ECELCxx5VBH1

Low capacitance bidirectional TVS Diodes for ESD Protection

The ECELCxx5VBH1 Series are low capacitance bidirectional TVS Diodes designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment and other applications. These devices are ideal for situations where board space is at a premium.

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

Features

- Peak Power Dissipation − 40 W (8 x 20 us Waveform)
- Replacement for MLV (0805)
- Protects One Power or I/O Port
- Low Clamping Voltage
- Low Leakage
- Low Capacitance:3.5pf TYP.
- Stand-off Voltage: 5.0 V
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- Solid-state Punch-Through TVS Process technology
- ROHS compliant

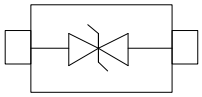
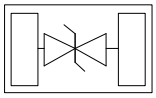
Main applications

- Cellular handsets AND accessories
- Portable instrumentation
- Peripherals
- Networking and Telecom
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV

Protection solution to meet

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

Ordering Information

Device		Package	Qty per Reel	Reel Size
ECELCCB5VBH1		SOD-323	3000	7 Inch
ECELCCE5VBH1		SOD-523	3000	7 Inch
ECELCAB5VBH1		DFN1006-2L	10000	7 Inch

Maximum ratings (Tamb=25℃ Unless Otherwise Specified)			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	40	Watts
ESD Rating per IEC61000-4-2： Contact Air		10 15	KV
Lead Soldering Temperature	T_L	260 (10 sec.)	℃
Operating Temperature Range	T_J	-55 ~ 150	℃
Storage Temperature Range	T_{STG}	-55 ~ 150	℃
Lead Solder Temperature − Maximum (10 Second Duration)	T_L	260	℃

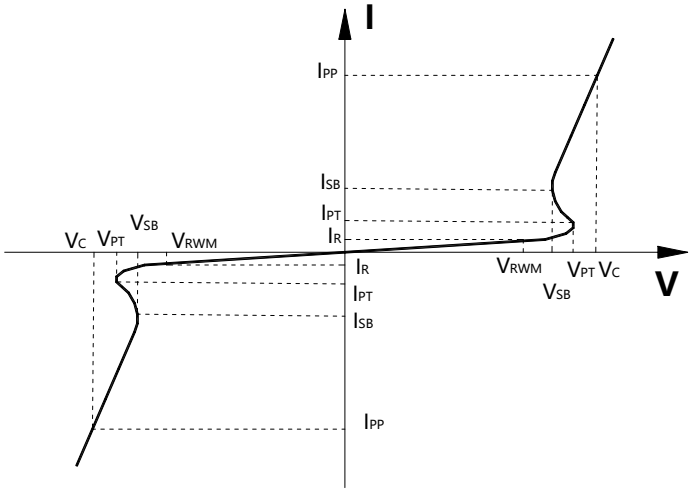
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied,damage may occur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

**Other voltages may be available upon request.*

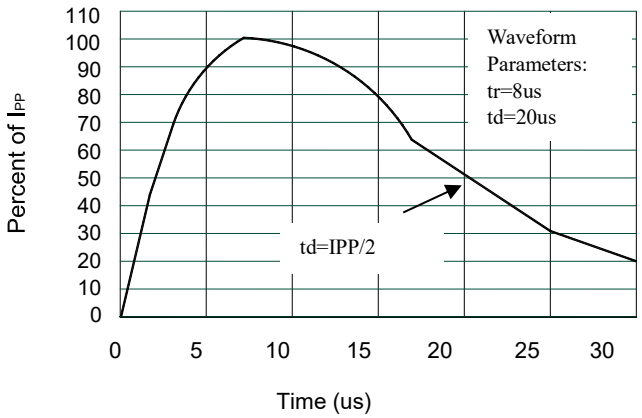
1. Nonrepetitive current pulse, per Figure 1.

