



# ESDB...ADB Transient Voltage Suppressor

## Descriptions

The ESDU...ADB series of TVS are Bi-directional transient voltage suppressor (TVS) to protect sensitive electronic components from electrostatic discharge (ESD). It is particularly well-suited for cellular phones, PMP, MID, PDA, digital cameras and other electronic equipment.

The ESDU...ADB series of TVS are available in DFN1x0.6-2L package. Standard products are Pb-free and Halogen-free.

## Features

- Small Body Outline Dimensions
- Low reverse stand-off voltage: 3.3V, 5.0V, 7V
- Ultra Low capacitance
- Low leakage current
- Transient protection for each line according to IEC61000-4-2 (ESD):  $\pm 30\text{kV}$  (contact discharge)

## Applications

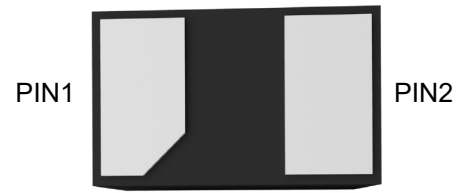
- Display Ports
- MDDI Ports
- Cellular Handsets and Accessories
- Computer and Peripherals

## Marking Code

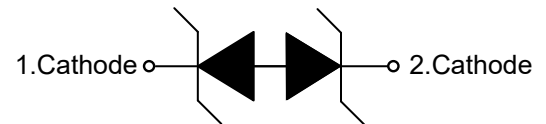


Top View

DFN1x0.6-2L



Bottom View



Device	ESDB3V3ADB	ESDB5V0ADB	ESDB7V0ADB
Marking Code	B33	B5A	B7A

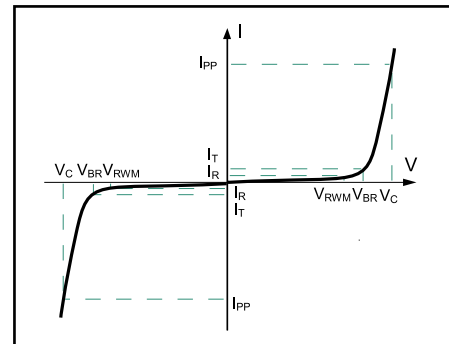


### Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ )

Parameter		Symbols	Value	Unit
IEC61000-4-2 ESD Voltage	Air Model	$V_{ESD}$	$\pm 30$	KV
	Contact Model		$\pm 30$	
Junction Temperature		$T_J$	125	$^\circ\text{C}$
Operating Temperature Range		$T_{OPR}$	-40 to +85	$^\circ\text{C}$
Storage Temperature Range		$T_{STG}$	-50 to +150	$^\circ\text{C}$

### Electrical Parameter

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



V-I characteristics for a Bi-directional TVS

### Electrical Characteristics ( $T_A=25^\circ\text{C}$ )

ESDB3V3ADB					
Parameter	Symbols	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	$V_{RWM}$	--	--	3.3	V
Reverse Leakage Current at $V_{RWM} = \pm 3.3\text{ V}$	$I_R$	--	--	0.1	$\mu\text{A}$
Breakdown Voltage at $I_T = 1\text{ mA}$	$V_{R(BR)}$	5	--	6.5	V
Peak Pulse Power Dissipation $t_p = 8/20\mu\text{s}$	$P_{PP}$	--	--	48	W
Peak Pulse Current $t_p = 8/20\mu\text{s}$	$I_{PP}$	--	--	6	A
Clamping Voltage at $I_{PP} = 1\text{ A}$ , $t_p=8/20\mu\text{s}$ at $I_{PP} = 6\text{ A}$ , $t_p=8/20\mu\text{s}$	$V_C$	--	--	7 10	V
Junction Capacitance at $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$	$C_J$	--	12	16	pF



