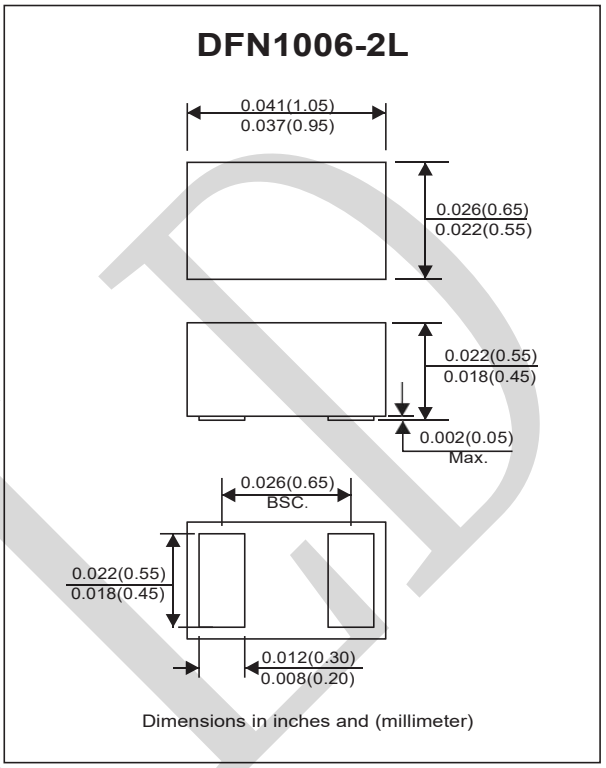
WESD3V31CUY

23-Nov-2023

1-Line Ultra Low Capacitance Bi-directional TVS Diode

Features

- IEC 61000-4-2 (ESD) ±25kV (air), ±22kV (contact)
- IEC 61000-4-5 (lightning):4A (8/20μs)
- Ultra small package: 1.0x0.6x0.5mm
- Ultra low capacitance: 0.3pF typical
- Ultra low leakage: nA level
- Operating voltage: 3.3V
- Low clamping voltage
- 2-pin leadless package



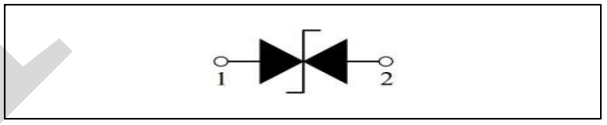
Mechanical Characteristics

- Package: DFN1006-2L (1.0×0.6×0.5mm)
- Case Material: “Green” Molding Compound
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

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

Circuit Diagram

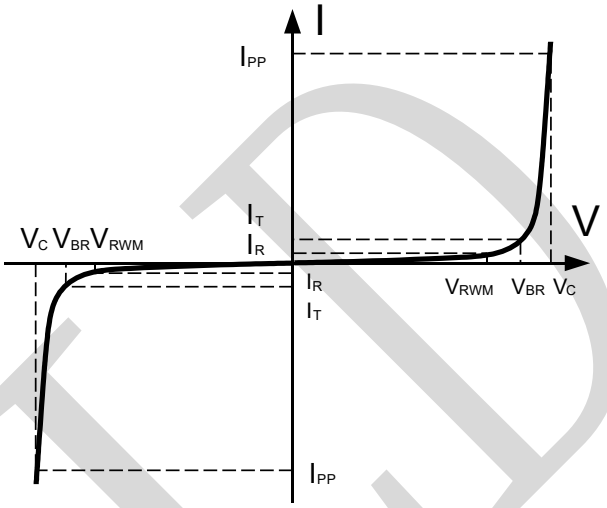


Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	P_{pk}	100	W
Peak Pulse Current (8/20μs)	I_{PP}	4	A
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±25 ±22	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

Electrical Parameters (T=25°C)

