

ECEHCAB7VU

Bidirectional Micro Packaged TVS Diodes for ESD Protection

The ECEHCAB7VU is an uni-directional 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 ECEHCAB7VU complies with the IEC61000-4-2(ESD) with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. It is assembled into an ultra-small 1.0X0.6mm lead-free DFN package. The small size and high ESD surge protection make ECEHCAB7VU an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

Features

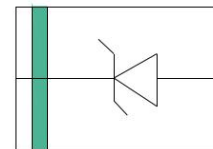
- Peak Power Dissipation – 250 W (8 x 20 us Waveform)
- Working voltage: 7V
- Replacement for MLV (0402)
- Protects I/O Port
- Low Clamping Voltage
- Low Leakage
- Low Capacitance
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- ROHS compliant



DFN1006

Main applications

- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV
- Cellular handsets and accessories
- Portable instrumentation
- Peripherals
- Digital Cameras



Protection solution to meet

- IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

Ordering Information

Device	Qty per Reel	Reel Size
ECEHCAB7VU	10000pcs	7inch

Maximum ratings (Tamb=25°C Unless Otherwise Specified)			
Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20µs waveform)	PPPP	250	Watts
Peak Pulse Current (8/20µs)	I _{PP}	18	A
ESD Rating per IEC61000-4-2:	Contact	30	KV
	Air	30	
Lead Soldering Temperature	T _L	260 (10 sec.)	°C
Operating Temperature Range	T _J	-55 ~ 125	°C
Storage Temperature Range	T _{STG}	-55 ~ 150	°C
Lead Solder Temperature – Maximum (10 Second Duration)	T _L	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.

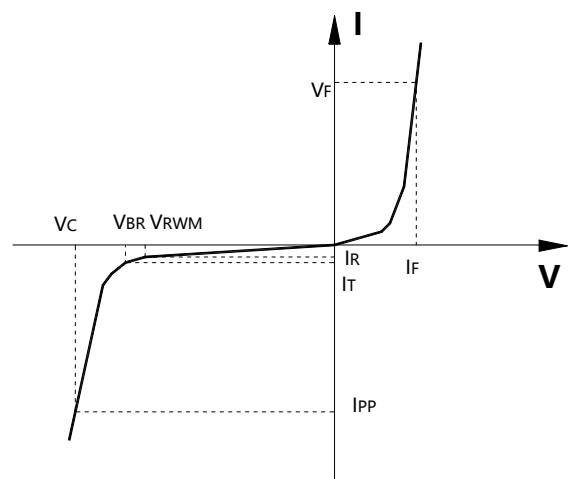
*Other voltages may be available upon request.

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

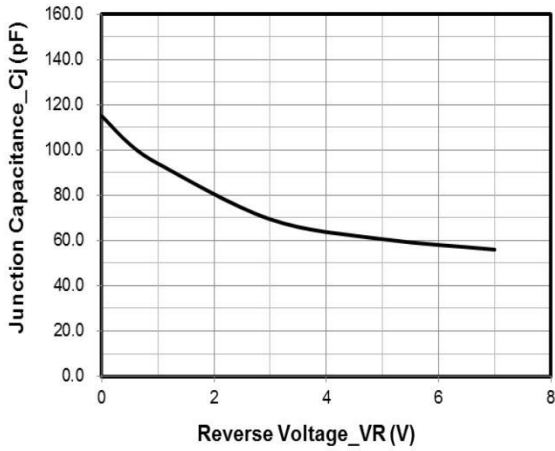
Electrical characteristics (Tamb=25°C Unless Otherwise Specified)						
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V _{RWM}	Reverse Working Voltage				7.0	V
V _{BR}	Reverse Breakdown Voltage	I _T = 1mA,	7.5			V
I _R	Reverse Leakage Current	V _{RWM} = 7V,			0.2	µA
V _F	Diode Forward Voltage	I _F = 10mA		0.85	1.2	V
V _C	Clamping Voltage	I _{PP} = 1A, tp =8/20µs,			10	V
		I _{PP} = 18A, tp =8/20µs,			14	V
C _J	Junction Capacitance	V _R = 0V, f = 1MHz,			160	pF

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

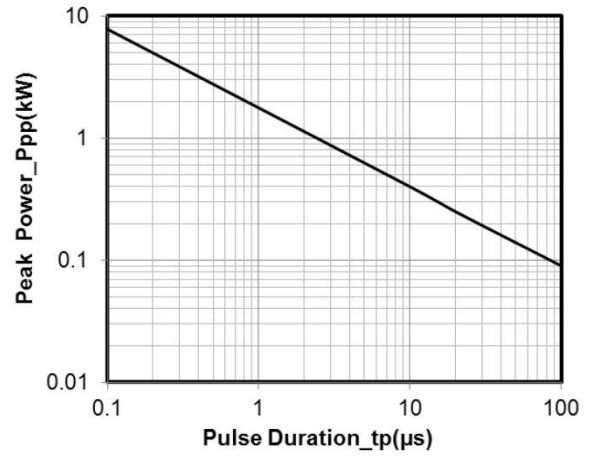
Symbol	Parameter
V _{RWM}	Working Peak Reverse Voltage
V _{BR}	Breakdown Voltage @ I _T
V _C	Clamping Voltage @ I _{PP}
I _T	Test Current
I _{RM}	Leakage current at V _{RWM}
I _{PP}	Peak pulse current
C _O	Off-state Capacitance
C _J	Junction Capacitance



