Features

- Bidirectional TVS 5 V
- ESD protection >15 kV
- Replacement for MLV (0402)
- Low capacitance - 1.0 pF
- Low Leakage Current

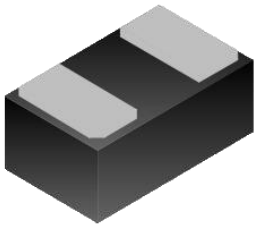
Applications

- Mother Board and Notebook, Cellular Phone, Set-Top Box etc.
- Suitable for USB2.0, TF Card Line and high Frequency single line over voltage protect

VTSB52A3 ----- SURFACE MOUNT TVS Diodes

General Information

The VTSB52A3 is designed with Vicsemi Punch-Through process TVS technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium.



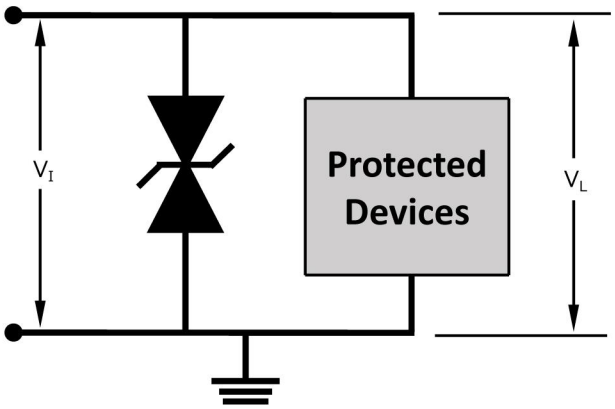
Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Maximum Contact discharge voltage Per IEC61000-4-2	---	8KV	V
Maximum Air discharge voltage Per IEC61000-4-2	---	15KV	V
Maximum Operating temperature	T_{OPER}	-40 to +90	℃
Maximum Storage temperature	T_{STG}	-55 to +125	℃
Maximum lead temperature for soldering during 10s	T_L	260	℃

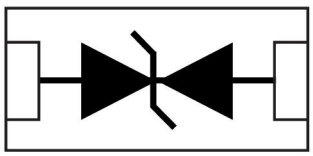
Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Reverse Working Voltage	V_{RWM}	Any I/O pin to GND	---	---	5	V
Reverse Breakdown Voltage	V_{BR}	Any I/O pin to GND I_T=1mA	6	---	---	V
Positive Clamping Voltage	V_C	I_{PP}=1A, t_P=8/20μ; Any I/O pin to GND	---	8.5	12	V
Peak Pulse Current	I_{PP}	t_P=8/20μs waveform	---	---	7.5	A
Reverse Leakage Current	I_L	V_{RWM} =5V ; Any I/O pin to GND	---	---	1.00	uA
Junction Capacitance	C_P	V_R=0V, f=1MHz ; Any I/O pin to GND	---	1.0	---	pF

Typical Protection Circuit

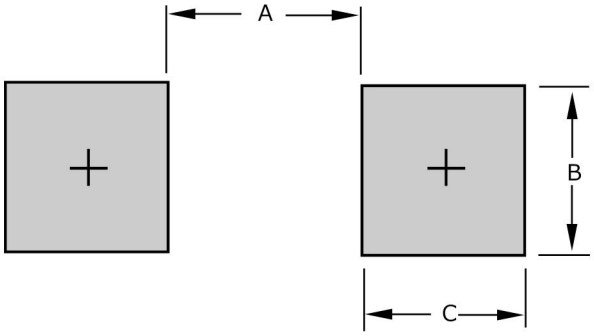


Block Diagram



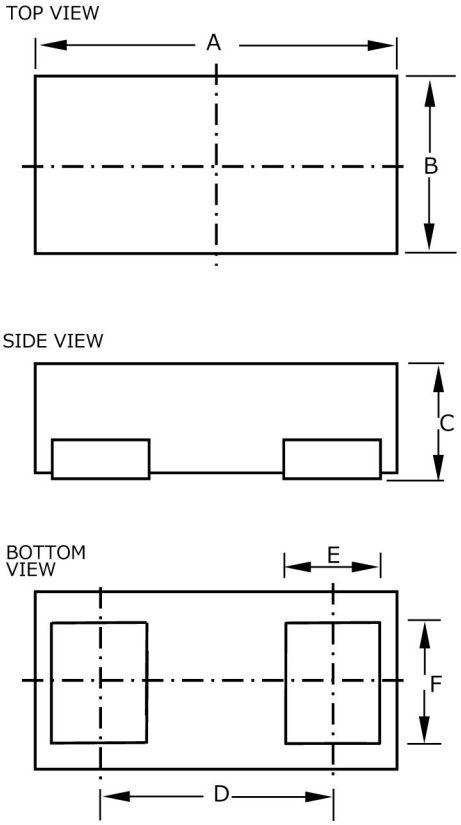
Bi-directional

Recommended PCB Footprint



Dimension	DFN-2L
A	0.30 (0.012)
B	0.80 (0.031)
C	0.55 (0.022)

