

1-Line Bi-directional TVS Diode

Features

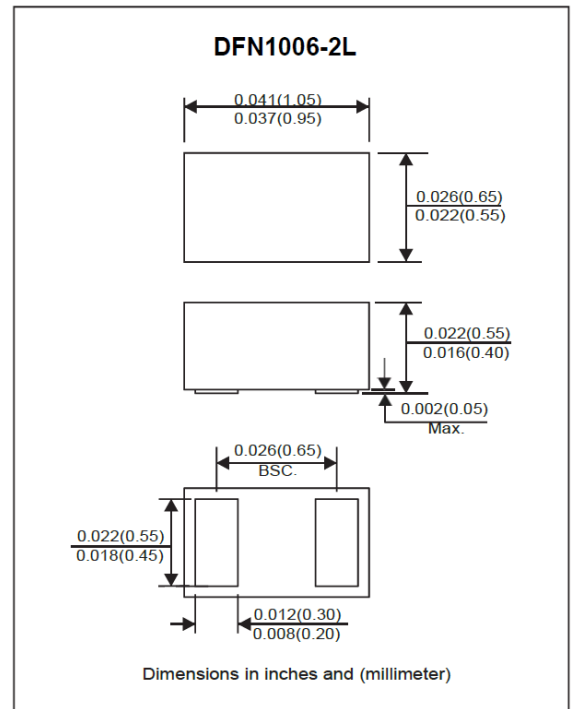
- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- IEC 61000-4-5 (Lightning) 8A (8/20 μs)
- Ultra small package: 1.0x0.6x0.5mm
- Ultra low leakage current
- Operating voltage: 3.3V
- Ultra Low clamping voltage
- 2-pin leadless package

Applications

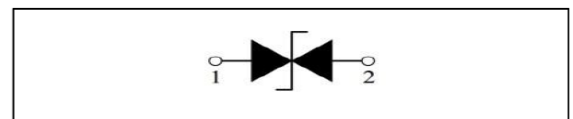
- Cellular Handsets and Accessories
- Personal Digital Assistants (PDAs)
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Visual Interface (DVI)

Mechanical Characteristics

- Package: DFN1006-2L (1.0x0.6x0.5mm)
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Material: RoHS compliant



Circuit Diagram

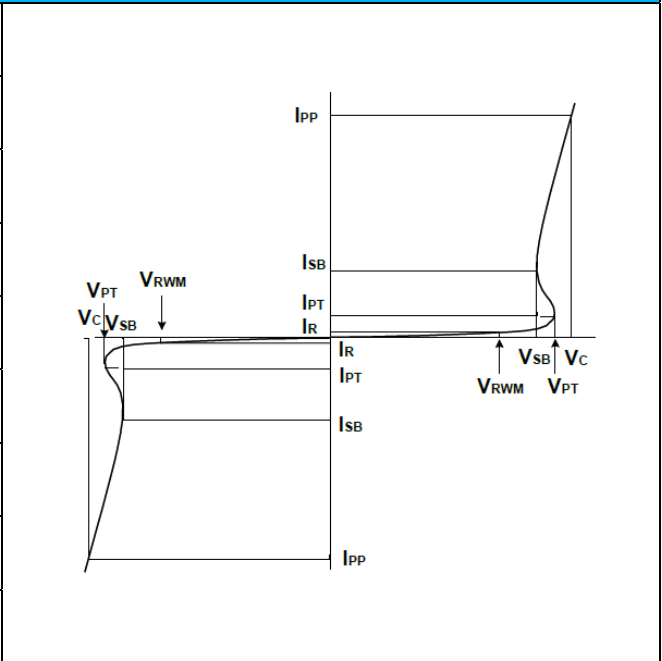


Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	80	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	8	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	KV
Lead Soldering Temperature	T_L	260 (10 sec.)	$^\circ\text{C}$
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_{PT}	Punch-through Breakdown Voltage @ I_{PT}
V_{SB}	Snap-Back Voltage @ I_{SB}
I_{SB}	Snap-Back Current
I_{PT}	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}				3.3	V
Punch-Through Voltage	V_{PT}	$I_{PT} = 1\text{mA}$	3.6			V
Snap-Back Voltage	V_{BS}	$I_{SB} = 50\text{mA}$	3.5			V
Reverse leakage current	I_R	$V_{RWM} = 3.3\text{V}$			0.5	μA
Clamping Voltage	V_C	$I_{PP} = 1\text{A}, t_p = 8/20\mu\text{s}$			6	V
Clamping Voltage	V_C	$I_{PP} = 8\text{A}, t_p = 8/20\mu\text{s}$			10	V
Junction capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$		12	20	pF

