ECELCAA5VB

Ultra-low Capacitance Bidirectional Micro Packaged TVS Diodes for ESD Protection

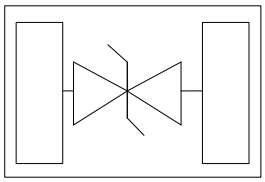
The ECELCAA5VB is designed with ECORE process TVS technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular 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, USB 3.0 super speed, USB 3.1 super speed ,VGA, DVI, HDMI, eSATA 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 −100 W (8 x 20 us Waveform)
- Stand-off Voltage: 5.0 V
- Low capacitance (<0.25pF) for high-speed interfaces
- No insertion loss to 10.0GHz
- Protects I/O Port
- Low Clamping Voltage
- Low Leakage
- Low Capacitance
- Meets MSL 1 Requirements
- ROHS compliant
- **Solid-state Punch-Through TVS Process technology**

DFN0603-2L



Main applications

- High Speed Line :USB1.0/2.0/3.0/3.1,VGA,DVI,SDI,
- High Definition Multi-Media Interface (HDMI1.3/1.4/2.0)
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV
- Cellular handsets and accessories
- Portable instrumentation
- Peripherals

Protection solution to meet

- IEC61000-4-2 (ESD) ±25kV (air), ±22kV (contact)
- IEC61000-4-5 (Lightning) 4A (8/20μs)

Ordering Information

Device	Reel Size
ECELCAA5VB	7 Inch

Maximum ratings (Tamb=25℃ Unless Otherwise Specified)			
Parameter	**Symbol**	**Value**	**Unit**
Peak Pulse Power (tp=8/20μs waveform)	P_{PPP}	100	Watts
ESD Rating per IEC61000-4-2： Contact Air		22 25	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	℃

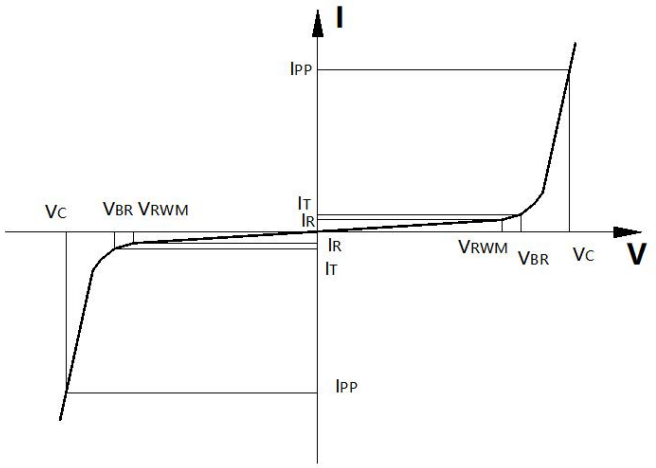
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied,damage may occur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

**Other voltages may be available upon request.*

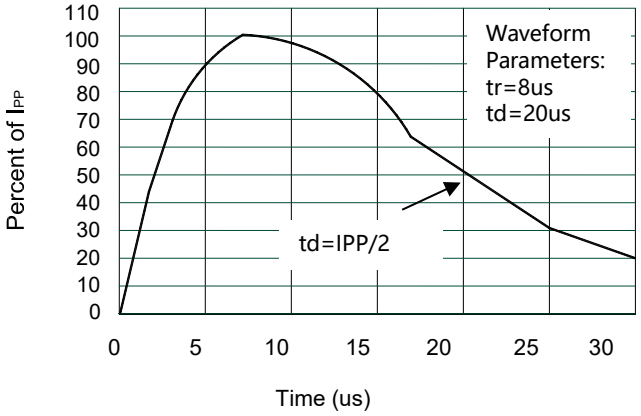
1. Non-repetitive current pulse, per Figure 1.

