

## SuperESD - BSD3C051V-ES

### 1. Description

The BSD3C051V-ES is Transient Voltage Suppressor that designed to protect components which are connected to data and transmission lines against electrostatic discharge (ESD), electrical fast transient (EFT), and lightning. All pins are rated to withstand 30kV ESD pulses using the IEC61000-4-2 air discharge method.

### 2. Features

- IEC 61000-4-2 Level 4 ESD Protection
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- 250W Peak pulse Power (8/20us)
- Low clamping voltage
- Working voltage: 5V
- Low leakage current
- RoHS compliant
- Protecting one bi-directional lines
- Junction capacitance: 30pF Typ.

### 3. Applications

- Control & monitoring systems
- Portable electronics
- Servers, notebooks, and desktop PCs
- Set-top box
- Communication systems

### 4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
BSD3C051V-ES	SOD-323	E6	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

## 5. Pin Configuration and Functions


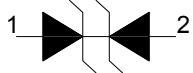
Pin	Name	Description	Outline	Circuit Diagram
1	IO1	Connect to IO		
2	IO2	Connect to IO		

Table-2 Pin configuration

## 6. Specification

### 6.1. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25°C	P <sub>pk</sub>	-	250	W
Peak pulse current (tp=8/20us)@25°C	I <sub>PP</sub>		18	A
ESD (IEC61000-4-2 air discharge) @25°C	V <sub>ESD</sub>	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25°C	V <sub>ESD</sub>	-	±30	kV
Junction temperature	T <sub>J</sub>	-	150	°C
Operating temperature	T <sub>OP</sub>	-40	125	°C
Storage temperature	T <sub>STG</sub>	-55	150	°C
Lead temperature	T <sub>L</sub>	-	260	°C

Table-3 Absolute Maximum rating

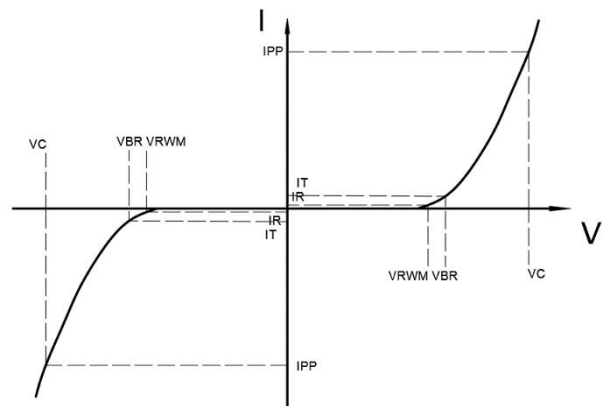
## 6.2. Electrical Characteristics

At TA = 25°C unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	$V_{RWM}$				5.0	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=1mA$	5.5			V
Reverse Leakage Current	$I_R$	$V_{RWM}=5V$			1.0	$\mu A$
Clamping Voltage	$V_C$	$I_{PP}=1A$ ; $t_p=8/20\mu s$		7.0	8.0	30
Clamping Voltage	$V_C$	$I_{PP}=18A$ ; $t_p=8/20\mu s$		10.0	12.0	V
Junction Capacitance	$C_J$	I/O to GND; $V_R=0V$ ; $f=1MHz$		30	45	pF

