

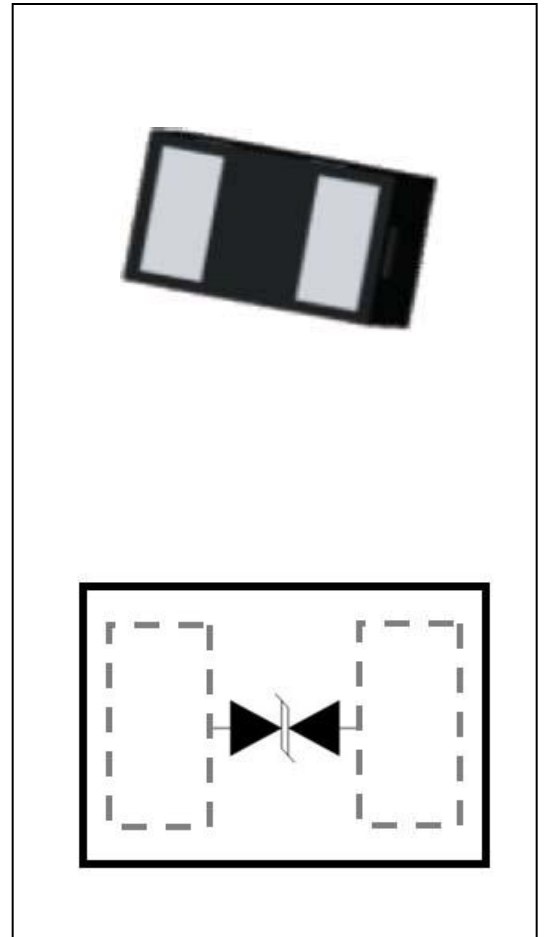
## DESCRIPTION

ESD0301BU is a low-capacitance Transient Voltage Suppressor (TVS) designed to provide electrostatic discharge (ESD) protection for high-speed data interfaces. With typical capacitance of 0.25pF, ESD0301BU is designed to protect parasitic-sensitive systems against over-voltage and over-current transient events. It complies with IEC 61000-4-2 (ESD), Level 4 ( $\pm 20\text{kV}$  air,  $\pm 20\text{kV}$  contact discharge), IEC 61000-4-4 (electrical fast transient - EFT) (40A, 5/50 ns), very fast charged device model (CDM) ESD and cable discharge event (CDE), etc.

ESD0301BU uses ultra-small DFN1006 package. Each ESD0301BU device can protect one high-speed data line. It offers system designers flexibility to protect single data line where space is a premium concern. The combined features of low capacitance, ultra-small size and high ESD robustness make ESD0301BU ideal for high-speed data port and high-frequency line applications, such as cellular phones and HD visual devices.

## FEATURES

- ◇ Transient protection for high-speed data lines  
high-frequency line applications, such as cellular  
IEC 61000-4-2 (ESD)  $\pm 20\text{kV}$  (Air)  
 $\pm 20\text{kV}$  (Contact).  
IEC 61000-4-4 (EFT) 40A (5/50 ns)  
Cable Discharge Event (CDE).
- ◇ Package optimized for high-speed lines.
- ◇ Ultra-small package (1.0mmx0.6mmx0.5mm).
- ◇ Protects one data, control line.
- ◇ Low capacitance: 0.25pF (Typical).
- ◇ Low leakage current.
- ◇ Low clamping voltage.



**APPLICATIONS**

- ✧ Serial SATA.
- ✧ Desktops, Servers and Notebooks.
- ✧ Cellular Phones.
- ✧ MDDI Ports.
- ✧ USB Data Line Protection.
- ✧ Display Ports.
- ✧ Digital Visual Interfaces (DVI).

**MECHANICAL CHARACTERISTICS**

- ✧ DFN1006 package.
- ✧ Flammability Rating: UL 94V-0.
- ✧ Packaging: Tape and Reel.
- ✧ High temperature soldering guaranteed: 260°C/10s.
- ✧ Reel size: 7 inch.

**ORDERING INFORMATION**

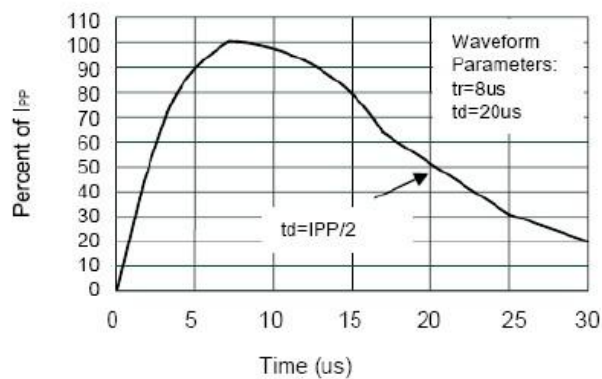
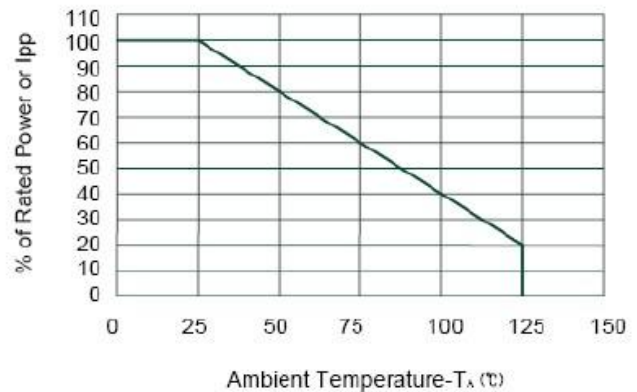
- ✧ Device: ESD0301BU.
- ✧ Package: DFN1006.
- ✧ Marking: 3BU.
- ✧ Material: Halogen free.
- ✧ Packing: Tape & Reel.
- ✧ Quantity per reel: 10,000pcs.

