

Low Capacitance Uni-directional TVS Diode

Features

- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 13A (8/20 μs)
- RoHS Compliant

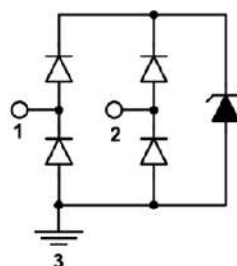
Dimensions DFN1006-3



Applications

- USB Ports
- SIM Ports
- Smart Phones
- Wireless Systems
- Set-top box and digital TV
- Digital video interface (DVI)
- Ethernet 10/100/1000 Base T

Pin Configuration



Mechanical Characteristics

- Package: DFN1006-3
- Lead Finish: Lead Free
- UL Flammability Classification Rating
- 94V-0 Quantity Per Reel: 10,000pcs
- Reel Size: 7 inch
- Device Marking: A7

Absolute Maximum Ratings ($T_{\text{amb}}=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	P _{pp}	70	W
ESD per IEC 61000-4-2 (Air)	V _{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{STJ}	-55 to +150	$^{\circ}\text{C}$

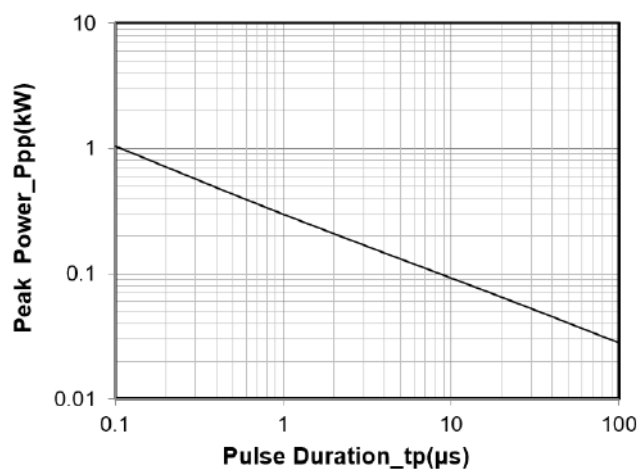
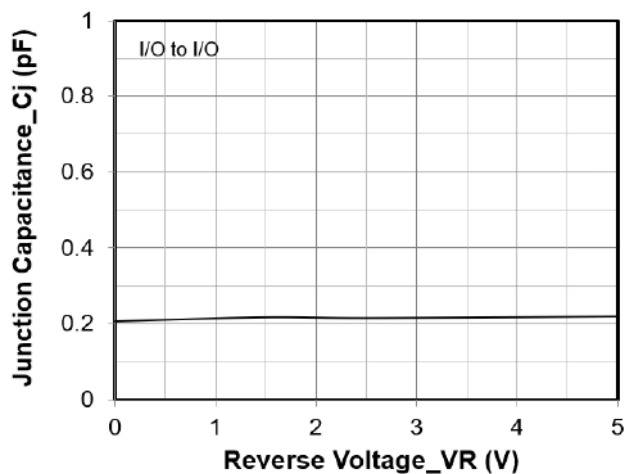
Electrical Characteristics (TA=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			5	V	
Breakdown Voltage	VBR	6			V	IT = 1mA
Reverse Leakage Current	IR			0.2	μA	VRWM = 5V
Clamping Voltage	VC		4.2	5	V	IPP = 13A (8 x 20μs pulse)
ESD Clamping Voltage ⁽¹⁾	VC		2.1		V	IPP = 4A, tp = 0.2/100ns (TLP)
			3.9		V	IPP = 16A, tp = 0.2/100ns (TLP)
Dynamic Resistance ⁽²⁾	R _{DYN}		0.15		Ohm	tp = 0.2/100ns (TLP)
Junction Capacitance	CJ		0.65	1	pF	Vpin3=0V, VR = 1.5V, f = 1MHz, any I/O pin to ground
Junction Capacitance	CJ		0.2	0.5	pF	Vpin3=0V, VR = 1.5V, f = 1MHz, between I/O pins

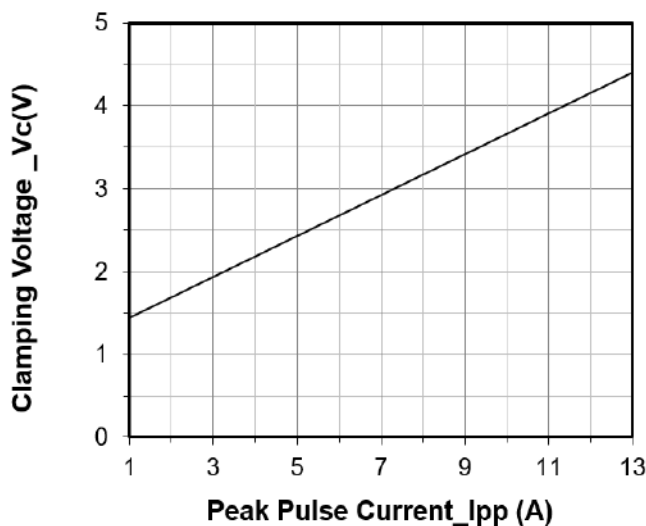
(1) Transmission Line Pulse Test (TLP) Settings: tp = 100ns, tr = 0.2ns.

