

➤ General Description

PAE0512GH are designed by bi-direction TVS diode, to protect high speed data interfaces. This product has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients). The TVS diode prevents over-voltage on the power line, protecting any downstream components. The low capacitance configuration allows the user to protect high-speed data or transmission lines. This device is optimized for ESD protection of portable electronics. They may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 ($\pm 15\text{kV}$ air, $\pm 15\text{kV}$ contact discharge).

➤ Feature

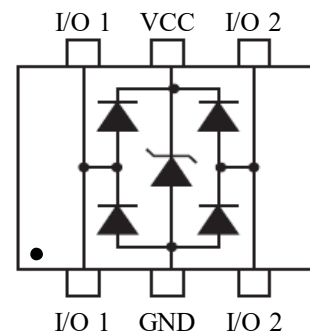
- Provides ESD protection to IEC61000-4-2 level 4
 - $\pm 15\text{KV}$ air discharge
 - $\pm 15\text{KV}$ contact discharge
- Low clamping voltage
- 5V low operating voltage
- Optimized package for easy high speed data lines PCB layout
- ROHS compliant

➤ SOT-23-6L



➤ Application

- USB 2.0 Power and Data Line Protection
- Monitors and Flat Panel Displays
- Digital Visual Interface (DVI)
- 10/100/1000 Ethernet
- Notebook Computer
- ATM Interface
- Video Graphics Cards
- Set-top box



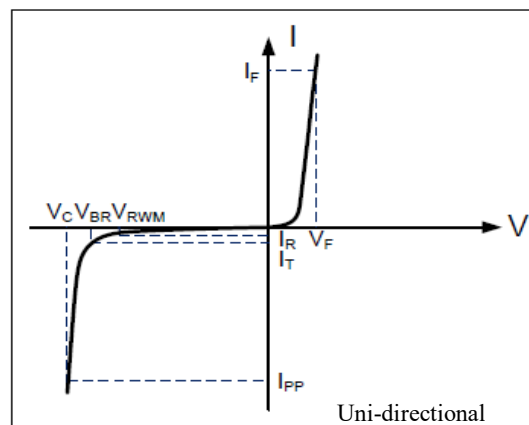
➤ **Maximum Ratings (Rating at 25°C ambient temperature unless otherwise specified)**

Parameter	Symbol	Value	Units
Peak Pulse Power ($t_p=8/20\mu\text{s}$ waveform)	P_{PK}	85	W
Peak Pulse Current ($t_p=8/20\mu\text{s}$ waveform)	I_{PP}	5	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 15	kV
ESD per IEC 61000-4-2 (Contact)		± 15	
Operating Temperature Range	T_J	125	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

➤ **Electrical Characteristics ($T_{amb}=25^\circ\text{C}$ Unless Otherwise Specified)**

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Units
Reverse Working Voltage	-	V_{RWM}	-	-	5.0	V
Reverse Breakdown Voltage	$I_R=1\text{mA}$	V_{BR}	6.0	-	9.0	V
Reverse Leakage Current	$V_{RWM}=5\text{V}$	I_R	-	-	0.2	μA
Forward Voltage	$I_F=10\text{mA}$	V_F	-	-	1.1	V
Clamping Voltage	$I_{PP}=1\text{A}$, $t_p=8/20\mu\text{s}$, Any I/O pin to GND	V_C	-	-	12	V
	$I_{PP}=5\text{A}$, $t_p=8/20\mu\text{s}$, Any I/O pin to GND		-	-	17	
Junction Capacitance	$V_R=0\text{V}$, $f=1\text{MHz}$, Any I/O pin to GND	C_J	-	-	1.2	pF
	$V_R=0\text{V}$, $f=1\text{MHz}$, Between I/O pin to pin, GND not connected		-	-	1.2	

Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current for Reverse Breakdown
V_C	Clamping Voltage @ I_{PP}
I_{PP}	Maximum Reverse Peak Pulse Current
C_J	Junction Capacitance
I_F	Forward Current
V_F	Forward Voltage @ I_F



