

1-Line Low Capacitance Bi-directional TVS Diode
DESCRIPTION

The HSBLC05C is a 5V bi-directional TVS diode, utilizing leading monolithic silicon technology to provide fast re-sponse time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive high-speed data lines. The HSBLC05C has a low capacitance with a typical value at 1pF, and complies with the IEC 61000-4-2 (ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into a lead-free SOD-323 package. The small size, low capacitance and high ESD surge protection make HSBLC05C an ideal choice to protect cell phone, wireless systems, and communication equipment.

FEATURES

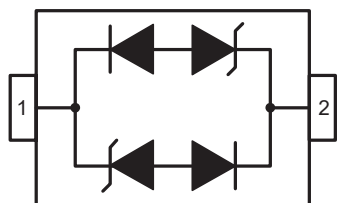
- ◆ 340W peak pulse power (8/20us)
- ◆ Ultra low capacitance: 1pF typical
- ◆ Ultra low leakage: nA level
- ◆ Operating voltage: 5V
- ◆ Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
 - Air discharge: $\pm 30\text{kV}$
 - Contact discharge: $\pm 30\text{kV}$
 - IEC61000-4-5 (Lightning) 18A (8/20us)
- ◆ RoHS Compliant
- ◆ Protects one power line or data line

MECHANICAL CHARACTERISTICS

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

APPLICATIONS

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

SCHEMATIC & PIN CONFIGURATION

Circuit diagram
MARKING INFORMATION


AC= Device code

Marking (Top View)



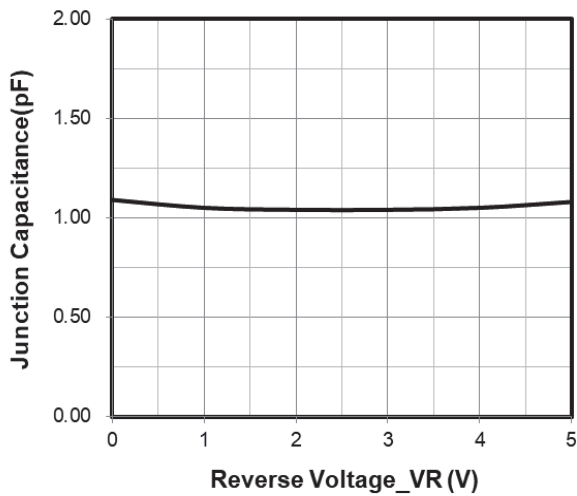
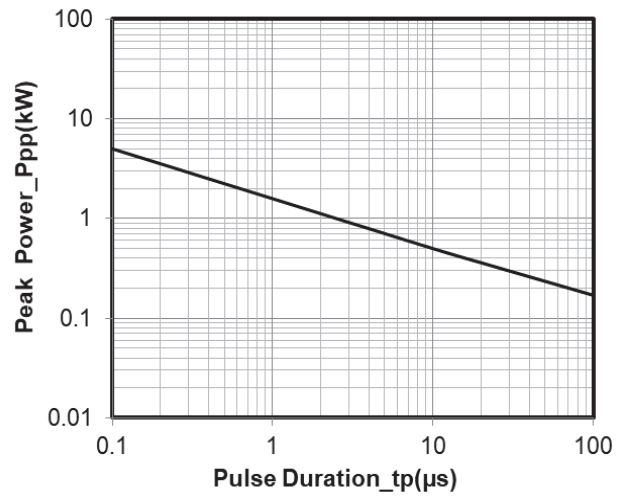
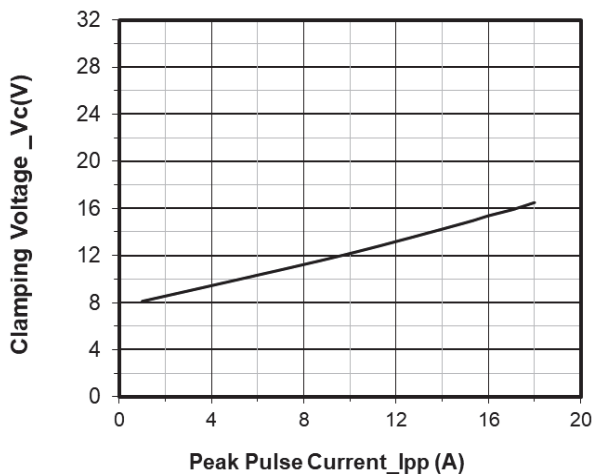
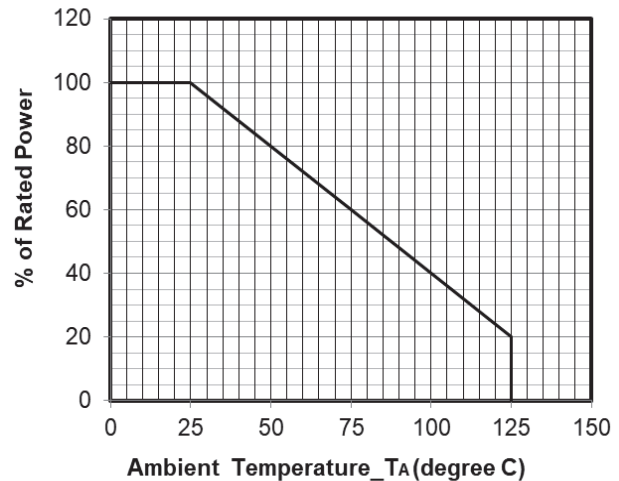
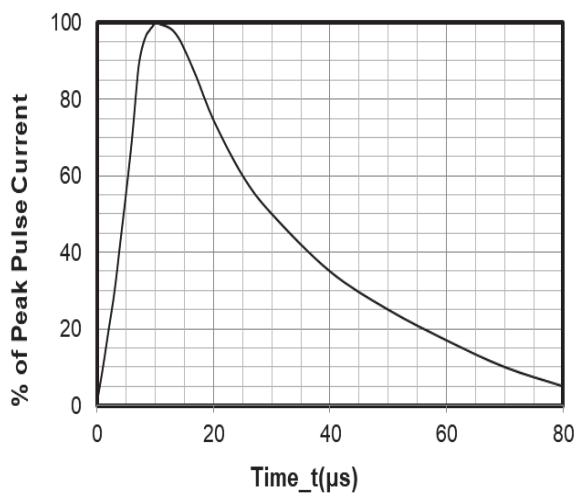
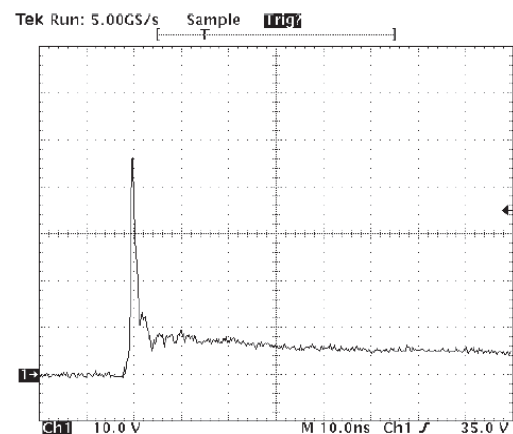
1-Line Low Capacitance Bi-directional TVS Diode

