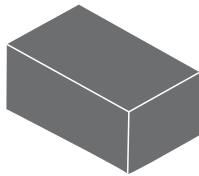
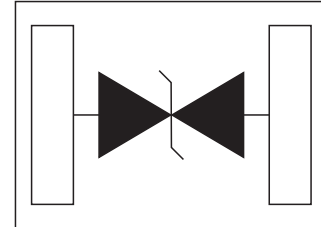


# Electro-Static Discharge for Automobile AUSD12CB Ultra Low Capacitance TVS/ESD Protection Diode

## DFN1006



## Pin Configuration



## Features

- Package optimized for high-speed lines
- Ultra-small package (1.0mm×0.6mm×0.55mm)
- Protects one data, control or power line
- Low capacitance
- Low leakage current
- Low clamping voltage

## IEC Compatibility

- IEC61000-4-2 (ESD) ±20kV (air), ±15kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

## Applications

- Serial ATA
- USB Ports
- PCI Express
- Cellular Phones
- Desktops, Servers and Notebooks

## Mechanical Characteristics

- DFN1006 package
- Flammability Rating: UL 94V-0
- Packaging: Tape and Reel
- High temperature soldering guaranteed: 260°C/10s
- Quantity Per Reel : 10,000pcs
- Reel size: 7 inch
- Material: Halogen free

Maximum Ratings( $T_A=25^{\circ}\text{C}$  unless otherwise specified )

Parameter	Symbol	Value	Units
Peak Pulse Power( $t_p=8/20\mu\text{s}$ )	$P_{PP}$	20	Watts
Lead Soldering Temperature	$T_L$	260(10 sec.)	$^{\circ}\text{C}$
Operating Temperature Range	$T_{OPT}$	-55~125	$^{\circ}\text{C}$
Storage Temperature Range	$T_{STG}$	-55~150	$^{\circ}\text{C}$

Electrical Characteristics( $T_A=25^{\circ}\text{C}$  unless otherwise specified )

AUSD12CB (Marking: C5)						
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse Stand-off Voltage	$V_{RWM}$				12	V
Reverse Breakdown Voltage	$V_{BR}$	$I_T=1\text{mA}$		16		V
Reverse Leakage Current	$I_R$	@ $V_{RWM}$			1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP}=1\text{A}, t_p=8/20\mu\text{s}$		18	20	V
Junction Capacitance	$C_J$	$V_R=0\text{V}, f=1\text{MHz}$			0.8	pF

Electrical Characteristics Curve

Fig.1 Pulse Waveform

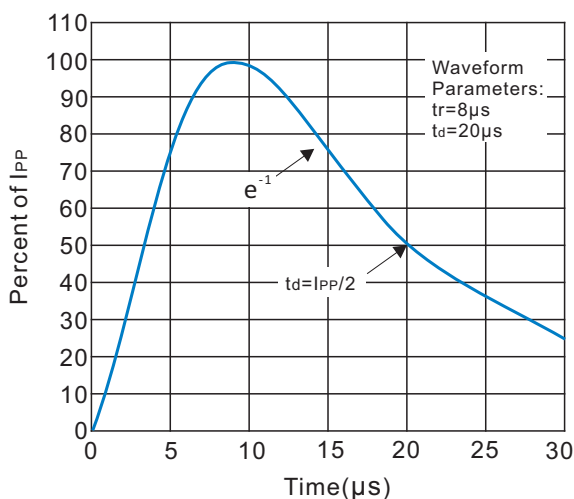
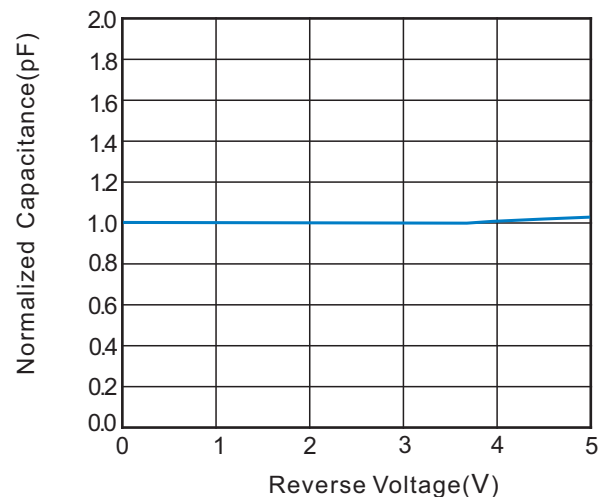
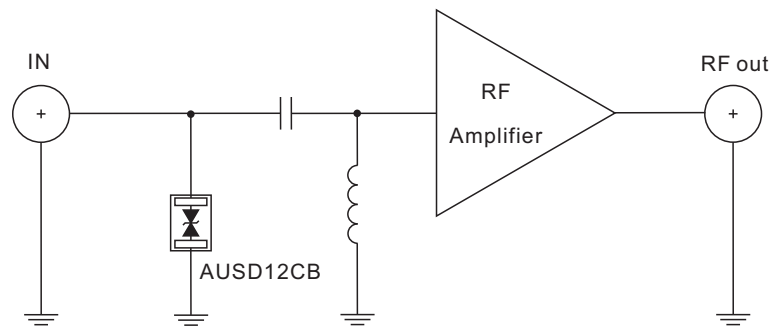


