Features

- Low capacitance for high speed interfaces
- Ultra low leakage: nA level
- Low operating voltage: 2.5V
- Ultra low clamping voltage
- Complies with following standards:
  - – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
  - – IEC61000-4-4 (EFT) 40A (5/50ns)
  - – IEC61000-4-5 (Lightning) 80A (8/20μs)
- RoHS Compliant

Mechanical Characteristics

- Package: DFN2626-10
- Lead Finish: NiPdAu
- Case Material: “Green” Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram

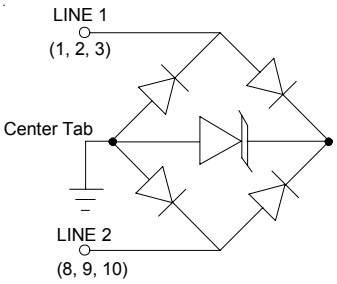
Applications

- T3/E3
- 10/100/1000 Ethernet
- Integrated Magnetics
- Carrier Class Equipment
- Customer Premise Equipment

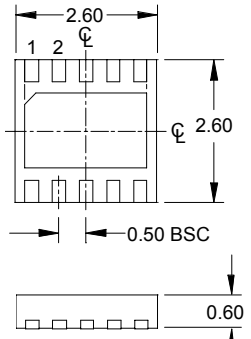
Description

The ESD2V521LB is a low capacitance TVS array,integrating low capacitance, surge-rated compensation diodes with a high power transient voltage suppressor (TVS The compensation diodes are arranged in a bridge pattern allowing the device to be connected in common mode and/or differential mode.The ESD2V521LB complie with the IEC 61000-4-2 (ESD) standard with ±15kV air and ±8kV contact discharge. It is assembled into a 10-pin lead-free DFN package,the ESD2V521LB is rated for GR-1089, intra-building transient immunity requirements for telecommunication installations and provide overvoltage protection for applications such as 10/100/1000 BaseT Ethernet and T3/E3 interfaces.

Dimensions and Pin Configuration



Circuit Diagram



Package Configuration

Part Number Code

E	S	D	0	5	1	1	L	1
1	2	3	4	5	6	7	8	9

Product Type	
ESD	TSK Electrostatic suppressor ESD Type

Reverse Working Voltage（V）	
3V3	3.3V
05	5V
16	16V

Line	
1	1-Line
2	2-Line
3	3-Line

directional	
0	Bi
1	Uni

Capacitance Type	
L	Low
X	Normal

Size	
1	0201
2	0402
3	DFN0603
4	DFN1006

★ Code 4 to 9 is optional

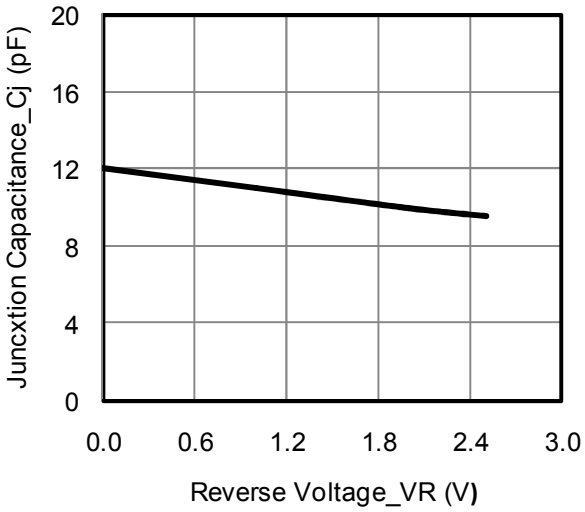
Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (2/10μs)	Ppk	2000	W
Peak Pulse Current (2/10μs)	I_{PP}	100	A
Peak Pulse Current (8/20μs)	I_{PP}	80	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−40 to +85	°C
Storage Temperature Range	Tstg	−55 to +150	°C