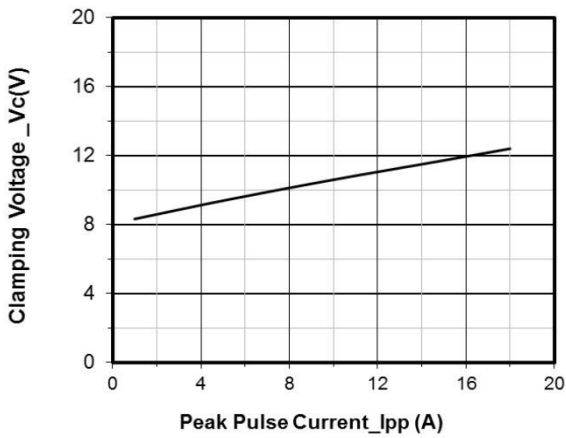
Typical electrical characteristic applications



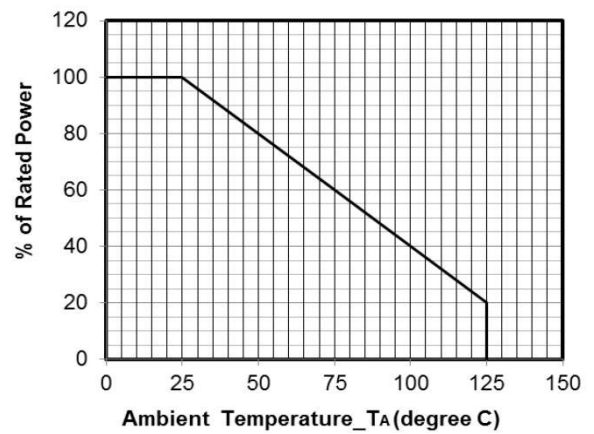
Junction Capacitance vs. Reverse Voltage



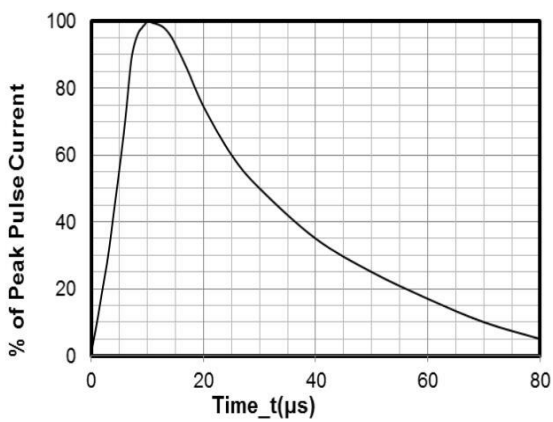
Peak Pulse Power vs. Pulse Time



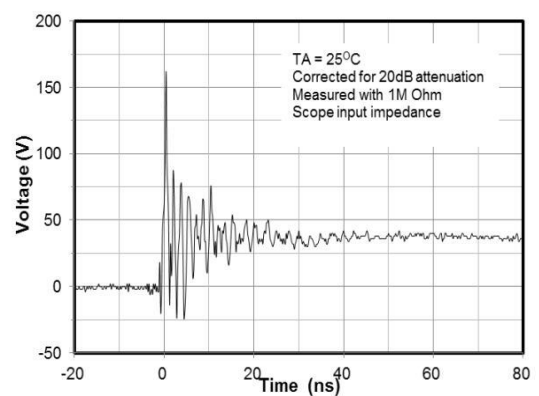
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20μs Pulse Waveform



ESD Clamping Voltage

8 kV Contact per IEC61000-4-2

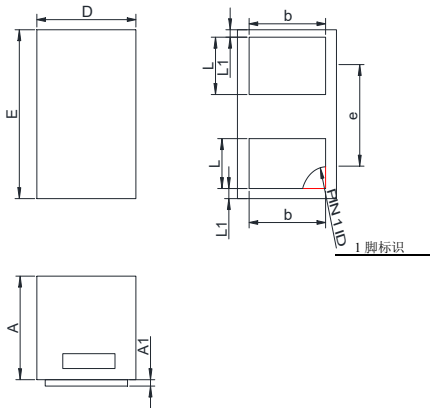
Package Information

DFN-1006

Mechanical Data

Case:DFN1006

Case Material: Molded Plastic. UL Flammability



DIM	Millimeters	
	Min	Max
A	0.40	0.50
A1	0.00	0.05
D	0.55	0.65
E	0.95	1.05
b	0.40	0.55
e	0.65TYP	
L	0.15	0.35
L1	0.05REF	

Recommended Pad outline

