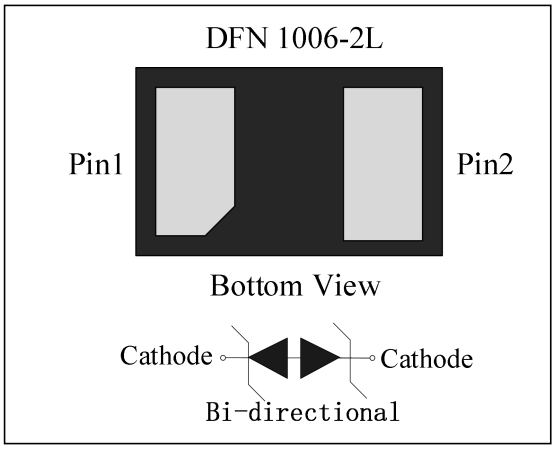
ESDBXXXADB

Power Transient Voltage Suppressor

Features

- Bi-directional ESD Protection of one line
- Working voltage:
  3.3V、4.5V、5.0V、7.0V、12V、15V、18V、24V
- Epoxy Meets UL 94 V-0 Flammability Rating
- Low leakage current
- Transient protection for each line according to IEC61000-4-2 (ESD): ±30KV (contact discharge)



Mechanical Characteristics

- Case: DFN 1006-2L package
- Packaging: Tape and Reel per EIA 481
- RoHS Compliant
- Markig Code

Applications

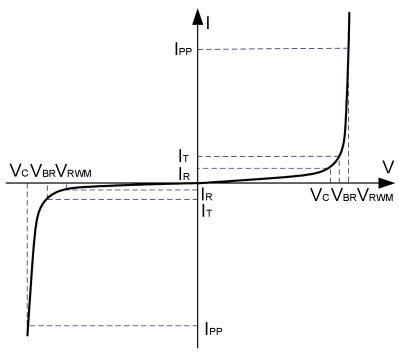
- MDDI Ports
- Cellular Handsets and Display Ports
- Computer and Peripherals

Absolute Maximum Rating(Ratings at 25 °C ambient temperature unless otherwise specified.)

Parameter		Symbols	Value	Unit
IEC61000-4-2 (ESD)	Air Model	V_{ESD}	±30	KV
	Contact Model		±30	
Junction Temperature Range		T_J	125	°C
Operating Temperature Range		T_{OPR}	-40 to +125	°C
Storage Temperature Range		T_{STG}	-55 to +150	°C

Electrical Parameter(Tc=25℃ Unless otherwise specified)

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_F	Forward Voltage@I_F



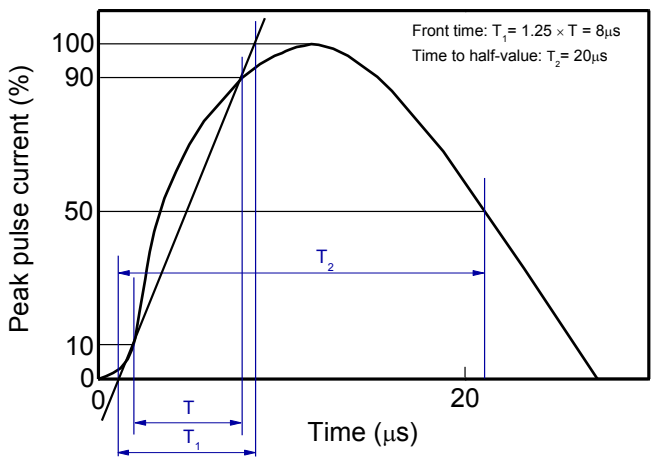
V-I characteristics for a Bi-directional TVS

