

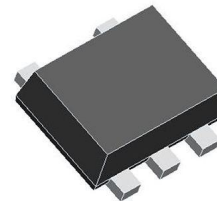
## ECENCDM5VU

### TVS Diode Array For ESD and Latch-Up Protection

The ECENCDM5VU TVS array is designed to protect sensitive electronics from damage or latch-up due to ESD and other voltage-induced transient events. It is designed for use in applications where board space is at a premium. Each device will protect up to five lines. It is unidirectional devices and may be used on lines where the signal polarities are above ground. TVS Diode Array For ESD and Latch-Up Protection.

#### Features

- Protects four I/O lines
- Low capacitance
- Working voltages : 5V
- Low leakage current
- Response Time is < 1 ns
- Low operating and clamping voltages
- ROHS compliant
- Meets MSL 1 Requirements
- **Solid-state silicon avalanche technology**
- Weight 3 milligrams (Approximate)



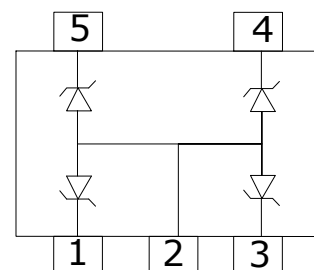
**SOT-553**

#### Main applications

- Cellular Handsets and Accessories
- Cordless Phones
- Personal Digital Assistants (PDA's)
- Notebooks and Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- MP3 Players

#### 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
ECENCDM5VU	3000	7 Inch

Maximum ratings (Tamb=25°C Unless Otherwise Specified)			
Parameter	Symbol	Value	Unit
Peak Pulse Power (tp=8/20µs waveform)	P <sub>PPP</sub>	50	Watts
Peak Pulse Current(tp=8/20µs waveform)	I <sub>PP</sub>	2.5	A
ESD Rating per IEC61000-4-2:	Contact	8	KV
	Air	15	
Lead Soldering Temperature	T <sub>L</sub>	260 (10 sec.)	°C
Operating Temperature Range	T <sub>J</sub>	-55 ~ 150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ 150	°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.

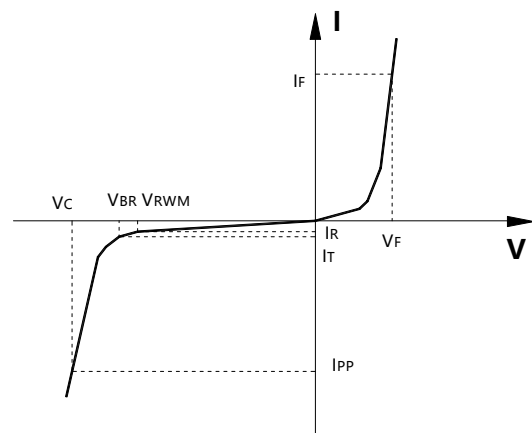
\*Other voltages may be available upon request.

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

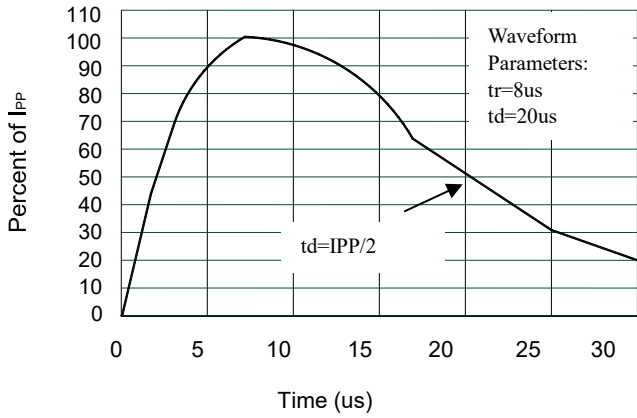
Electrical characteristics ( Tamb=25°C Unless Otherwise Specified)						
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
V <sub>RWM</sub>	Reverse Working Voltage				5.0	V
V <sub>BR</sub>	Reverse Breakdown Voltage	I <sub>T</sub> = 1mA,	6.0			V
I <sub>R</sub>	Reverse Leakage Current	V <sub>RWM</sub> = 5V,			100	nA
V <sub>F</sub>	Diode Forward Voltage	I <sub>F</sub> = 15mA		0.85	1.2	V
V <sub>C</sub>	Clamping Voltage	I <sub>PP</sub> = 1A, tp =8/20µs,			10	V
		I <sub>PP</sub> = 2.5A, tp =8/20µs,			13	V
I <sub>PP</sub>	Peak Pulse Current	tp =8/20µs			2.5	A
C <sub>J</sub>	Junction Capacitance	V <sub>R</sub> = 0V, f = 1MHz,		15	20	pF

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

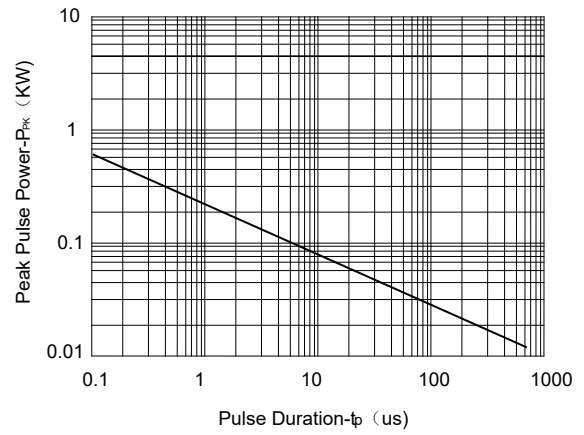
Symbol	Parameter
V <sub>RWM</sub>	Working Peak Reverse Voltage
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
I <sub>T</sub>	Test Current
I <sub>RM</sub>	Leakage current at V <sub>RWM</sub>
I <sub>PP</sub>	Peak pulse current
C <sub>O</sub>	Off-state Capacitance
C <sub>J</sub>	Junction Capacitance



