

WS03DLC(-B) through WS24DLC(-B)

Transient Voltage Suppressor

Features

- 350 Watts Peak Pulse Power per Line ($t_p = 8/20\mu s$)
- Unidirectional & Bidirectional Configuration
- Protects One Power or I/O Port
- ESD Protection > 40 kilovolts
- Low Clamping Voltages
- Available in Multiple Voltage Types Ranging from 3V to 24V
- Ultra Low Capacitance: 1.0 pF Typical



IEC COMPATIBILITY (EN61000-4)

- IEC 61000-4-2 (ESD) $\pm 15kV$ (air), $\pm 8kV$ (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5(Surge): 12A, 8/20 μs

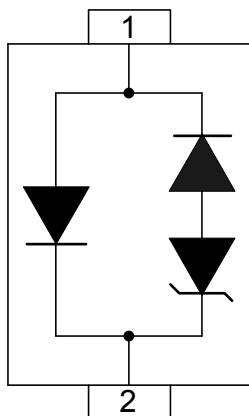
Mechanical Characteristics

- Molded JEDEC SOD-323 package
- Weight 10 milligrams (Approximate)
- Flammability rating UL 94V-0
- 8mm Tape and Reel Per EIA Standard 481
- Device Marking: Marking Code
- RoHS/WEEE Compliant

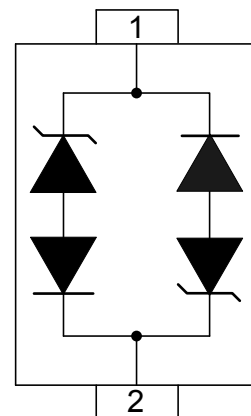
Applications

- Ethernet - 10/100/1000 Base T
- Cellular Phones
- Handheld - Wireless Systems
- Personal Digital Assistant (PDA)
- USB Interface

PIN Configuration



UNIDIRECTIONAL



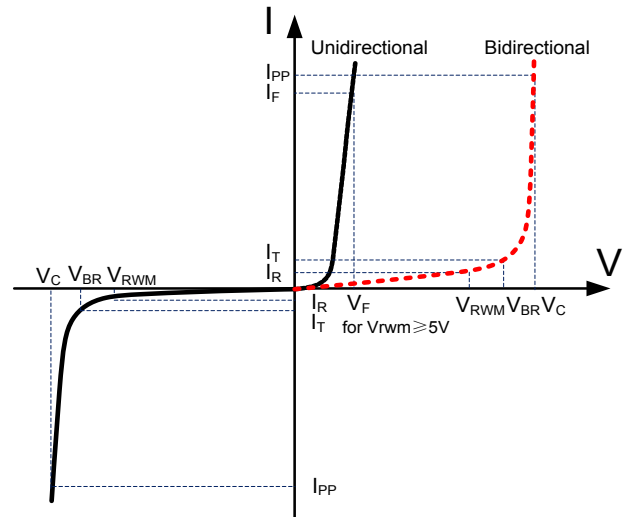
BIDIRECTIONAL

Absolute Maximum Rating

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu s$) - See Figure 1	P_{PP}	350	Watts
Operating Temperature	T_J	-55 to + 150	°C
Storage Temperature	T_{STG}	-55 to +150	°C

Electrical Parameters (T=25°C)

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical characteristics

PART NUMBER (See Note 1 & Note 2)	DEVICE MARKING	RATED STAND-OFF VOLTAGE V_{WM} (Volts)	MINIMUM BREAKDOWN VOLTAGE @ 1mA V_{BR} (Volts)	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ $I_P = 1A$ V_C (Volts)	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ 8/20 μs V_C @ I_{PP}	MAXIMUM LEAKAGE CURRENT @ V_{WM} I_d (μA)	TYPICAL CAPACITANCE @0V, 1 MHz C(pF)
WS03DLC	03	3.3	4.0	7.0	19.0V @ 20.0A	1	1
WS03DLC-B	03B	3.3	4.0	7.0	19.0V @ 20.0A	1	1
WS05DLC	05	5.0	6.0	9.8	18.3V @ 17.0A	1	1
WS05DLC-B	05B	5.0	6.0	9.8	18.3V @ 17.0A	1	1
WS08DLC	08	8.0	8.5	13.4	18.5V @ 17.0A	1	1
WS08DLC-B	08B	8.0	8.5	13.4	18.5V @ 17.0A	1	1
WS12DLC	12	12.0	13.3	19.0	28.6V @ 11.0A	1	1
WS12DLC-B	12B	12.0	13.3	19.0	28.6V @ 11.0A	1	1
WS15DLC	15	15.0	16.7	24.0	31.8V @ 10.0A	1	1
WS15DLC-B	15B	15.0	16.7	24.0	31.8V @ 10.0A	1	1
WS18DLC	18	18.0	20.0	29.0	45.0V @ 8.0A	1	1
WS18DLC-B	18B	18.0	20.0	29.0	45.0V @ 8.0A	1	1
WS24DLC	24	24.0	26.7	43.0	56.0V @ 6.0A	1	1
WS24DLC-B	24B	24.0	26.7	43.0	56.0V @ 6.0A	1	1