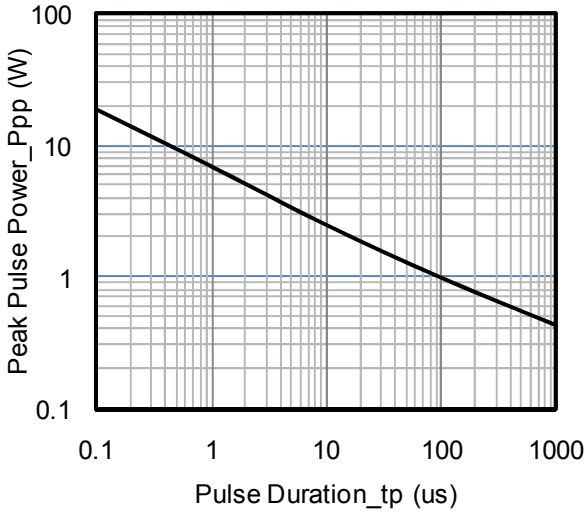
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			2.5	V	
Punch-Through Voltage	V_{PT}	2.7			V	I_T = 2μA
Snap-Back Voltage	V_{SB}	2.0			V	I_{SB} = 50mA
Reverse Leakage Current	I_R			0.5	μA	V_{RWM} = 2.5V
Clamping Voltage	V_C			17	V	I_{PP} = 100A (2 x 10μs pulse), any I/O pin to ground
Clamping Voltage	V_C			20	V	I_{PP} = 100A (2 x 10μs pulse), between I/O pins
Junction Capacitance	C_J			20	pF	VR = 0V, f = 1MHz, between I/O pins and ground
Junction Capacitance	C_J			10	pF	VR = 0V, f = 1MHz, between I/O pins

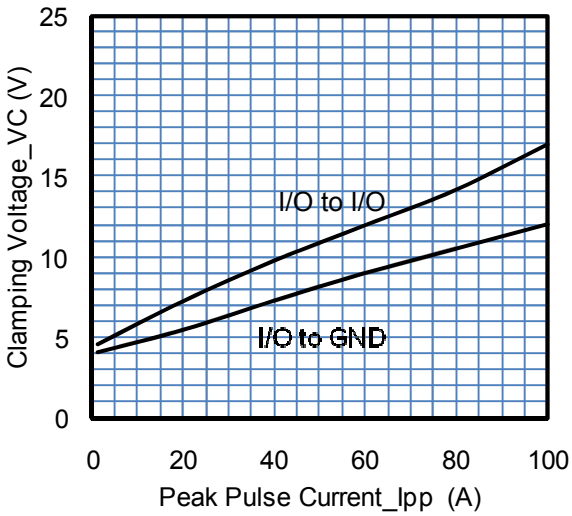
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



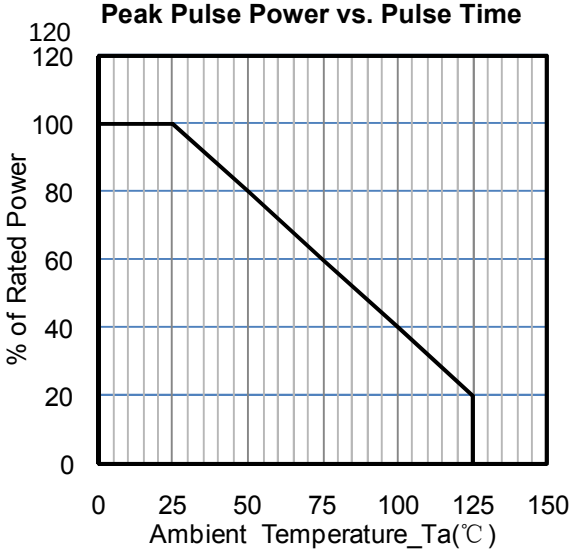
Junction Capacitance vs. Reverse Voltage