Electrical Characteristics

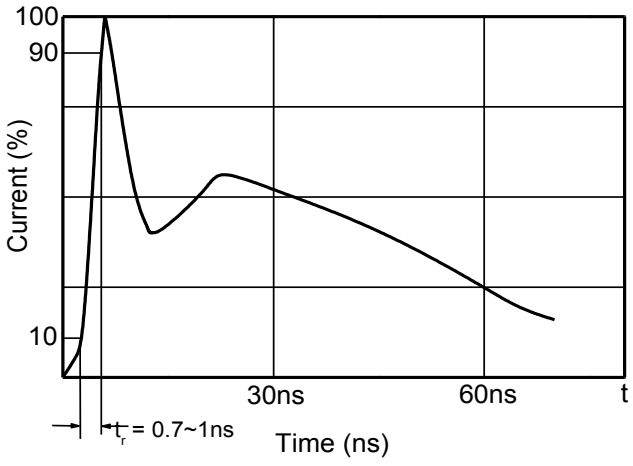
ESDB3V3ADB					
Parameter	**Symbols**	**Min.**	**Typ.**	**Max.**	**Unit**
Reverse stand-off voltage	V_{RWM}	--	--	3.3	V
Reverse Leakage Current at V_{RWM} =±3.3V	I_R	--	--	0.1	μA
Breakdown Voltage at I_T = 1 mA	$V_{R(BR)}$	5.0	--	6.5	V
Peak Pulse Power Dissipation tp = 8/20μs	P_{PP}	--	--	48	W
Peak Pulse Current tp = 8/20μs	I_{PP}	--	--	6	A
Clampimg Voltage at IPP =1 A, tp=8/20μs at I_{PP} =6 A, tp=8/20μs	V_C	-- --	-- --	7 10	V
Junction Capacitance at V_R = 0 V, f = 1M_{HZ}	C_J	--	12	16	pF
ESDB4V5ADB					
Parameter	**Symbols**	**Min.**	**Typ.**	**Max.**	**Unit**
Reverse stand-off voltage	V_{RWM}	--	--	4.5	V
Reverse Leakage Current at V_{RWM} =±4.5V	I_R	--	--	0.1	μA
Breakdown Voltage at I_T = 1 mA	$V_{R(BR)}$	4.8	--	6.0	V
Peak Pulse Power Dissipation tp = 8/20μs	P_{PP}	--	--	--	W
Peak Pulse Current tp = 8/20μs	I_{PP}	--	--	--	A
Clampimg Voltage at IPP =1 A, tp=8/20μs at I_{PP} =9A, tp=8/20μs	V_C	-- --	-- --	-- --	V
Junction Capacitance at V_R = 0 V, f = 1M_{HZ}	C_J	--	--	--	pF
ESDB5VADB					
Parameter	**Symbols**	**Min.**	**Typ.**	**Max.**	**Unit**
Reverse stand-off voltage	V_{RWM}	--	--	5.0	V
Reverse Leakage Current at V_{RWM} =±5.0V	I_R	--	--	0.1	μA
Breakdown Voltage at I_T = 1 mA	$V_{R(BR)}$	5.8	--	8	V
Peak Pulse Power Dissipation tp = 8/20μs	P_{PP}	--	--	100	W
Peak Pulse Current tp = 8/20μs	I_{PP}	--	--	8	A
Clampimg Voltage at IPP =1 A, tp=8/20μs at I_{PP} =8 A, tp=8/20μs	V_C	-- --	-- --	9.5 15	V
Junction Capacitance at V_R = 0 V, f = 1M_{HZ}	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} =±7.0V	I_R	--	--	0.2	μA
Breakdown Voltage at I_T = 1 mA	$V_{R(BR)}$	7.6	--	9	V
Peak Pulse Power Dissipation tp = 8/20μs	P_{PP}	--	--	72	W
Peak Pulse Current tp = 8/20μs	I_{PP}	--	--	6	A
Clampimg Voltage at IPP =1 A, tp=8/20μs at I_{PP} =3.5 A, tp=8/20μs	V_C	-- --	9 12	12 16	V
Junction Capacitance at V_R = 0 V, f = 1M_{HZ}	C_J	--	15	16	pF
ESDB12VADB					
Parameter	**Symbols**	**Min.**	**Typ.**	**Max.**	**Unit**
Reverse stand-off voltage	V_{RWM}	--	--	12	V
Reverse Leakage Current at V_{RWM} =±12V	I_R	--	--	0.1	μA
Breakdown Voltage at I_T = 1 mA	$V_{R(BR)}$	13.3	--	16	V
Peak Pulse Power Dissipation tp = 8/20μs	P_{PP}	--	--	84	W
Peak Pulse Current tp = 8/20μs	I_{PP}	--	--	3.5	A
Clampimg Voltage at IPP =1 A, tp=8/20μs at I_{PP} =3.5A, tp=8/20μs	V_C	-- --	-- --	13 24	V
Junction Capacitance at V_R = 0 V, f = 1M_{HZ}	C_J	--	--	9.5	pF

