

1-Line Ultra Low Capacitance Bi-directional TVS Diode

Features

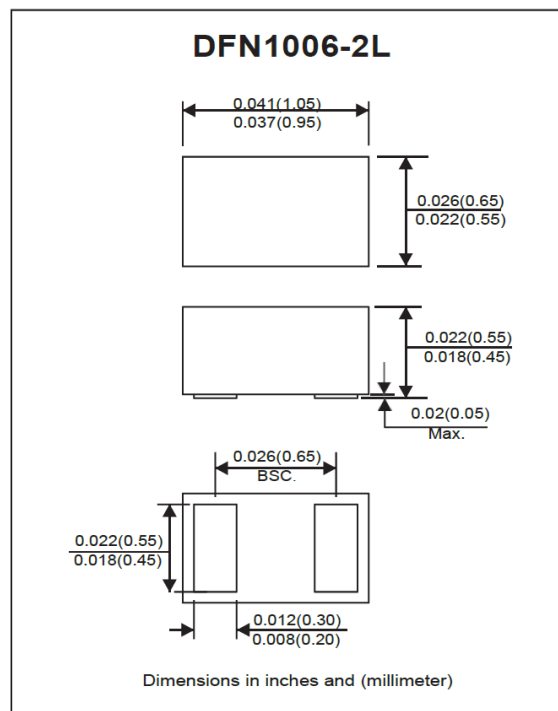
- IEC61000-4-2 (ESD) $\pm 25\text{kV}$ (air), $\pm 22\text{kV}$ (contact)
- IEC61000-4-5 (Lightning) 4A (8/20 μs)
- Ultra small package: 1.0x0.6x0.5mm
- Ultra low capacitance: 0.3pF typical
- Ultra low leakage: nA level
- Operating voltage: 5V.
- Low clamping voltage

Applications

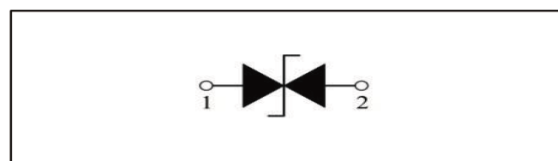
- Cellular Handsets and Accessories.
- Display Ports
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports

Mechanical Characteristics

- Package: DFN1006-2L (1.0x0.6x0.5mm)
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Material: RoHS compliant



Circuit Diagram

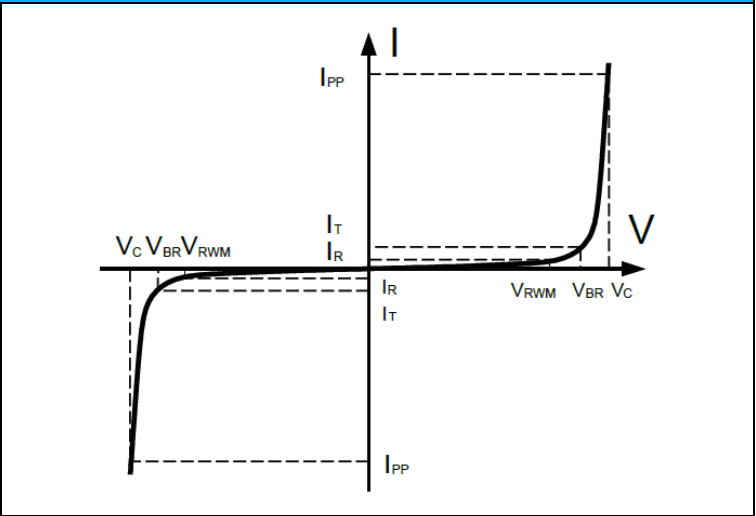


Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	100	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	4	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 25	KV
ESD per IEC 61000-4-2 (Contact)		± 22	KV
Operating Temperature Range	T_J	-55 to + 125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 to + 150	$^\circ\text{C}$

