

➤ General Description

The PAE3331PSW is designed with latest process SCR 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. Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, USB 3.0 super speed, USB 3.1 super speed ,VGA, DVI, HDMI, eSATA and other high speed line applications.

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

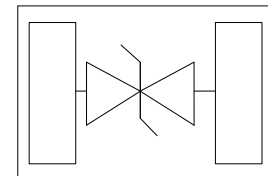
- Stand-off Voltage: 3.3 V
- Low capacitance (<0.25pF) for high-speed interfaces
- No insertion loss to 10.0GHz
- Protects I/O Port
- Low Clamping Voltage
- Low Leakage
- Low Capacitance
- Meets MSL 1 Requirements
- ROHS compliant
- **SCR Process technology**

➤ DFN0603-2



➤ Application

- High Speed Line :USB1.0/2.0/3.0/3.1,VGA,DVI,SDI,
- High Definition Multi-Media Interface (HDMI1.3/1.4/2.0)
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV
- Cellular handsets and accessories
- Portable instrumentation
- Peripherals



➤ Protection solution to meet

- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC61000-4-5 (Lightning) 4A (8/20µs)

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	P _{PPP}	45	Watts
ESD Rating per IEC61000-4-2:	Contact	20	KV
	Air	20	
Lead Soldering Temperature	T _L	260 (10 sec.)	°C
Operating Temperature Range	T _J	-55 ~ 150	°C
Storage Temperature Range	T _{STG}	-55 ~ 150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	T _L	260	°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.

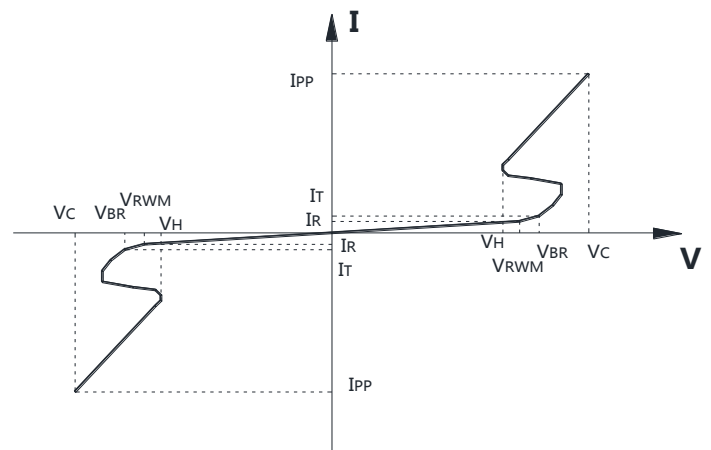
1. Non-repetitive current pulse, per Figure 1.

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

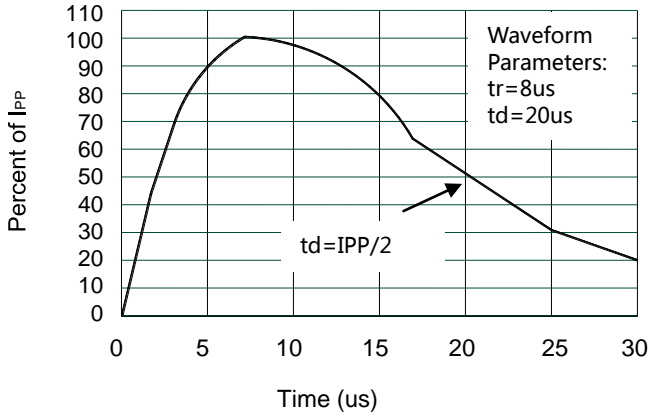
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V _{RWM}	Reverse Working Voltage				3.3	V
V _{BR}	Reverse Breakdown Voltage	I _T = 0.1mA,	4.0			V
V _H	Hold Current Voltage	I _H = 10mA	1.5			V
I _R	Reverse Leakage Current	V _{RWM} = 3.3V,		0.001	0.1	μA
V _C	Clamping Voltage	I _{PP} = 1A		4.2	8.9	V
		I _{PP} = 4A			12	V
R _{dyn}	dynamic resistance			0.46		Ω
C _J ⁽²⁾	Junction Capacitance	V _{IN} = 1.0V, f = 1MHz,		0.18	0.35	pF
		V _{IN} = 1.0V, f = 1GHz,		0.16	0.28	pF

Junction capacitance is measured in VR=0V, F=1MHz

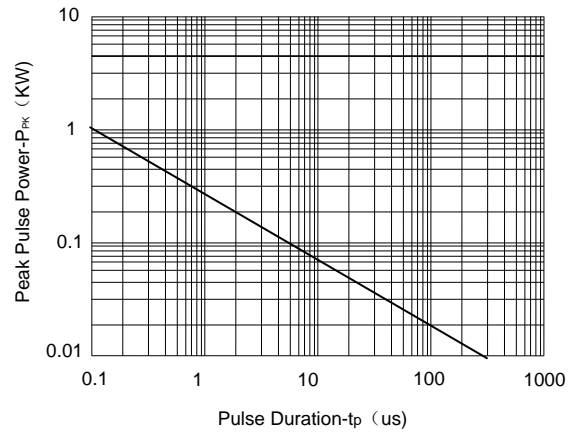
Symbol	Parameter
V _{RWM}	Working Peak Reverse Voltage
V _{BR}	Breakdown Voltage @ I _r
V _C	Clamping Voltage @ 8/20us (IEC61000-4-5)
I _T	Test Current
I _{RM}	Leakage current at V _{RWM}
I _{PP}	Peak pulse current
C _O	Off-state Capacitance
C _J	Junction Capacitance



