

## Transient Voltage Suppressors for ESD Protection

### General Description

The XESD2FD7VR 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



SOD882

### Features

- Small Body Outline Dimensions
- Low Body Height
- Peak Power up to 80 Watts @ 8 x 20  $\mu$ s Pulse
- Low Leakage
- 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
- We declare that the material of product compliance with RoHS requirements.

### ORDERING INFORMATION

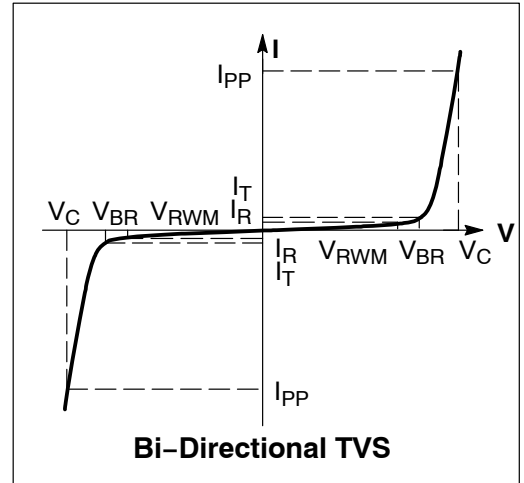
Device	Marking	Shipping
XESD2FD7VR	R3	10000/Tape & Reel

### Absolute Ratings ( $T_{amb}=25^{\circ}C$ )

Symbol	Parameter	Value	Units	
$P_{PP}$	Peak Pulse Power ( $t_p = 8/20\mu s$ )	80	W	
$T_L$	Maximum lead temperature for soldering during 10s	260	$^{\circ}C$	
$T_{stg}$	Storage Temperature Range	-55 to +150	$^{\circ}C$	
$T_{op}$	Operating Temperature Range	-40 to +125	$^{\circ}C$	
$T_j$	Maximum junction temperature	150	$^{\circ}C$	
	IEC61000-4-2 (ESD)	air discharge contact discharge	$\pm 20$ $\pm 15$	KV
	IEC61000-4-4 (EFT)		40	A
	ESD Voltage	Per Human Body Model	16	KV

## 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 @ $V_{RWM}$
$V_{BR}$	Breakdown Voltage @ $I_T$
$I_T$	Test Current
$P_{pk}$	Peak Power Dissipation
$C$	Capacitance @ $V_R = 0$ and $f = 1.0$ MHz