Product Dimensions



Dimension	DFN-2L
A	0.95-1.05 (0.037-0.041)
B	0.55-0.65 (0.022-0.026)
C	0.40-0.50 (0.016-0.020)
D	0.65 (0.026)
E	0.10-0.35 (0.004-0.014)
F	0.40-0.50 (0.016-0.020)

DIMENSIONS: MM / (INCHES)

Performance Graphs

Figure 1: Power Derating Curve

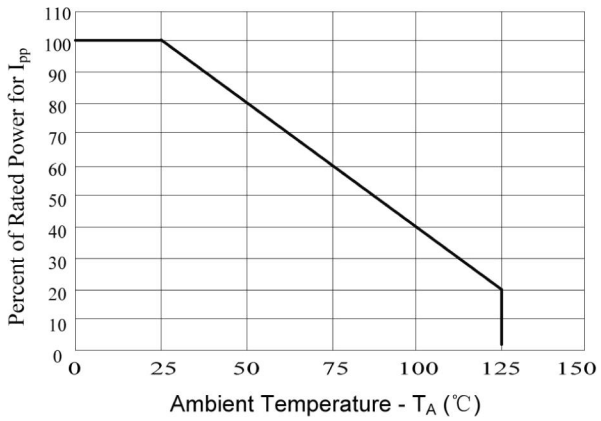


Figure 2: Insertion Loss

Figure 3: Normalized Junction Capacitance vs. Reverse Voltage

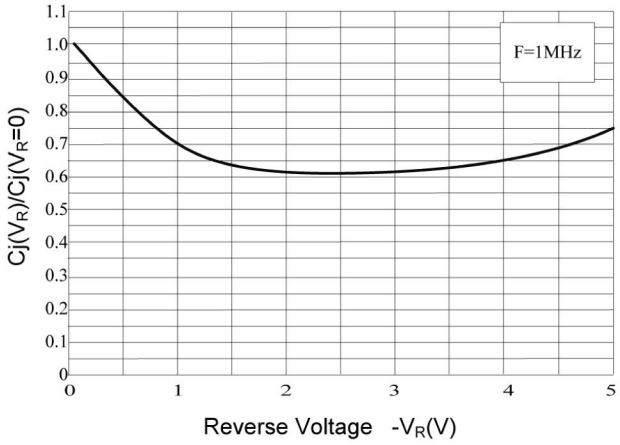


Table 1. IEC 61000-4-2 Discharge Parameters

Level	First Peak Current (A)	Peak Current at 30 ns (A)	Peak Current at 60 ns (A)	Test Voltage (Contact Discharge) (kV)	Test Voltage (Air Discharge) (kV)
1	7.5	4	2	2	2
2	15	8	4	4	4
3	22.5	12	6	6	8
4	30	16	8	8	15