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	I_T = 1mA,	6.0			V
I_R	Reverse Leakage Current	V_{RWM} = 5.5V,		0.001	0.2	μA
V_C	Clamping Voltage	I_{PP} = 1A , tp =8/20μs			12	V
		I_{PP} = 4A, tp =8/20μs			25	V
C_J	Junction Capacitance	V_R= 0V, f = 1MHz		0.3	0.5	pF

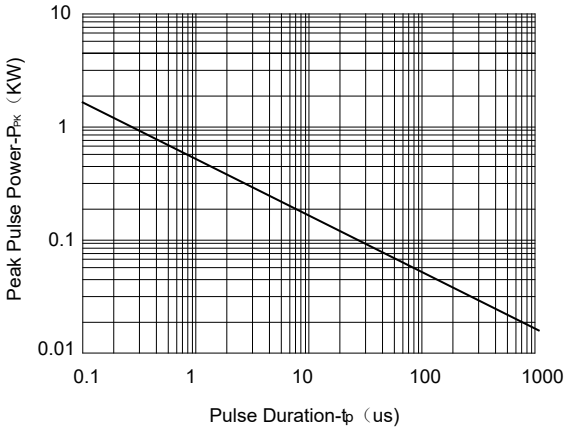
Symbol	Parameter
V_{RWM}	Working Peak Reverse Voltage
V_{BR}	Breakdown Voltage @ I_T
V_C	Clamping Voltage @ I_{PP}
I_T	Test Current
I_{RM}	Leakage current at V_{RWM}
I_{PP}	Peak pulse current
C_O	Off-state Capacitance
C_J	Junction Capacitance



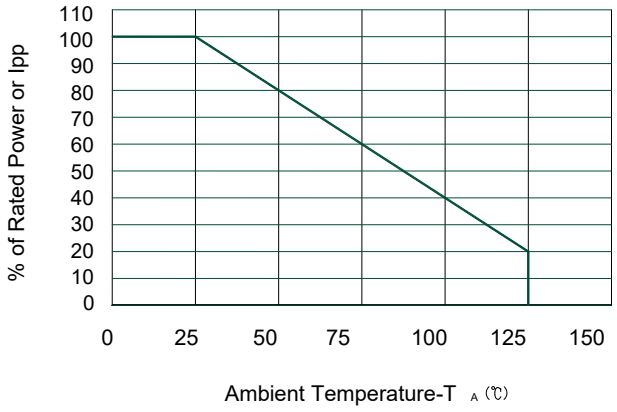
Typical electrical characterist applications



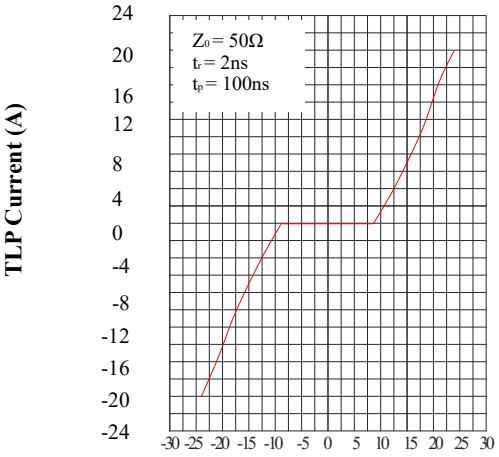
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve



TLP Measurement

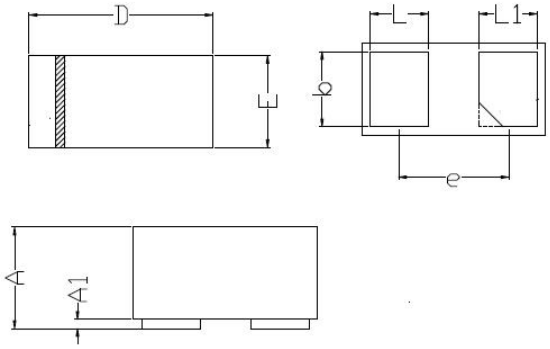
Package Information

DFN0603-2L

Mechanical Data

Case: DFN0603-2L

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.230	0.330
A1	0.000	0.050
D	0.550	0.670
E	0.250	0.370
b	0.175	0.275
L	0.11	0.21
L1	0.11	0.21
e	0.355BSC	

Recommended Pad outline