

1.Description

The AEEx21PCA0 is a high power TVS, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive lines. It is assembled into a 3-pin DFN2x2-3L lead-free package. Each device will protect one line. The combination of small size, and high surge capability makes them ideal for use in applications such as cellular phones, LCD displays, USB, and multi media card.



2.Features

- IEC 61000-4-2 (ESD)
 - $\pm 30\text{kV}$ Contact Discharge
 - $\pm 30\text{kV}$ Air Discharge
- 6000W Peak pulse Power (8/20us)
- IEC 61000-4-4 EFT Protection
 - 40A (5/50ns)
- Halogen free and RoHS compliant
- Protects one power or I/O
- Transient protection for high-speed data lines
- Low clamping voltage
- Low leakage current

3.Mechanical Data

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants
- Notebooks / Desktops / Servers
- Portable Instrumentation
- Peripherals & Pagers

4.Ordering Information

Part Number		Package		Material		Packing		Quantity per reel		Flammability Rating		Reel Size	
AExx21PCA0		DFN2x2-3L		Halogen free		Tape & Reel		3,000 PCS		UL 94V-0		7 inches	
Marking for the AExx21PCA0 series													
V _{RWM}	3.3V	5V	7V	10V	12V	15V	18V	20V	24V				
Marking	T03	T05	T07	T10	T12	T15	T18	T20	T24				
	003	003	003	003	003	003	003	003	003				

Table-1 Ordering information

5.Pin Configuration and Functions

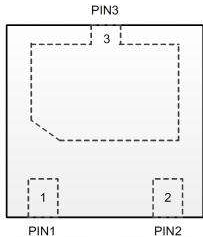
Pin	Name	Description	Outline	Circuit Diagram
1	GND	Connect to GND		
2	GND	Connect to GND		
3	IO	Connect to IO		

Table-2 Pin configuration

6. Absolute Maximum rating

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

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25℃	P _{pk}	-	6000	W
Peak pulse current (tp=8/20us)@25℃	I _{PP}	-	Refer to Table-4	A
ESD (IEC61000-4-2 air discharge) @25℃	V _{ESD}	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25℃	V _{ESD}	-	±30	kV
Junction temperature	T _J	-	150	℃
Operating temperature	T _{OP}	-40	125	℃
Storage temperature	T _{STG}	-55	150	℃
Lead temperature	T _L	-	260	℃

Table-3 Absolute Maximum rating

7. Electrical Characteristics

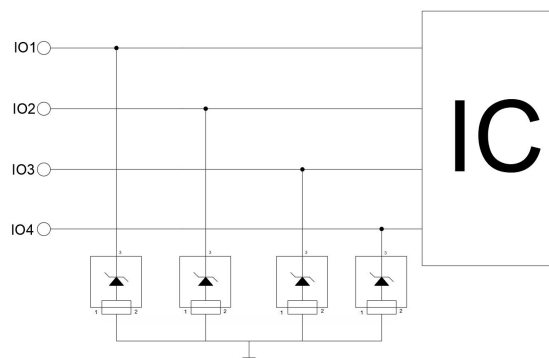
At TA = 25°C unless otherwise noted

Part Number	V _{RWM} (max.)	V _{BR} (min.)	V _{CL} @I=1A (max.)	I _{PP} (max.)	V _{CL} @I=I _{PP} (max.)	I _R (max.)	C _J (typ.)
	(V)	(V)	(V)	(A)	(V)	(uA)	(pF)
AE3321PCA0	3.3	3.7	6.5	260	15.0	1.0	850
AE0521PCA0	5.0	6.0	7.5	250	17.0	1.0	2000
AE7521PCA0	7.5	8.0	10.0	240	18.5	1.0	1700
AE1021PCA0	10.0	11.0	13.5	180	20.0	1.0	1200
AE1221PCA0	12.0	13.3	15.0	160	30.0	1.0	1000
AE1521PCA0	15.0	16.5	18.5	140	35.0	1.0	950
AE1821PCA0	18.0	19.0	25.0	140	38.0	1.0	900
AE2021PCA0	20.0	22.0	30.0	130	45.0	1.0	1000
AE2421PCA0	24.0	26.0	35.0	120	60.0	1.0	720

Table-4 Electrical Characteristics for All Series

8. Typical Application

Typical Application



9. Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Figure 1. Pulse rating curve