Note 1: Part numbers with an additional "B" suffix are bidirectional devices, i.e., WS05DLC-B

Note 2: For Bidirectional Devices Only: Electrical characteristics apply in both directions.

Typical Characteristics

Figure 1: Peak Pulse Power vs. Pulse Time

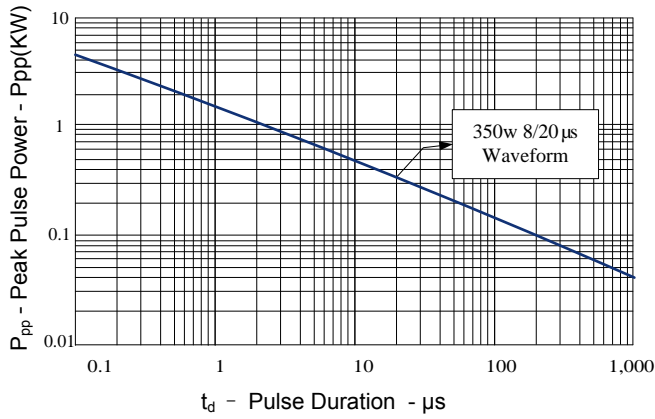


Figure 2: Power Derating Curve

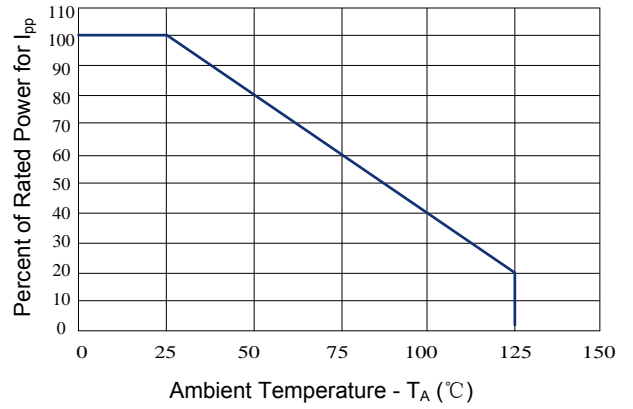


Figure 3: Clamping Voltage vs. Peak Pulse Current

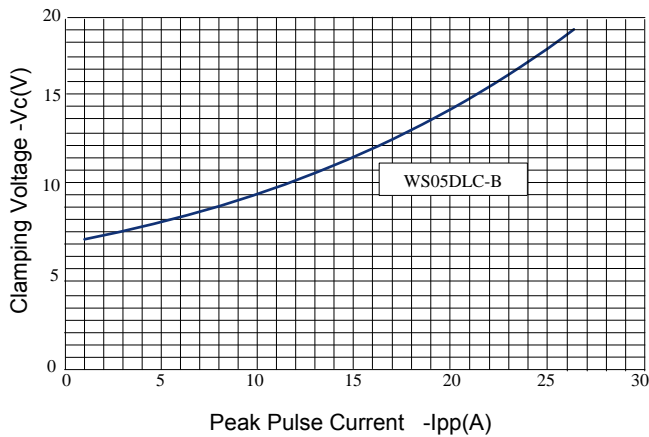


Figure 4: Normalized Junction Capacitance vs. Reverse Voltage

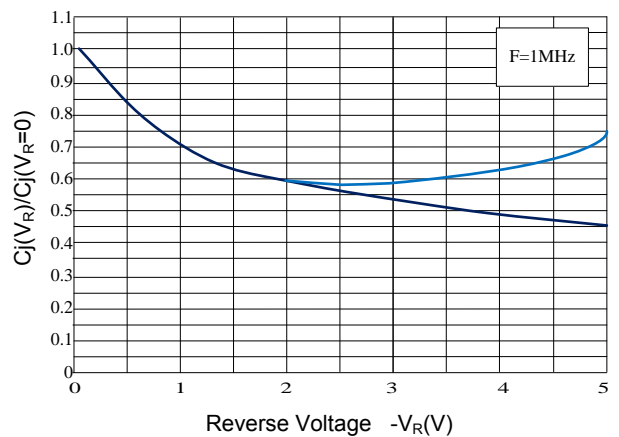


Figure 5: Pulse Waveform

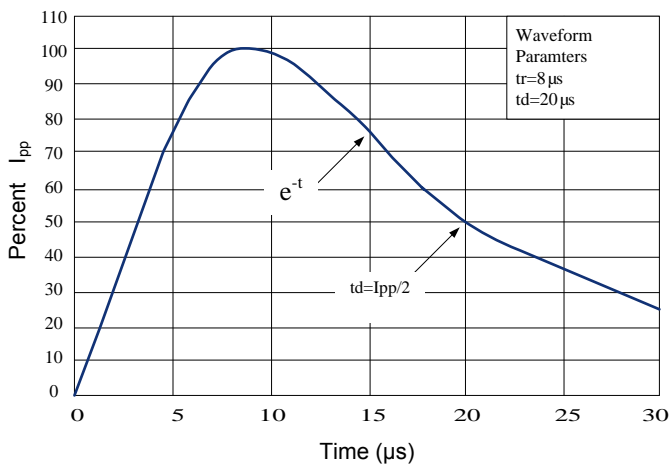
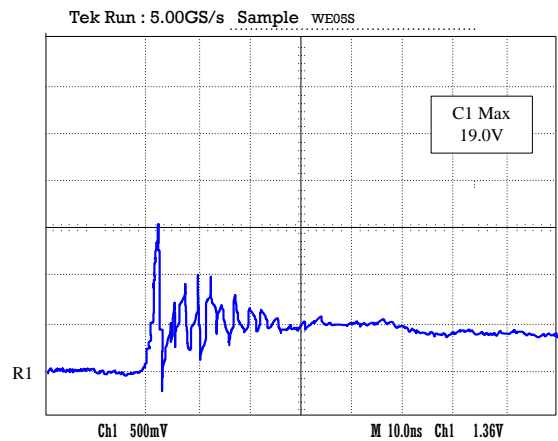