Fig.2 Normalized Capacitance vs.Reverse Voltage



RF Protection

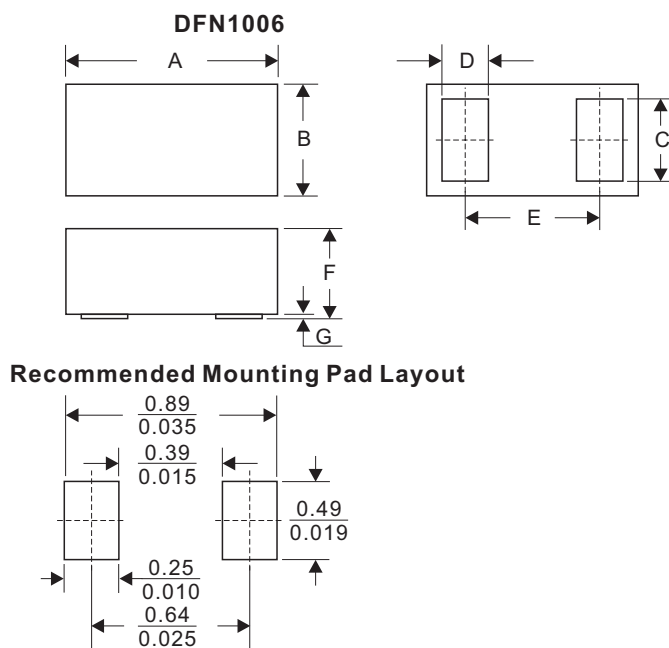


### PCB Layout Recommendations

The location and circuit board layout is critical to maximize the effectiveness of the RF protection circuit. The following guidelines are recommended:

- Locate the protection devices as close as possible to the RF connector. This allows the protection devices to absorb the energy of the transient voltage before it can be coupled into the adjacent traces on the PCB.
- Minimize the loop area for the high-speed data lines, power and ground lines to reduce the radiated emissions.
- Avoid running protection conductors in parallel with unprotected conductors
- Use ground planes wherever possible to reduce the parasitic capacitance and inductance of the PCB that degrades the effectiveness of a filter device.
- Using shared transient return paths to a common ground point.

### Dimensions(DFN1006)



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	0.95	1.07	0.037	0.042
B	0.55	0.65	0.022	0.026
C	0.45	0.55	0.017	0.022
D	0.20	0.30	0.008	0.012
E	0.65BSC		0.026BSC	
F	0.40	0.55	0.015	0.022
G	0.00	0.10	0.000	0.004