

1-Line Low Capacitance Bi-directional TVS Diode

Features

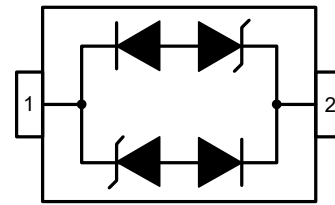
- 340W peak pulse power (8/20 μ s)
- Ultra low capacitance: 1pF typical
- Ultra low leakage: nA level
- Operating voltage: 3.3V
- Low clamping voltage
- Protects one power line or data line
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: ± 30 kV
 - Contact discharge: ± 30 kV
 - IEC61000-4-5 (Lightning) 21A (8/20 μ s)
- RoHS Compliant



SOD-323

Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below



Circuit diagram



CA1= Device code
Marking (Top View)

Applications

- USB Ports
- Smart Phones
- Wireless Systems
- Ethernet 10/100/1000 Base T

Ordering Information

Part Number	Packaging	Reel Size
BV03CW	3000/Tape & Reel	7 inch

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

Parameter	Symbol	Rating	Unit
Peak pulse power (t _p = 8/20μs)	P _{pk}	350	W
Peak pulse current (t _p = 8/20μs)	I _{PP}	21	A
ESD according to IEC61000-4-2 air discharge	V _{ESD}	±30	kV
ESD according to IEC61000-4-2 contact discharge		±30	
Junction temperature	T _J	125	°C
Operation temperature	T _{OP}	-40~85	°C
Lead temperature	T _L	260	°C
Storage temperature	T _{STG}	-55~150	°C

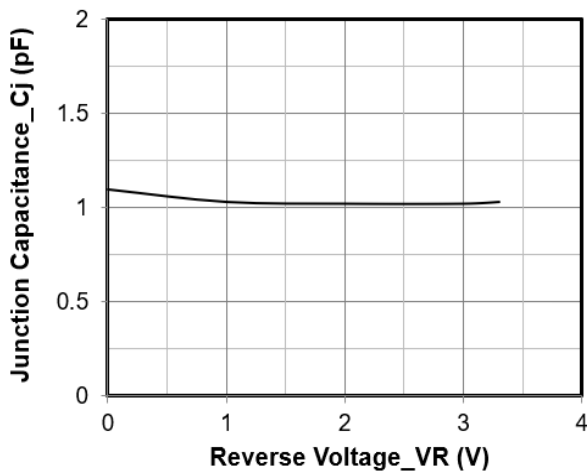
Electrical Characteristics (T_A=25°C unless otherwise specified)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse maximum working voltage	V _{RWM}				3.3	V
Reverse leakage current	I _R	V _{RWM} = 3.3V		10	200	nA
Reverse breakdown voltage	V _{BR}	I _T = 1mA	3.5			V
Clamping voltage ¹⁾	V _{CL}	I _{PP} = 16A, t _p = 100ns		12		V
Dynamic resistance ¹⁾	R _{DYN}			0.41		Ω
Clamping voltage ²⁾	V _{CL}	V _{ESD} = 8kV		12		V
Clamping voltage ³⁾	V _{CL}	I _{PP} = 1A, t _p = 8/20μs		6	7	V
		I _{PP} = 21A, t _p = 8/20μs		15	17	V
Junction capacitance	C _J	V _R = 0V, f = 1MHz		1		pF

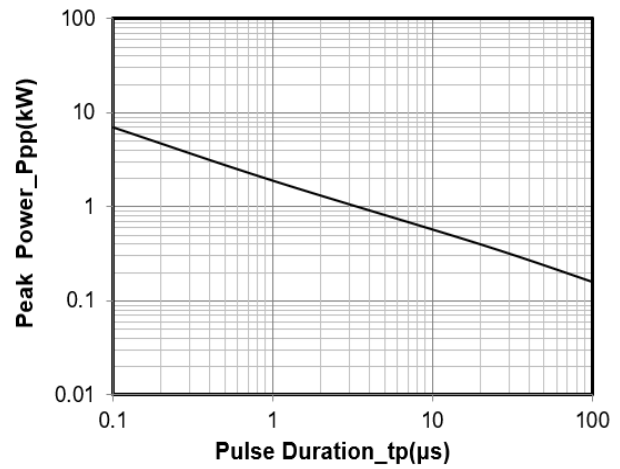
Notes:

- 1) TLP parameter: Z₀ = 50Ω, t_p = 100ns, t_r = 0.2ns, averaging window from 70ns to 90ns. R_{DYN} is calculated from 4A to 16A.
- 2) Contact discharge mode, according to IEC61000-4-2.
- 3) Non-repetitive current pulse, according to IEC61000-4-5.

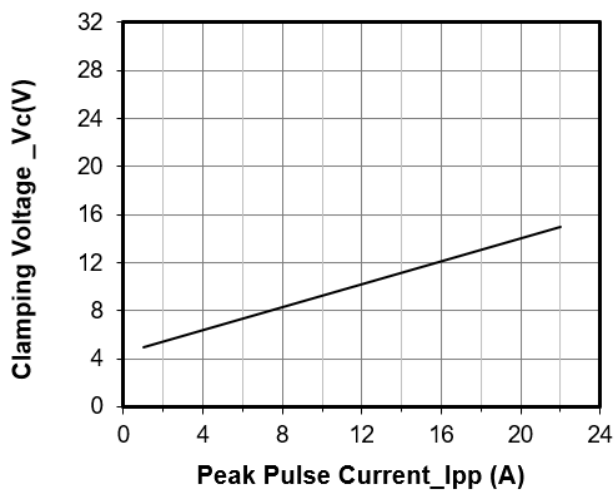
Typical Performance Characteristics (TA=25°C unless otherwise Specified)



