



ESDA14V2-4BF3

ASD (Application Specific Devices)
Quad bidirectional TRANSIL™ array for ESD protection

Application

Where transient overvoltage protection in ESD sensitive equipment is required, such as :

- Computers
- Printers
- Communication systems and cellular phones
- Video equipment

This device is particularly adapted to the protection of symmetrical signals.

Description

The ESDA14V2-4BF3 is a monolithic array designed to protect up to 4 lines in a bidirectional way against ESD transients.

The device is ideal for situations where board space saving is requested.

Features

- 4 Bidirectional Transil functions
- ESD Protection: IEC61000-4-2 level 4
- Stand off voltage: 12 V Min.
- Low leakage current < 0.5 μ A
- 50 W Peak pulse power (8/20 μ s)

Benefits

- High ESD protection level
- High integration
- Suitable for high density boards

Complies with the following standards:

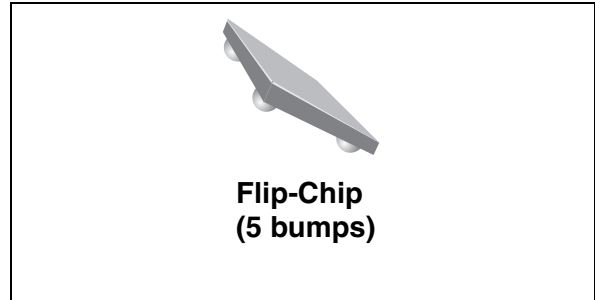
IEC61000-4-2

15 kV (air discharge)
8 kV (contact discharge)

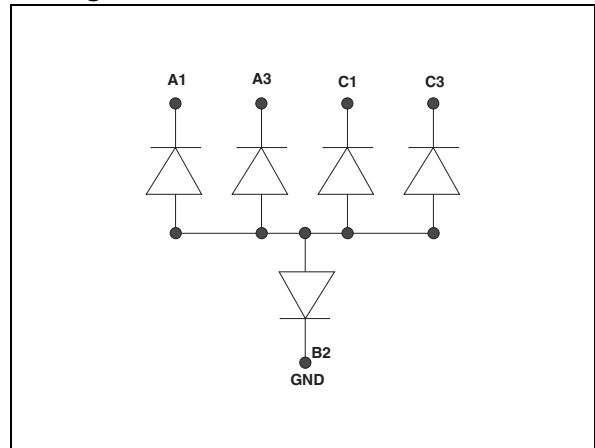
MIL STD 883E- Method 3015-7: class3

25 kV (human body model)

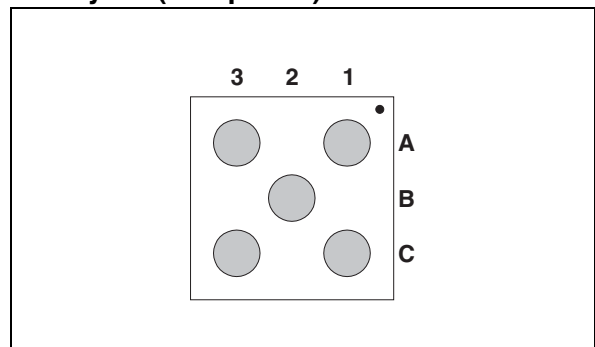
TM: TRANSIL is a trademark of STMicroelectronics



Configuration



Pin layout (bump side)



Order Code

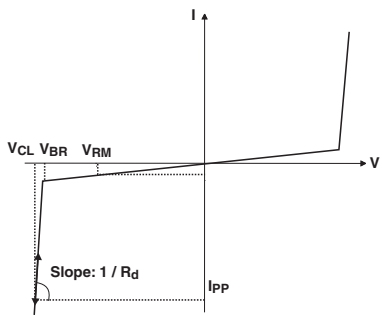
Part number	Marking
ESDA14V2-4BF3	EF

1 Characteristics

1.1 Absolute ratings (limiting values)

Symbol	Parameter		Value	Unit
V_{PP}	ESD discharge	MIL STD 883E - Method 3015-7 IEC61000-4-2 air discharge IEC61000-4-2 contact discharge	± 25 ± 15 ± 8	kV
P_{PP}	Peak pulse power (8/20 μ s)		50	W
T_j	Junction temperature		125	°C
T_{stg}	Storage temperature range		-55 to +150	°C
T_L	Lead solder temperature (10 seconds duration)		260	°C
T_{op}	Operating temperature range		-40 to +125	°C

