



Features

- Bidirectional TVS
- ESD protection 15 kV
- Replacement for MLV (0402)
- Low Clamping Voltage
- Low Leakage Current

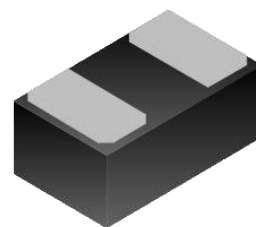
Applications

- Cellular Handsets & Accessories
- Personal Digital Assistants (PDAs)
- Notebooks, Desktops, Servers
- Portable Instrumentation

VTSB54X3 ----- SURFACE MOUNT TVS Diodes

General Information

The VTSB54X3 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.



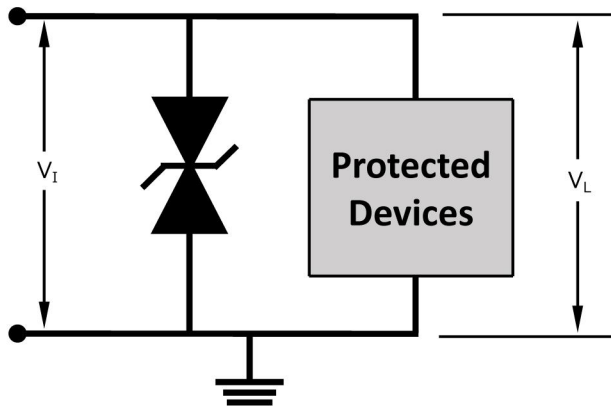
Absolute Maximum Ratings

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	°C
Maximum Storage temperature	T _{STG}	-55 to +125	°C
Maximum lead temperature for soldering during 10s	T _L	260	°C

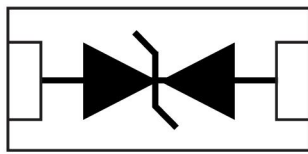
Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

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 =8/20μs; Any I/O pin to GND	---	---	9.5	V
Peak Pulse Current	I _{pp}	t _p =8/20μs	---	4	---	A
Reverse Leakage Current	I _L	V _{RWM} =5V ; Any I/O pin to GND	---	---	1.0	uA
Junction Capacitance	C _p	V _{RWM} =0V, f=1MHz ; Any I/O pin to GND	---	10	---	pF

Typical Protection Circuit

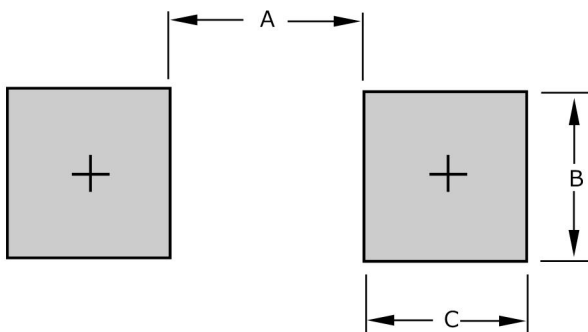


Block Diagram



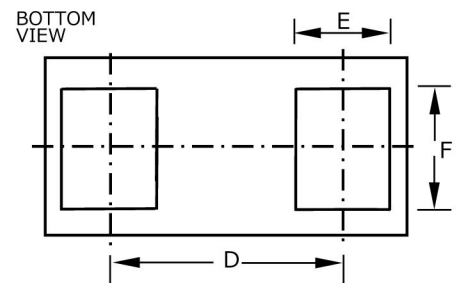
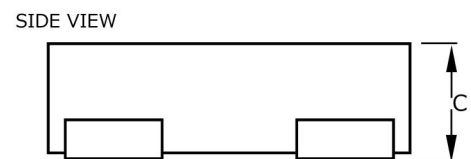
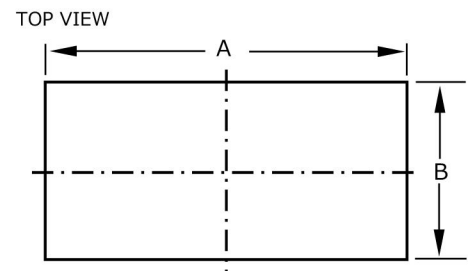
Bi-directional

Recommended PCB Footprint



Dimension	DFN-2L
A	$\frac{0.30}{(0.012)}$
B	$\frac{0.80}{(0.031)}$
C	$\frac{0.55}{(0.022)}$