Electrical characteristics (Tamb=25℃ Unless Otherwise Specified)						
Symbol	**Parameter**	**Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
V_{RWM}	Reverse Working Voltage				5.0	V
V_{BR}	Reverse Breakdown Voltage	IT = 1mA,	5.6			V
I_R	Reverse Leakage Current	V_{RWM} = 5V,		0.01	1	μA
V_C	Clamping Voltage	I_{PP} = 1A, tp =8/20μs,		9.5	10.5	V
		I_{PP} = 3A, tp =8/20μs,		11.5	12.5	V
C_J	Junction Capacitance	V_R = 0V, f = 1MHz,		3.5	5	pF

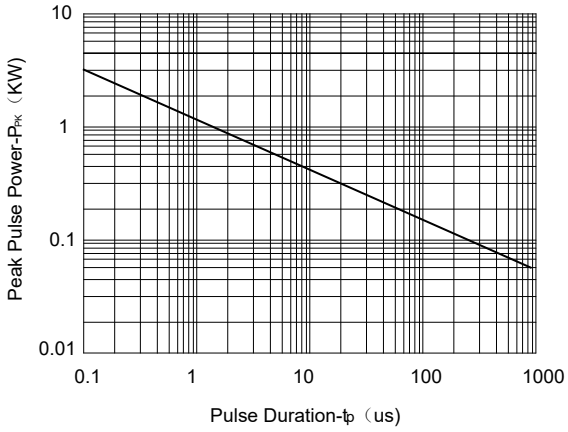
Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{PT}	Punch-Through Voltage@ I_{PT}
V_{SB}	Snap-Back Voltage@ I_{SB}
V_C	Clamping Voltage @ I_{PP}
I_T	Test Current
I_{RM}	Leakage current at V_{RWM}
I_{PP}	Peak pulse current
C_O	Off-state Capacitance
C_J	Junction Capacitance



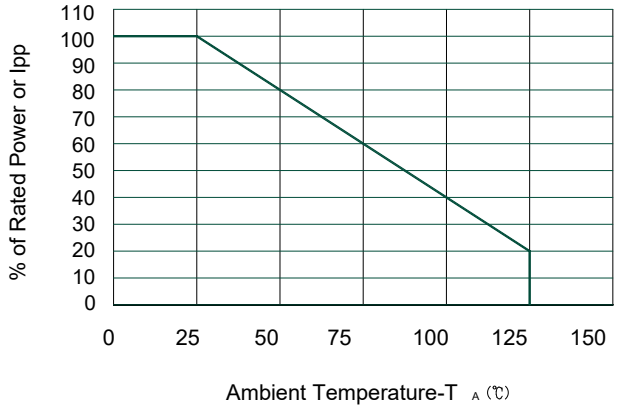
Typical electrical characterist applications



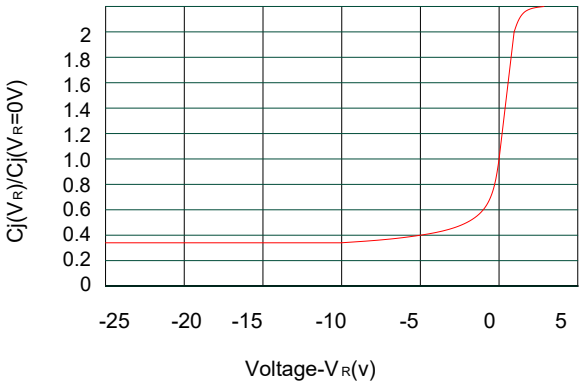
Pulse Waveform



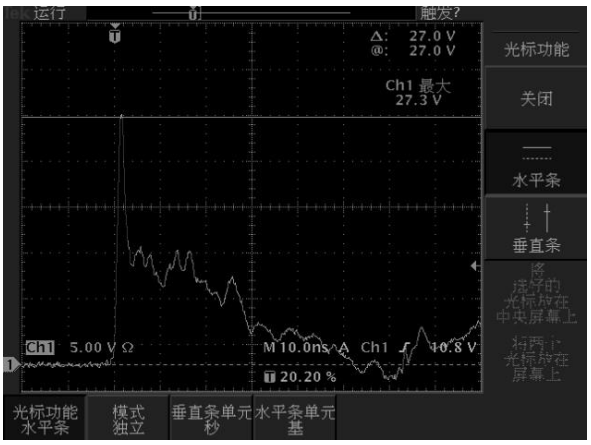
Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve