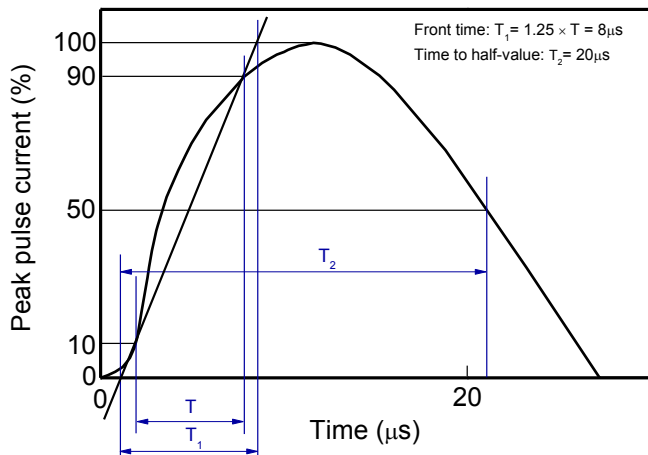
# ESDB...ADB

## Transient Voltage Suppressor

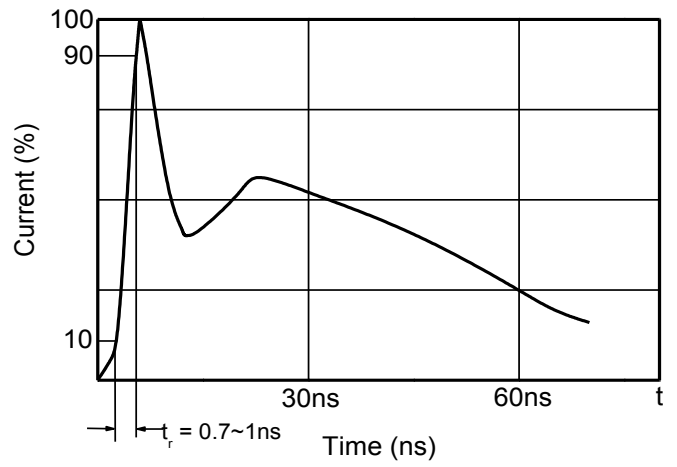
ESDB5V0ADB					
Parameter	Symbols	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	$V_{RWM}$	--	--	5	V
Reverse Leakage Current at $V_{RWM} = \pm 5$ V	$I_R$	--	--	0.1	$\mu$ A
Breakdown Voltage at $I_T = 1$ mA	$V_{R(BR)}$	5.8	--	8	V
Peak Pulse Power Dissipation $t_p = 8/20\mu$ s	$P_{PP}$	--	--	100	W
Peak Pulse Current $t_p = 8/20\mu$ s	$I_{PP}$	--	--	8	A
Clamping Voltage at $I_{PP} = 1$ A, $t_p=8/20\mu$ s at $I_{PP} = 8$ A, $t_p=8/20\mu$ s	$V_C$	-- --	-- --	9.5 15	V
Junction Capacitance at $V_R = 0$ V, $f = 1$ MHz	$C_J$	--	12	15	pF

ESDB7V0ADB					
Parameter	Symbols	Min.	Typ.	Max.	Unit
Reverse stand-off voltage	$V_{RWM}$	--	--	7	V
Reverse Leakage Current at $V_{RWM} = \pm 7$ V	$I_R$	--	--	0.2	$\mu$ A
Breakdown Voltage at $I_T = 1$ mA	$V_{R(BR)}$	7.6	--	9	V
Peak Pulse Power Dissipation $t_p = 8/20\mu$ s	$P_{PP}$	--	--	72	W
Peak Pulse Current $t_p = 8/20\mu$ s	$I_{PP}$	--	--	6	A
Clamping Voltage at $I_{PP} = 1$ A, $t_p=8/20\mu$ s at $I_{PP} = 6$ A, $t_p=8/20\mu$ s	$V_C$	-- --	9 12	12 16	V
Junction Capacitance at $V_R = 0$ V, $f = 1$ MHz	$C_J$	--	15	16	pF

### Typical Characteristic Curves



8/20 $\mu\text{s}$  waveform per IEC61000-4-5



Contact discharge current waveform per IEC61000-4-2

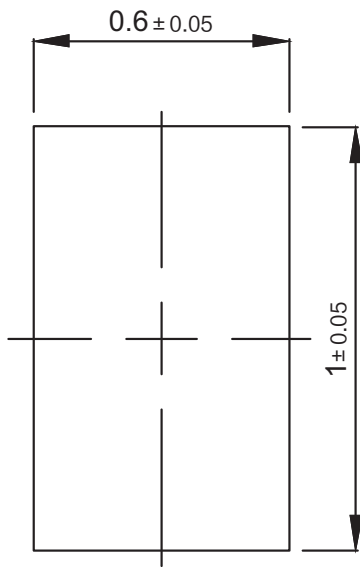


# ESDB...ADB Transient Voltage Suppressor

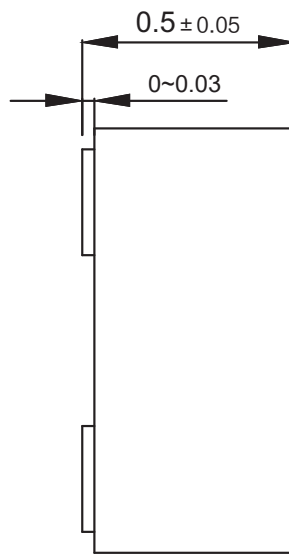
## Package Outline

DFN1x0.6-2L-0011

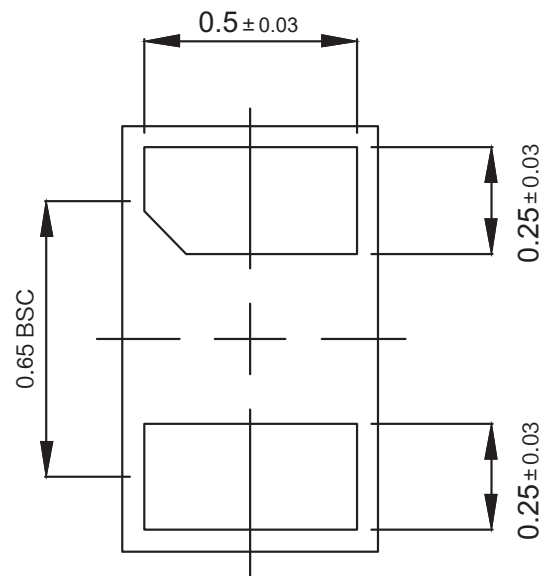
Dimensions in mm



TOP VIEW



SIDE VIEW



BOTTOM VIEW

## Ordering Information

Device	Package	Shipping
ESDB...ADB	DFN1x0.6-2L	10,000PCS/Reel&7inches

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