1.2 Electrical characteristics ($T_{amb} = 25\text{ }^{\circ}\text{C}$)

Symbol	Parameter	
V_{BR}	Breakdown voltage	
I_{RM}	Leakage current @ V_{RM}	
V_{RM}	Stand-off voltage	
V_{CL}	Clamping voltage	
R_d	Dynamic impedance	
I_{PP}	Peak pulse current	
C	Capacitance	

Part Number	V_{BR}		@ I_R	I_{RM} @ V_{RM}		R_d typ. ⁽¹⁾	αT max. ⁽²⁾	C max. 0V bias
	min.	max.		max.				
	V	V	mA	μ A	V	Ω	$10^{-4}/^{\circ}\text{C}$	pF
ESDA14V2-4BF3	14.2	18	1	0.5	12	3.2	10	15
				0.1	3			

1. Square pulse, $I_{PP} = 3\text{A}$, $t_p = 2.5\mu\text{s}$.

2. $\Delta V_{BR} = \alpha T (T_{amb} - 25^{\circ}\text{C}) \times V_{BR} (25^{\circ}\text{C})$

Figure 1. Clamping voltage versus peak pulse current (T_j initial = 25 °C) (Rectangular waveform, $t_p = 2.5 \mu s$)

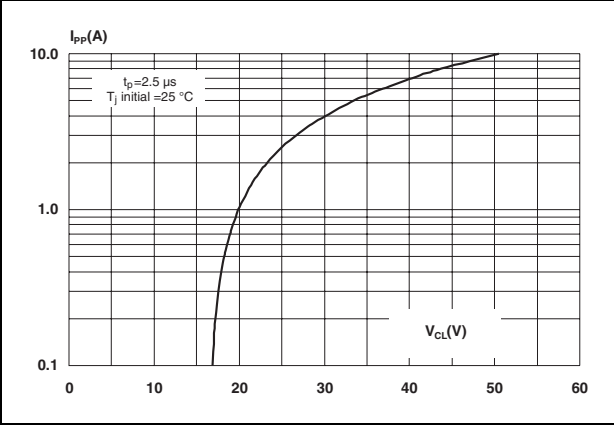


Figure 2. Junction capacitance versus reverse applied voltage (typical values)

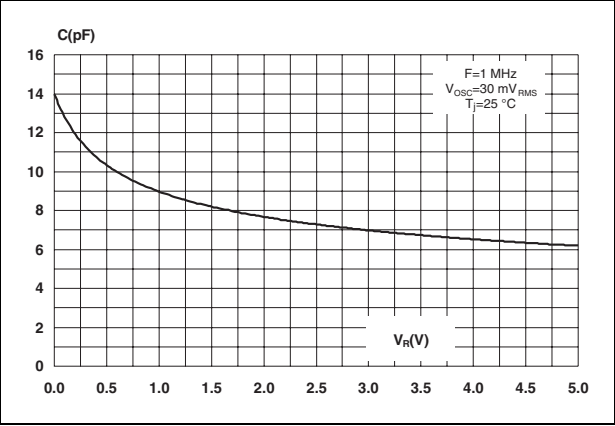


Figure 3. Relative variation of leakage current versus junction temperature (typical values)

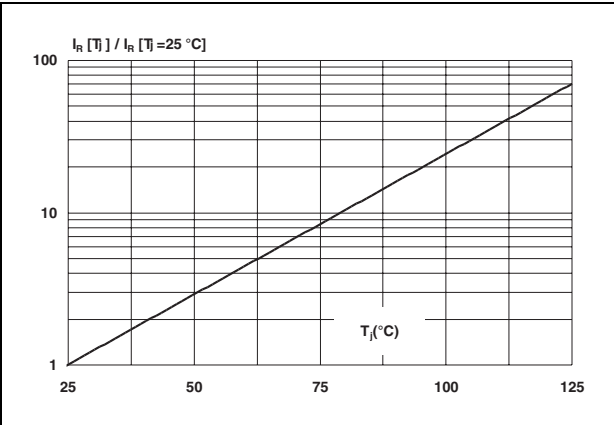


Figure 4. ESD response to IEC61000-4-2 (+15 kV air discharge)