(2) Dynamic resistance calculated from ITLP = 4A to ITLP = 16A.

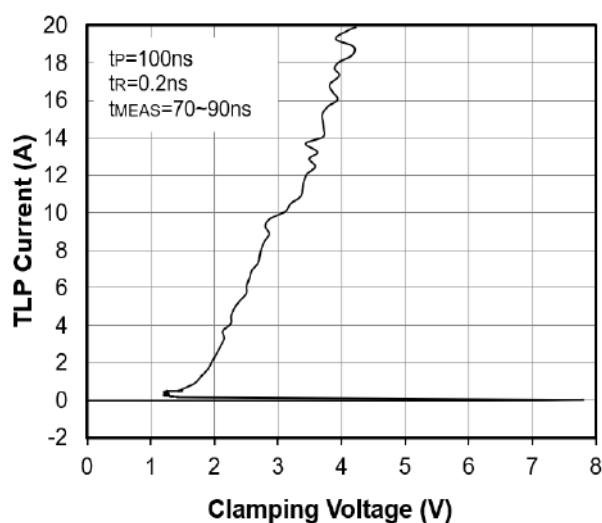
Typical Performance Characteristics (TA=25°C unless otherwise specified)



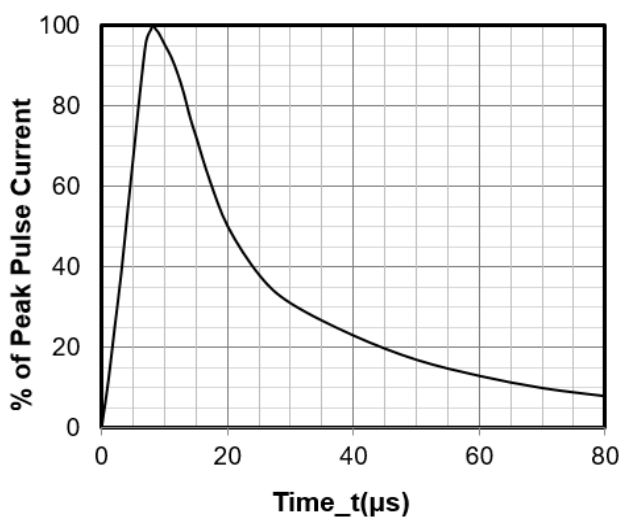
Junction Capacitance vs. Reverse Voltage



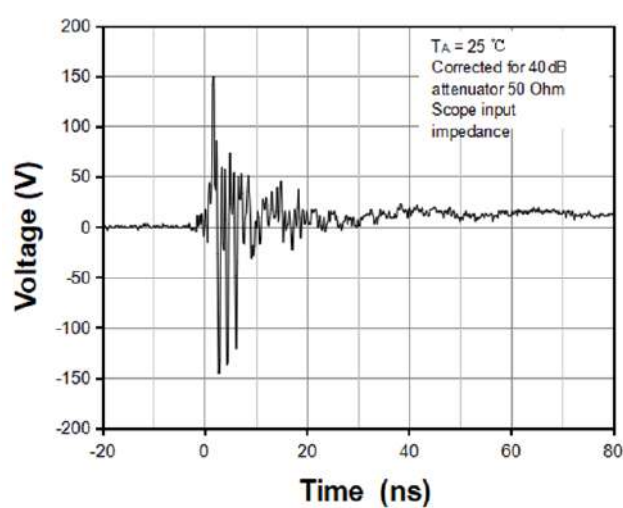
Peak Pulse Power vs. Pulse Time



Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)



TLP Measurement

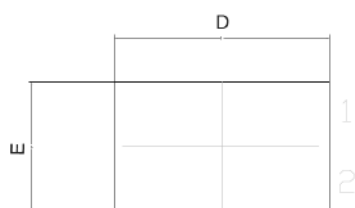


8 X 20μs Pulse Waveform

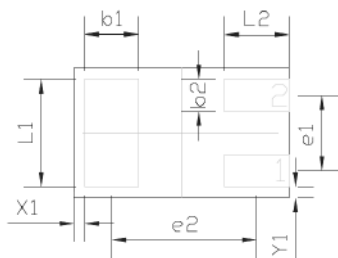
ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

DFN1006-3 Package Outline Drawing



TOP VIEW



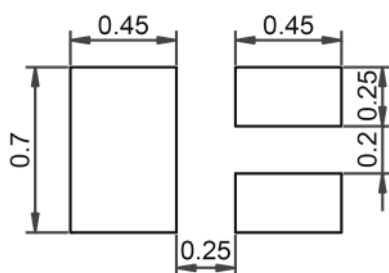
BOTTOM VIEW



SIDE VIEW

SYM	DIMENSIONS		
	MILLIMETERS		
A	0.45	0.50	0.55
D	0.95	1.00	1.05
E	0.55	0.60	0.65
b1	0.20	0.25	0.30
b2	0.10	0.15	0.20
L1	0.45	0.50	0.55
L2	0.25	0.30	0.35
e1	0.350 BSC		
e2	0.675 BSC		
X1	0.025	-	0.065
Y1	0.025	-	0.065

Suggested Land Pattern



Unit: mm