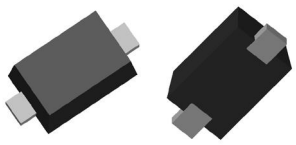
ESD Protection Diodes

1.Description

The AE0511PHA1 is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time. The AE0511PHA1 suited for use in cellular phones, portable device, digital cameras, power supplies and many other portable applications.



2.Features

- IEC 61000-4-2 (ESD)
  - ±30kV Contact Discharge
  - ±30kV Air Discharge
- IEC 61000-4-5 (Lightning)
  - 19A (8/20us)
- IEC 61000-4-4 EFT Protection
  - 40A (5/50ns)
- Halogen free and RoHS compliant
- Protects one directional I/O line
- Transient protection for high-speed data lines
- Low clamping voltage
- Low leakage current

3.Mechanical Data

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants
- Notebooks / Desktops / Servers
- Portable Instrumentation
- Peripherals＆Pagers

4.Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
AE0511PHA1	SOD523	||||N2	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7 inches

Table-1 Ordering information

5.Pin Configuration and Functions

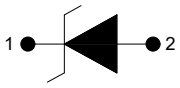
Pin	Name	Description	Outline	Circuit Diagram
1	IO	Connect to IO		
2	GND	Connect to GND		

Table-2 Pin configuration

6. Absolute Maximum rating

Over operating free-air temperature range (unless otherwise noted)

Parameters	Symbol	Min.	Max.	Unit
Peak pulse power (tp=8/20us)@25℃	P_{pk}	-	300	W
Peak pulse current (tp=8/20us)@25℃	I_{PP}		19	A
ESD (IEC61000-4-2 air discharge) @25℃	V_{ESD}	-	±30	kV
ESD (IEC61000-4-2 contact discharge) @25℃	V_{ESD}	-	±30	kV
Junction temperature	T_J	-	125	℃
Operating temperature	T_{OP}	-40	125	℃
Storage temperature	T_{STG}	-55	150	℃
Lead temperature	T_L	-	260	℃

Table-3 Absolute Maximum rating

7.Eletrical Characteristics

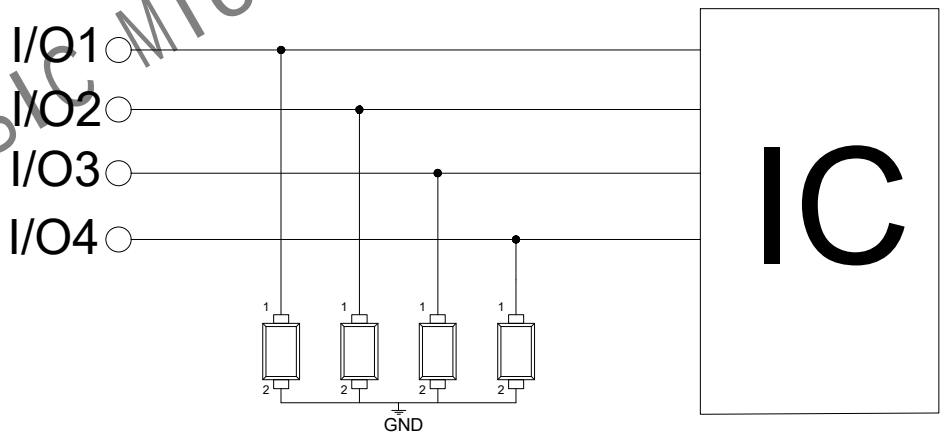
At TA = 25℃ unless otherwise noted

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	IT=1mA	6			V
Reverse Leakage Current	I_R	V_{RWM}=5V			1	uA
Clamping Voltage	V_C	I_{PP}=1A; tp=8/20us		9.5		V
Clamping Voltage	V_C	I_{PP}=19A; tp=8/20us		15		V
Junction Capacitance	C_J	I/O to GND; VR=0V; f=1MHz		135		pF

Table-4 Electrical Characteristics

8.Typical Application

Typical Interface Application



9.Ratings and Characteristic Curves (TA =25℃ unless otherwise noted)