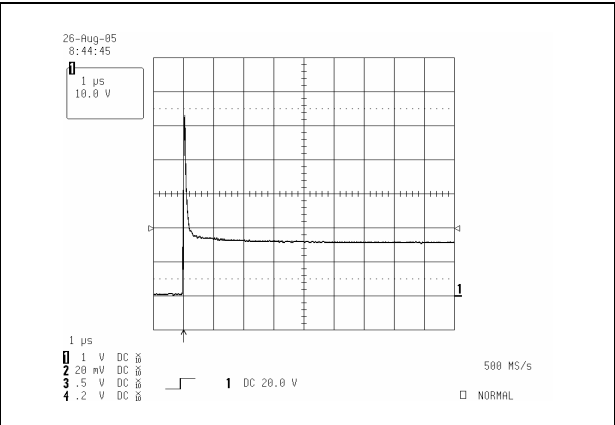


Figure 5. ESD response to IEC61000-4-2 (-15 kV air discharge)

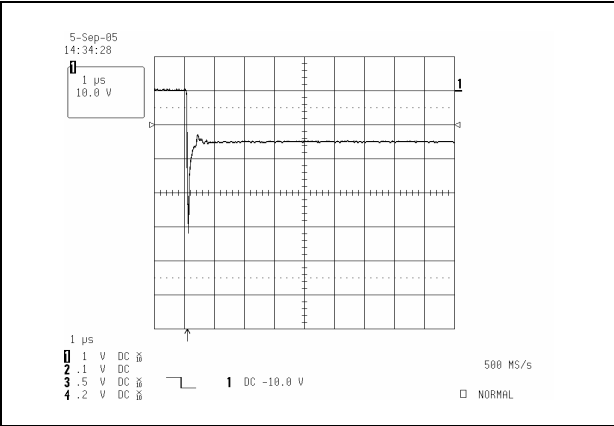


