

➤ General Description

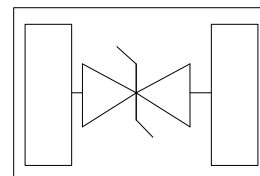
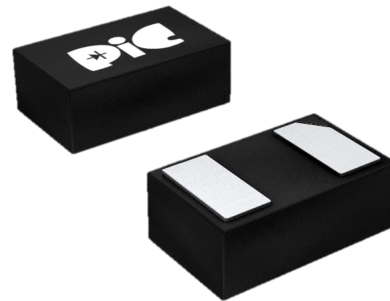
The PAE0704EU is designed with latest Punch-Through process TVS technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium. 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, 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 – 60 W (8 x 20 us Waveform)
- Stand-off Voltage: 7.0 V
- Low capacitance (<0.4pF) for high-speed interfaces
- No insertion loss to 20.0GHz
- Replacement for MLV (0402)
- Protects I/O Port
- Low Clamping Voltage
- Low Leakage
- Low Capacitance
- Meets MSL 1 Requirements
- ROHS compliant
- Solid-state Punch-Through TVS Process technology

➤ DFN-1006



➤ Application

- High Speed Line :USB1.0/2.0/3.0/3.1, VGA, DVI, SDI,
- High Definition Multi-Media Interface (HDMI1.3/1.4/2.0/2.1)
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV
- Cellular handsets and accessories
- Portable instrumentation
- Peripherals

➤ Protection solution to meet

- IEC61000-4-2 (ESD): ±20kV (air), ±20kV (contact)
- IEC61000-4-5 (Lightning) 3A (8/20µs)

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	PPp	60	Watts
Peak Pulse Current (tp=8/20μs waveform)	IPP	3	A
Lead Soldering Temperature	TL	260 (10 sec.)	°C
Operating Temperature Range	TJ	-55 ~ 150	°C
Storage Temperature Range	TSTG	-55 ~ 150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	TL	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.

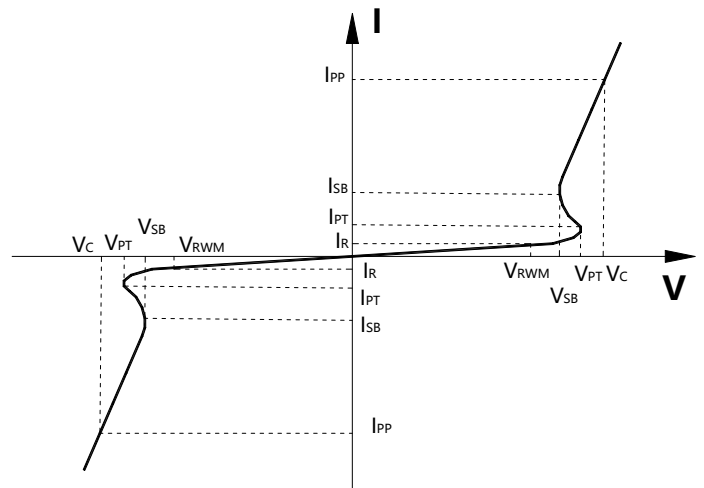
*Other voltages may be available upon request.

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

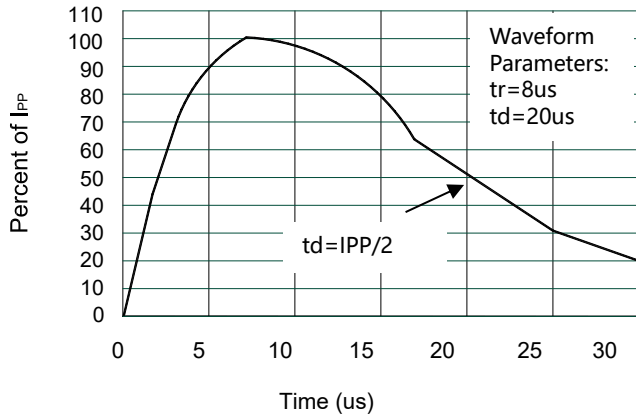
➤ Electrical Characteristics (TA=25°C Unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V _{RWM}	Reverse Working Voltage	Pin1 to Pin2;Pin2 to Pin1			7	V
V _{PT}	Punch-Through Voltage	IT = 1mA Pin1 to Pin2;Pin2 to Pin1		8.5		V
I _R	Reverse Leakage Current	V _{RWM} = 7V Pin1 to Pin2;Pin2 to Pin1			0.1	μA
V _C	Clamping Voltage	IPP = 1A, tp =8/20μs Pin1 to Pin2;Pin2 to Pin1		11.5	13	V
		IPP = 3A, tp =8/20μs Pin1 to Pin2;Pin2 to Pin1		17	20	V
C _J	Junction Capacitance	V _R = 0V, f = 1MHz Pin1 to Pin2;Pin2 to Pin1		0.26	0.4	pF