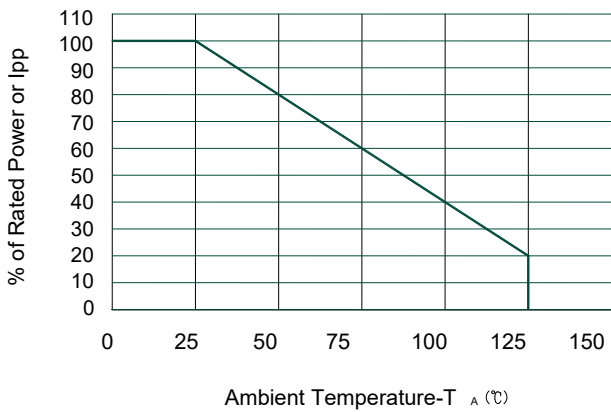
**Typical electrical characterist applications**



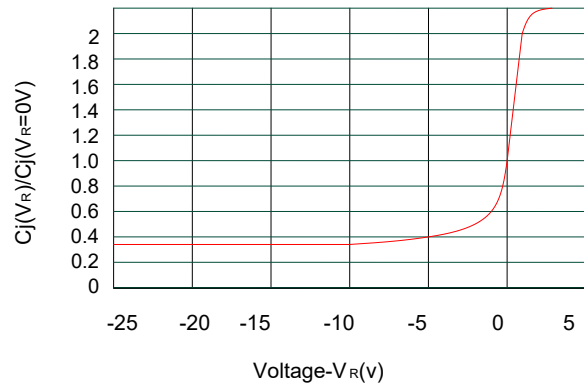
**Pulse Waveform**



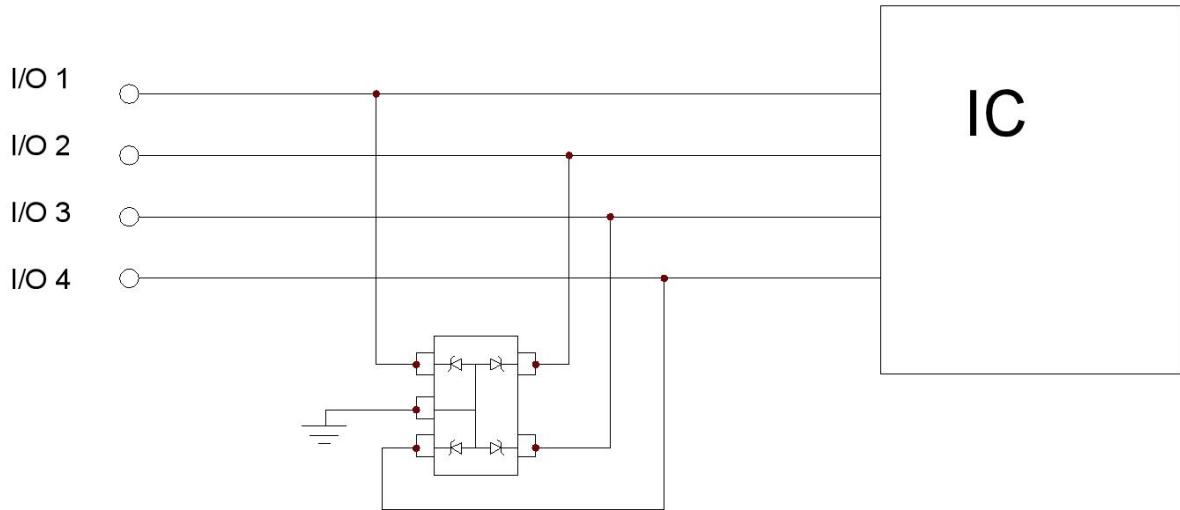
**Non-Repetitive Peak Pulse Power vs. Pulse Time**



**Power Derating Curve**



**Junction Capacitance vs. Reverse Voltage**

**Typical applications**

**Device Connection for Protection of Four Data Lines**

The ECENCDM5VU is designed to protect up to four unidirectional data lines. The device is connected as follows:

Unidirectional protection of four I/O lines is achieved by connecting pins 1, 3, 4 and 5 to the data lines. Pin 2 is connected to ground. The ground connection should be made directly to the ground plane for best results. The path length is kept as short as possible to reduce the effects of parasitic inductance in the board traces.

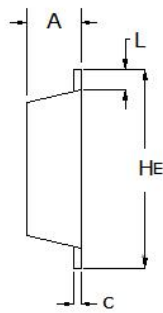
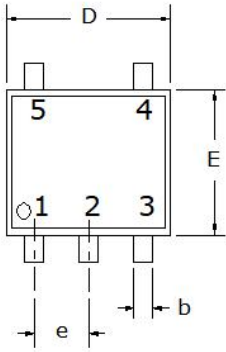
**Package Information**

**SOT-553**

**Mechanical Data**

Case: SOT-553

Case Material: Molded Plastic. UL Flammability



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	0.525	0.60	0.021	0.024
b	0.17	0.27	0.007	0.011
c	0.09	0.16	0.004	0.006
D	1.50	1.70	0.059	0.067
E	1.10	1.30	0.043	0.051
e	0.50BSC		0.020BSC	
L	0.10	0.30	0.004	0.012
HE	1.50	1.70	0.059	0.067

**Recommended Pad outline**

