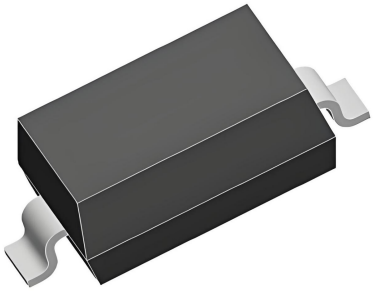
ECTHCCB5VU

1-Line Uni-directional Capacitance TVS Diode

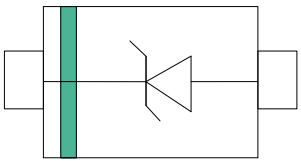
The ECTHCCB5VU is an Uni-directional high power TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The ECTHCCB5VU complies with the IEC 61000-4-2 (ESD) with ±30kV air and ±30kV contact discharge. It is assembled into an ultra-small lead-free SOD-323 package. The small size and high ESD surge protection make ECTHCCB5VU an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

- Peak Power Dissipation − 1800W (8 x 20 us Waveform)
- Protects one data or power line
- Ultra low leakage: nA level
- Stand−off Voltage: 5 V
- Ultra low clamping voltage



SOD-323



Main applications

- Mobile Phones and Accessories
- Notebooks, Desktops, Servers
- Battery Protection
- Power Supply Protection
- Hand Held Portable Applications
- Peripherals

Protection solution to meet

- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact)
- IEC61000-4-5 (Lightning) 120A (8/20ns)

Ordering Information

Device	Qty per Reel	Reel Size
ECTHCCB5VU	3000	7 Inch

Maximum ratings (Tamb=25℃ Unless Otherwise Specified)			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	1800	Watts
Peak Pulse Current (8/20μs)	I_{PP}	120	A
ESD Rating per IEC61000-4-2： Contact Air	V_{ESD}	30 30	KV
Lead Soldering Temperature	T_L	260 (10 sec.)	℃
Operating Temperature Range	T_J	-55 ~ +125	℃
Storage Temperature Range	T_{STG}	-55 ~ +150	℃
Lead Solder Temperature − Maximum (10 Second Duration)	T_L	260	℃

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

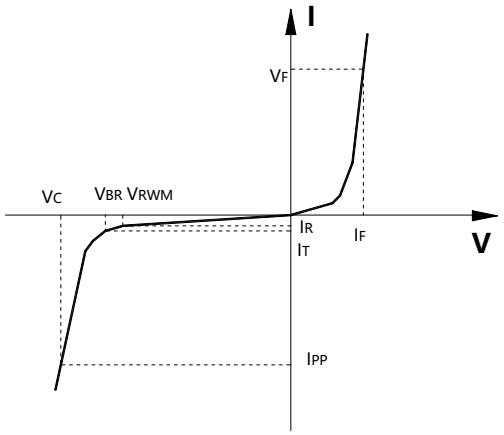
**Other voltages may be available upon request.*

1. Non-repetitive current pulse, per Figure 1.

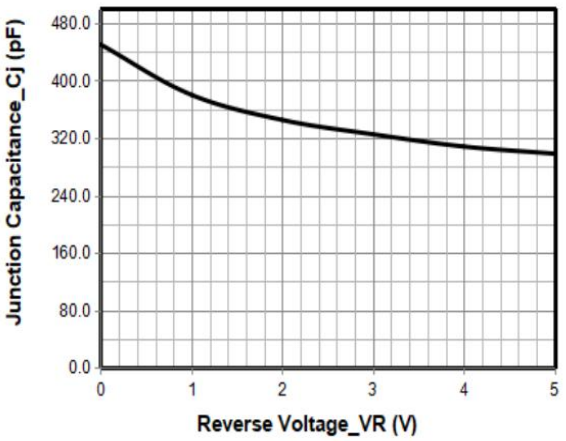
Junction capacitance is measured in V_R=0V,F=1MHz

Electrical characteristics (Temp=25℃ Unless Otherwise Specified)						
Symbol	**Parameter**	**Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
V_{RWM}	Reverse Working Voltage				5	V
V_{BR}	Reverse Breakdown Voltage	IT = 1mA,	6			V
I_R	Reverse Leakage Current	V_{RWM} =5V			1	μA
V_C	Clamping Voltage	I_{PP} = 20A, tp =8/20μs,			9.5	V
		I_{PP} = 120A, tp =8/20μs,			15	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz,		450		pF

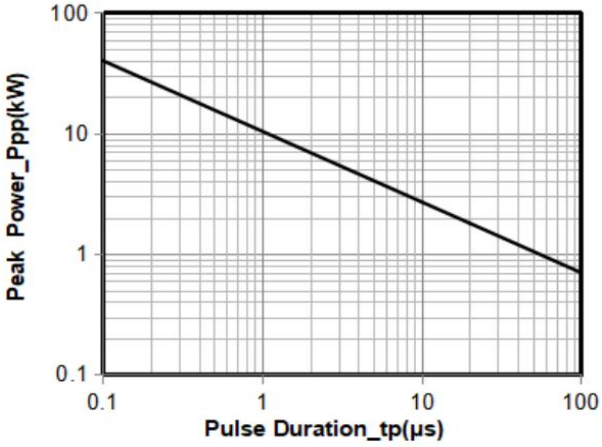
Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{BR}	Breakdown Voltage @ I_T
V_C	Clamping Voltage @ I_{PP}
I_T	Test Current
I_{RM}	Leakage current at V_{RWM}
I_{PP}	Peak pulse current
C_O	Off-state Capacitance
C_J	Junction Capacitance