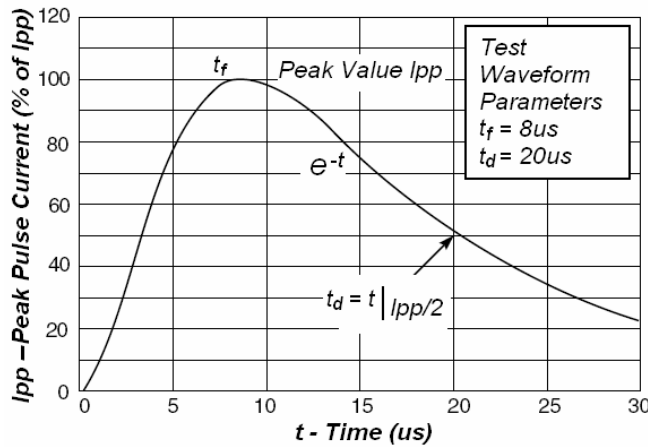
## Electrical Characteristics

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

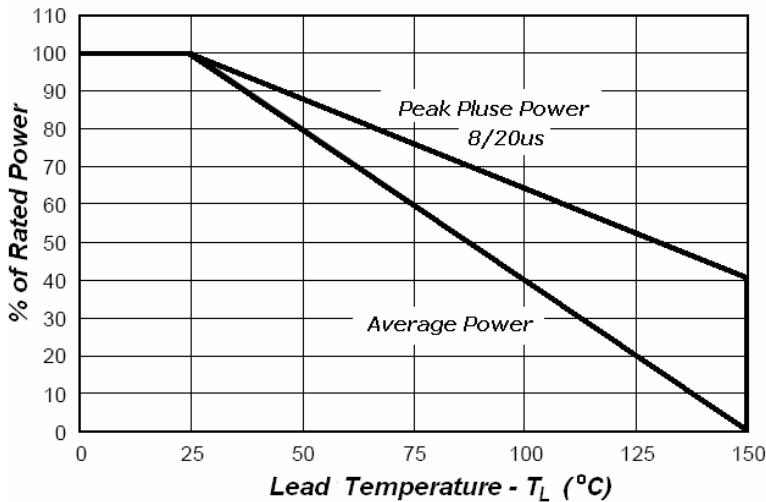
Device	$V_{RWM}$ (V)	$I_R$ (uA) @ $V_{RWM}$	$V_{BR}$ (V) @ $I_T$ (Note 1)	$I_T$	$V_C$ (V) @ $I_{PP}=3$ A*	$V_C$ (V) @ Max $I_{PP}$ *	$I_{PP}$ (A)*	$P_{PK}$ (W)*	$C$ (pF)
	Max	Max	Min	mA	Typ	Max	Max	Max	Typ
XESD2FD7VR	7.0	1.0	7.2	1.0	13	17.5	5	80	16

\*Surge current waveform per Figure 1.

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



**Fig1. Pulse Waveform**



**Fig3. Power Derating**

**Application Note**

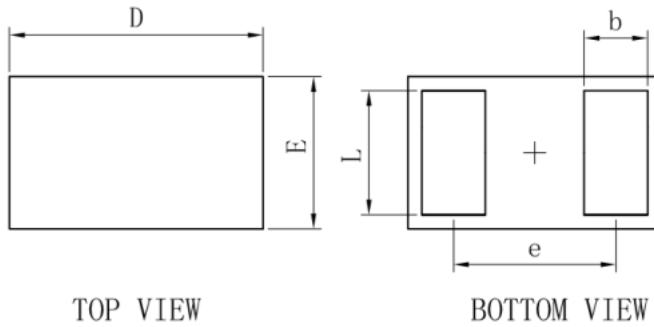
Electrostatic discharge (ESD) is a major cause of failure in electronic systems. Transient Voltage Suppressors (TVS) are an ideal choice for ESD protection. They are capable of clamping the incoming transient to a low enough level such that damage to the protected semiconductor is prevented.

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 XESD2FD7VR is the ideal board level protection of ESD sensitive semiconductor components.

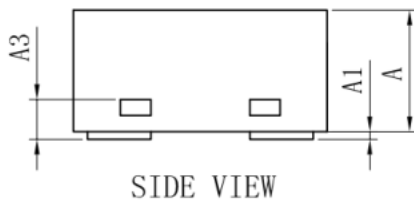
The tiny SOD882 package allows design flexibility in the design of high density boards where the space saving is at a premium. This enables to shorten the routing and contributes to hardening against ESD.

**OUTLINE AND DIMENSIONS**

**SOD882**

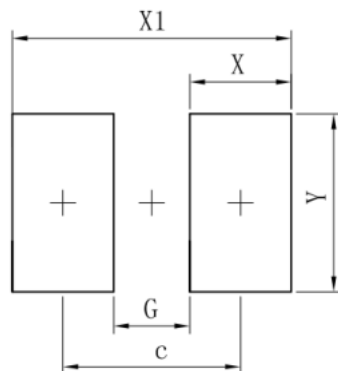


SOD882			
Dim	Min	Typ	Max
D	0.95	1.00	1.05
E	0.55	0.60	0.65
e	-	0.64	-
L	0.44	0.49	0.54
b	0.20	0.25	0.30
A	0.43	0.48	0.53
A1	0	-	0.05
A3	0.127REF.		
All Dimensions in mm			



**SOLDERING FOOTPRINT**

**SOD882**



Dimensions	(mm)
c	0.70
G	0.30
X	0.40
X1	1.10
Y	0.70