DESCRIPTION

The ESD5Z2.5/3.3/5.0/6.0/7.0/12 Series 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.

The ESD5Z2.5/3.3/5.0/6.0/7.0/12 is available in SOD-523 Package.

ORDERING INFORMATION

Package Type	Part Number
SOD-523	ESD5Z2.5
	ESD5Z3.3
	ESD5Z5.0
	ESD5Z6.0
	ESD5Z7.0
	ESD5Z12
Note	SPQ: 3,000pcs/Reel
AiT provides all RoHS Compliant Products	

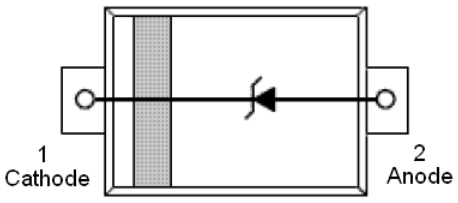
FEATURES

- Small Body Outline Dimensions
- Low Body Height
- Stand−off Voltage: 2.5V − 12V
- Peak Power up to 200Watts @ 8/20μs Pulse
- 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
- IEC61000−4−4 Level 4 EFT Protection
- Available in SOD-523 Package

APPLICATIONS

- Cellular phones
- Portable devices
- Digital cameras
- Power supplies

PIN DESCRIPTION



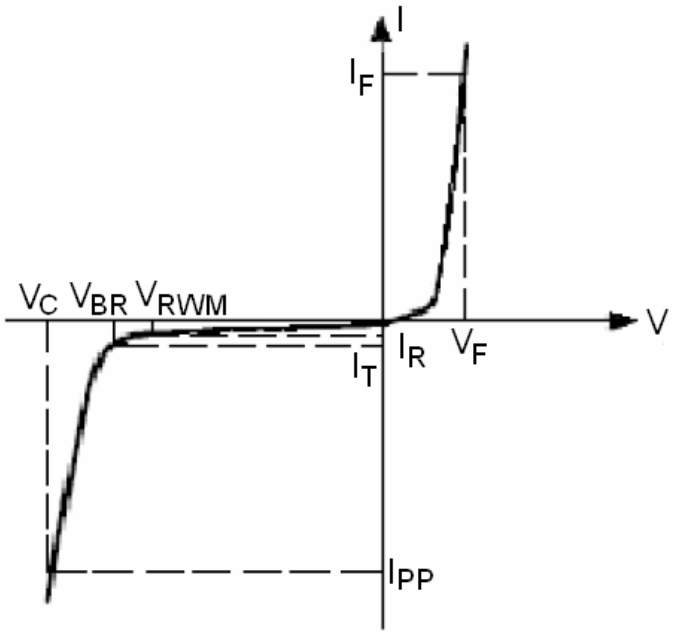
ABSOLUTE MAXIMUM RATINGS

T_{amb} = 25°C

P_{PP}, Peak Pulse Power (t_p = 8/20μs)		200W
T_L, Maximum Lead Temperature for Soldering During 10s		260°C
T_{STG}, Storage Temperature Range		-55°C ~ +150°C
T_{OP}, Operating Temperature Range		-40°C ~ +125°C
T_J, Maximum Junction Temperature		150°C
IEC61000-4-2 (ESD)	Air discharge	±15kV
	Contact discharge	±8kV
IEC61000-4-4 (EFT)		40A
ESD Voltage	Per Human Body Model	16kV

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.

ELECTRICAL PARAMETER



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

ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified. V_F = 0.9V at I_F = 10mA

Part Number	V_{RWM}(V)	I_R(μA) @ V_{RWM}	V_{BR}(V) @ I_T NOTE1	I_T	V_C(V) @ I_{PP}=5A NOTE2	V_C(V) @ Max I_{PP} NOTE2	I_{PP}(A) NOTE2	P_{PK}(W) NOTE2	C(pF)
	MAX	MAX	MIN	mA	TYP	MAX	MAX	MAX	TYP
ESD5Z2.5	2.5	6.0	4.0	1.0	6.5	10.9	11.0	120	145
ESD5Z3.3	3.3	1.0	5.0	1.0	8.4	14.1	11.2	158	105
ESD5Z5.0	5.0	1.0	6.2	1.0	11.6	18.6	9.4	174	80
ESD5Z6.0	6.0	1.0	6.8	1.0	12.4	20.5	8.8	181	70
ESD5Z7.0	7.0	1.0	7.5	1.0	13.5	22.7	8.8	200	65
ESD5Z12	12	1.0	13.5	1.0	17	25	9.6	240	55

NOTE1: V_{BR} is measured with a pulse test current I_T at an ambient temperature of 25℃ .

NOTE2: Surge current waveform per Figure 1.