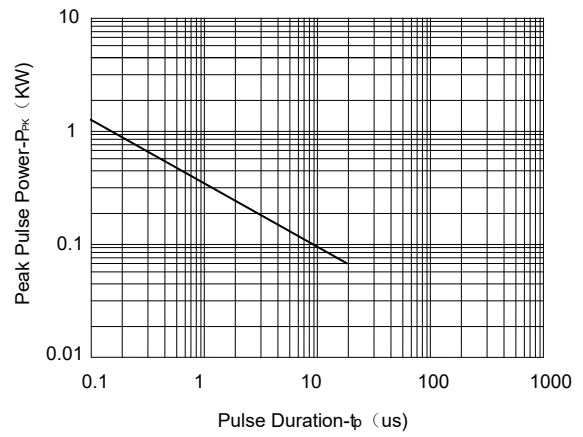
Symbol	Parameter
V _{RWM}	Working Peak Reverse Voltage
V _{PT}	Punch-Through Voltage@ IPT
V _{SB}	Snap-Back Voltage@ ISB
V _C	Clamping Voltage @ IPP
IT	Test Current
IRM	Leakage current at V _{RWM}
IPP	Peak pulse current
C _O	Off-state Capacitance
C _J	Junction Capacitance



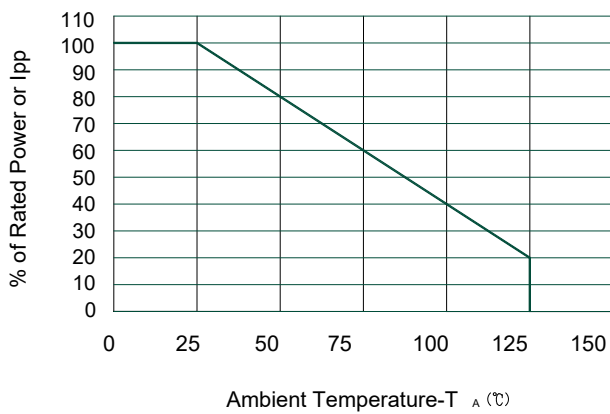
➤ Typical Characteristics



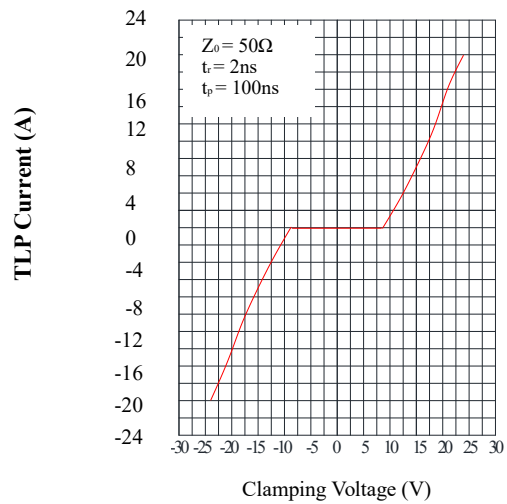
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time



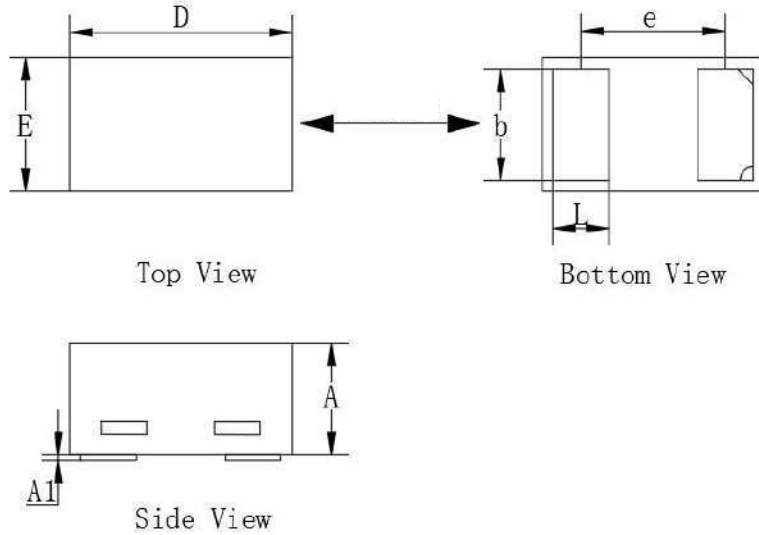
Power Derating Curve



TLP Measurement

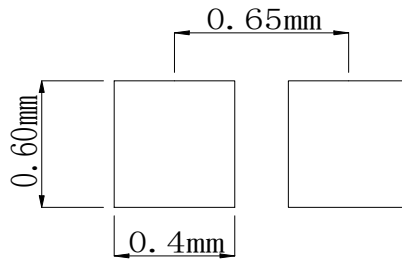
➤ Package Information (DFN1006)

