



Uni-directional 18V High Capacitance TVS Protector

Features

- 1200W Peak pulse power per line ($t_P = 8/20\mu s$)
- SOD-323 package
- Response time is typically $< 1\text{ ns}$
- Protect one I/O or power line
- Low clamping Voltage
- RoHS compliant
- Transient protection for data lines to
IEC 61000-4-2(ESD) $\pm 30\text{KV}$ (air), $\pm 30\text{KV}$ (contact);
IEC 61000-4-4 (EFT) 40A (5/50ns)
IEC 61000-4-5 (Lightning) 30A (8/20us)

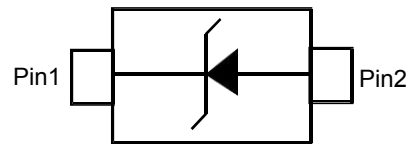
Applications

- Cell phone handsets and accessories
- Personal digital assistants (PDA's)
- Notebooks, desktops, and servers
- Portable instrumentation
- Cordless phones
- Digital cameras
- Peripherals
- MP3 players

Circuit Diagram & Pin Configuration:



SOD-323(Top View)



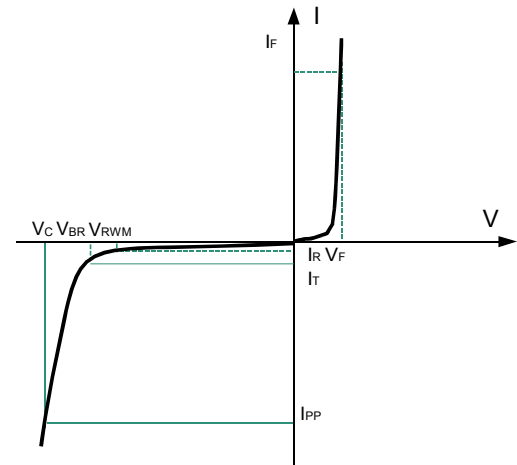
Circuit Diagram

DEVICE MARKING AND ORDERING INFORMATION

Device	Package	Marking	Shipping
ESD3D18VU1S122X	SOD-323	H18	3000/Tape&Reel

Electronics Parameter

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



Electrical characteristics per line@25°C (unless otherwise specified)

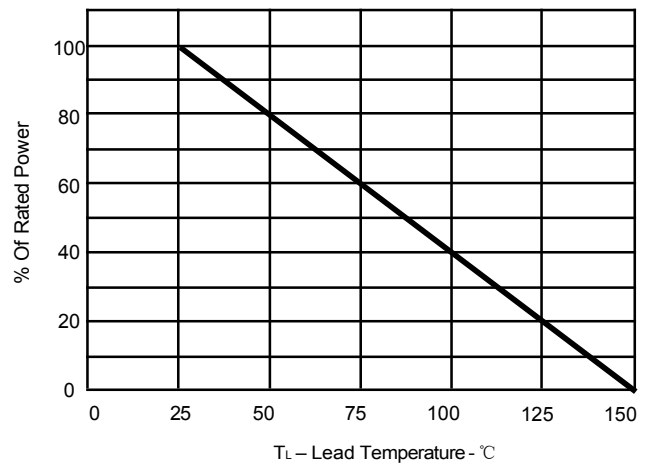
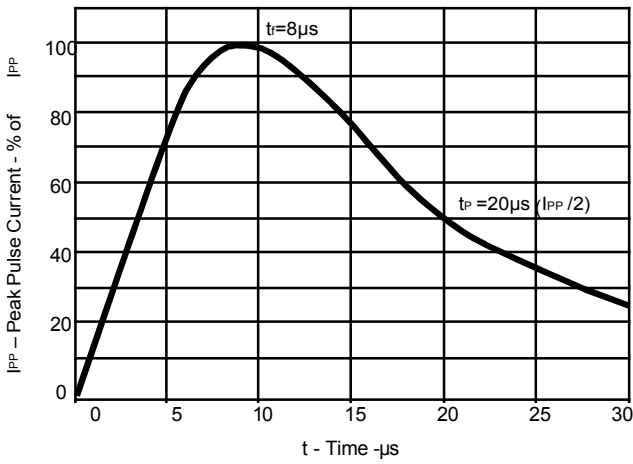
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Peak Reverse Working Voltage	V_{RWM}				18	V
Breakdown Voltage	V_{BR}	$I_T=1mA$	20	21.5	23	V
Reverse Leakage Current	I_R	$V_{RWM}=18V$			1	μA
Clamping Voltage	V_C	$I_{PP}=1A$ $t_P = 8/20\mu s$		25	30	V
Clamping Voltage	V_C	$I_{PP}=30A$ $t_P = 8/20\mu s$		43	47	V
Junction Capacitance	C_J	$V_R=0V$ $f = 1MHz$		250	350	pF

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power ($t_P = 8/20\mu s$)	P_{PP}	1200	W
Lead Soldering Temperature	T_L	260 (10 sec)	°C
Operating Temperature	T_J	-55 to +125	°C
Storage Temperature	T_{STG}	-55 to +150	°C



