

ECELCCE5VB

Low-Capacitance Bidirectional Micro Packaged TVS Diodes for ESD Protection

The ECELCCE5VB is designed with ECORE Punch-Through process TVS technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium. Also because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed, VGA, DVI, SDI and other high speed line applications.

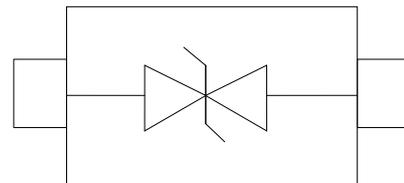
It has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD(electrostatic discharge), and EFT (electrical fast transients).

Features

- Peak Power Dissipation – 60 W (8 x 20 us Waveform)
- Stand-off Voltage: 5.0 V
- Replacement for MLV (0603)
- Protects I/O Port
- Low Clamping Voltage
- Low Leakage
- Low Capacitance
- Low capacitance (<6.0pF) for high-speed interfaces
- No insertion loss to 1.0GHz
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- ROHS compliant
- Solid-state Punch-Through TVS Process technology



SOD-523



Main applications

- High Speed Line :USB1.0/2.0, VGA, DVI, SDI,
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV
- Cellular handsets and accessories
- Portable instrumentation
- Peripherals

Protection solution to meet

- IEC61000-4-2 (ESD) ±15kV (air), ±8kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

Ordering Information

Device	Qty per Reel	Reel Size
ECELCCE5VB	3000	7 Inch

Maximum ratings (Tamb=25°C Unless Otherwise Specified)			
Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20µs waveform)	PPPP	60	Watts
ESD Rating per IEC61000-4-2:	Contact	8	KV
	Air	15	
Lead Soldering Temperature	TL	260 (10 sec.)	°C
Operating Temperature Range	TJ	-55 ~ 150	°C
Storage Temperature Range	TSTG	-55 ~ 150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	TL	260	°C

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.

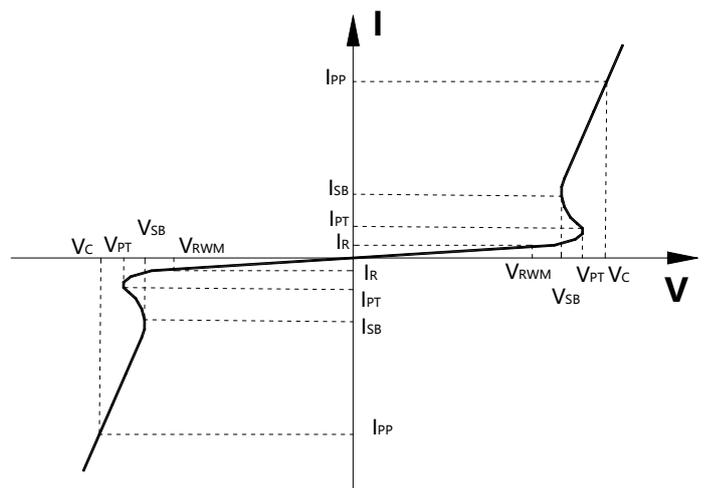
*Other voltages may be available upon request.

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

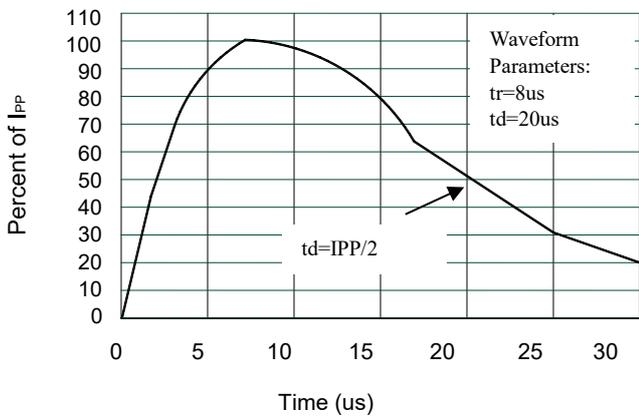
Electrical characteristics (Tamb=25°C Unless Otherwise Specified)						
Device	VRWM	IR @ VRWM		VSB @ 50 mA	VC	Capacitance
		(uA)		(Volts)	@ 1 A	@ VR = 2 V, 1 MHz (pF)
	(V)	Typ	Max	Min	(V)	Typ
ECELCCE5VB	5.0	0.05	1	5.2	9.0	3

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

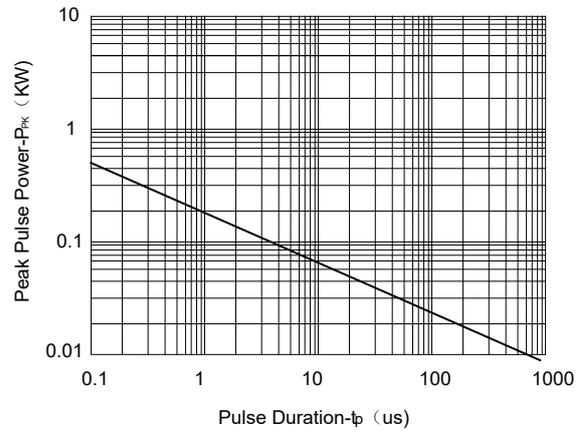
Symbol	Parameter
VRWM	Working Peak Reverse Voltage
VPT	Punch-Through Voltage@ IPT
VSB	Snap-Back Voltage@ ISB
VC	Clamping Voltage @ IPP
IT	Test Current
IRM	Leakage current at VRWM
IPP	Peak pulse current
CO	Off-state Capacitance
CJ	Junction Capacitance