ESDB15VADB					
Parameter	**Symbols**	**Min.**	**Typ.**	**Max.**	**Unit**
Reverse stand-off voltage	V_{RWM}	--	--	15	V
Reverse Leakage Current at V_{RWM} =±15V	I_R	--	--	0.1	μA
Breakdown Voltage at I_T = 1 mA	$V_{R(BR)}$	16	--	19	V
Peak Pulse Power Dissipation tp = 8/20μs	P_{PP}	--	--	280	W
Peak Pulse Current tp = 8/20μs	I_{PP}	--	--	8	A
Clampimg Voltage at IPP =1 A, tp=8/20μs at I_{PP} =8 A, tp=8/20μs	V_C	-- --	-- --	22 35	V
Junction Capacitance at V_R = 0 V, f = 1M_{HZ}	C_J	--	--	45	pF
ESDB18VADB					
Parameter	**Symbols**	**Min.**	**Typ.**	**Max.**	**Unit**
Reverse stand-off voltage	V_{RWM}	--	--	18	V
Reverse Leakage Current at V_{RWM} =±18V	I_R	--	--	0.1	μA
Breakdown Voltage at I_T = 1 mA	$V_{R(BR)}$	20	--	24	V
Peak Pulse Power Dissipation tp = 8/20μs	P_{PP}	--	--	210	W
Peak Pulse Current tp = 8/20μs	I_{PP}	--	--	10	A
Clampimg Voltage at IPP =1 A, tp=8/20μs at I_{PP} =6 A, tp=8/20μs	V_C	-- --	-- --	25 35	V
Junction Capacitance at V_R = 0 V, f = 1M_{HZ}	C_J	--	--	40	pF
ESDB24VADB					
Parameter	**Symbols**	**Min.**	**Typ.**	**Max.**	**Unit**
Reverse stand-off voltage	V_{RWM}	--	--	24	V
Reverse Leakage Current at V_{RWM} =±24V	I_R	--	--	0.1	μA
Breakdown Voltage at I_T = 1 mA	$V_{R(BR)}$	26.5	--	30	V
Peak Pulse Power Dissipation tp = 8/20μs	P_{PP}	--	--	55	W
Peak Pulse Current tp = 8/20μs	I_{PP}	--	--	5	A
Clampimg Voltage at IPP =1 A, tp=8/20μs at I_{PP} =5 A, tp=8/20μs	V_C	-- --	-- --	38 51	V
Junction Capacitance at V_R = 0 V, f = 1M_{HZ}	C_J	--	--	32	pF