TYPICAL CHARACTERISTICS

Figure1. Pulse Waveform

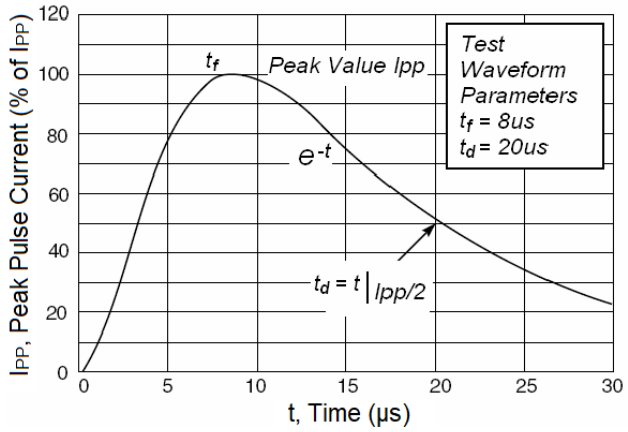
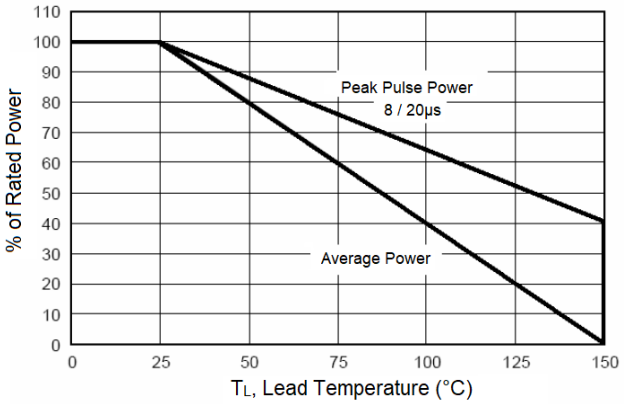


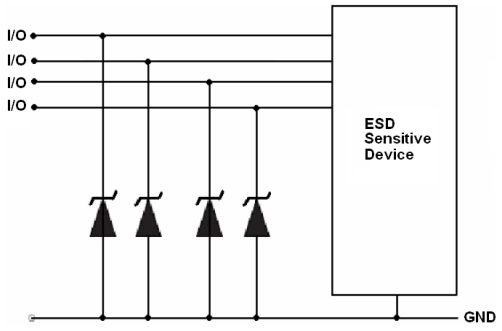
Figure 2. Power Derating



APPLICATION NOTE

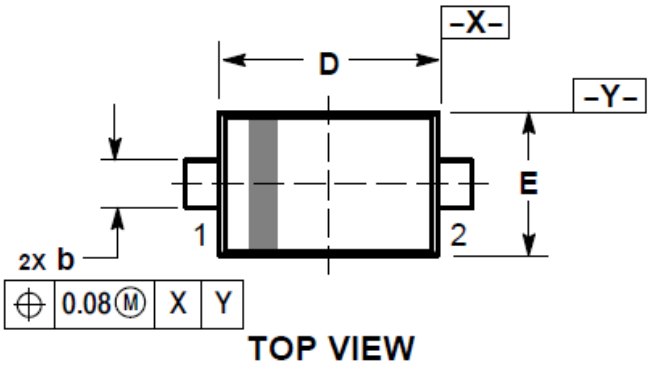
Electrostatic discharge (ESD) is a major cause of failure in electronic systems. Transient Voltage Suppressors (TVS) are an ideal choice for ESD protection. They are capable of clamping the incoming transient to a low enough level such that damage to the protected semiconductor is prevented.

Surface mount TVS offer the best choice for minimal lead inductance. They serve as parallel protection elements, connected between the signal line to ground. As the transient rises above the operating voltage of the device, the TVS becomes a low impedance path diverting the transient current to ground. The ESD5Z2.5/3.3/5.0/6.0/7.0/12 is the ideal board level protection of ESD sensitive semiconductor components. The tiny SOD-523 package allows design flexibility in the design of high density boards where the space saving is at a premium. This enables to shorten the routing and contributes to hardening against ESD.

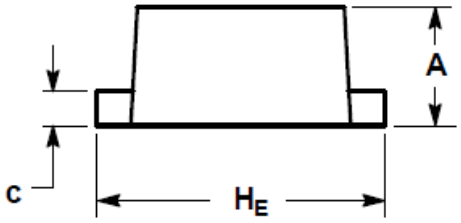


PACKAGE INFORMATION

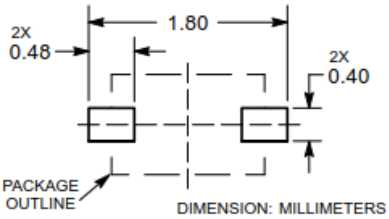
Dimension in SOD-523 Package (Unit: mm)



TOP VIEW



SIDE VIEW



DIM	MIN	MAX
A	0.50	0.70
b	0.25	0.35
c	0.07	0.20
D	1.10	1.30
E	0.70	0.90
H_E	1.50	1.70
L	0.30 REF	
L2	0.15	0.25

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