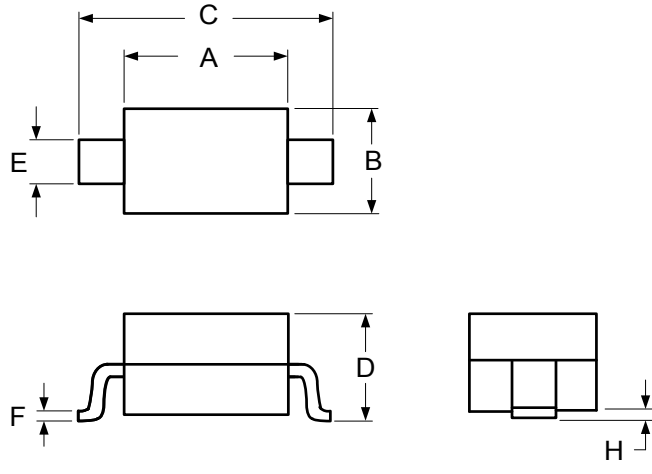
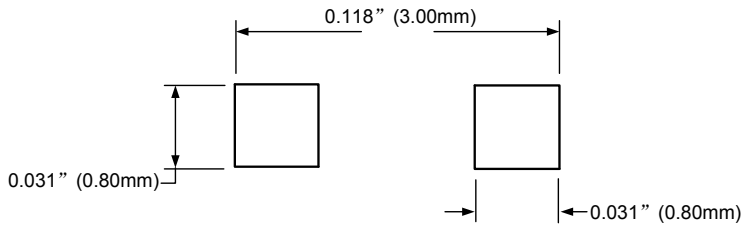


Figure 6: ESD Clamping (8kV Contact per IEC 61000-4-2)



Outline Drawing – SOD323

PACKAGE OUTLINE		 SOD-323			
		DIMENSIONS			
SYMBOL	MILLIMETER		INCHES		
	MIN	MAX	MIN	MAX	
A	1.60	1.90	0.063	0.075	
B	1.15	1.45	0.045	0.057	
C	2.39	2.70	0.094	0.106	
D	0.92	1.10	0.036	0.043	
E	0.25	0.40	0.010	0.016	
F	0.10	0.20	0.004	0.008	
H	-	0.10	-	0.004	
MOUNTING PAD		Notes 1. Controlling Dimensions in Millimeters. 2. Dimensions are exclusive of mold flash and metal burrs. TAPE & REEL ORDERING NOMENCLATURE 1. Surface mount product is taped and reeled in accordance with EIA-481.			
					

Marking Codes

Part Number	WSxxDLC	WSxxDLC-B
Marking Code	