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.37	0.55
A1	0.00	0.05
D	0.95	1.05
E	0.48	0.65
b	0.35	0.55
e	0.65TYP	
L	0.15	0.35

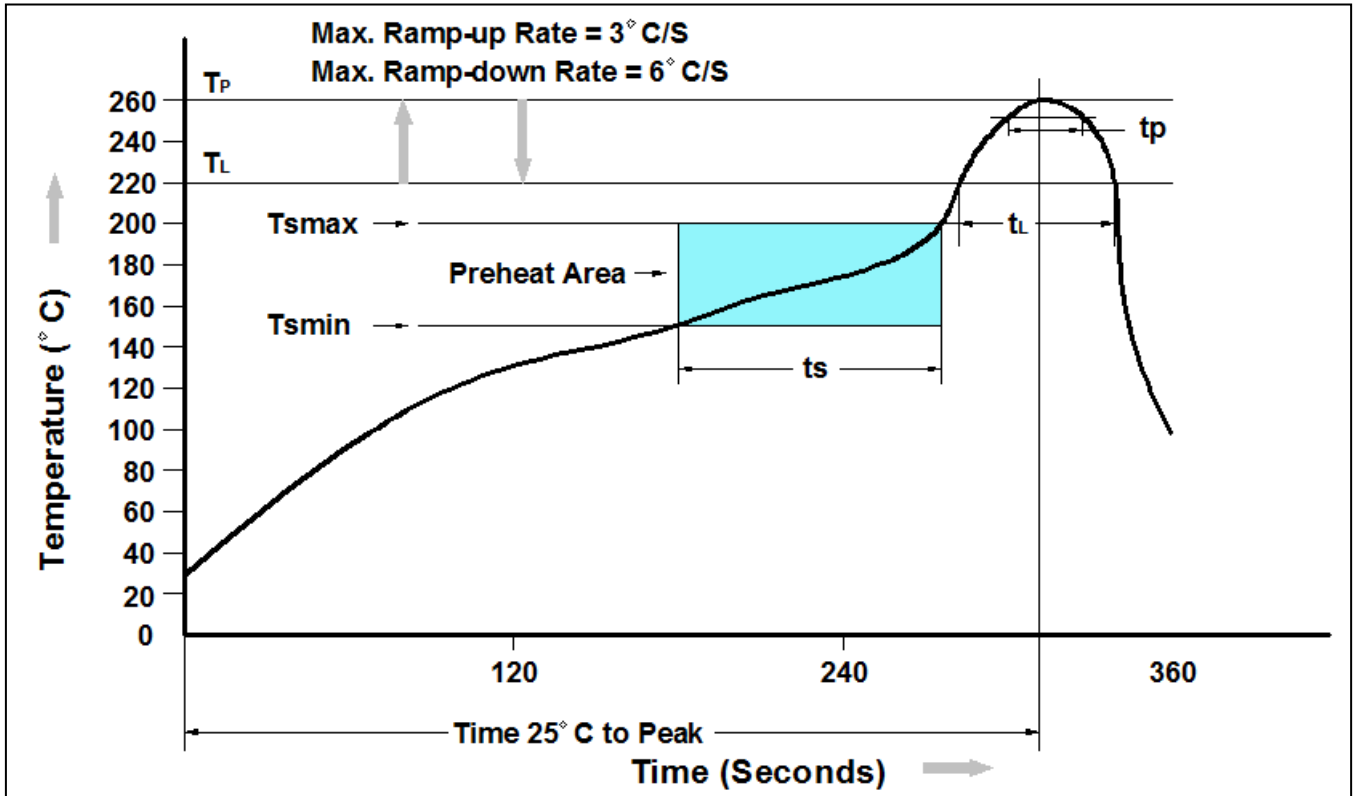
Recommended Pad outline



➤ Ordering Information

Part Number	Description	Quantity
PAE0704EU	DFN1006 Reel	10000 pcs

➤ Recommand IR Reflow Soldering Thermal Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (T Amin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (T Amin to Tsmax)	60-120 seconds
Average Ramp-up Rate (tL to tP)	3°C/second max.
Liquidous Temperature (TL)	217°C
Time (tL) Maintained Above (TL)	60 – 150 seconds
Peak Temperature	260°C +0°C / -5°C
Time (tP) within 5°C of actual Peak Temperature	30 seconds
Ramp-down Rate (TP to TL)	6°C/second max
Time 25°C to Peak Temperature	8 minutes max.

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