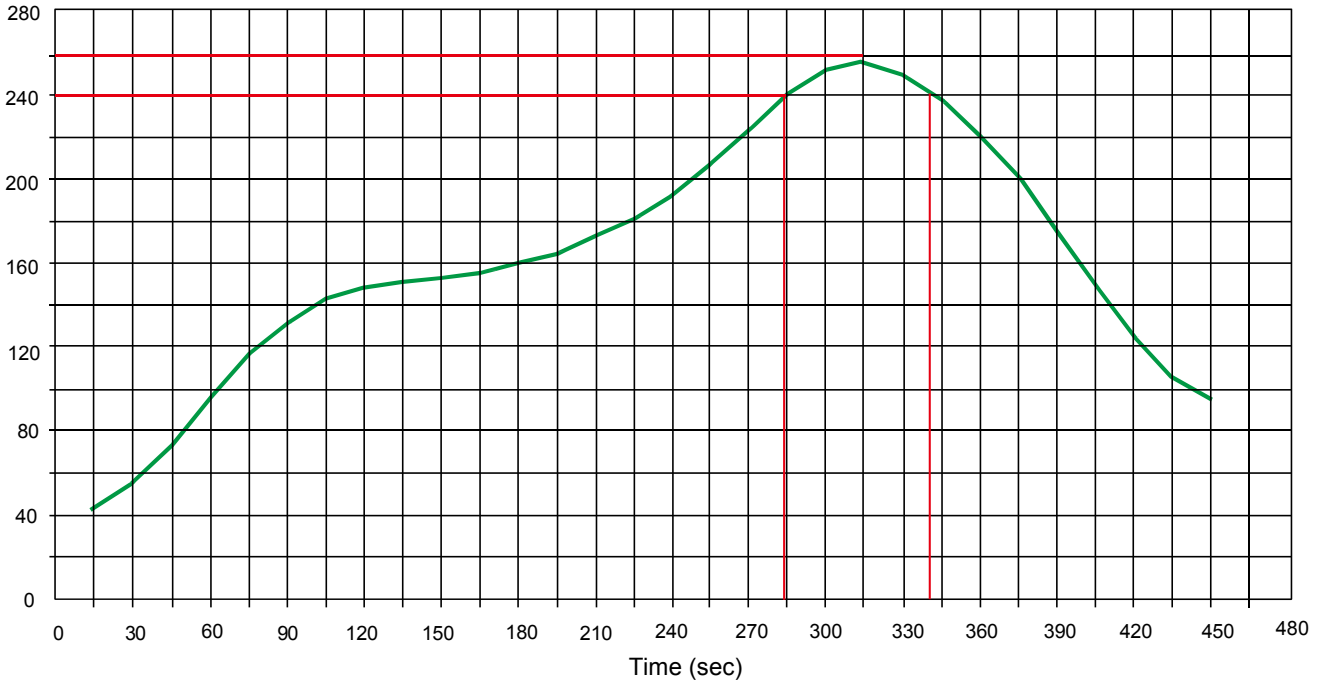
Typical Characteristics





Solder Reflow Recommendation

Peak Temp=257°C, Ramp Rate=0.802deg. °C/sec



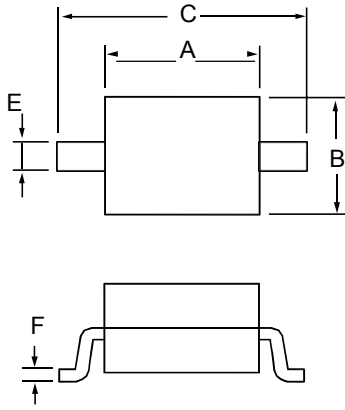
PCB Design

For TVS diodes a low-ohmic and low-inductive path to chassis earth is absolutely mandatory in order to achieve good ESD protection. Novices in the area of ESD protection should take following suggestions to heart:

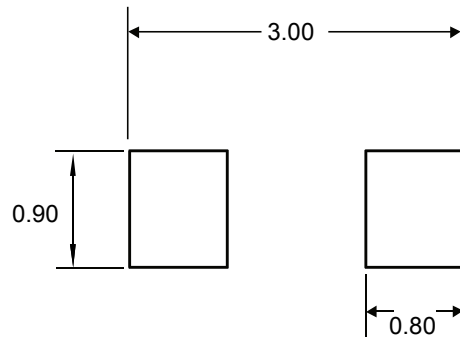
- Do not use stubs, but place the cathode of the TVS diode directly on the signal trace.
- Do not make false economies and save copper for the ground connection.
- Place via holes to ground as close as possible to the anode of the TVS diode.
- Use as many via holes as possible for the ground connection.
- Keep the length of via holes in mind! The longer the more inductance they will have.



Product dimension (SOD-323)



Dim	Inches		Millimeters	
	MIN	MAX	MIN	MAX
A	0.063	0.075	1.60	1.90
B	0.045	0.057	1.15	1.45
C	0.090	0.106	2.30	2.70
D	0.031	0.043	0.80	1.00
E	0.010	0.01	0.25	0.40
F	0.004	0.007	0.09	0.18
H	0.000	0.004	0.00	0.10



Suggested PCB Layout

Unit:mm