

1-Line Uni-directional TVS Diode

Features

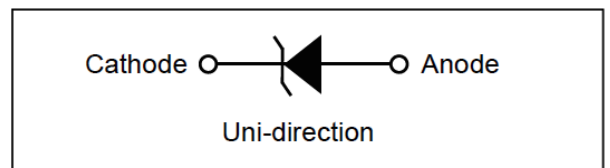
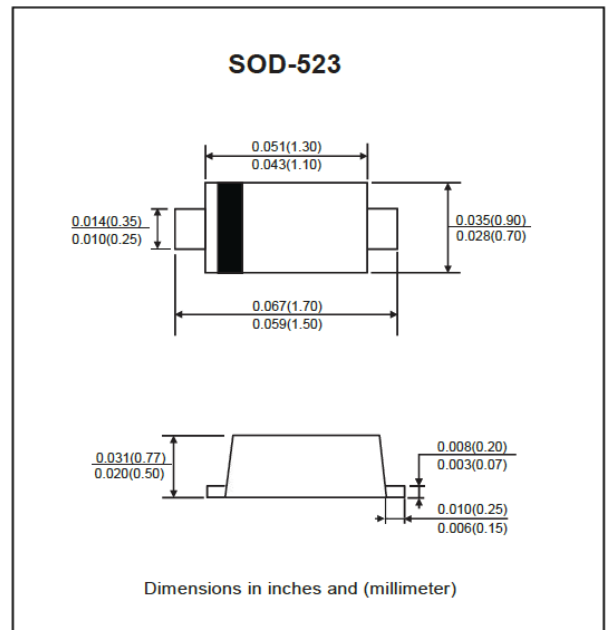
- IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- IEC 61000-4-4 (EFT) 40A (5/50ns)
- IEC 61000-4-5 (Lightning) 15A (8/20 μs)
- Protects one I/O or power line
- Working voltages: 3.3V
- Low clamping voltage
- Low leakage current

Applications

- Cellular Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Peripherals

Mechanical Characteristics

- Package: SOD-523
- Flammability Rating: UL 94V-0
- High temperature soldering guaranteed: 260°C/10s
- Moisture Sensitivity : Level 1 per J-STD-020
- RoHS Compliant



Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p = 8/20\mu\text{s}$)	P_{PP}	210	W
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)	I_{PP}	15	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	KV
ESD per IEC 61000-4-2 (Contact)		± 30	KV
Operating Temperature Range	T_J	-55 ~125	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~150	$^\circ\text{C}$

Electrical Parameters ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

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

Electrical Characteristics ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Reverse Standoff Voltage	V_{RWM}				3.3	V
Reverse breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	4			V
Reverse leakage current	I_R	$V_{RWM} = 3.3\text{V}$			0.2	μA
Forward Voltage	V_F	$I_F = 10\text{mA}$			1.0	V
Clamping Voltage	V_C	$I_{PP} = 15\text{A}, t_p = 8/20\mu\text{s}$		10	14	V
ESD Clamping Voltage	V_C	$I_{PP} = 16\text{A}, t_p = 0.2/100\text{ns(TLP)}$		9.9		V
Dynamic Resistance	R_{DYN}	TLP=0.2/100ns		0.15		Ω
Junction capacitance	C_J	$V_R = 0\text{V}, f = 1\text{MHz}$		100	200	pF

Typical Performance Characteristics ($T_A = 25^\circ\text{C}$ Unless otherwise noted)