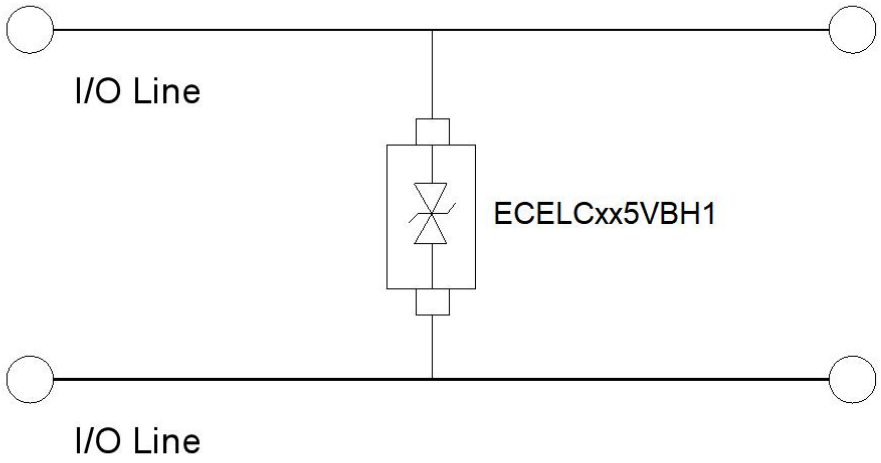


Junction Capacitance vs. Reverse Voltage

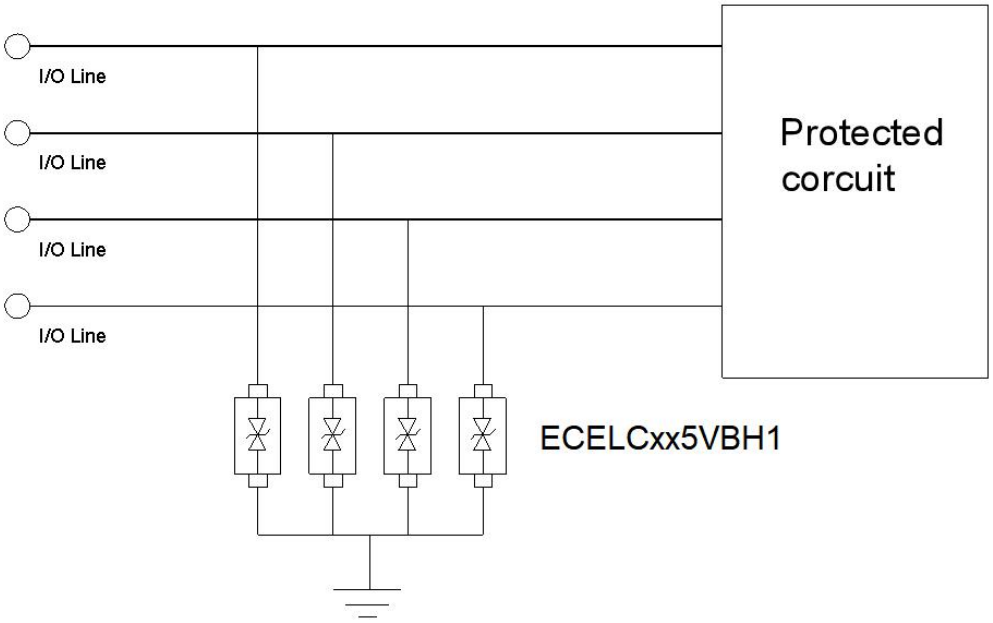


ESD Clamping Voltage Screenshot
Positive 8 kV Contact per IEC61000−4−2

Typical applications



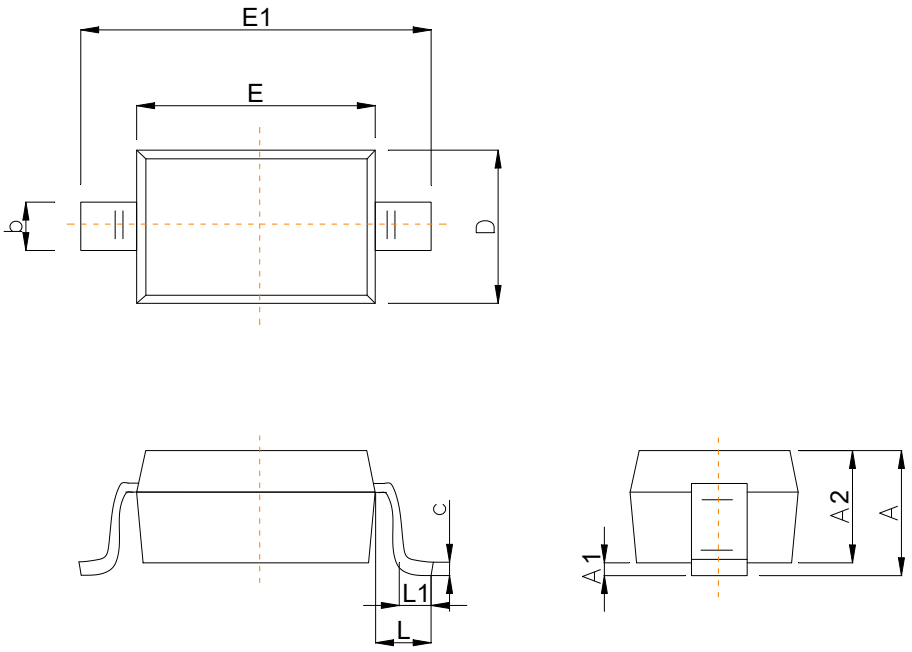
Between I/O Line Protection



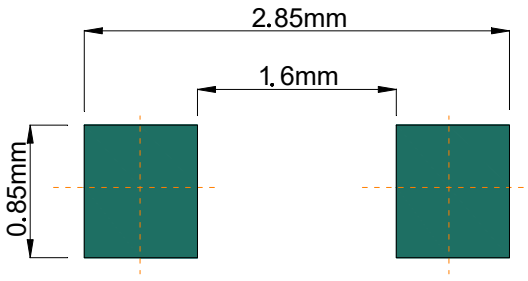