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	340	W
Peak Pulse Current (8/20 μs)	I _{PP}	18	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V _{ESD}	± 30 ± 30	kV
Operating Temperature Range	T _J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T _{stg}	-55 to +150	$^{\circ}\text{C}$

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

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V _{RWM}			5	V	
Breakdown Voltage	V _{BR}	6			V	I _T = 1mA
Reverse Leakage Current	I _R			0.2	μA	V _{RWM} = 5V
Clamping Voltage	V _C		8	10	V	I _{PP} = 1A (8 x 20 μs pulse)
Clamping Voltage	V _C		15	18	V	I _{PP} = 18A (8 x 20 μs pulse)
Junction Capacitance	C _J		1		pF	V _R = 0V, f = 1MHz

**1-Line Low Capacitance Bi-directional TVS Diode****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****Power Derating Curve****8 X 20μs Pulse Waveform**

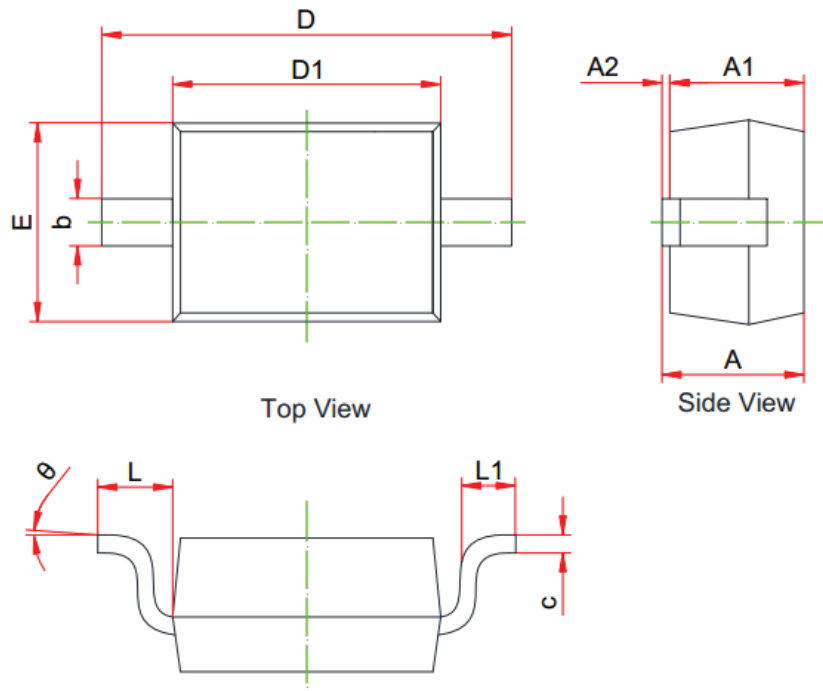
Note: Data is taken with a 10x attenuator

