

# **PAE3321EU**

#### Single-Line ESD Protection Array

### General Description

The PAE3321EU is designed with latest Punch-Through process TVS technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium.

It has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD(electrostatic discharge), and EFT (electrical fast transients).

#### Feature

- Single-channel ESD protection
- Low clamping voltage
- 3.3V low operating voltage
- Reliable silicon device avalanche breakdown Structure





### > <u>Application</u>

- Cell phone handsets and accessories
- Personal Digital Assistants (PDAs)
- Portable Instrumentation
- Digital Cameras



#### Protection solution to meet

- IEC61000-4-2 (ESD) ±8 kV (contact), ±15kV (air)
- IEC61000-4-4 (EFT) 40A (5/50ns)



#### **Single-Line ESD Protection Array**

### Maximum Ratings (TA=25°C Unless otherwise specified)

Parameter	Symbol	Value	Unit
Maximum Peak Pulse Power (tp=8/20µs waveform)	P <sub>PPP</sub>	40	Watts
Maximum Peak Pulse Current(tp=8/20µs waveform)	$I_{\rm PP}$	6	А
ESD Rating per IEC61000-4-2: Contact		30	<b>W</b> W
Air		30	ΚV
Lead Soldering Temperature	T <sub>L</sub>	260 (10 sec.)	°C
Operating Temperature Range	TJ	-55 ~ 125	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ 150	°C

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not

normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

\*Other voltages may be available upon request.

1. Non-repetitive current pulse, per Figure 1.

## Electrical Characteristics (TA=25°C Unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Тур.	Max.	Units
V <sub>RWM</sub>	Reverse Working Voltage				3.3	V
V <sub>PT</sub>	Punch-Through Voltage	$I_{PT} = 2\mu A$	3.3			V
V <sub>SB</sub>	Snap-Back Voltage	I <sub>SB</sub> =1mA	4.0			V
I <sub>R</sub>	Reverse Leakage Current	$V_{RWM} = 3.3V,$		0.01	0.1	μΑ
V <sub>C</sub>	Clamping Voltage	$I_{PP} = 1A$ , tp =8/20µs,		4.0	7.6	V
		$I_{PP} = 6A, t_p = 8/20 \mu s,$		7.0	15	V
I <sub>PP</sub>	Peak Pulse Current	$t_p = 8/20 \mu s$			6	А
CJ	Junction Capacitance	$V_R = 0V, f = 1MHz,$		9.0	15	pF
		$V_R = 2V, f = 1MHz,$		8.7	13	pF

Symbol	Parameter
V <sub>RWM</sub>	Working Peak Reverse Voltage
V <sub>PT</sub>	Punch-Through Voltage@ I <sub>PT</sub>
$V_{SB}$	Snap-Back Voltage@ I <sub>SB</sub>
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
I <sub>T</sub>	Test Current
I <sub>RM</sub>	Leakage current at $V_{RWM}$
I <sub>PP</sub>	Peak pulse current
Co	Off-state Capacitance
CJ	Junction Capacitance





# Typical Characteristics





ESD clamp voltage

Positive 8KV IEC61000-4-2 contact discharge







**Power Derating Curve** 

ESD clamp voltage Negative 8KV IEC61000-4-2 contact discharge



Non-Repetitive Peak Pulse Power vs. Pulse Time

#### Spec No:33408H13 Date:2017.Jun Revision:D



# Package Information (DFN1006)

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters		
DIM	Min	Max	
А	0.30	0.50	
A1	0.00	0.05	
D	0.55	0.65	
E	0.95	1.05	
b	0.25	0.60	
e	0.65TYP		
L	0.15	0.35	
L1	0.05REF		

#### **Recommended Pad outline**



# Ordering Information

Part Number	Description	Quantity
PAE3321EU	DFN1006 Reel	10000 pcs



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