I/O Line Protection

Package information

SOD-323



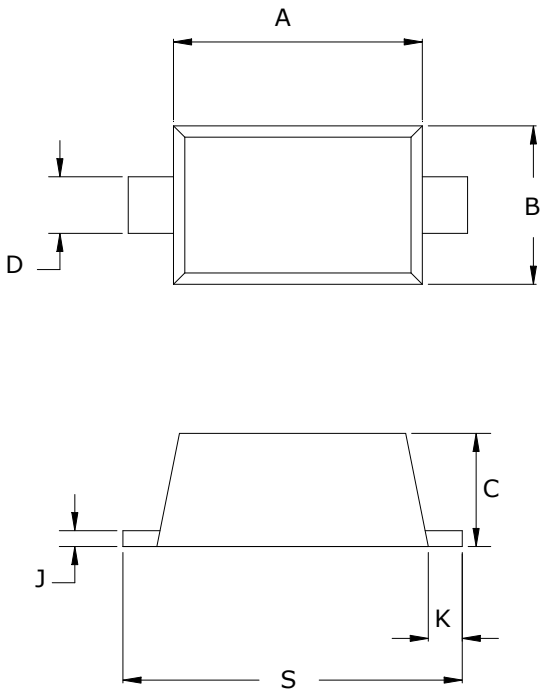
Symbol	Dimensions In Millimeters	
	Min	Max
A		1.00
A1	0.000	0.100
A2	0.800	0.900
b	0.250	0.350
c	0.080	0.150
D	1.200	1.400
E	1.600	1.800
E1	2.500	2.700
e	1.800	2.040
L	0.475 REF	
L1	0.250	0.400
θ	0°	8°