Product Dimensions



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

DIMENSIONS: $\frac{\text{MM}}{(\text{INCHES})}$

Performance Graphs

Figure 1: Peak Pulse Power Vs Pulse Time

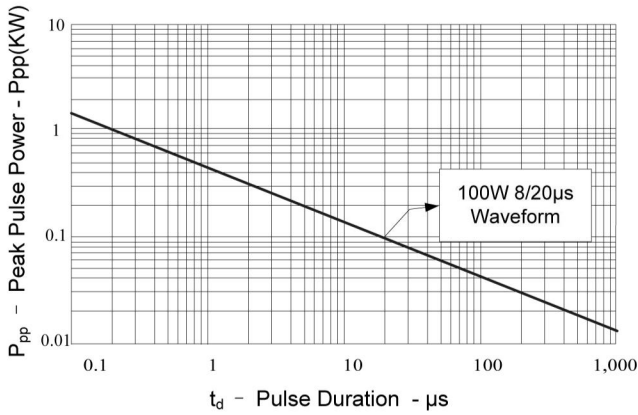


Figure 2: Power Derating Curve

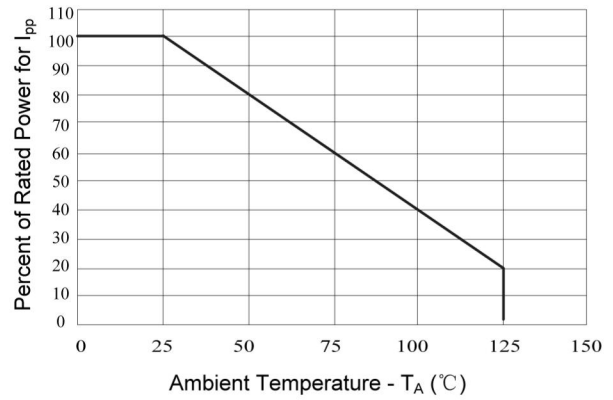


Figure 3: Clamping Voltage vs. Peak Pulse Current

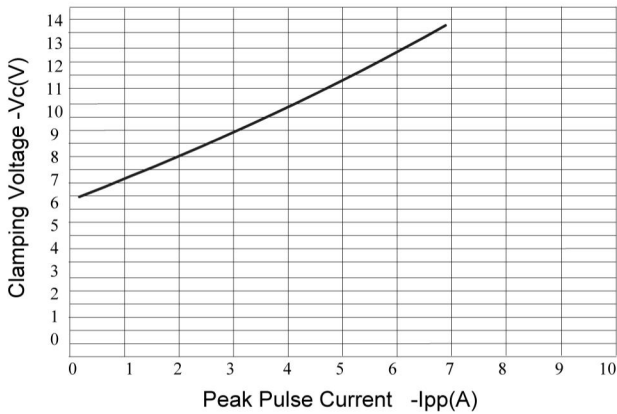