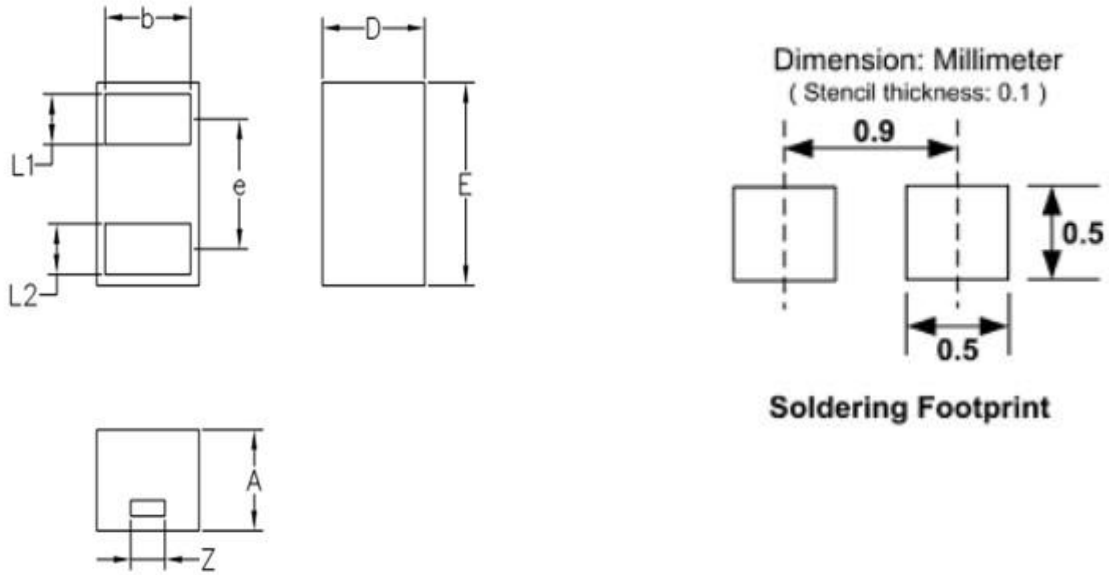
**DEVICE CHARACTERISTICS**

<b>ABSOLUTE MAXIMUM RATING</b>			
<b>Symbol</b>	<b>Parameter</b>	<b>Value</b>	<b>Units</b>
V <sub>ESD</sub>	ESD per IEC 61000-4-2 (Air)	±20	kV
	ESD per IEC 61000-4-2 (Contact)	±20	
P <sub>PP</sub>	Peak Pulse Power (8/20μs)	84	W
T <sub>QPT</sub>	Operating Temperature	-55-125	°C
T <sub>STG</sub>	Storage Temperature	-55-150	°C

**ELECTRICAL CHARACTERISTICS (Tamb=25°C)**

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V <sub>RWM</sub>	Reverse Working Voltage				3.3	V
V <sub>BR</sub>	Reverse Breakdown Voltage	I <sub>T</sub> = 1 mA	4.2			V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 3.3 V			100	nA
V <sub>c</sub>	Clamping Voltage	I <sub>pp</sub> = 1 A, t <sub>p</sub> = 8/20μs			12	V
		I <sub>pp</sub> = 4 A, t <sub>p</sub> = 8/20μs			21	V
C <sub>j</sub>	Junction Capacitance	V <sub>R</sub> = 0V, f = 1MHz		0.25	0.40	pF

**ELECTRICAL CHARACTERISTICS CURVE**

**Pulse Waveform**

**Power Derating Curve**

**DFN1006 PACKAGE OUTLINE & DIMENSIONS**


**NOTE:ALL DIMENSIONS IN MM**

	MIN	NOM	MAX
<b>D</b>	<b>0-55</b>	<b>0.60</b>	<b>0-65</b>
<b>E</b>	<b>0-95</b>	<b>1-00</b>	<b>1-05</b>
<b>L1</b>	<b>0.20</b>	<b>0.25</b>	<b>0.30</b>
<b>L2</b>	<b>0.20</b>	<b>0.25</b>	<b>0.30</b>
<b>A</b>	<b>0-45</b>	<b>0-50</b>	<b>0-55</b>
<b>Z</b>	<b>0-15</b>	<b>0.20</b>	<b>0-25</b>
<b>b</b>	<b>0-45</b>	<b>0-50</b>	<b>0-55</b>
<b>e</b>		<b>0-64BSC</b>	

Website: <http://www.jksemit.com>

For additional information, please contact your local Sales Representative.

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