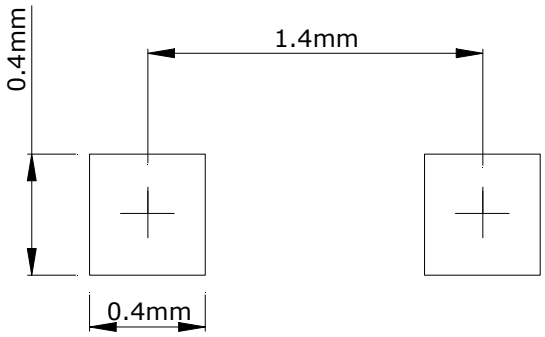
Recommended Pad outline

Package information

SOD-523



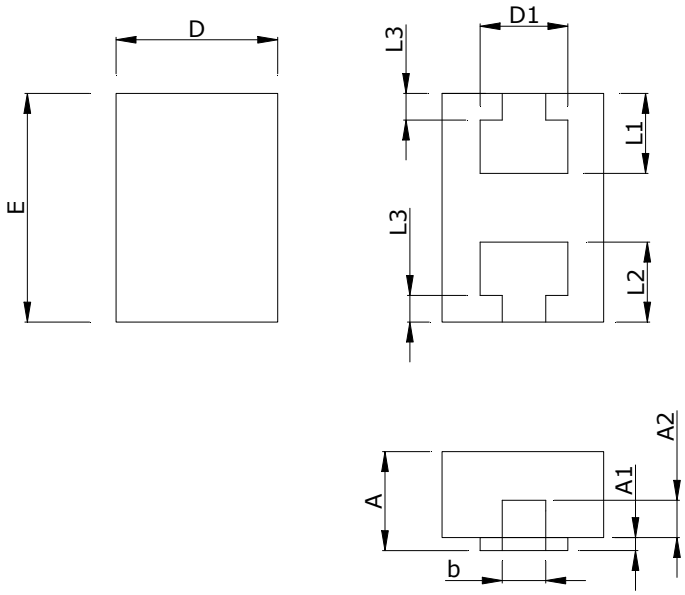
Recommended Pad outline



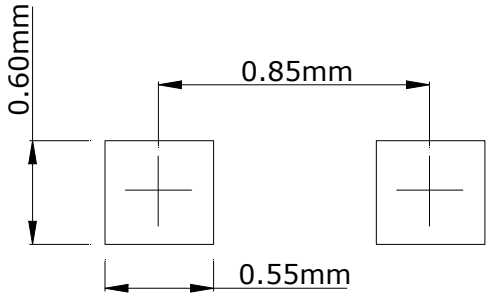
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.10	1.30	0.043	0.051
B	0.70	0.90	0.045	0.053
C	0.50	0.70	0.031	0.043
D	0.25	0.35	0.004	0.012
J	0.07	0.20	0.0028	0.0079
K	0.15	0.25	0.006	0.010
S	1.50	1.70	0.059	0.067

Package information

DFN1006-2L



Recommended Pad outline



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.40	0.50	0.016	0.020
A1		0.05		0.002
A3	0.15REF		0.006REF	
D	0.55	0.65	0.022	0.026
E	0.95	1.05	0.037	0.041
D1	0.25	0.35	0.010	0.014
b	0.15	0.25	0.006	0.001
L1	0.25	0.45	0.010	0.018
L2	0.23	0.43	0.009	0.017
L3	0.10REF		0.004REF	