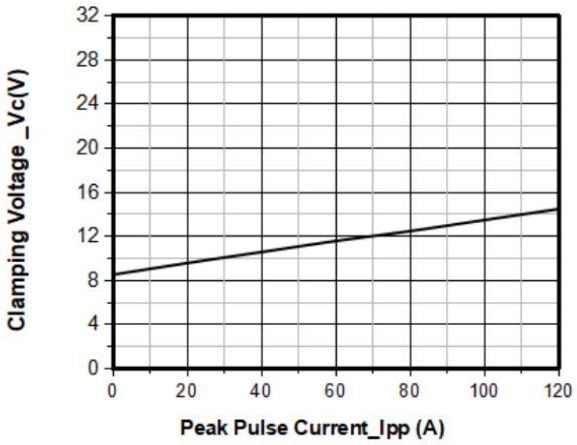
Typical electrical characterist applications



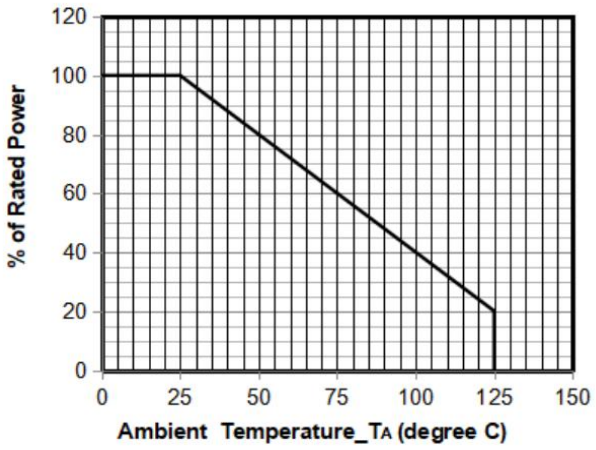
Junction Capacitance vs. Reverse Voltage



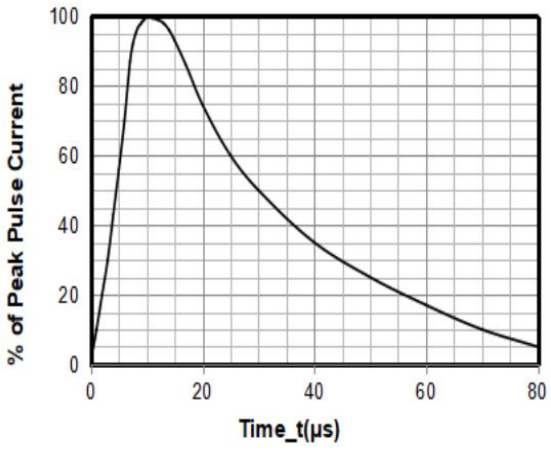
Peak Pulse Power vs. Pulse Time



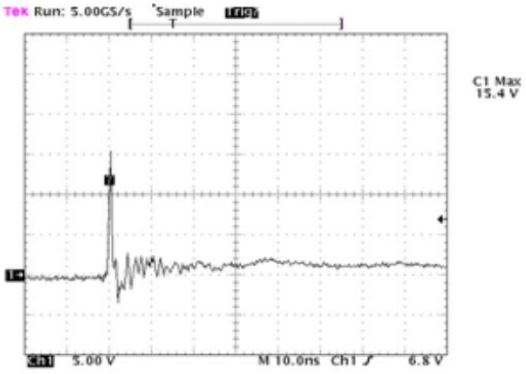
Clamping Voltage vs. Peak Pulse Current (tp = 8/20μs)



Power Derating Curve



8 X 20μs Pulse Waveform



Note：Data is taken with a 10x attenuator

ESD Clamping Voltage

8 kV Contact per IEC61000−4−2

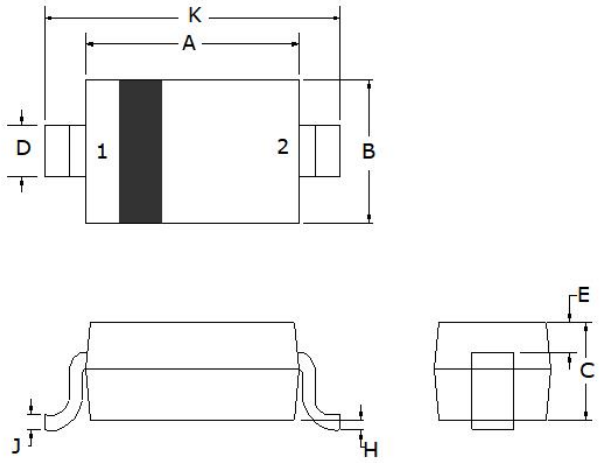
Package Information

SOD-323

Mechanical Data

Case: SOD-323

Case Material: Molded Plastic. UL Flammability



Dim	Millimeters	
	Min	Max
A	1.60	1.80
B	1.2	1.40
C	0.80	0.90
D	0.25	0.35
E	0.15REF	
H	0	0.10
J	0.08	0.15
K	2.50	2.70

Recommended Pad outline