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

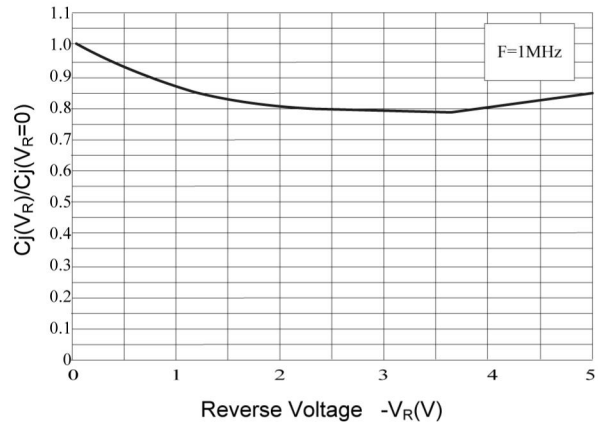


Figure 5: Pulse Waveform

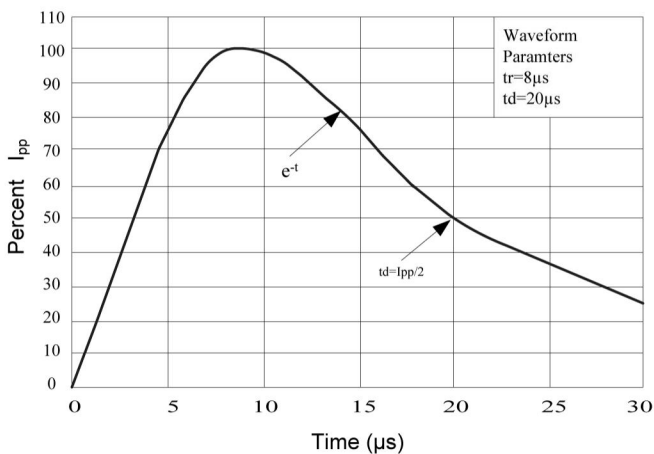
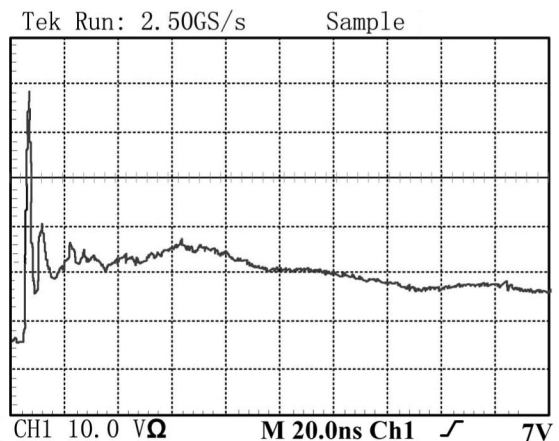
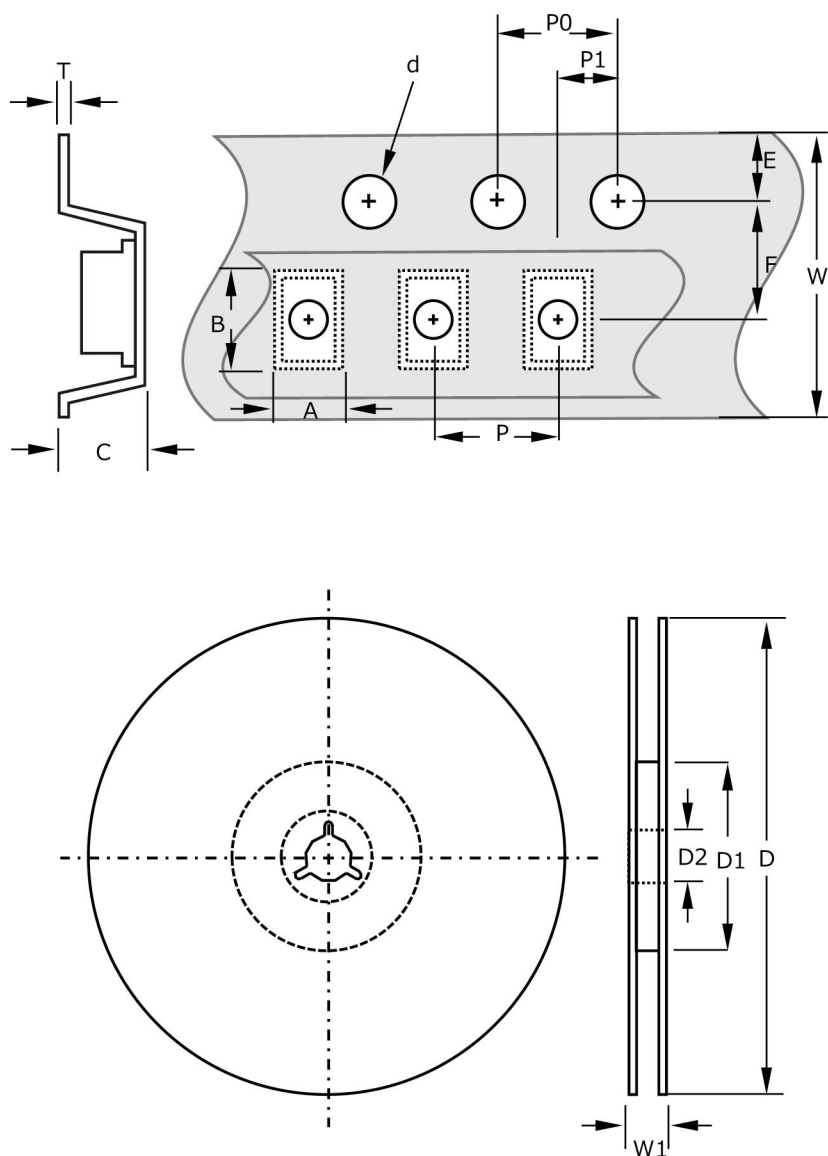


Figure 6: ESD Clamping(8kV Contact per IEC 61000-4-2)



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: $\frac{\text{MM}}{(\text{INCHES})}$

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.