AiT Semiconductor Inc.



DESCRIPTION

The ESD9D3.3/5.0/12 is designed 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 is at a premium.

The ESD9D3.3/5.0/12 is available in SOD-923 package

ORDERING INFORMATION

Package Type	Part Number	
SOD-923	ESD9D3.3-5	
	ESD9D5.0-5	
	ESD9D12-5	
Note	Package Q'ty/Reel	
	5=8,000pcs/Reel	
AiT provides all RoHS Compliant Products		

FEATURES

- Small Body Outline Dimensions: 0.039" x 0.024"(1.0 mm x 0.60 mm)
- Low Body Height: 0.017" (0.43 mm) Max
- Stand-off Voltage: 3.3V ~ 12V
- Low Leakage
- Response Time is Typically <1 ns
- ESD Rating of Class 3 (>16kV) per Human Body Model
- IEC61000-4-2 Level 4 ESD Protection
- RoHS Compliance
- Available in SOD-923 package

APPLICATIONS

- Cellular phones audio
- MP3 players
- Digital cameras
- Portable applications
- mobile telephone

PIN DESCRIPTION

10-CATHODE ANODE





ABSOLUTE MAXIMUM RATINGS

IEC61000-4-2 (ESD)	Air discharge	±15kV
	Contact discharge	±8kV
ESD Voltage	Per Human Body Model	16kV
P _D , Total Power Dissipation on FR-5 Board NOTE1	@ T _A = 25°C	150Mw
TJ,TSTG, Junction and Storage Temperature Range		-55°C to 150°C
T _L , Lead Solder Temperature - Maximum (10 Second D	260°C	

Stresses above may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the Electrical Characteristics are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

NOTE1: FR-5 = 1.0 x 0.75 x 0.62 in.





ELECTRICAL PARAMETER



Uni-Directional TVS

 $T_A = 25^{\circ}C$ unless otherwise noted

Symbol	Parameter		
Ірр	Maximum Reverse Peak Pulse Current		
Vc	Clamping Voltage @ IPP		
V _{RWM}	Working Peak Reverse Voltage		
IR	Maximum Reverse Leakage Current @ VRWM		
V _{BR}	Breakdown Voltage @ I⊤		
Ι _Τ	Test Current		
lF	Forward Current		
VF	Forward Voltage @ I _F		
Ррк	Peak Power Dissipation		
С	Max. Capacitance $@V_R = 0$ and f = 1MHz		



ELECTRICAL CHARACTERISTICS

Part Number	V _{RWM} (V)	I _R (µА) @ V _{RWM}	Vbr(V) @ It ^{NOTE2}	Ιτ	Ipp(A) note3	Vc(V) @ Max I _{PP} ^{NOTE3}	Р _{РК} (W) (8*20µs)	C(pF)
	MAX	MAX	MIN	mA	MAX	MAX	TYP	TYP
ESD9D3.3	3.3	2.5	5.0	1.0	9.8	10.4	102	80
ESD9D5.0	5.0	1.0	6.2	1.0	8.7	12.3	107	65
ESD9D12	12	1.0	13.5	1.0	5.9	23.7	140	30

 T_A = 25°C unless otherwise specified. V_F = 0.9V Max. @ I_F = 10mA for all types

Other voltage available upon request.

NOTE2: V_{BR} is measured with a pulse test current I_{T} at an ambient temperature of 25°C.

NOTE3: Surge current waveform per Figure 3.





TYPICAL CHARACTERISTICS

Figure1.



Typical Breakdown Voltage versus

Figure 3. 8*20µs Pulse Waveform



Figure 5. Positive 8kV contact per IEC 61000-4-2- ESD9D3.3/5.0/12





Figure 2. Typical Leakage Current versus Temperature



Figure 4. Normalized Junction Capacitance Voltage vs. Reverse Voltage



Figure 6. Negative 8kV contact per IEC 61000-4-2- ESD9D3.3/5.0/12









PACKAGE INFORMATION

Dimension in SOD-923 Package (Unit: mm)



SOLDERING FOOTPRINT*



DIMENSIONS: MILLIMETERS

DIM	INC	HES	MILLIMETERS		
	MIN	MAX	MIN	MAX	
А	0.013	0.016	0.34	0.40	
b	0.006	0.010	0.15	0.25	
с	0.003	0.007	0.07	0.17	
D	0.030	0.033	0.75	0.85	
E	0.022	0.026	0.55	0.65	
HE	0.037	0.041	0.95	1.05	
L	0.002	0.006	0.05	0.15	





IMPORTANT NOTICE

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