Figure 1. Pulse rating curve

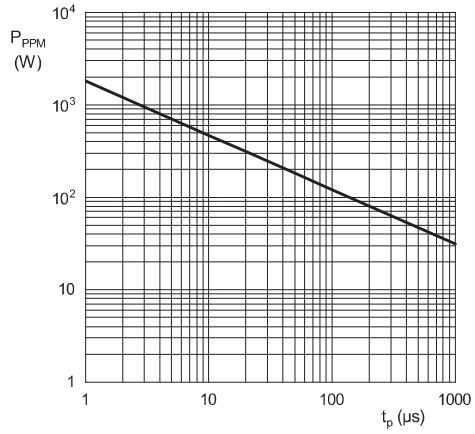


Figure 2 Peak pulse power derating curve

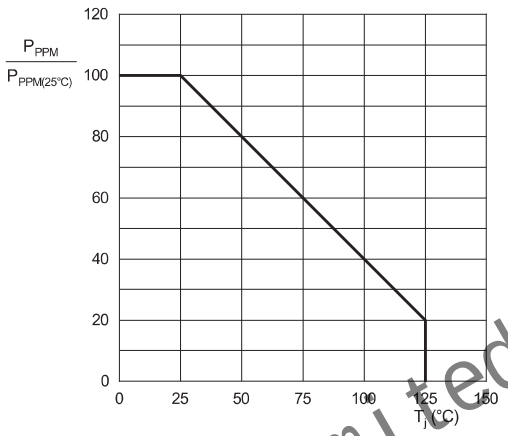


Figure 3 Pulse waveform

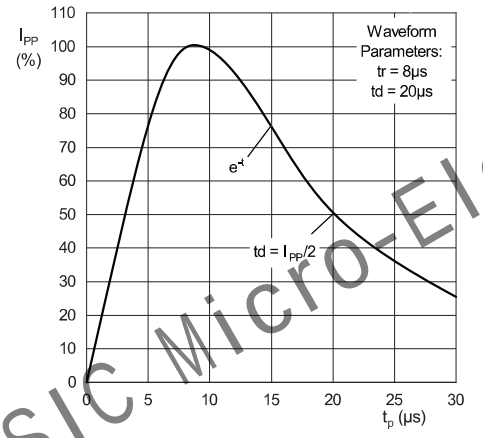
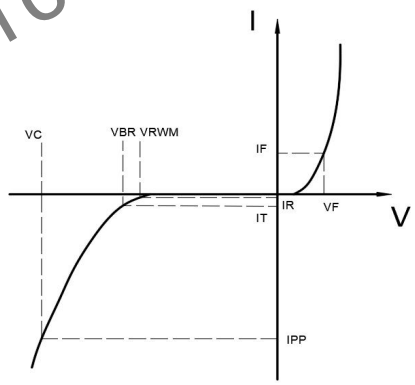
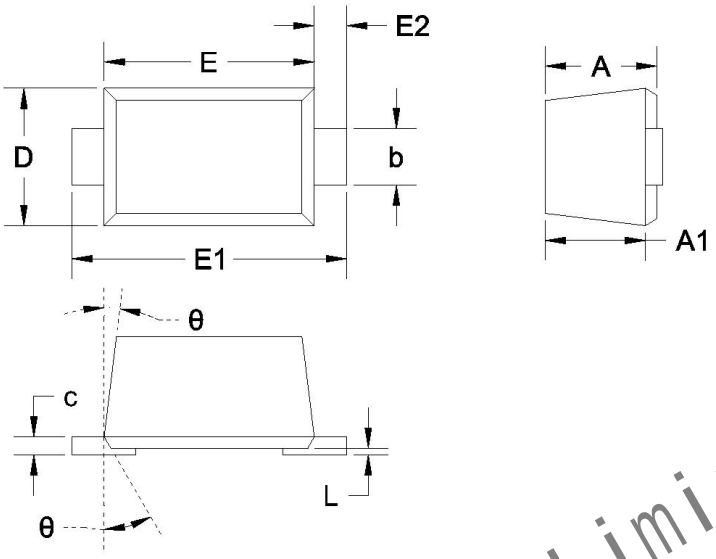


Figure 4 Parameters



10.Dimension

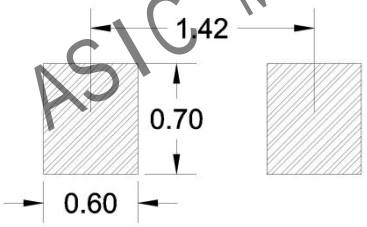


Units in millimeters

Unit	A	A1	b	c	D	E	E1	E2	L	θ
Max.	0.77	0.70	0.35	0.15	0.85	1.30	1.70	0.20	0.07	7°
Min.	0.51	0.50	0.25	0.08	0.75	1.10	1.50	REF.	0.01	REF.

Table-5 product dimensions

11.Recommended Land Pattern



Note:

1. Controlling dimension: in millimeters
2. General tolerance: ±0.05mm
3. The pad layout is for reference only

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