➤ Typical Characteristics

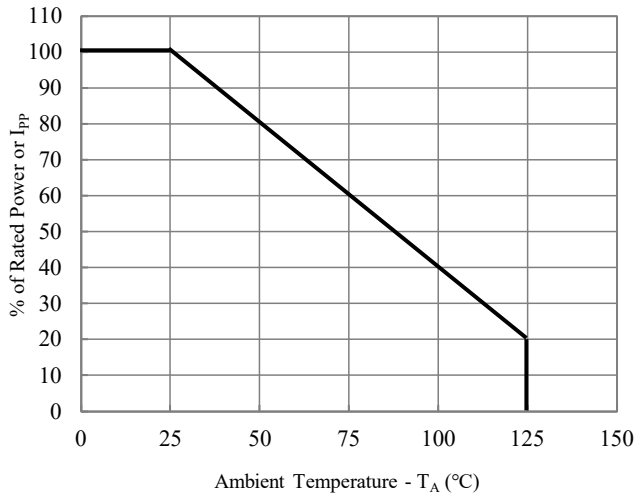


Fig.1-Power Derating Curve

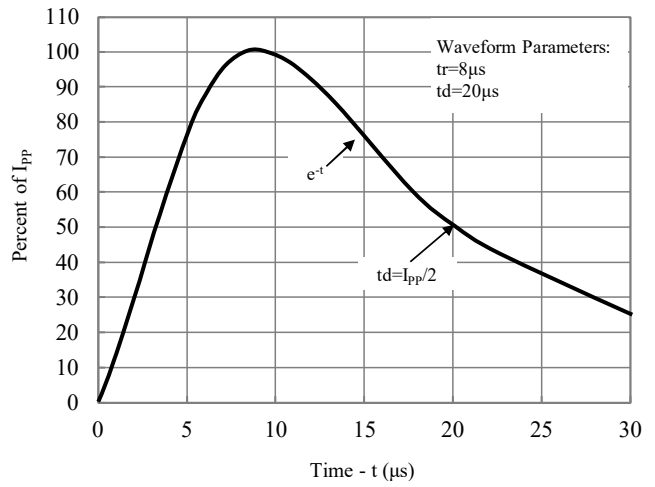


Fig.2-Pulse Waveform

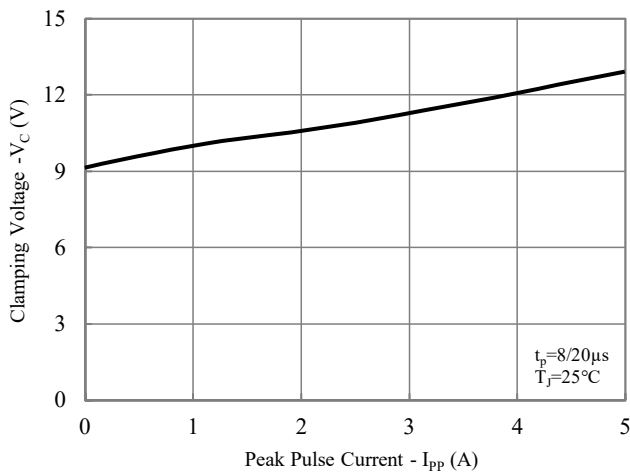


Fig.3-Clamping Voltage vs. Peak Pulse Current

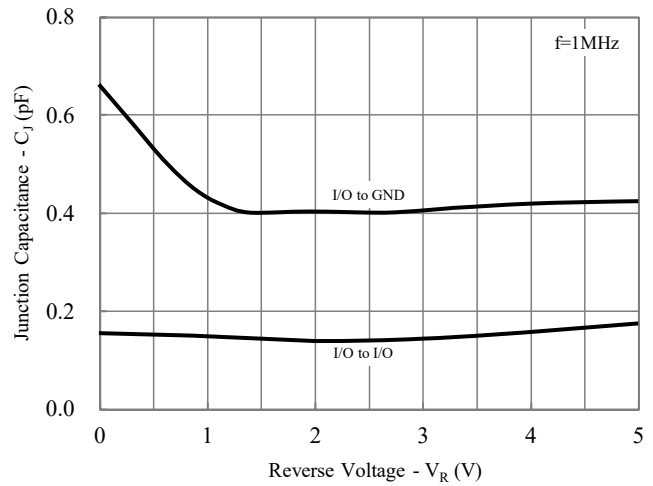


Fig.4-Junction Capacitance vs. Reverse Voltage

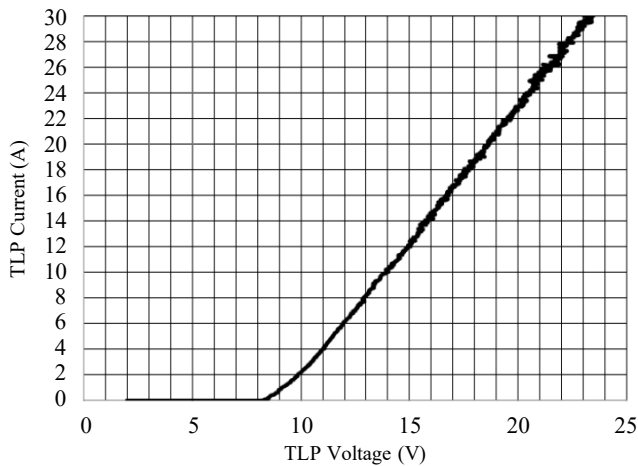
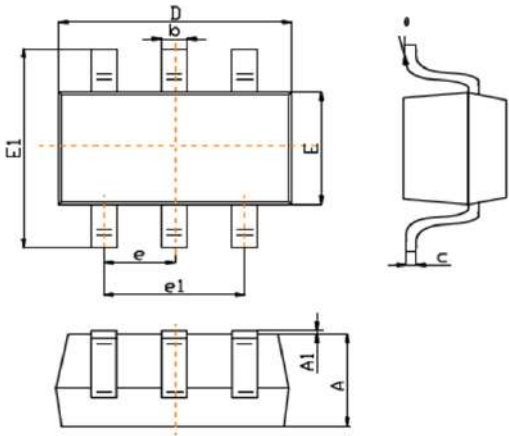


Fig.5-TLP Characteristic

➤ Package Information (SOT-23-6L)

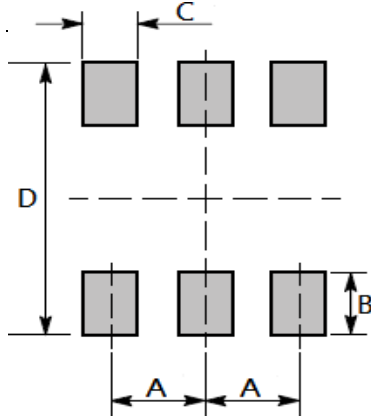


Dimensions	Unit (mm)		Unit (inch)	
	MIN.	MAX.	MIN.	MAX.
A	1.00	1.20	0.039	0.047
A1	0.00	0.10	0.000	0.004
c	0.08	0.20	0.003	0.008
D	2.70	3.10	0.106	0.122
E	1.30	1.70	0.051	0.067
E1	2.60	3.00	0.102	0.118
e	0.95 (BSC.)		0.037 (BSC.)	
e1	1.70	2.10	0.067	0.083
θ	0	8°	0	8°

SOLDER PAD LAYOUT

y

➤ Solder PAD Layout



Unit : mm

PACKAGE	A	B	C	D
SOT-23-6	0.95	1.00	0.70	3.40

➤ Ordering Information

Part Number	Description	Quantity
PAE0512GH	SOT-23-6L Reel	3000 pcs

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