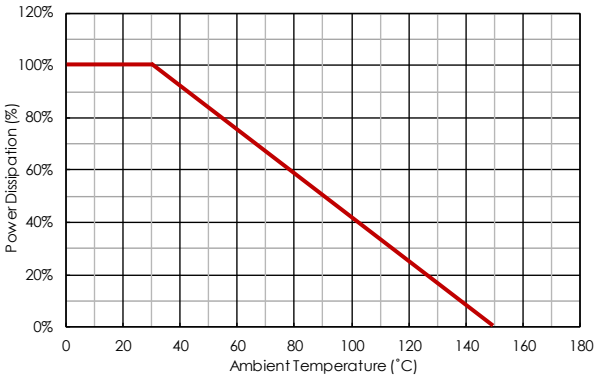


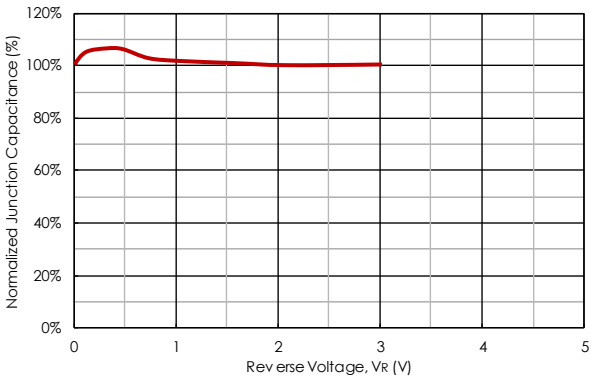
Diagram (1). Bi-directional TVS characteristic

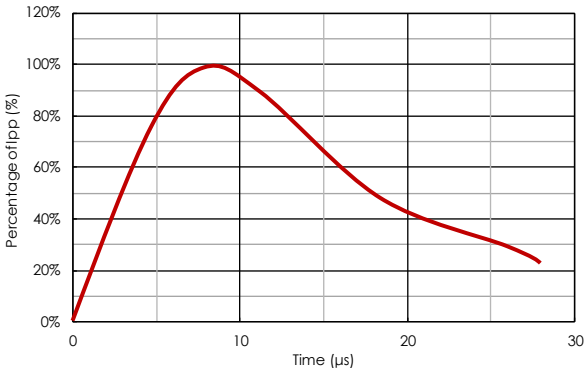
Rating and Characteristic Curves

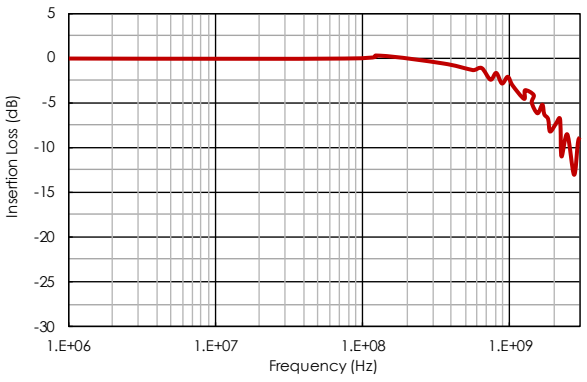












Application Information

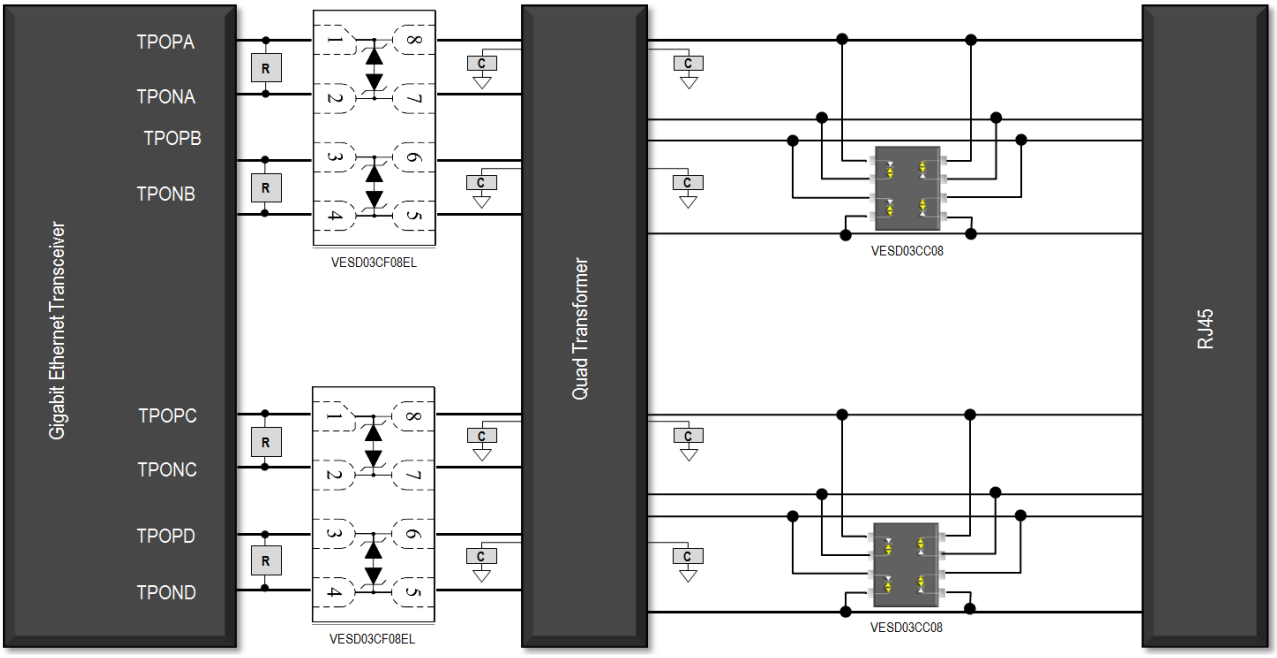
1. Designed for protection of high-speed interfaces.
2. With typical capacitance of 4.5pF only, ESDSR82V5BJ is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events.
3. Designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by electrostatic discharge (ESD), electrical fast transients (EFT), and lightning.
4. Each ESDSR82V5BJ device can protect two high-speed line pairs.
5. The “flow-thru” design minimizes trace inductance and reduces voltage overshoot associated with ESD events The
6. combined features of low capacitance and high ESD robustness makeESDSR82V5BJ ideal for high-speed data port and high-frequency line (e.g., Gigabit Ethernet Ports) applications.
7. The low clamping voltage of the ESDSR82V5BJ guarantees a minimum stress on the protected IC.

Circuit Board Layout Recommendation

Electronic equipment is susceptible to damage caused by a variety of sources, including Electrostatic Discharge (ESD), Electrical Fast Transients (EFT) and Lightning strikes.

The ESDSR82V5BJ was designed to protect to the sensitive equipment from damage which may be induced by such transient events.

This product can be configured in a connection to meet the requirement of differential line pairs as follows:



Schematic Diagram for Gigabit Ethernet ESD/Surge Protection