PAE5Z12VT

Surface Mount Low Capacitance Bi-Directional ESD protection Diode

➢ General Description

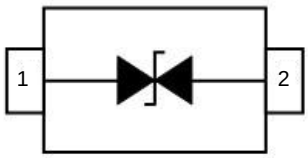
The PAE5Z12VT is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its small size, it is suited for use in cellular phones, portable devices, digital cameras, power supplies 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 high speed line applications.

This device 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

- IEC 61000-4-2 (ESD) ±30kV (Contact)
  ±30kV (Air)
- Peak power dissipation: 150W (8/20μs)
- Protects one Vcc or data line
- Low clamping voltage
- Working voltages : 12V
- Low leakage current
- Low capacitance

➢ SOD-523



➢ Application

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Networking and Telecom
- Serial and Parallel Ports
- Peripherals

➢ Mechanigal Data

- SOD-523 package
- Flammability Rating: UL 94V-0
- High temperature soldering guaranteed: 260℃/10s
- Packaging: Tape and Reel
- Reel size: 7 inch

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

Symbol	Parameter	Value	Units
V_{ESD}	ESD per IEC 61000-4-2 (Contact) ESD per IEC 61000-4-2 (Air)	±30 ±30	kV
P_{PP}	Peak Pulse Power (8/20μs)	150	W
T_{OPT}	Operating Temperature	-55~125	℃
T_{STG}	Storage Temperature	-55~150	℃

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

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
V_{RWM}	Reverse Working Voltage				12	V
V_{BR}	Reverse Breakdown Voltage	I_T = 1mA	13.3			V
I_R	Reverse Leakage Current	V_{RWM} = 12V			1.0	μA
V_C	Clamping Voltage	I_{PP} = 1A, t_p = 8/20μs			19	V
V_C	Clamping Voltage	I_{PP} = 6A, t_p = 8/20μs			25	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz		8	15	pF

➢ Typical Characteristics

Fig 1 8/20μs Waveform per IEC61000-4-5

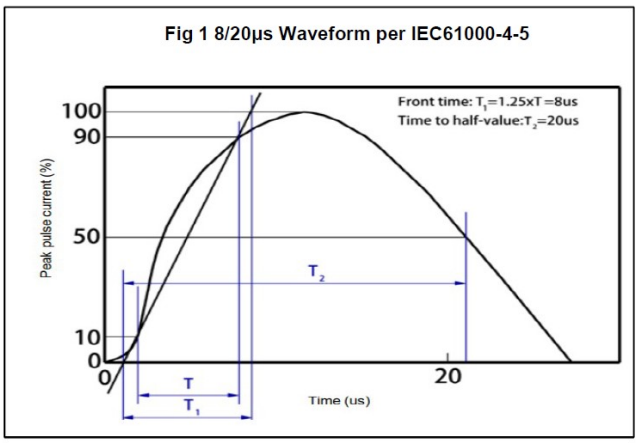


Fig 2 Contact Discharge Current Waveform per IEC 61000-4-2)

