➢ General Description

The PAE0531W is designed with the latest 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.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).

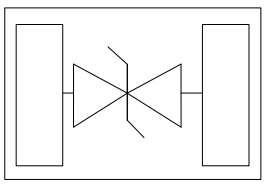
➢ Feature

- ●Peak Power Dissipation −30 W (8 x 20 us Waveform)
- ●Stand-off Voltage: 5.0 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
- ●Solid-state Punch-Through TVS 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), ±15kV (contact)
- ●IEC61000-4-5 (Lightning) 2A (8/20μs)

➢ Maximum Ratings (T_A=25°C Unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	30	Watts
ESD Rating per IEC61000-4-2： Contact Air		15 15	KV
Lead Soldering Temperature	T_L	260 (10 sec.)	℃
Operating Temperature Range	T_J	-55 ~ 150	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃
Lead Solder Temperature − Maximum (10 Second Duration)	T_L	260	℃

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.

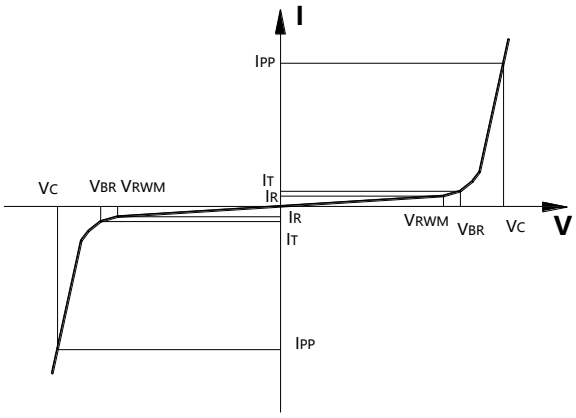
➢ Electrical Characteristics (T_A=25°C Unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V_{RWM}	Reverse Working Voltage				5.5	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA,	6.0			V
I_R	Reverse Leakage Current	V_{RWM} = 5.5V,		0.001	0.2	μA
V_C	Clamping Voltage	I_{PP} = 16A (1), TLP=100ns		18	25	V
		I_{PP} = 2A, tp =8/20μs,		11	15	V
R_{dyn}	dynamic resistance			0.66		Ω
C_J(2)	Junction Capacitance	V_{IN} = 2.5V, f = 1MHz,		0.17	0.25	pF
		V_{IN}=2.5V, f = 1GHz,		0.15	0.22	pF

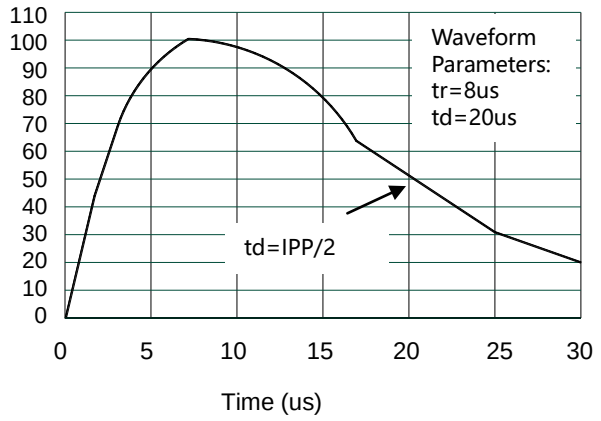
Junction capacitance is measured in VR=0V,F=1MHz

Notes:(1)Measurements performed using a 100ns Transmission Line Pulse(TLP) system.

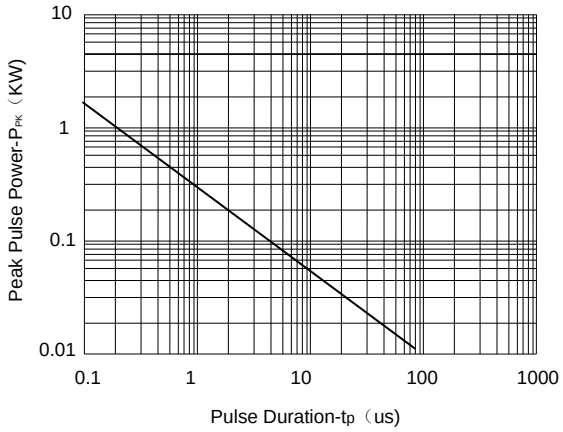
Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{BR}	Breakdown Voltage @ I_T
V_C	Clamping Voltage @ I_{PP}
I_T	Test Current
I_{RM}	Leakage current at V_{RWM}
I_{PP}	Peak pulse current
C_O	Off-state Capacitance
C_J	Junction Capacitance