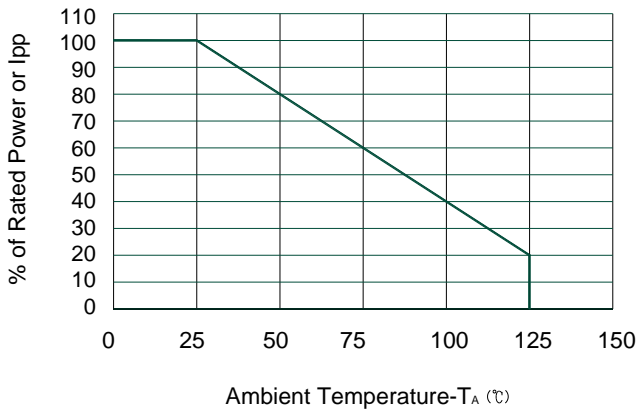
➤ Typical Characteristics



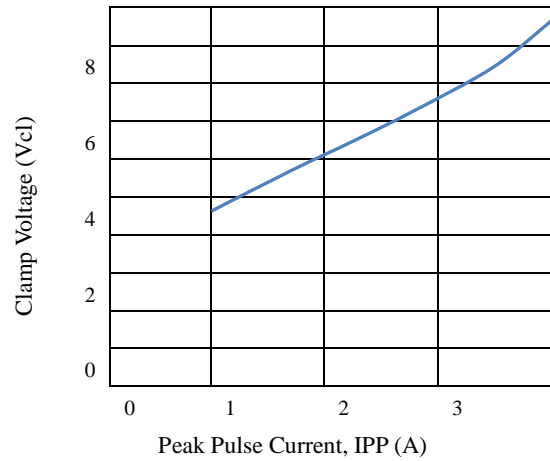
Pulse Waveform



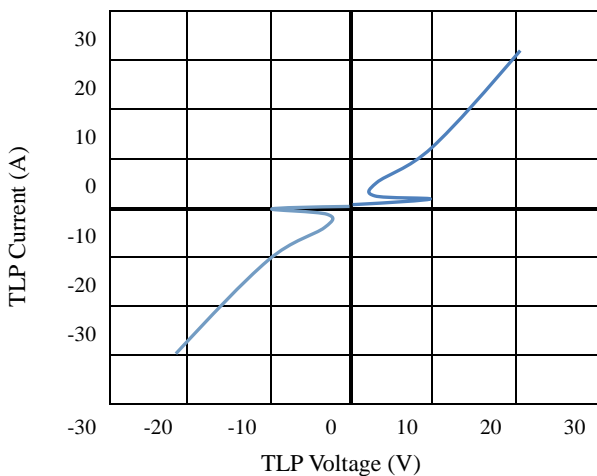
Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve



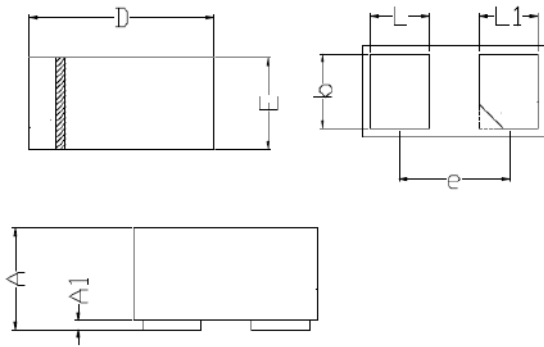
Clamping Voltage Vs Peak Pulse Current(I_{pp})



Clamping Voltage Vs Peak Pulse Current(I_{TLP})

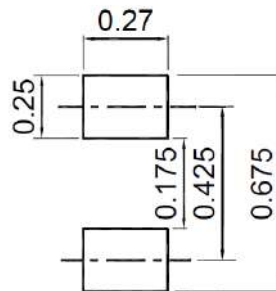
➤ Package Information (DFN0603-2)

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.230	0.330
A1	0.000	0.050
D	0.550	0.650
E	0.250	0.350
b	0.215	0.295
L	0.115	0.225
L1	0.115	0.225
e	0.535BSC	

Recommended Pad outline



➤ Ordering Information

Part Number	Description	Quantity
PAE3331PSW	DFN0603-2 Reel	15000 pcs

DISCLAIMER

- The information in this document and any product described herein are subject to change without notice and should not be construed as a commitment by Paceleader, Paceleader reserve the right to make changes to the information in this document.

- Though Paceleader make effort to improve product quality and reliability, Product can malfunction and fail due to their inherent electrical sensitivity and vulnerability to physical stress, it is the responsibility of the customer, when utilizing Paceleader products, to comply with the standards of safety in making a safe design for entire system and to avoid situation in which a malfunction or failure., In developing a new designs, customer should ensure that the device which shown in this documents are used within specified operatingranges.

- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by Paceleader for any infringements of patents or other rights of the third parties which may result from its use.