

RoHS Compliant Product  
A suffix of "-C" specifies halogen & lead-free

## DESCRIPTION

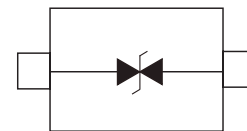
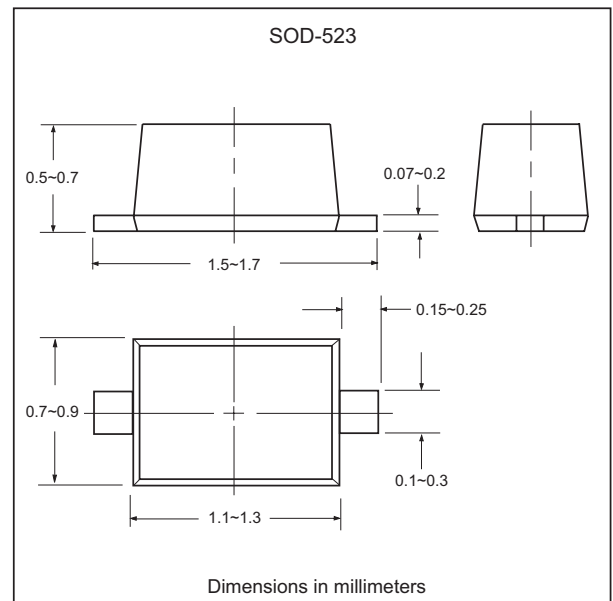
The ESD05C is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

## APPLICATIONS

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

## FEATURES

- Small Body Outline Dimensions
- Low Body Height
- Peak Power up to 200 Watts @ 8 x 20  $\mu$ s Pulse
- Low Leakage current
- Response Time is Typically < 1 ns
- ESD Rating of Class 3 (> 16 kV) per Human Body Model
- IEC61000-4-2 Level 4 ESD Protection
- IEC61000-4-4 Level 4 EFT Protection



Bi-direction

## ABSOLUTE RATINGS (Tamb = 25°C)

Symbol	Parameter	Value	Units	
$P_{PP}$	Peak Pulse Power ( $t_p = 8/20\mu s$ )	200	W	
$T_L$	Maximum lead temperature for soldering during 10s	260	°C	
$T_J$	Maximum junction temperature	150	°C	
$T_{STG}$	Storage Temperature Range	-55 ~ +155	°C	
$T_{OP}$	Operating Temperature Range	-40 ~ +125	°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	16	KV

## ELECTRICAL CHARACTERISTICS

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

Device	$V_{RWM}$ (V)	$I_R$ ( $\mu A$ ) @ $V_{RWM}$	$V_{BR}$ (V) @ $I_T$ (Note 1)	$I_T$	$V_C$ (V) @ $I_{PP}=5 A^*$	$V_C$ (V) @ Max $I_{PP}^*$	$I_{PP}$ (A)*	$P_{PK}$ (W)*	C (pF)
	Max	Max	Min	mA	Typ	Max	Max	Max	Typ
ESD05C	5.0	1	5.6	1.0	11.6	18.6	9.4	174	30

\*Surge current waveform per Figure 1.

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

## RATINGS AND CHARACTERISTICS CURVES

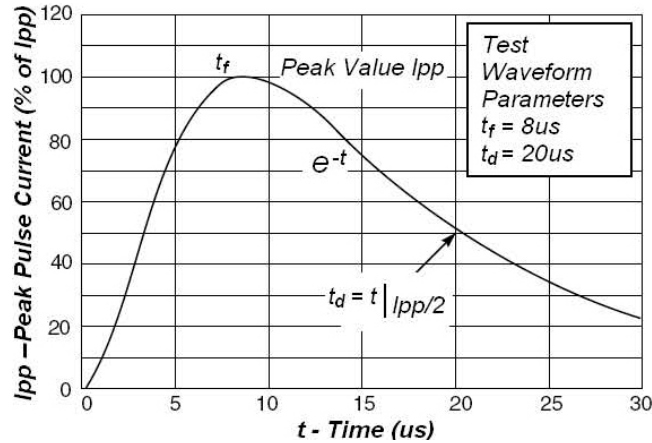


Fig 1. Pulse Waveform

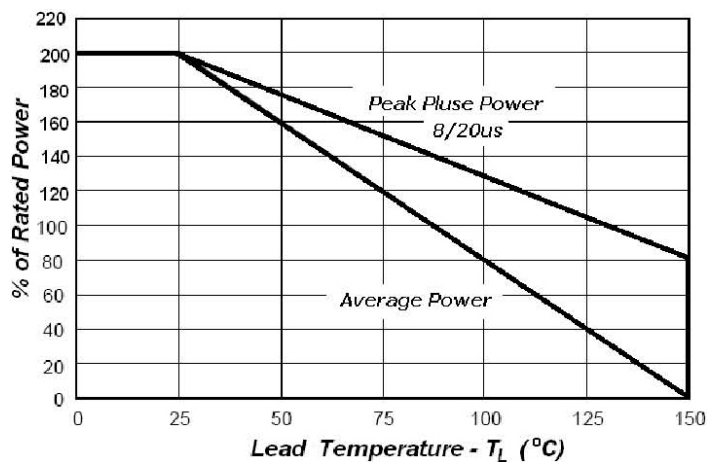


Fig 2. Power Derating

## 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 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 ESD05C 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.