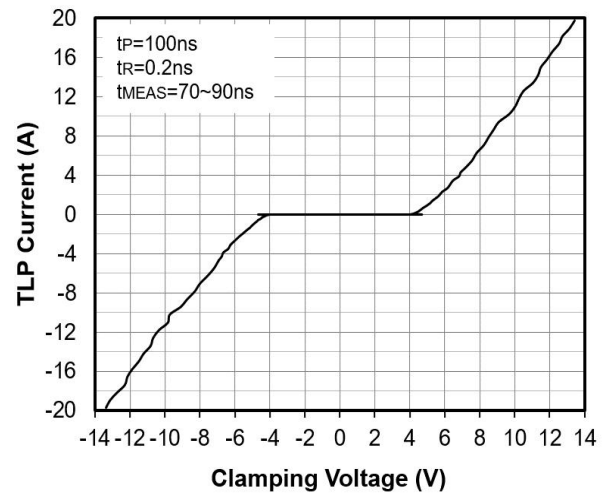
Junction Capacitance vs. Reverse Voltage



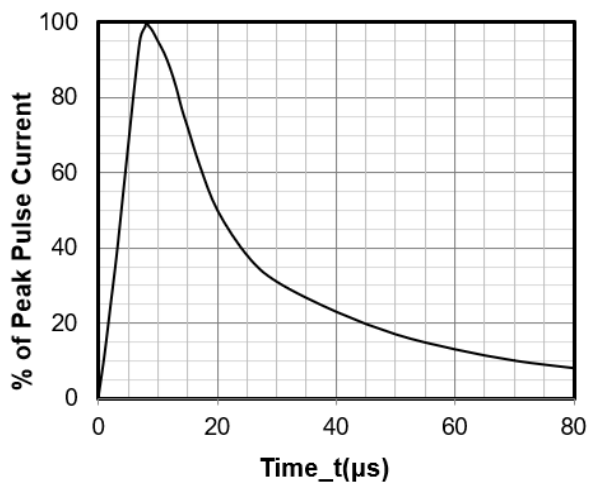
Peak Pulse Power vs. Pulse Time



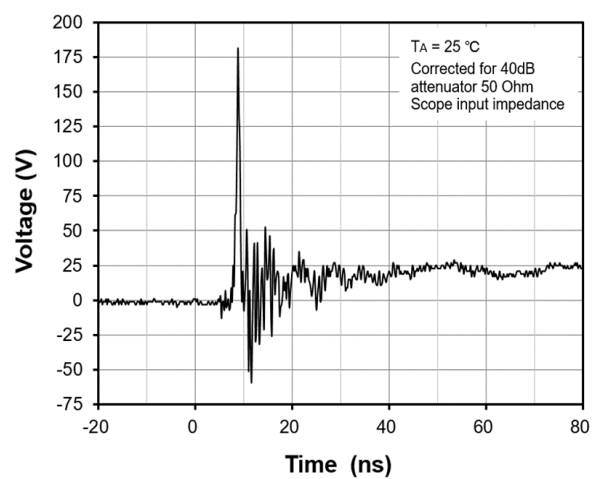
Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)



TLP Measurement

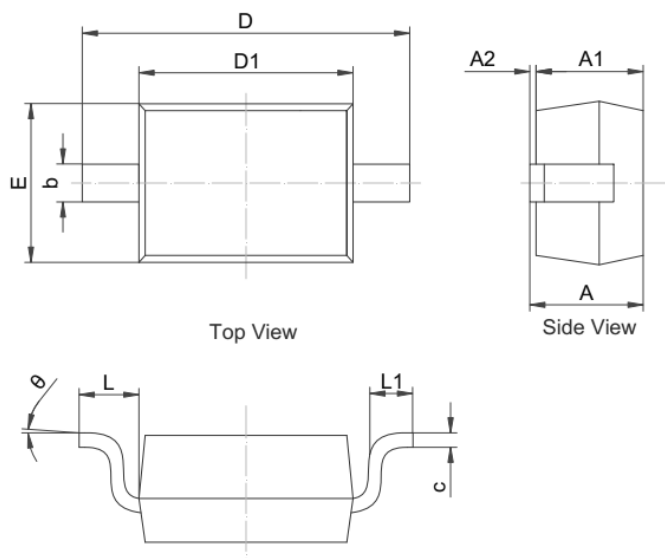


8 X 20μs Pulse Waveform



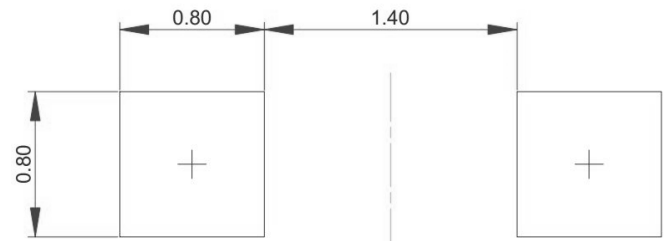
ESD Clamping Voltage
8 kV Contact per IEC61000-4-2

SOD-323 Package Outline Drawing



	MILLIMETERS		
	MIN	NOM	MAX
A	0.800	--	1.100
A1	0.800	--	0.900
A2	0.000	--	0.100
b	0.250	--	0.400
c	0.080	--	0.177
D1	1.600	1.700	1.800
D	2.300	--	2.800
E	1.150	--	1.400
L	0.475REF		
L1	0.100	--	0.500
Θ	0°	--	8°

Suggested Land Pattern



Unit: mm