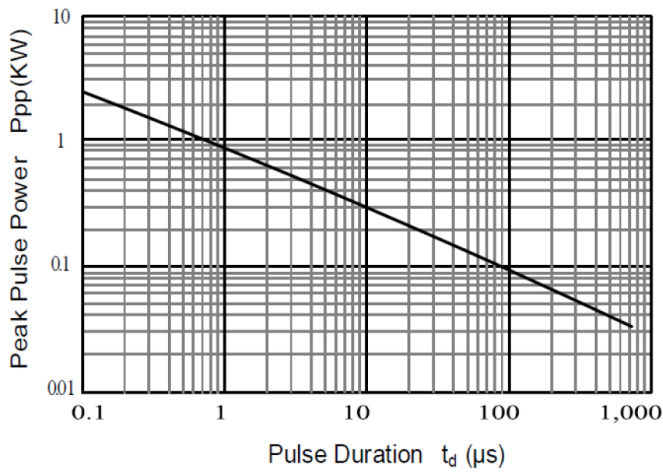


Fig 1. Peak Pulse Power vs. Pulse Time

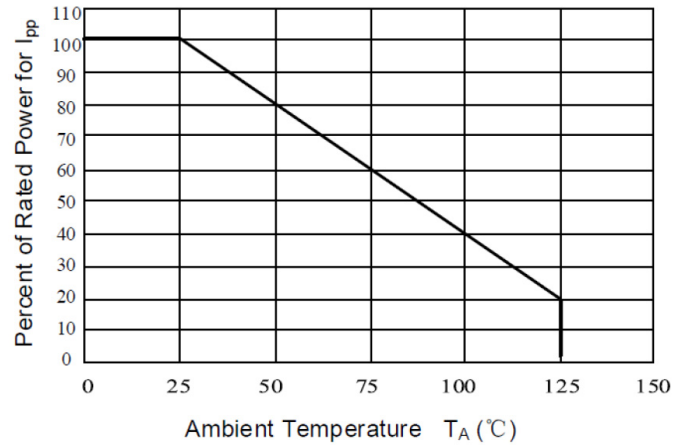


Fig 2. Power Derating Curve

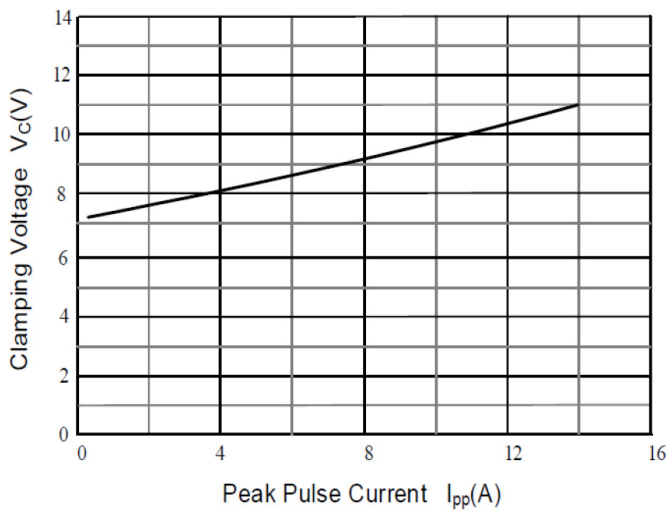


Fig 3. Clamping Voltage vs. Peak Pulse Current

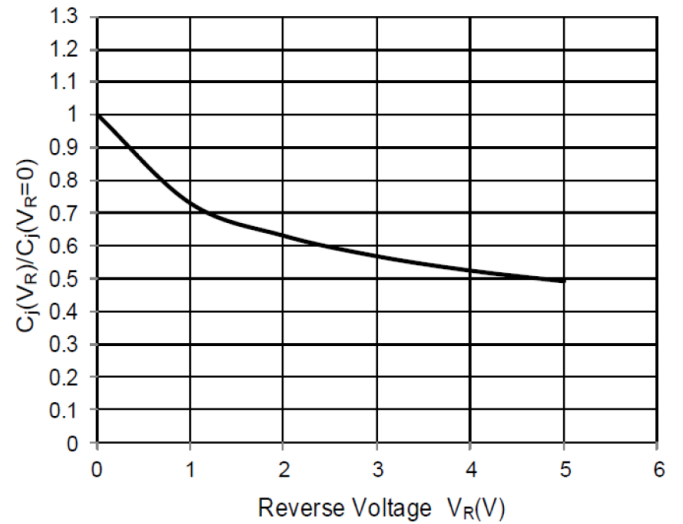


Fig 4. Junction Capacitance vs. Reverse Voltage

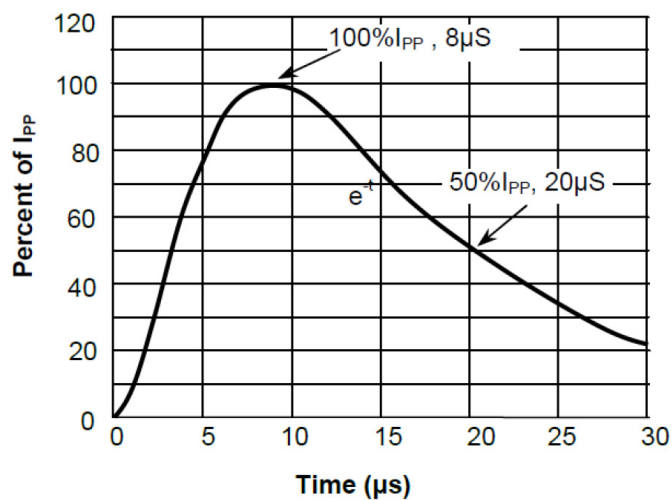


Fig 5. 8/20μs Pulse Waveform

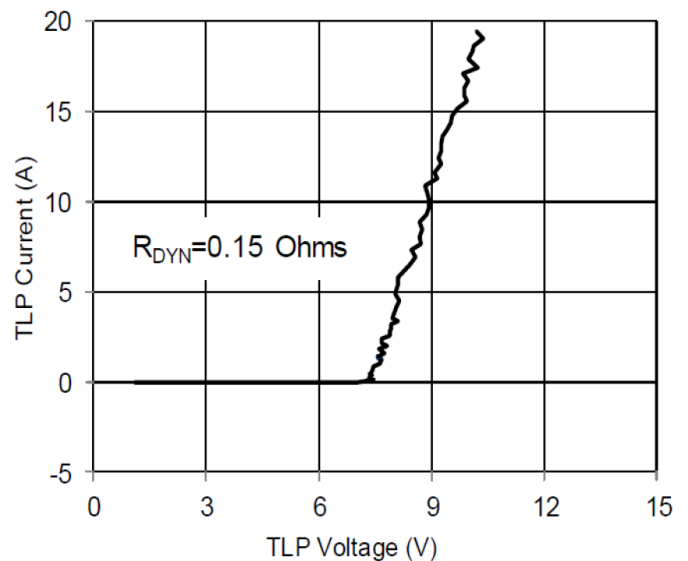
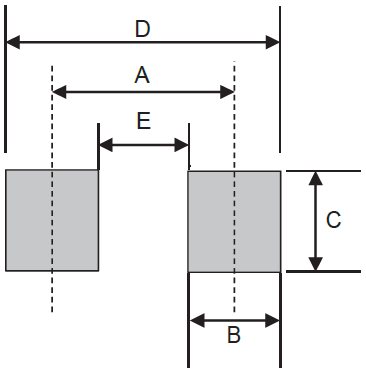


Fig 6. TLP I-V Curve

Suggested PAD Layout

Symbol	SOD-523	
	(mm)	(inch)
A	1.40	0.055
B	0.60	0.024
C	0.70	0.028
D	2.00	0.079
E	0.80	0.031



The diagram illustrates the suggested pad layout for the SOD-523 package. It shows a top-down view of the package with two leads. Dimension A is the distance from the center of the package to the center of the first lead. Dimension B is the width of the lead. Dimension C is the height of the lead. Dimension D is the total width of the package. Dimension E is the distance from the center of the package to the center of the second lead.

Marking Code

Part Number	Marking Code	
STCS5033ZDU	ZD	

Ordering information

Part Number	Package	Base qty	Reel Size	Delivery mode
		(pcs)	(inch)	
STCS5033ZDU	SOD-523	3,000	7	Tape and reel