Figure 6. Analog crosstalk measurements

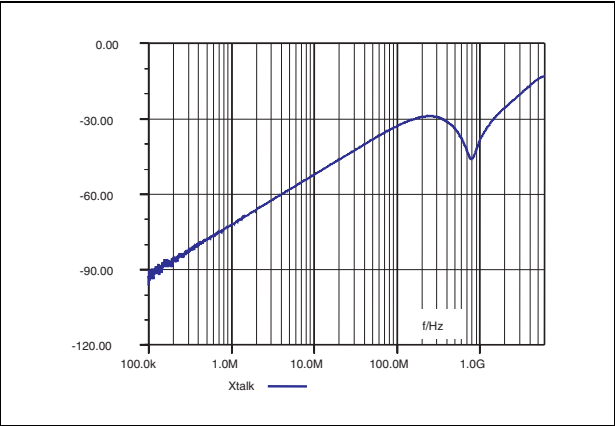


Figure 7. Digital crosstalk measurements

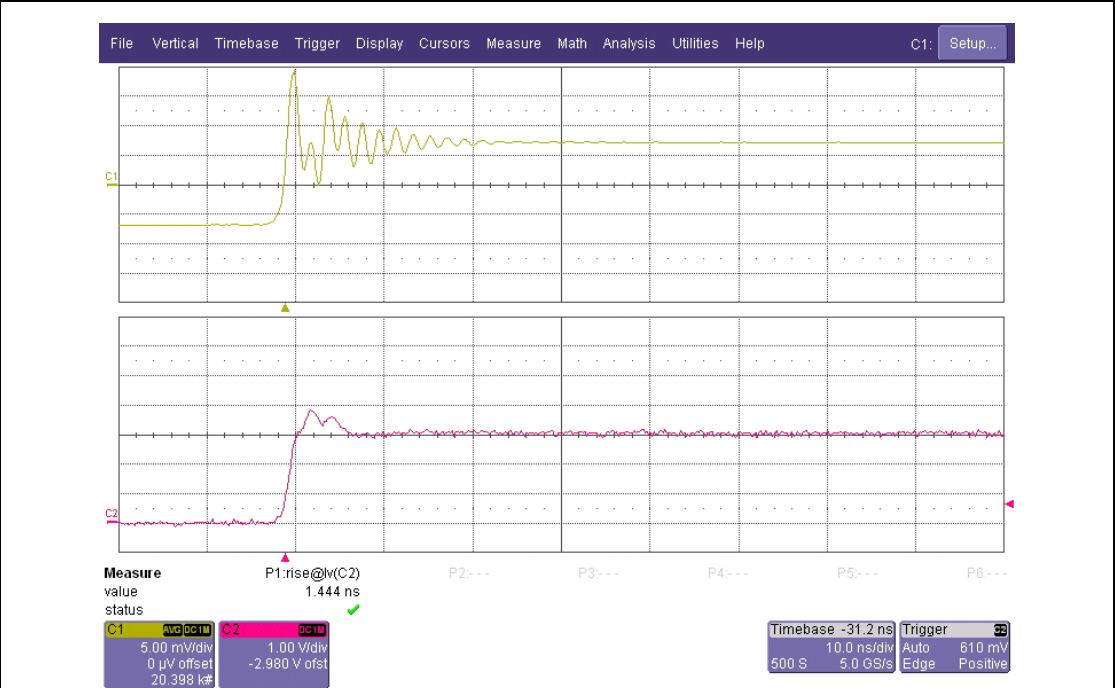
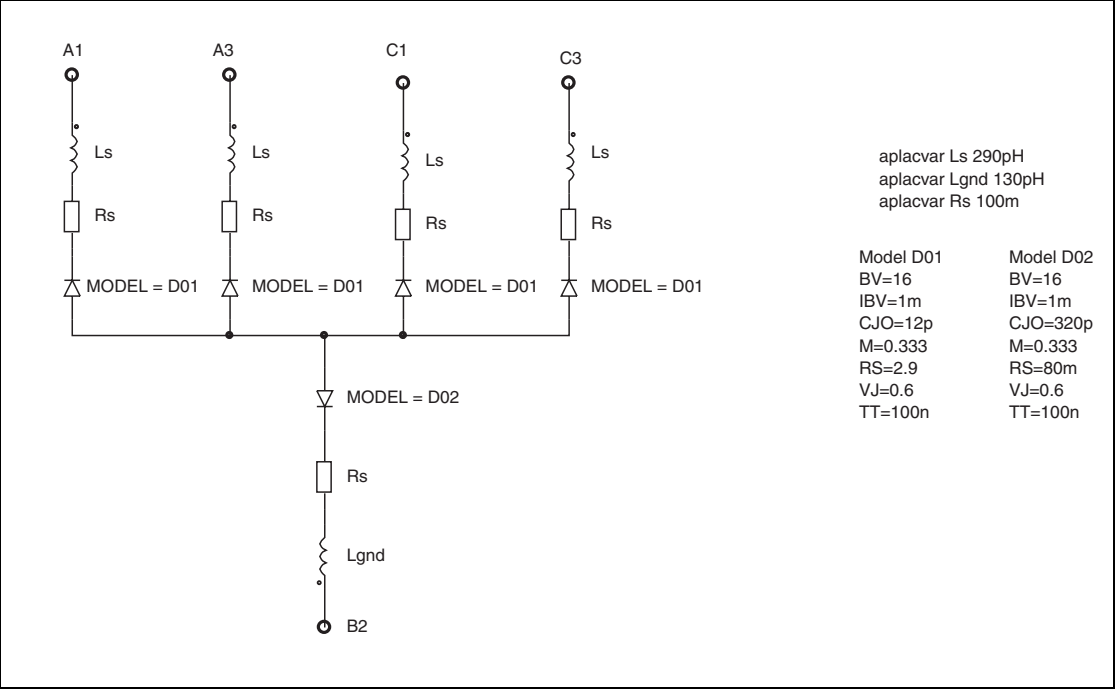
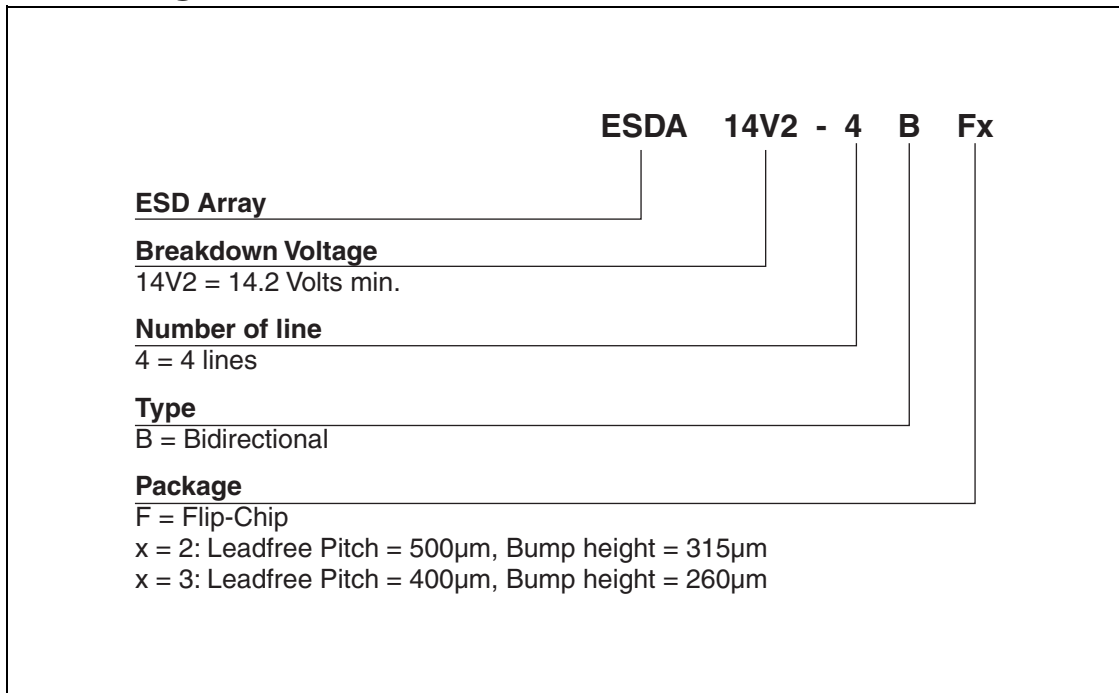