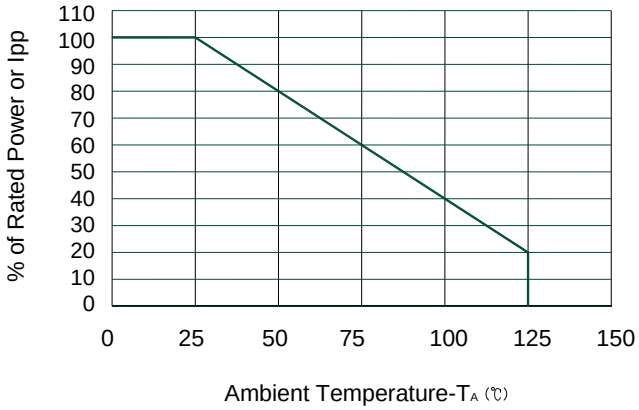
➢ Typical Characteristics



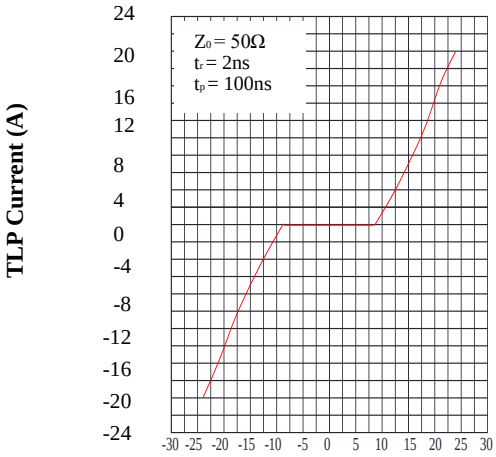
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time



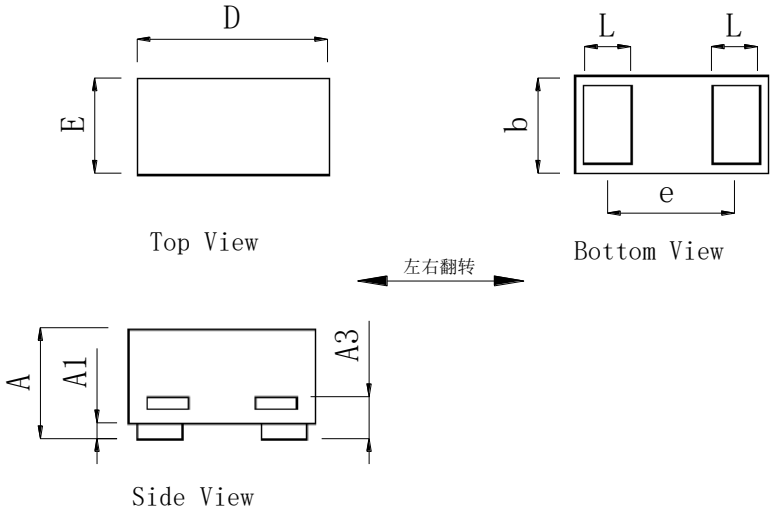
Power Derating Curve



TLP Measurement

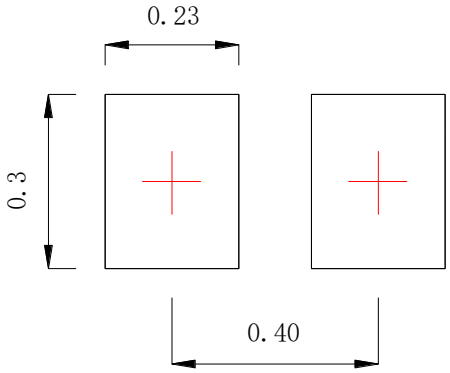
➢ Package Information (DFN0603-2)

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.230	0.330
A1	0.000	0.050
A3	0.102REF	
D	0.550	0.650
E	0.250	0.350
b	0.210	0.290
L	0.115	0.220
e	0.40BSC	

Recommended Pad outline： mm



➢ Ordering Information

Part Number	Description	Quantity
PAE0531W	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 operating ranges.

- 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.