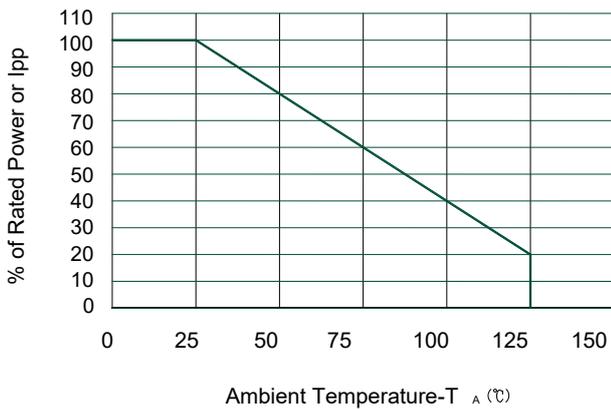
Typical electrical characteristic applications



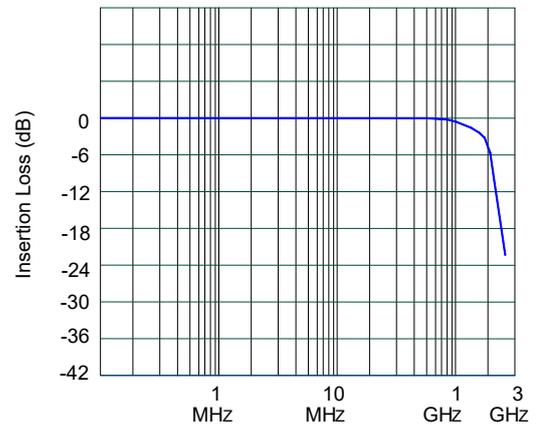
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time

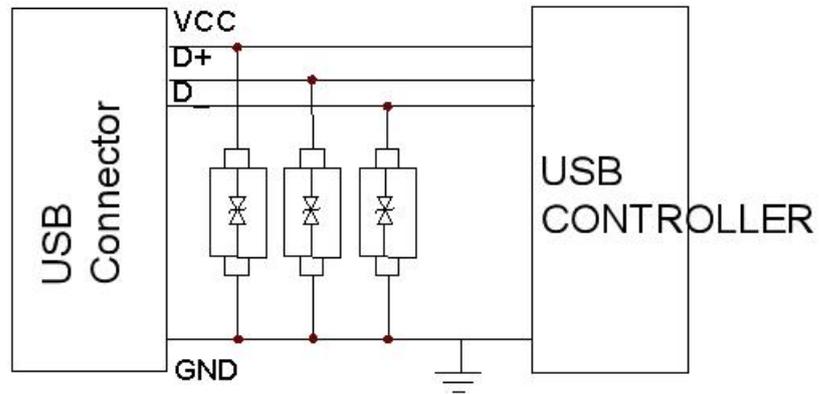


Power Derating Curve

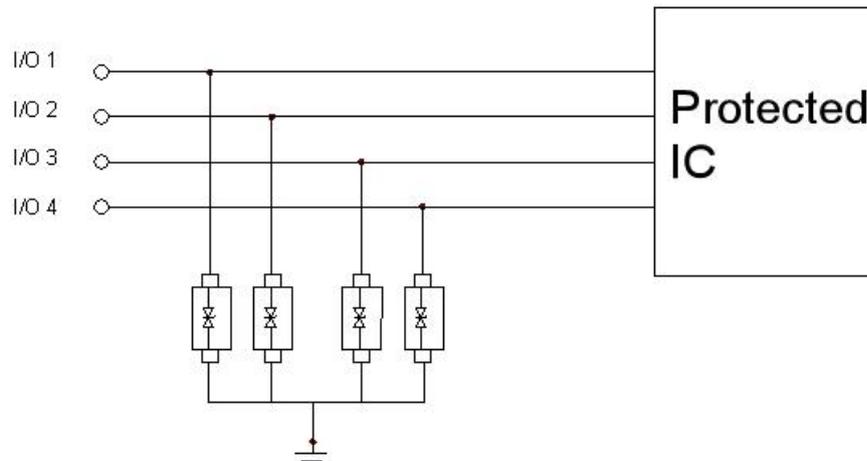


Insertion Loss S21

Typical applications



USB Protection For ESD



I/O Line Protection

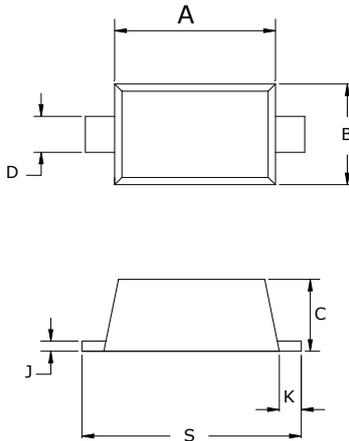
Package Information

SOD-523

Mechanical Data

Case: SOD-523

Case Material: Molded Plastic. UL Flammability



Dim	Millimeters	
	Min	Max
A	1.10	1.30
B	0.75	0.85
C	0.51	0.70
D	0.25	0.35
J	0.08	0.15
K	0.15	0.25
S	1.50	1.70

Recommended Pad outline