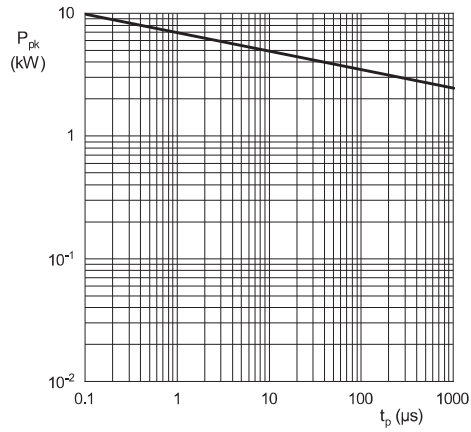


Figure 2 Peak pulse power derating curve

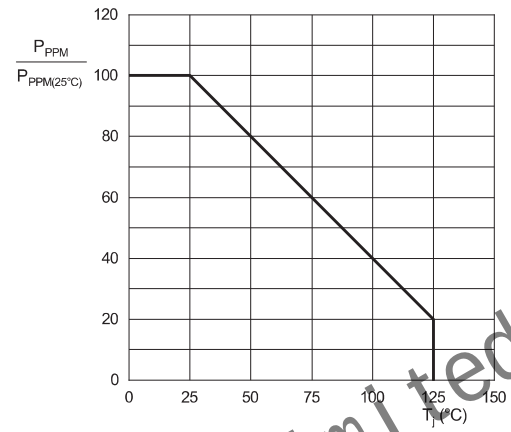


Figure 3 Pulse waveform

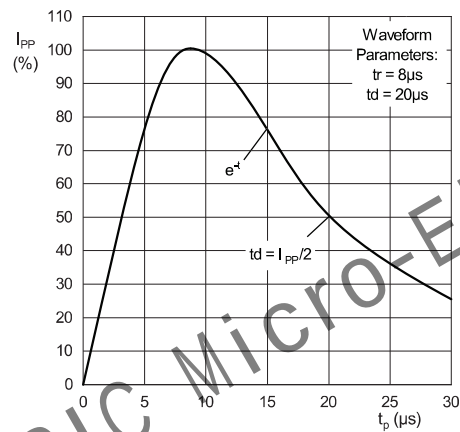
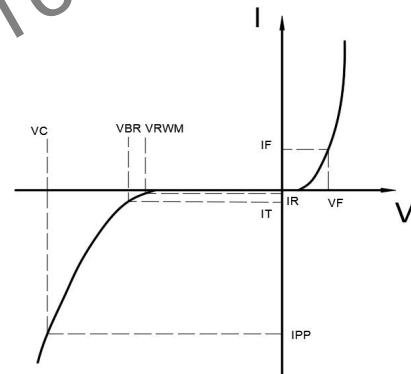
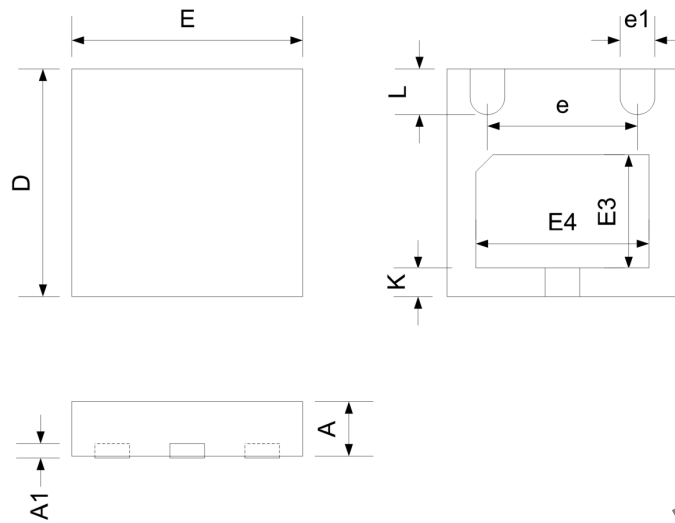


Figure 4 Parameters



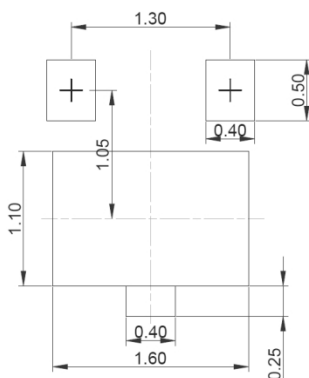
10.Dimension



Symbol	Dimensions in Millimeters		
	Min.	Max.	
D	1.900	2.000	2.100
E	1.900	2.000	2.100
e	1.200	1.300	1.400
e1	0.200	0.300	0.400
E3	0.850	1.000	1.150
E4	1.350	1.500	1.650
K	0.150	0.250	0.350
L	0.300	0.400	0.500
A	0.425	0.475	0.525
A1	0.100	0.125	0.150

Table-5 product dimensions

11.Recommended Land Pattern



Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference only

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