Typical Characteristics Curves



8/20μs waveform per IEC61000-4-5

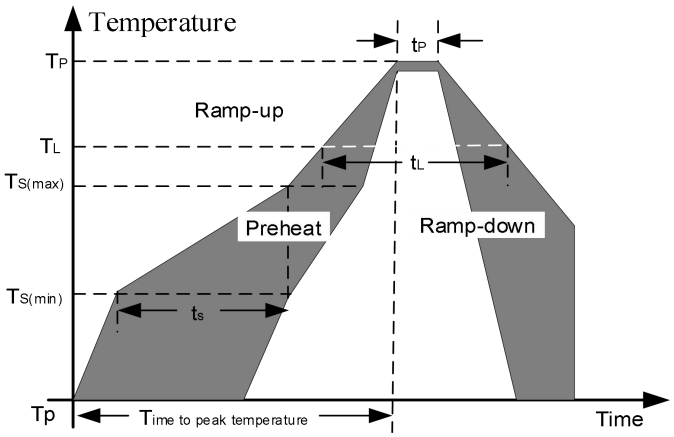


Contact discharge current waveform per IEC61000-4-2

Note: The above typical parameters or typical characteristics are only indicative and do not make specific guarantees. If detailed values are required, additional communication and provision are required.

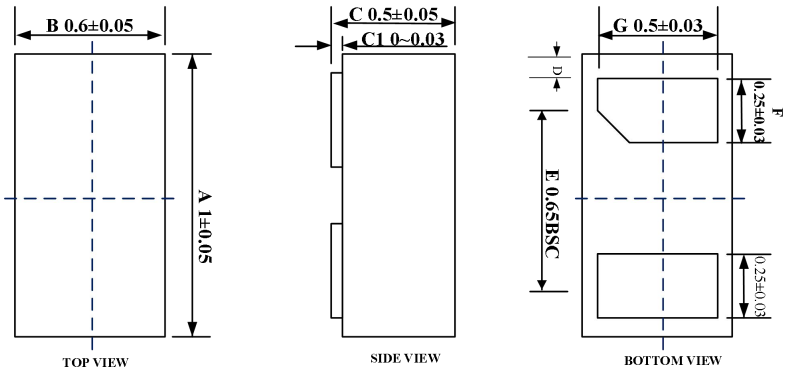
Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min (Ts(min))	150°C
	Temperature Max (Ts(max))	200°C
	Time (min to max) (ts)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
TS(max) to TL——Ramp-up Rate		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (tp)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C



Outline Drawing – DFNx0.6-2L-0011

Dimensions in mm

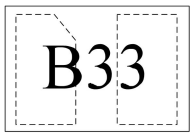
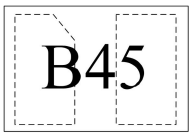
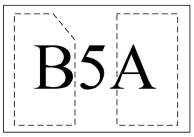
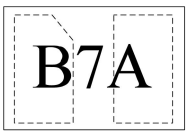
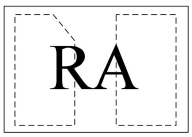
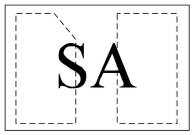
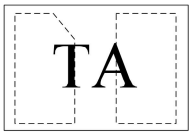
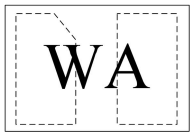


DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.037	0.041	0.95	1.05	
B	0.022	0.026	0.55	0.65	
C	0.016	0.022	0.40	0.50	
C1	-----	0.004	-----	0.05	
D	0.001	0.003	0.02	0.08	
E	0.026		0.65		TYP.
F	0.008	0.012	0.20	0.30	
G	0.018	0.022	0.45	0.55	

Package Information

Package Type	Description	Quantity（pcs）	Standard
DFNX0.6-2L-0011	Tape & Reel -7″ tape	10000	EIA-481

Part Marking System(Top View)

Device	ESDB3V3ADB	ESDB4V5ADB	ESDB5V0ADB	ESDB7V0ADB
DFN 1006-2L-0011				
Device	ESDB12VADB	ESDB15VADB	ESDB18VADB	ESDB24VADB
DFN 1006-2L-0011				

Contact Information

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For additional information, please contact your local Sales Representative.

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