

### ➤ General Description

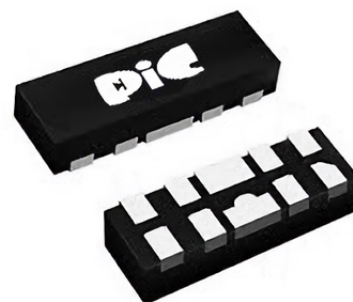
The PAE0524M2 provides a typical line to line capacitance of 0.15pF between I/O pins and low insertion loss up to 3GHz providing greater signal integrity making it ideally suited for HDMI applications, such as Digital TVs, DVD players, Computing, set-top boxes and MDDI applications in mobile computing devices.

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

### ➤ Feature

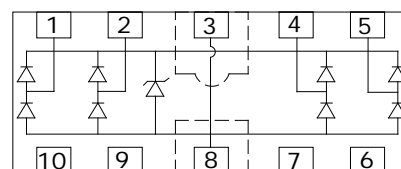
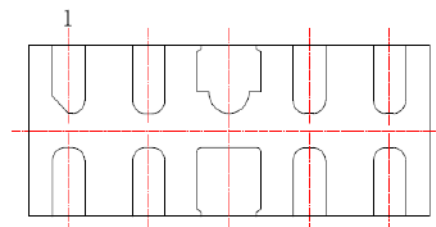
- Protects two or four I/O lines
- Low capacitance:0.15pf Typical between I/O channel
- Working voltages : 5.5V
- Low leakage current
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- **Solid-state silicon avalanche technology**
- ROHS compliant

### ➤ DFN2510-10L



### ➤ Application

- High Definition Multi-Media Interface (HDMI1.3/1.4/2.0)
- Digital Visual Interface (DVI)
- Display Port Interface
- Serial ATA
- PCI Express
- USB 1.1/2.0/3.0/3.1/OTG
- IEEE 1394 Firewire Ports
- Projection TV Monitors and Flat Panel Displays
- Notebook Computers
- Set Top Box
- Projection TV



### ➤ Protection solution to meet

- IEC61000-4-2 (ESD) ±20kV (air), ±20kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning) 3.5A (8/20µs)

➤ **Maximum Ratings (T<sub>A</sub>=25°C Unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20μs waveform)	P <sub>PPP</sub>	45	Watts
Peak Pulse Current(tp=8/20μs waveform)	I <sub>PP</sub>	3.5	A
ESD Rating per IEC61000-4-2:		20	KV
Contact Air		20	
Lead Soldering Temperature	T <sub>L</sub>	260 (10 sec.)	°C
Operating Temperature Range	T <sub>J</sub>	-55 ~ 150	°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.

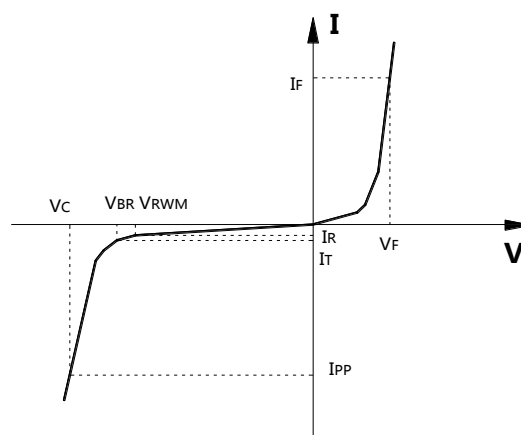
1. Non-repetitive current pulse, per Figure 1.

➤ **Electrical Characteristics (T<sub>A</sub>=25°C Unless otherwise specified)**

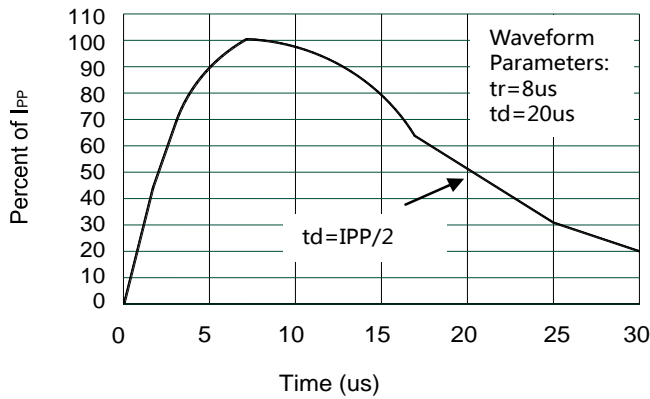
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V <sub>RWM</sub>	Reverse Working Voltage	Any I/O to Ground			5.5	V
V <sub>BR</sub>	Reverse Breakdown Voltage	IT = 1mA, Any I/O to Ground	6.0			V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 5V, Any I/O to Ground			0.5	μA
V <sub>F</sub>	Diode Forward Voltage	IF = 15mA		0.85	1.2	V
V <sub>C</sub>	Clamping Voltage	I <sub>PP</sub> = 1A, tp = 8/20μs, any I/O pin to Ground		8.6	9.8	V
		I <sub>PP</sub> = 3A, tp = 8/20μs, any I/O pin to Ground		11.4	15	V
R <sub>dyn</sub>	dynamic resistance	positive transient negative transient		0.48 0.35		Ω
C <sub>J</sub>	Junction Capacitance	V <sub>R</sub> = 0V, f = 1MHz, between I/O pins		0.1	0.25	pF
		V <sub>R</sub> = 0V, f = 1MHz, any I/O pin to Ground		0.36	0.6	pF