Electrical Parameters ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

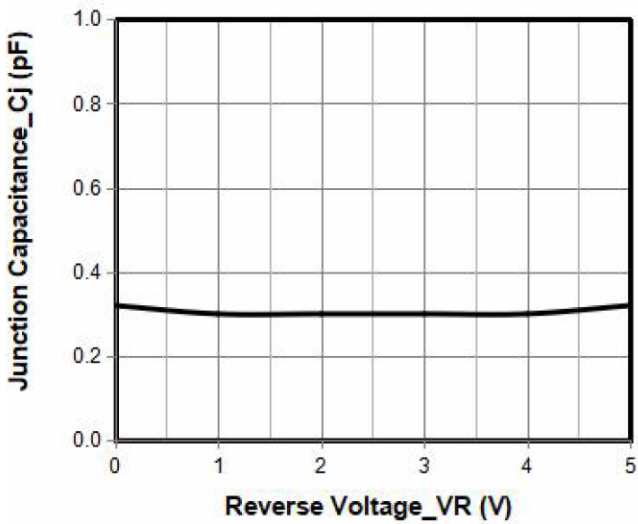
Symbol	Parameter
I_{PP}	Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Reverse Stand-Off Voltage
I_R	Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current



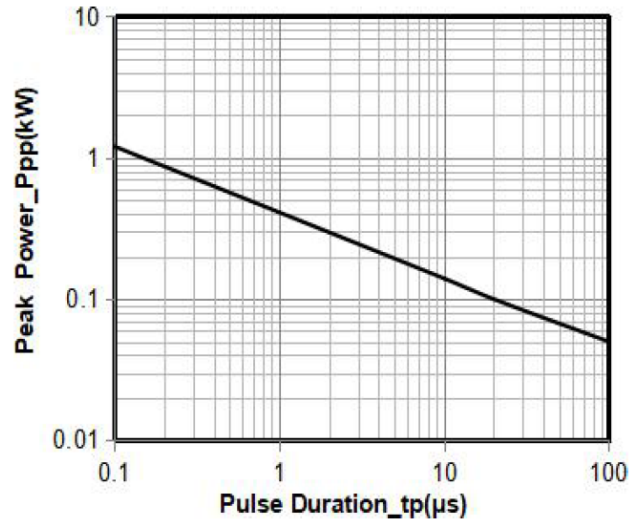
Electrical Characteristics ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Reverse Standoff Voltage	V_{RWM}				5.0	V
Reverse breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6.5		9.5	V
Reverse leakage current	I_R	$V_{RWM} = 5.0\text{V}$			0.2	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_P = 8/20\mu\text{s}$			12	V
Clamping Voltage	V_C	$I_{PP} = 4\text{A}, t_P = 8/20\mu\text{s}$			25	V
Junction capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$		0.3	0.5	pF

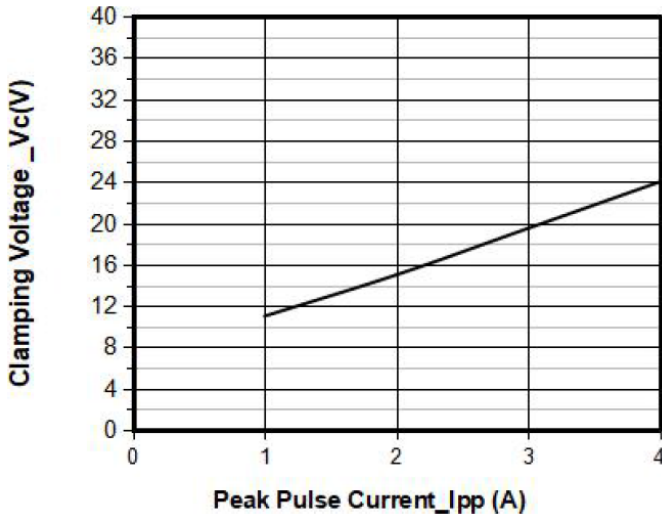
Typical Performance Characteristics (T_A = 25°C Unless otherwise noted)