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

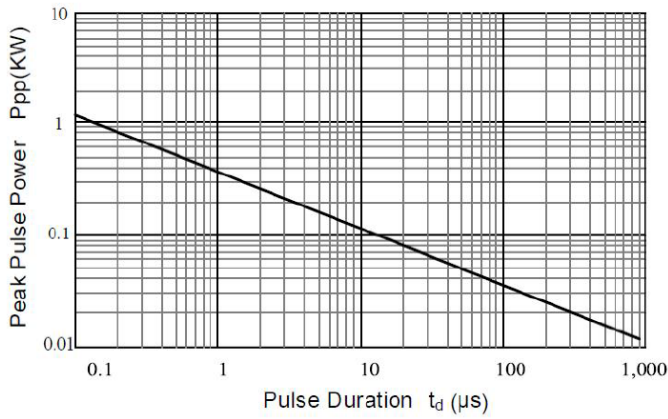


Fig 1. Peak Pulse Power vs. Pulse Time

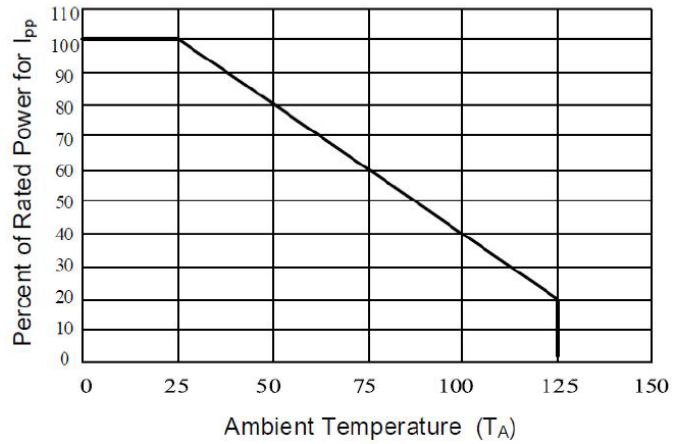


Fig 2. Power Derating Curve

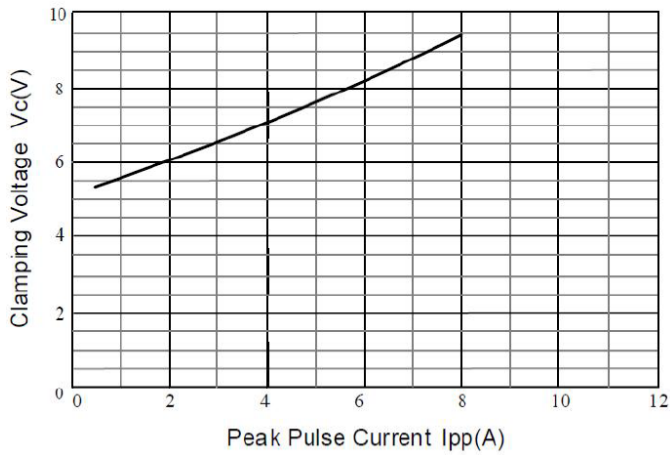


Fig 3. Clamping Voltage vs. Peak Pulse Current

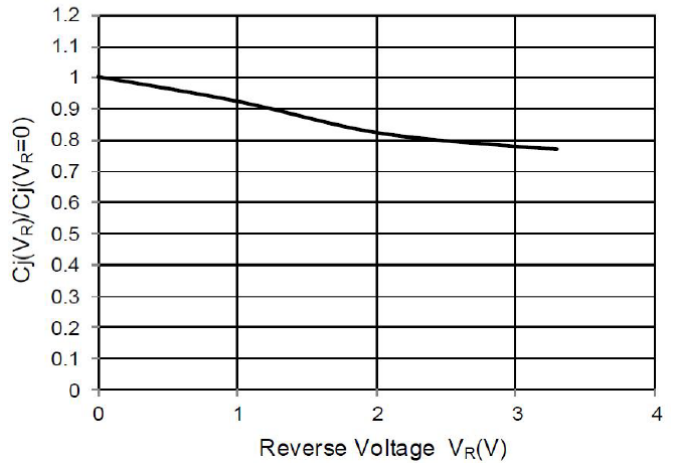


Fig 4. Junction Capacitance vs. Reverse Voltage

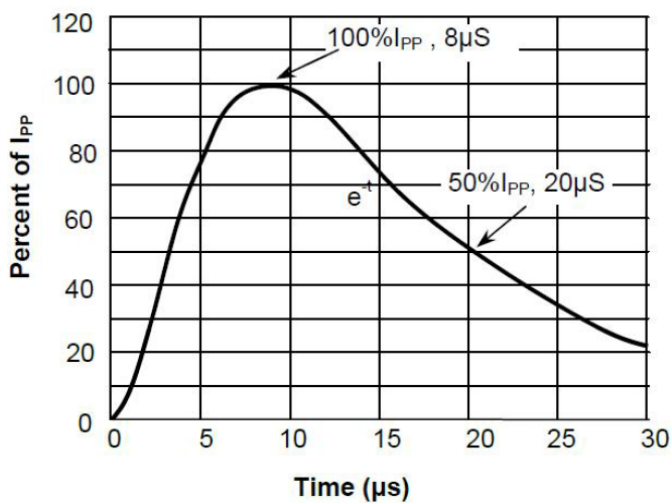


Fig 5. 8/20 μs Pulse Waveform

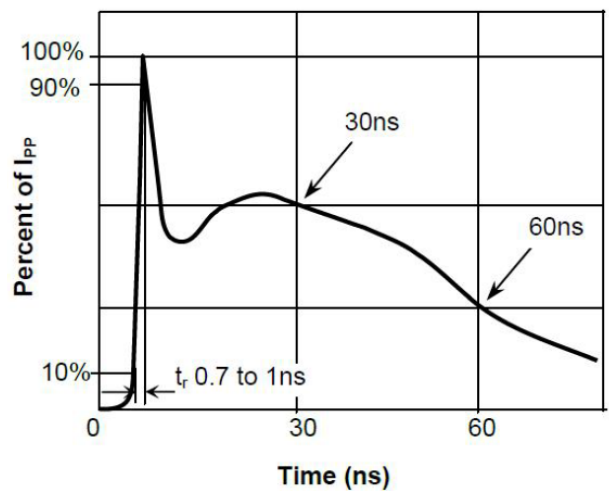
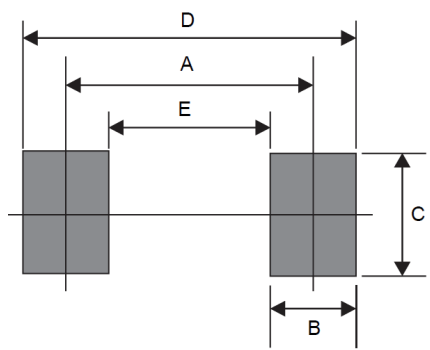


Fig 6. ESD(IEC 61000-4-2) Pulse Waveform

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



The diagram illustrates the pad layout for the DFN1006-2L package. It shows two rectangular pads. Dimension A is the distance between the inner edges of the pads. Dimension B is the width of the right pad. Dimension C is the height of the pads. Dimension D is the total distance between the outer edges of the pads. Dimension E is the distance between the inner edges of the pads, which is equal to A.

Marking Code

3B

Device Marking Code = 3B

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
SC33D1BDY	DFN1006-2L	10,000	7	Tape and reel