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 °C, unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			3.3	V	
Breakdown Voltage	V_{BR}	4.5			V	I_T = 1mA
Reverse Leakage Current	I_R			0.1	μA	V_{RWM} = 3.3V
Clamping Voltage	V_C			12	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			25	V	I_{PP} = 4A (8 x 20μs pulse)
Junction Capacitance	C_J		0.3	0.5	pF	V_R = 0V, f = 1MHz

Typical Performance Characteristics (T_A=25°C unless otherwise Specified)

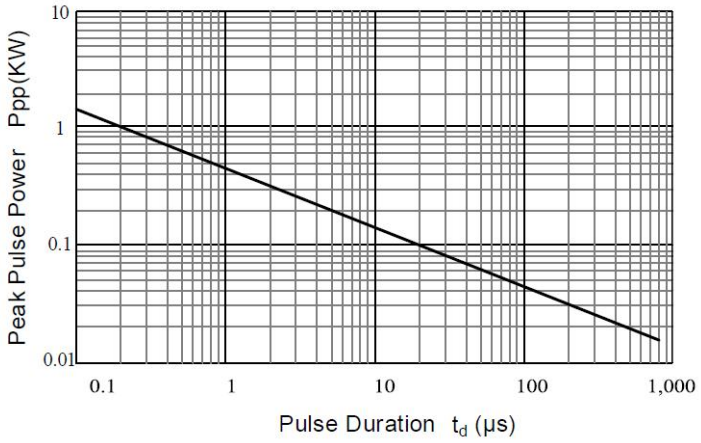


Fig 1. Peak Pulse Power vs. Pulse Time

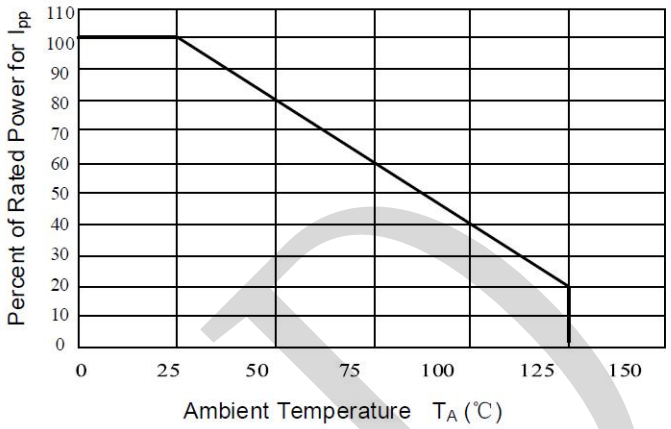


Fig 2. Power Derating Curve