Table-4 Electrical Characteristics

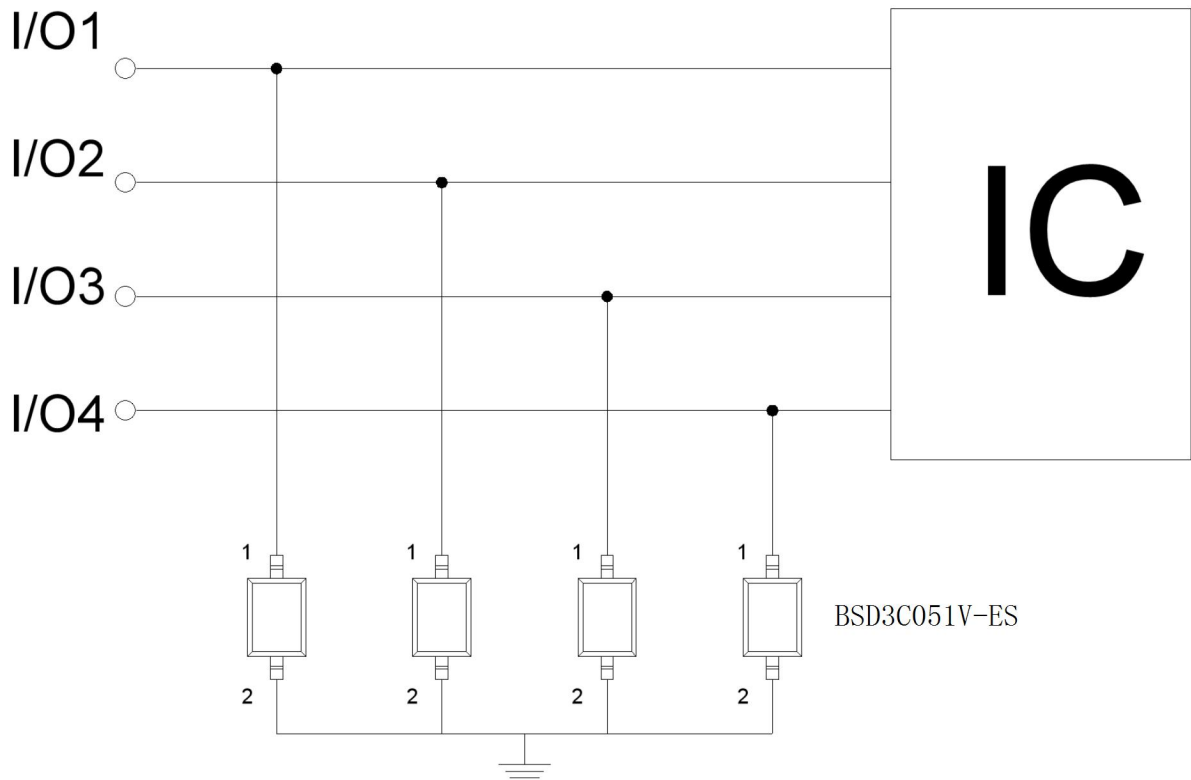
Symbol	Parameters
$V_{RWM}$	Peak Reverse Working Voltage
$I_R$	Reverse Leakage Current @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$



### 7. Typical Characteristic

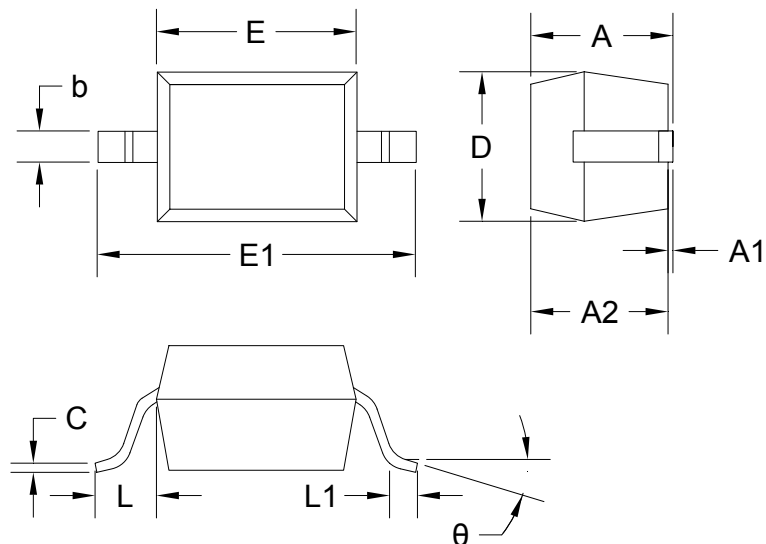


### 8. Typical Application



Typical Interface Application

9. Dimension (SOD-323)



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min.	Max.	Min.	Max.
A		1.000		0.039
A1	0.000	0.100	0.000	0.004
A2	0.800	0.900	0.031	0.035
b	0.250	0.350	0.010	0.014
C	0.080	0.150	0.003	0.006
D	1.200	1.400	0.047	0.055
E	1.600	1.800	0.063	0.071
E1	2.550	2.750	0.100	0.108
L	0.475REF		0.019REF	
L1	0.250	0.400	0.010	0.016
θ	0°	8°	0°	8°

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