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

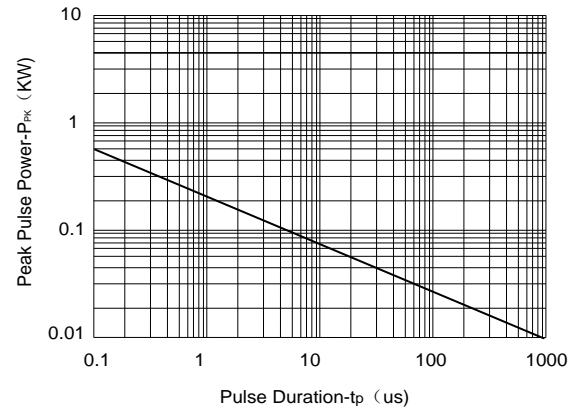
Symbol	Parameter
$V_{RWM}$	Working Peak Reverse Voltage
$V_{BR}$	Breakdown Voltage @ $I_T$
$V_C$	Clamping Voltage @ $I_{PP}$
$I_T$	Test Current
$I_{RM}$	Leakage current at $V_{RWM}$
$I_{PP}$	Peak pulse current
$C_O$	Off-state Capacitance
$C_J$	Junction Capacitance



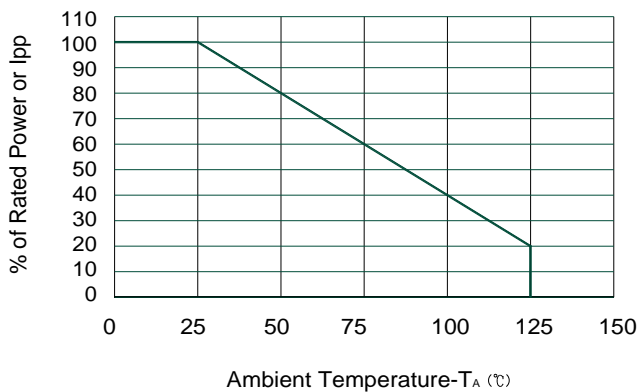
### ➤ Typical Characteristics



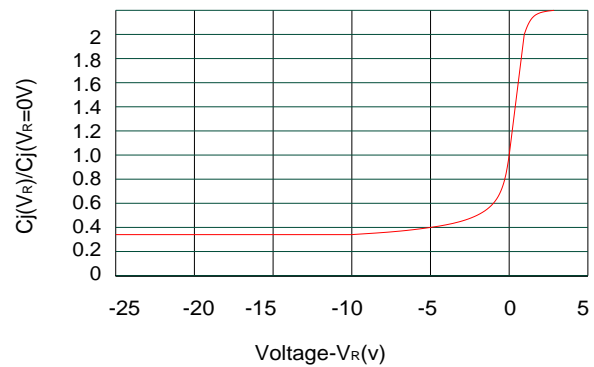
Pulse Waveform



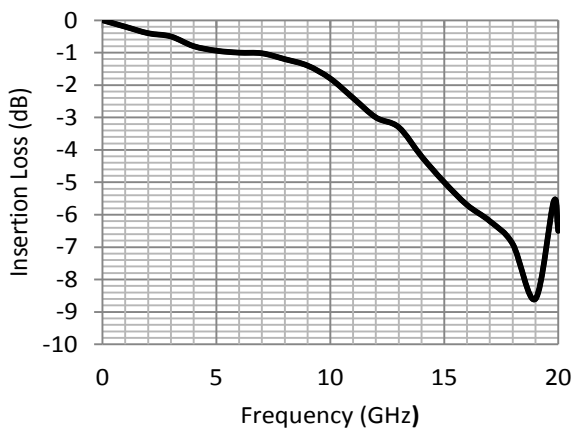
Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve



Junction Capacitance vs. Reverse Voltage



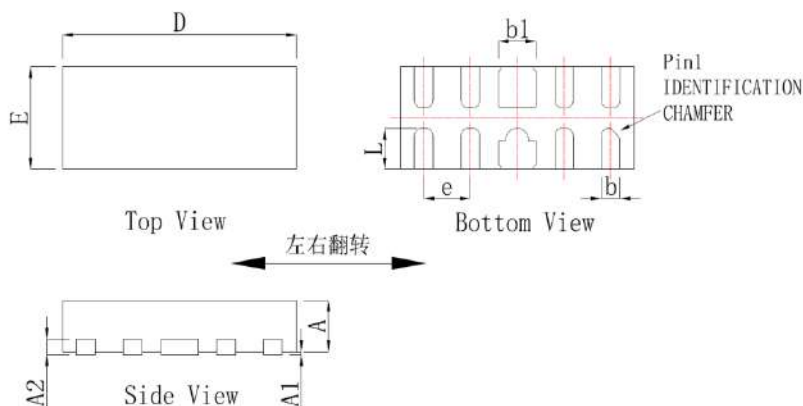
Insertion Loss S21

### ➤ Package Information (DFN2510-10L)

#### Mechanical Data

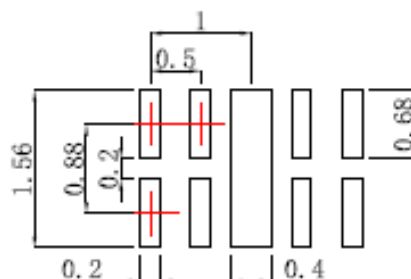
Case:DFN2510

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.45	0.65
A1	0.05REF	
A2	0.15REF	
b	0.15	0.25
b1	0.30	0.50
D	2.424	2.576
E	0.924	1.076
L	0.30	0.45
e	0.50 REF	

#### Recommended Pad outline



### ➤ Ordering Information

Part Number	Description	Quantity
PAE0524M2	DFN2510-10L Reel	3000 pcs

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