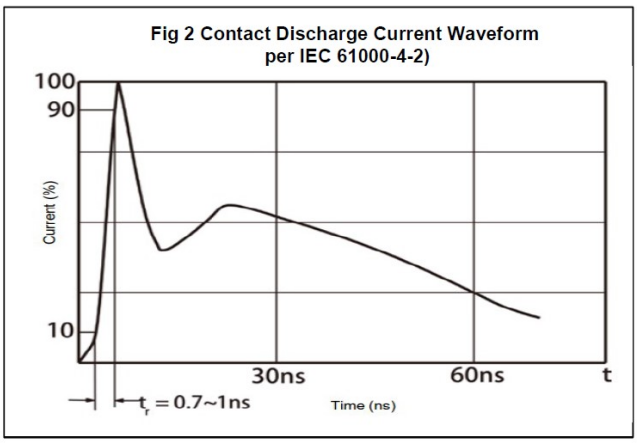


Fig 3 Voltage vs Capacitance

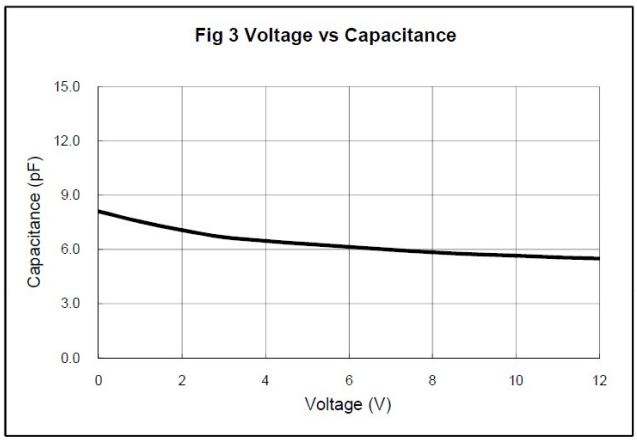
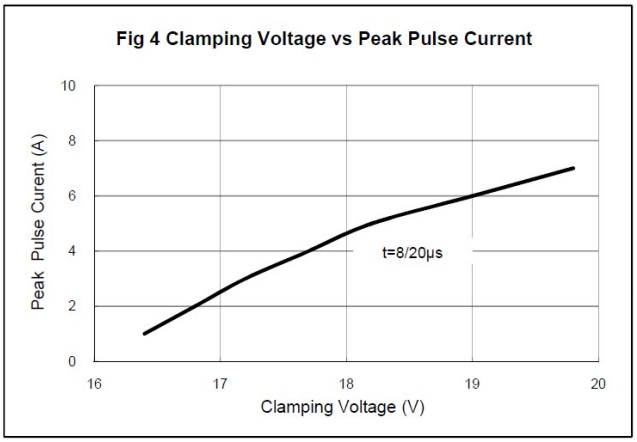
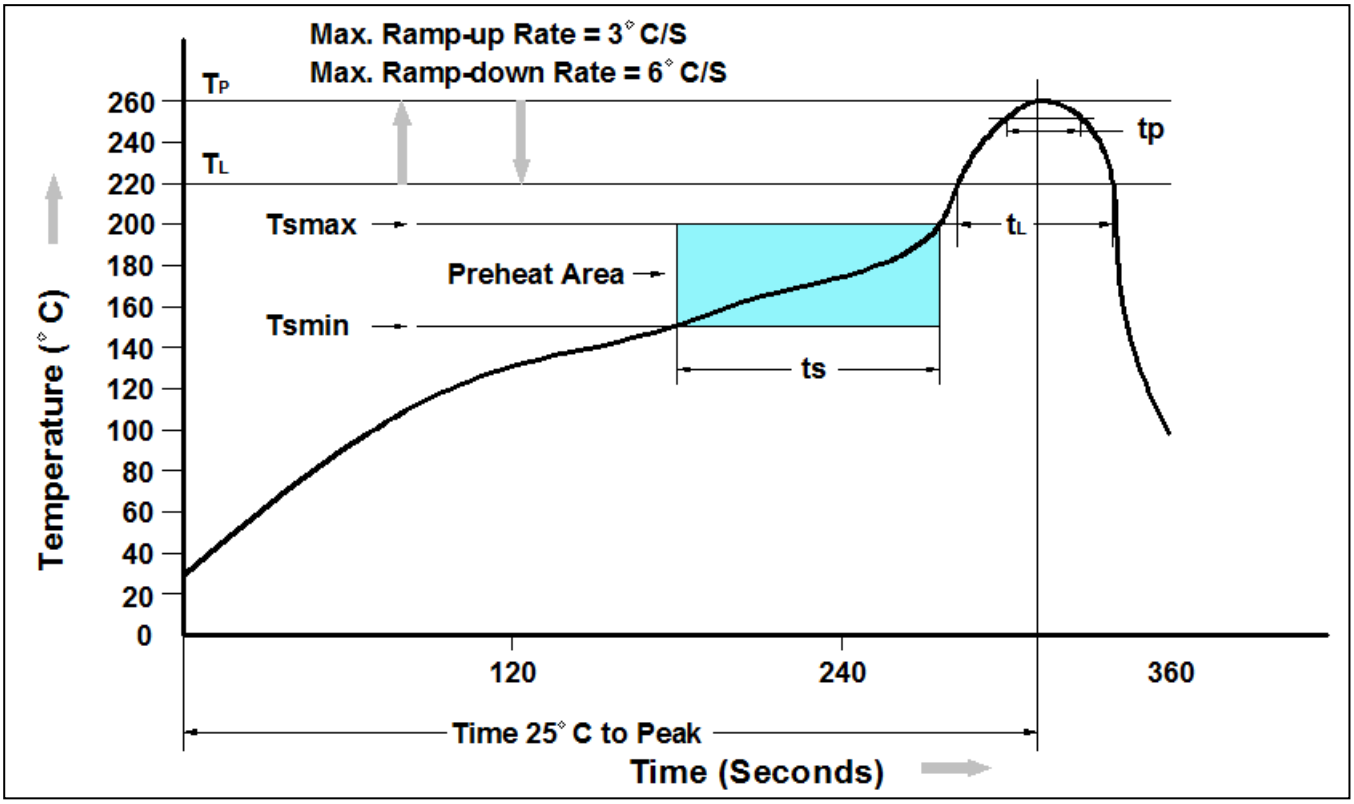


Fig 4 Clamping Voltage vs Peak Pulse Current

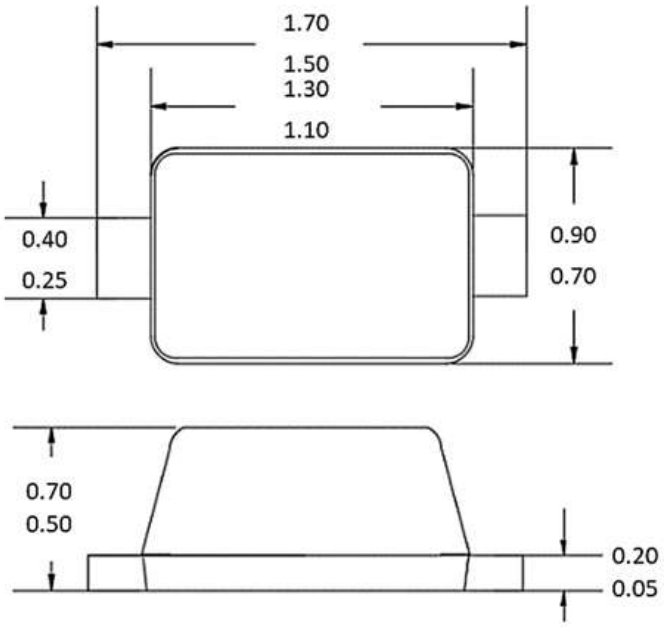


Recommand IR Reflow Soldering Thermal Profile



Profile Feature	Pb-Free Assembly Profile
Temperature Min. (Tsmin)	150°C
Temperature Max. (Tsmax)	200°C
Time (ts) from (Tsmin 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.

➢ Package Information (SOD-523)



Note : Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

➢ Ordering Information

Part Number	Description	Quantity
PAE5Z12VT	SOD-523 Reel	3000 pcs

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