

**SESD5Z5CL**  
**Transient Voltage Suppressors for ESD Protection**

Revision:C

**General Description**

The SESD5Z5CL 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.

**Applications**

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

**Features**

- Small Body Outline Dimensions
- Low Body Height
- Peak Power up to 75 Watts @ 8 x 20  $\mu$ s Pulse
- Low Leakage current
- Response Time is Typically < 1 ns

**Complies with the following standards**

**IEC61000-4-2**

**Level 4 15 kV (air discharge)**

**8 kV(contact discharge)**

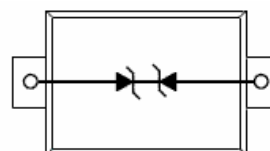
**MIL STD 883E - Method 3015-7 Class 3**

**25 kV HBM (Human Body Model)**

**Functional diagram**



SOD-523

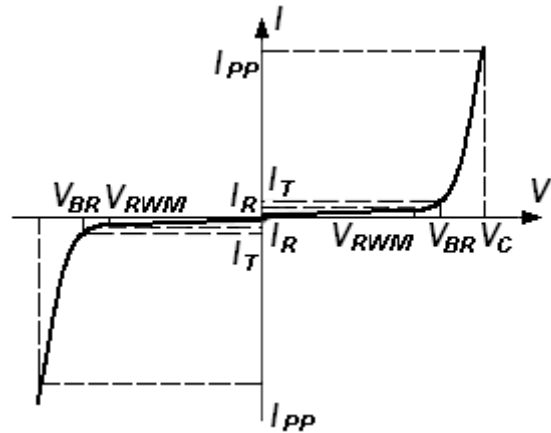


**Absolute Ratings (T<sub>amb</sub>=25°C )**

Symbol	Parameter	Value	Units	
P <sub>pp</sub>	Peak Pulse Power (t <sub>p</sub> = 8/20 $\mu$ s)	75	W	
T <sub>L</sub>	Maximum lead temperature for soldering during 10s	260	°C	
T <sub>stg</sub>	Storage Temperature Range	-55 to +155	°C	
T <sub>op</sub>	Operating Temperature Range	-40 to +125	°C	
T <sub>j</sub>	Maximum junction temperature	150	°C	
	IEC61000-4-2 (ESD)	air discharge contact discharge	$\pm 15$ $\pm 8$	kV
	IEC61000-4-4 (EFT)		40	A
	ESD Voltage	Per Human Body Model Per Machine Model	16 400	kV V
V <sub>C</sub>	I <sub>pp</sub> (Peak Pulse Current t <sub>p</sub> =8/20 $\mu$ s)	6.2A 5.2A	12 11.4	V

## 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 @ $I_T$



## Electrical Characteristics

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

Part Numbers	$V_{BR}$			$I_T$	$V_{RWM}$	$I_R$	$V_F$	$I_F$	$C$
	Min.	Typ.	Max.				Max.	Typ.	Typ. 0v bias
	V	V	V				V	mA	pF
SESD5Z5CL	5.8	6.7	7.8	1	5.0	1	1.25	200	3

\*Surge current waveform per Figure 1.

- $V_{BR}$  is measured with a pulse test current  $I_T$  at an ambient temperature of 25°C.

## Typical Characteristics

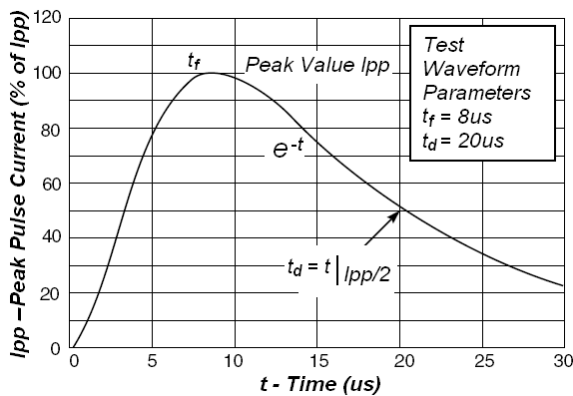


Fig1. Pulse Waveform

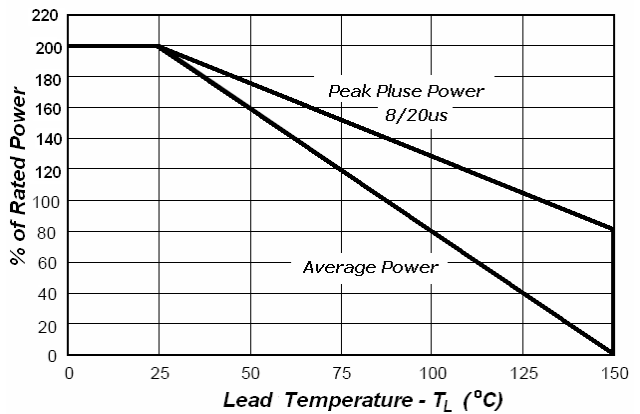


Fig2. Power Derating Curve

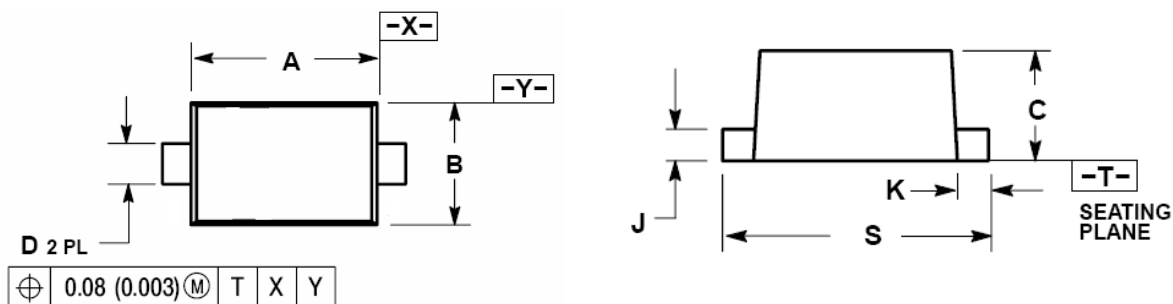
## Application Note

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 offers the best choice for minimal lead inductance. They serve as parallel protection elements, connected between the signal lines 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 SESD5Z5C 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.

## SOD-523 Mechanical Data



Dim	Millimeters			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.10	1.20	1.30	0.043	0.047	0.051
B	0.70	0.80	0.90	0.028	0.032	0.035
C	0.50	0.60	0.70	0.020	0.024	0.028
D	0.25	0.30	0.35	0.010	0.012	0.014
J	0.07	0.14	0.20	0.0028	0.0055	0.0079
K	0.15	0.20	0.25	0.006	0.008	0.010
S	1.50	1.60	1.70	0.059	0.063	0.067

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## SHANGHAI SINO-IC MICROELECTRONICS CO., LTD

**Add:** Building 3, Room 3401-03, No.200 Zhangheng Road, ZhangJiang Hi-Tech Park, Pudong, Shanghai 201203, China

**Phone:** +86-21-33932402 33932403 33932405 33933508 33933608

**Fax:** +86-21-33932401

**Email:** szrxw002@126.com

**Website:** <http://www.sino-ic.net>