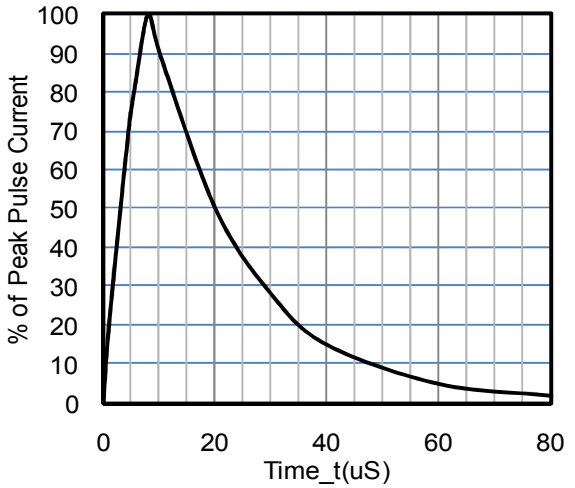
Peak Pulse Power vs. Pulse Time



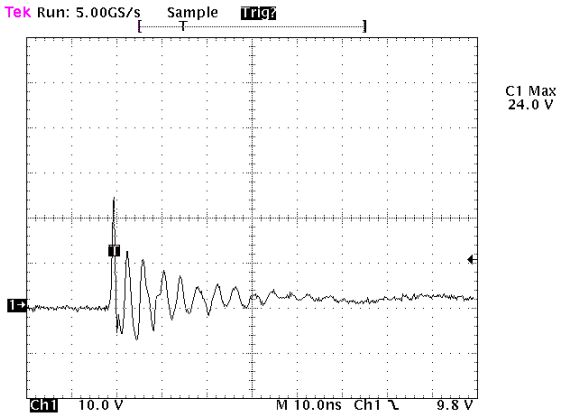
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



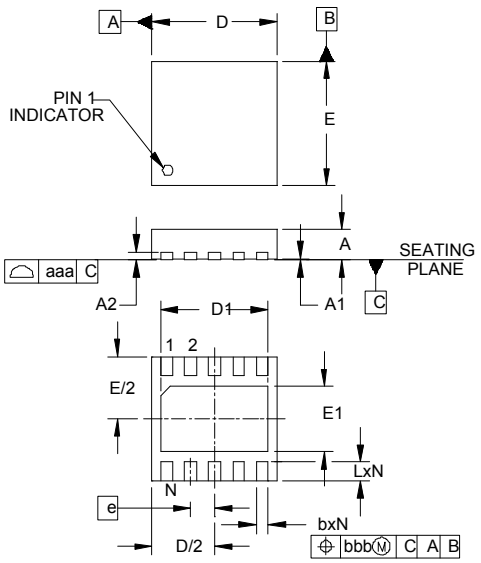
8 X 20us Pulse Waveform



ESD Clamping Voltage

8 kV Contact per IEC61000−4−2

DFN2626-10 Package Outline Drawing

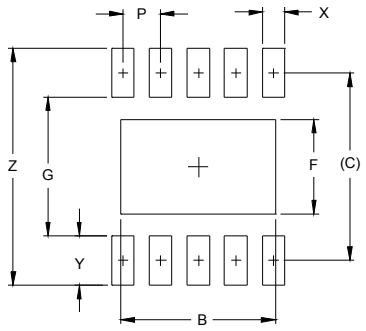


DIM	DIMENSIONS					
	INCHES			MILLIMETERS		
	MIN	NOM	MAX	MIN	NOM	MAX
A	.020	.022	.024	0.50	0.55	0.60
A1	.000	.001	.002	0.00	0.03	0.05
A2		(.007)			(0.17)	
b	.007	.010	.012	0.20	0.25	0.30
D	.098	.102	.106	2.50	2.60	2.70
D1	.079	.085	.089	2.00	2.15	2.25
E	.098	.102	.106	2.50	2.60	2.70
E1	.044	.050	.054	1.11	1.26	1.36
e		.020 BSC			0.50 BSC	
L	.011	.014	.016	0.30	0.35	0.40
N		10			10	
aaa		.003			0.08	
bbb		.004			0.10	

NOTES:

1. CONTROLLING DIMENSIONS ARE IN MILLIMETERS (ANGLES IN DEGREES).
2. COPLANARITY APPLIES TO THE EXPOSED PAD AS WELL AS THE TERMINALS.

Suggested Land Pattern



DIM	INCHES	MILLIMETERS
B	.081	2.05
C	.100	2.50
F	.050	1.26
G	.073	1.85
P	.020	0.50
X	.012	0.30
Y	.025	0.65
Z	.124	3.15

NOTES:

1. THIS LAND PATTERN IS FOR REFERENCE PURPOSES ONLY. CONSULT YOUR MANUFACTURING GROUP TO ENSURE YOUR COMPANY'S MANUFACTURING GUIDELINES ARE MET.

Ordering Information

Part Number	Packaging	Reel Size
ESD2V521LB	3000/Tape & Reel	7 inch