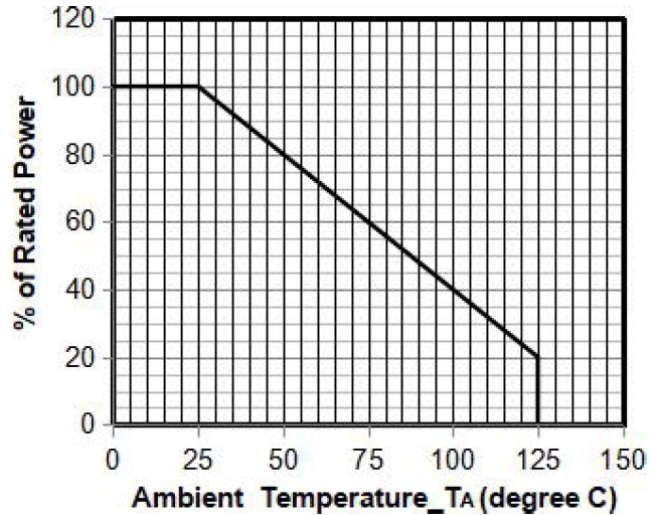
Junction Capacitance vs. Reverse Voltage



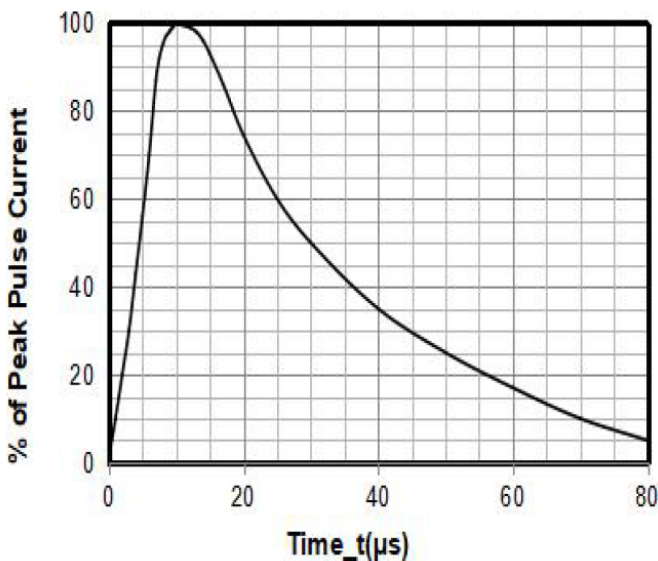
Peak Pulse Power vs. Pulse Time



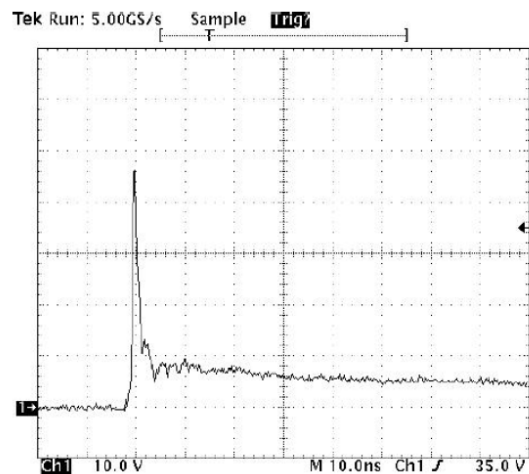
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



Note: Data is taken with a 10x attenuator

ESD Clamping Voltage
8 kV Contact per IEC61000-4-2

Suggested PAD Layout

Symbol	DFN1006-2L	
	(mm)	(inch)
A	0.70	0.028
B	0.40	0.016
C	0.60	0.024
D	1.10	0.043
E	0.30	0.012

Marking Code

Part Number	Marking Code	
STCDS050BL	21	<div style="border: 1px solid black; padding: 5px; display: inline-block;">21</div>

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
STCDS050BL	DFN1006-2L	10,000	7	Tape and reel