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



Outline Drawing

SOD-323(Q)



	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°

Rev.A



Outline Drawing

SOD-323(Q)



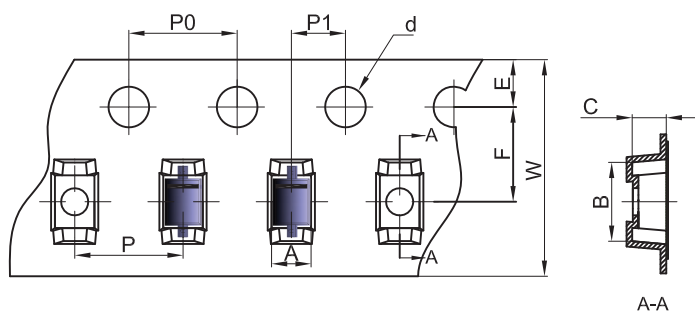
Unit: mm

Rev.A



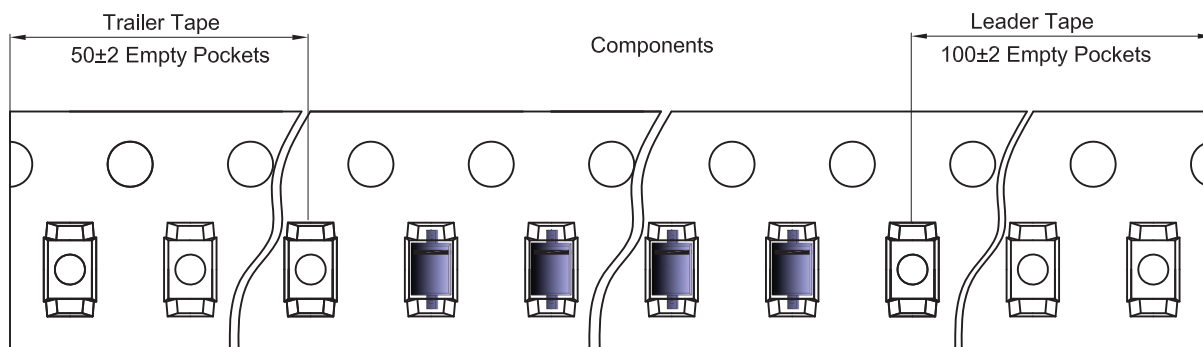
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SOD-323 Embossed Carrier Tape

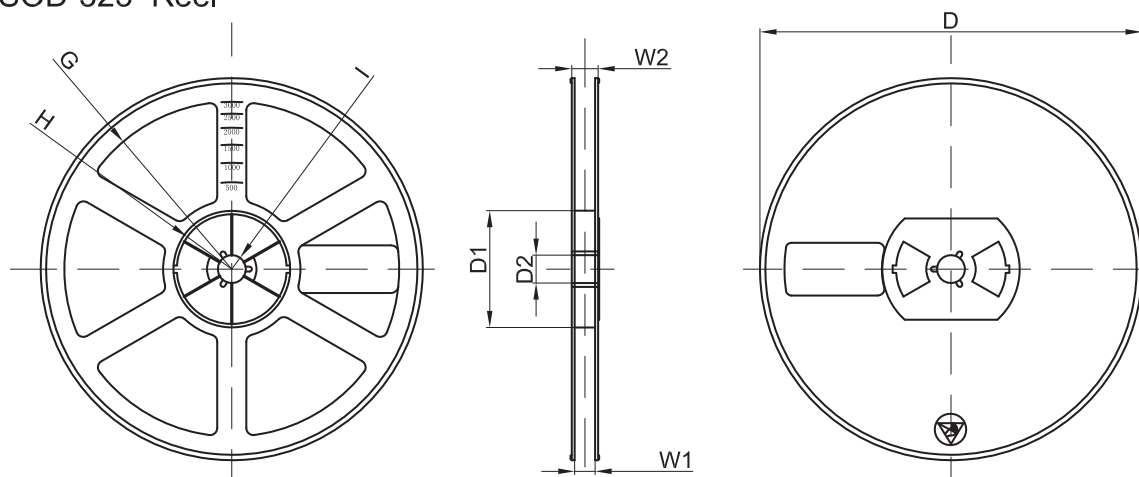


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOD-323	1.48	3.3	1.25	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOD-323 Tape Leader and Trailer



SOD-323 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	

**1-Line Low Capacitance Bi-directional TVS Diode****Ordering Information:**

Device PN	Marking ⁽⁴⁾	Packing
HSBLC05C-T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	AC	Tape&Reel: 3Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

(2) Packing code suffix "G" for RoHS product ; Packing code Suffix "H" for halogen free product.
All materials and products supplied comply with the U.S. Toxic Substances Control Act statement, PBT Chemicals.

(3) Willas brand abbreviation, Label Type does not display

(4) There may be additional marking, which relates to the lot trace code information (data code and vendor code), the logo or the environmental category on the device

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