Figure 8. Aplac model



2 Ordering information scheme



3 Package information

Figure 9. Mechanical data

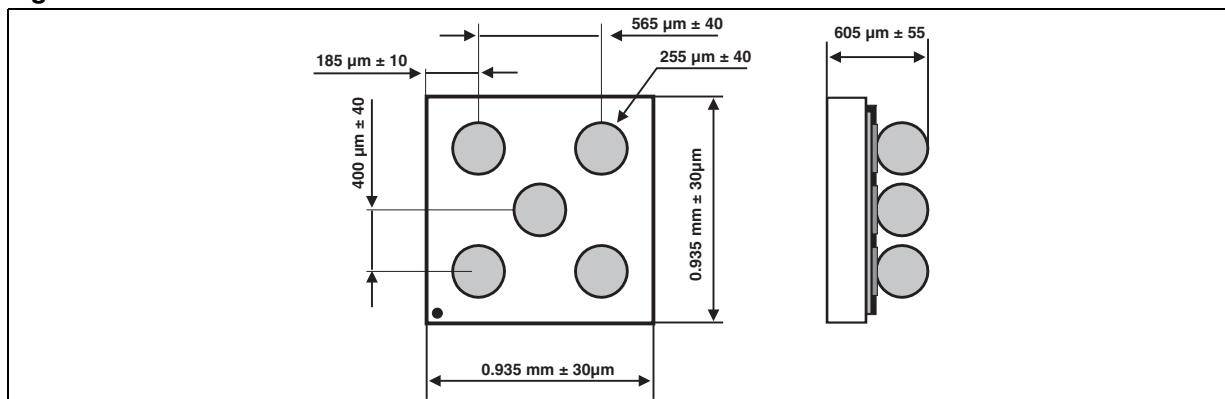


Figure 10. Footprint recommendations

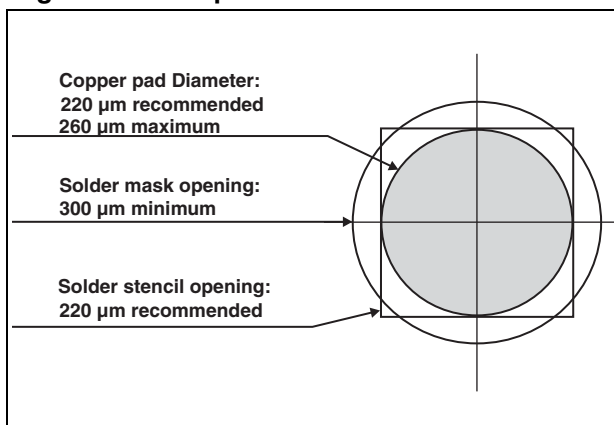


Figure 11. Marking

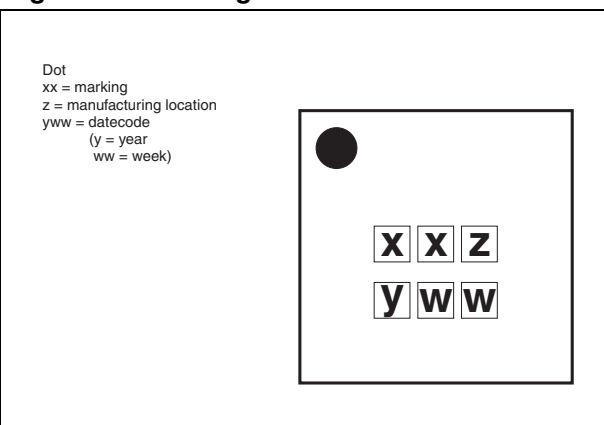
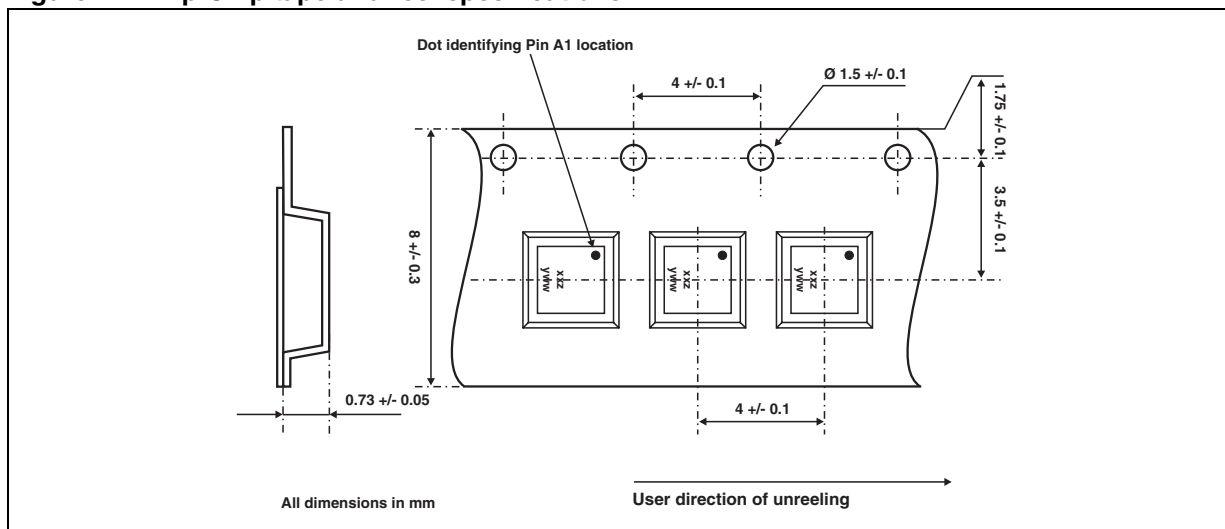


Figure 12. Flip-Chip tape and reel specifications



4 Ordering information

Part number	Marking	Package	Weight	Base qty	Delivery mode
ESDA14V2-4BF3	EF	Flip-Chip	1.16 mg	5000	Tape and reel 7"

5 Revision history

Date	Revision	Changes
19-Sep-2005	1	Initial release.

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