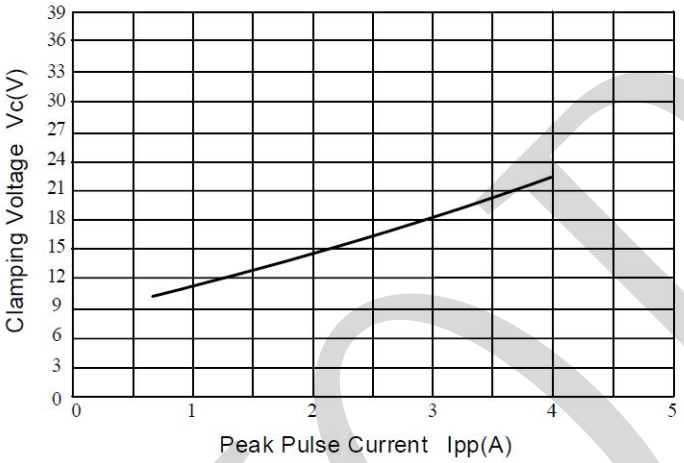


Fig 3. Clamping Voltage vs. Peak Pulse Current

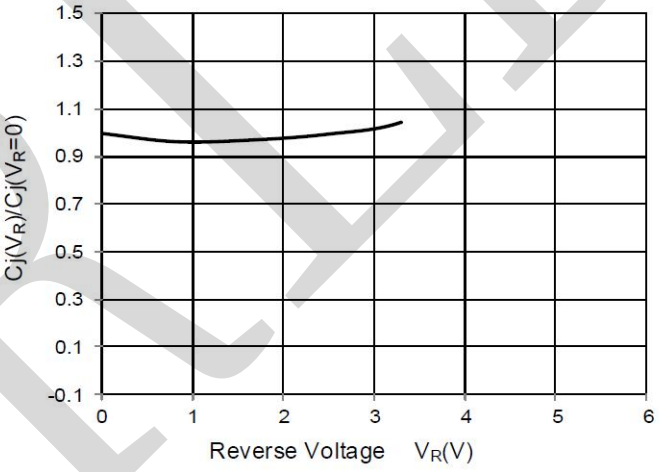


Fig 4. Junction Capacitance vs. Reverse Voltage

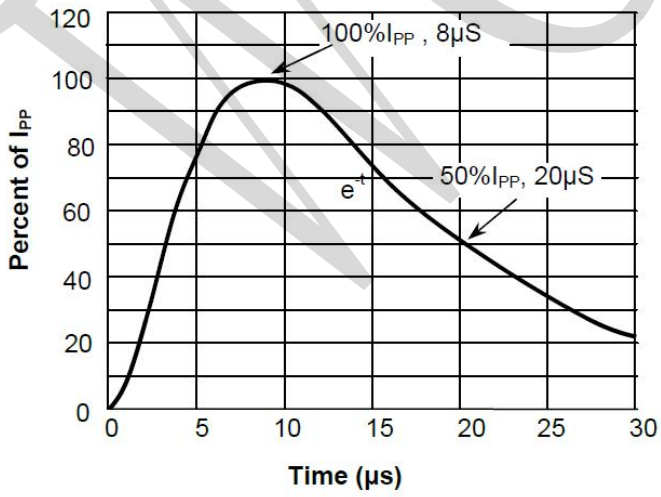


Fig 5. 8 X 20μs Pulse Waveform

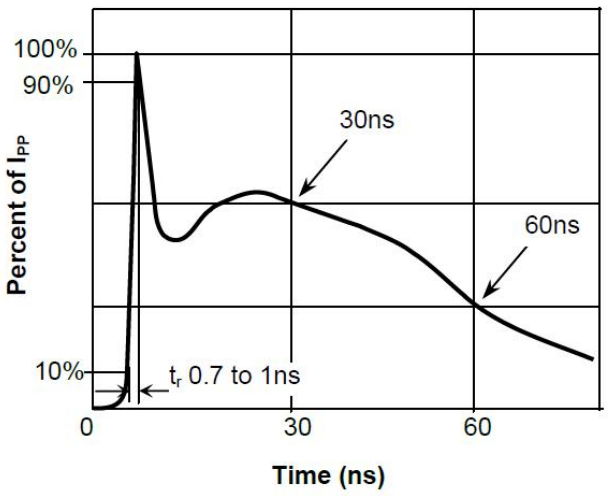
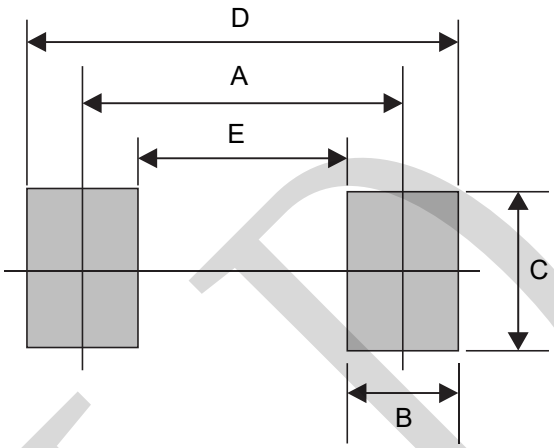


Fig 6. ESD(IEC61000-4-2) Pulse Waveform

Suggested PAD Layout

SIZE	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
WESD3V31CUY	21

Ordering Information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
WESD3V31CUY	DFN1006-2L	10,000	7	Tape and reel

Description of model and identification