Figure 4. IEC 61000-4-2 Waveform

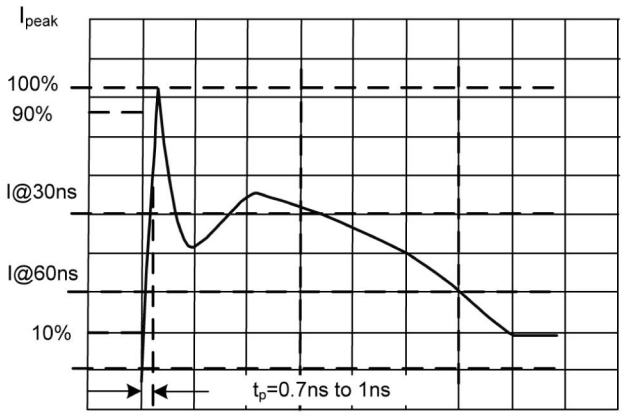
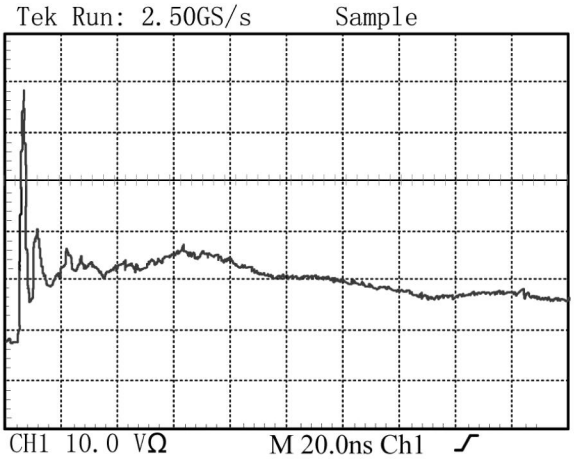
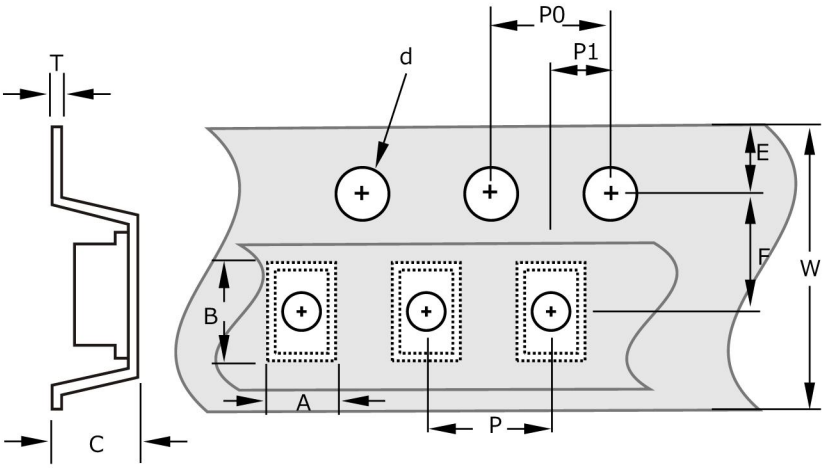


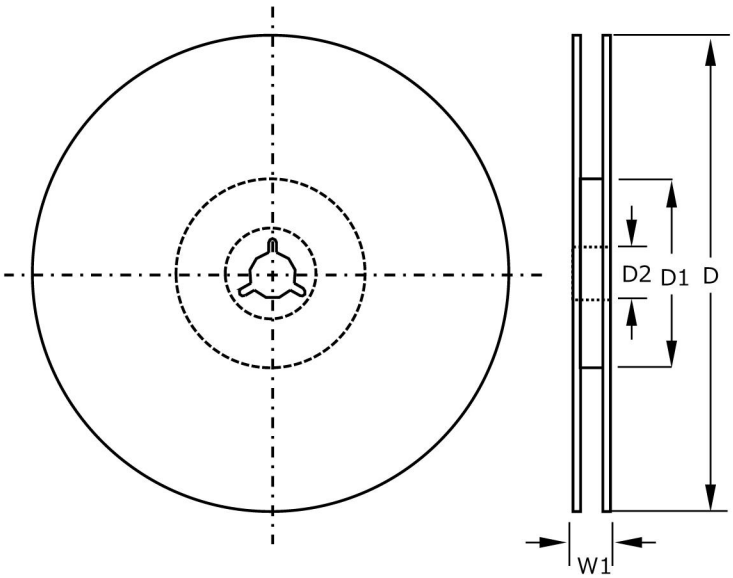
Figure 5: ESD Clamping(8kV Contact per IEC 61000-4-2)



Packaging Information

Symbol	DFN-2L
A	0.7±0.05 (0.028±0.002)
B	1.15±0.05 (0.045±0.002)
C	0.47±0.05 (0.019±0.002)
d	1.55±0.05 (0.061±0.002)
D	180.00±2.00 (7.087±0.079)
D1	60.0±1.00 (2.362±0.039)
D2	13.0±0.20 (0.516±0.008)
E	1.75±0.10 (0.069±0.004)
F	3.50±0.05 (0.138±0.002)
P	2.00±0.10 (0.079±0.004)
P0	4.00±0.10 (0.157±0.004)
P1	2.00±0.05 (0.079±0.002)
T	0.20±0.05 (0.008±0.002)
W	8.00±0.10 (0.315±0.004)
W1	11.6±1.00 (0.457±0.039)





DIMENSIONS: MM / (INCHES)

Quantity of products in the taping package

(1) Standard quantity : 10000 pcs/Reel for the Series.

(2) Shipping quantity is a multiple of standard quantity.

(3) For additional information, please contact your local Sales Representative.