

Features

- Provides ESD Protection per IEC 61000-4-2 Standard: Air $\pm 25\text{kV}$, Contact $\pm 25\text{kV}$
- 1 Channel of ESD Protection
- High Peak Pulse Current per IEC 61000-4-5 Standard
- Low Channel Input Capacitance
- Typically Used in Cellular Handsets, Portable Electronics, Communication Systems, Computers and Peripherals
- Response time is Typically $<1\text{ns}$
- **Lead Free/RoHS Compliant**

Mechanical Data

- Case: 0402(DFP1006)
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: NiPdAu over Copper leadframe. Solderable per MIL-STD-202, Method 208

DFP1006



Specification Features

- Small Body Outline Dimensions: nom 0.039" x 0.024" (1.0x0.6 mm)
- Low Body Height: nom 0.019" (0.5 mm)
- Low Capacitance 8 pF
- Low Clamping Voltage
- Reverse Working (Stand-off) Voltage: 5 V
- Low Leakage
- Response Time is Typically $<1\text{ ns}$
- IEC61000-4-2 Level 4 ESD Protection
- This is a Pb-Free Device

ORDERING INFORMATION

Device	Package	Shipping
SXESD8D5VD	DFP1006	10000PCS

Mechanical Characteristics:

- CASE: Void-free, transfer-molded, thermosetting plastic Epoxy Meets UL 94 V-0
- LEAD FINISH: NiPdAu
- MOUNTING POSITION: Any
- QUALIFIED MAX REFLOW TEMPERATURE: 260°C
- Device Meets MSL 1 Requirements
- RoHS/WEEE Compliant
- Marking: Marking code

Applications

- Cellular Handsets & Accessories
- Personal Digital Assistants (PDAs)
- Notebooks & Handhelds
- Portable Instrumentation
- Digital Cameras
- Peripherals
- MP3 Players

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

Characteristic	Symbol	Value	Unit	Conditions
Peak Pulse Power Dissipation	P_{PP}	96	W	8/20 μs
Peak Pulse Current	I_{PP}	8	A	8/20 μs
ESD Protection – Contact Discharge	$V_{ESD_Contact}$	± 25	kV	IEC 61000-4-2 Standard
ESD Protection – Air Discharge	V_{ESD_Air}	± 25	kV	IEC 61000-4-2 Standard

Thermal Characteristics

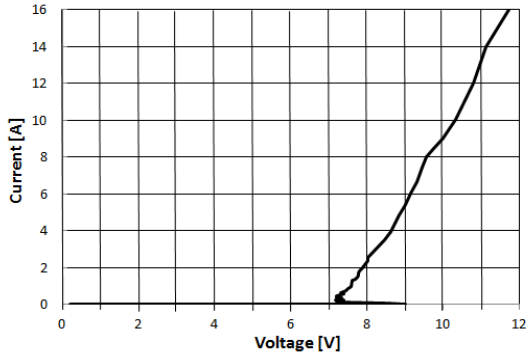
Characteristic	Symbol	Value	Unit
Package Power Dissipation	P_D	250	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	500	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	$^\circ\text{C}$

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

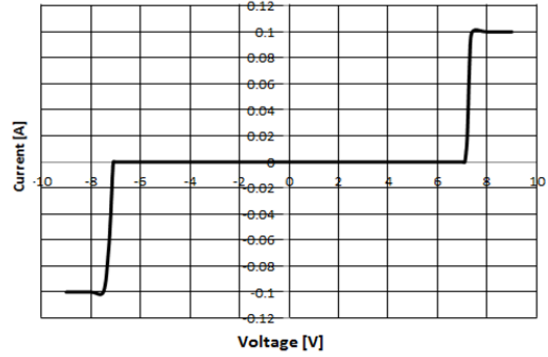
ITEM	Symbol	Value	Unit
Working Peak Reverse Voltage	V_{RWM}	5.0	V
Maximum Reverse Leakage (@ $V_{RWM}, 25^\circ\text{C}$) (Between I/O_1 and I/O_2)	IR	Typ. 0.001 (Max. 0.08)	μA
Breakdown Voltage (@ $I_T=1\text{mA}$) (Between I/O_1 and I/O_2)	VBR	Typ. 7.5 (Min. 5.5 Max. 9.8)	V
Clamping voltage (@ $I_{PP}=16\text{A}$, $t_p=100\text{ns}$)	V_{CL}	12	V
Clamping voltage (@ $V_{ESD} = 8\text{kV}$)	V_{CL}	12	V
Maximum Clamping Voltage (@ $I_{PP}=1\text{A}$, $t_p=8/20\mu\text{s}$) (Between I/O_1 and I/O_2)	VC	Max. 8	V
Maximum Clamping Voltage (@ $I_{PP}=8\text{A}$, $t_p=8/20\mu\text{s}$) (Between I/O_1 and I/O_2)	VC	Max. 12	V
Parasitic Capacitance (@ $V_R=0\text{V}$, $f=1\text{MHz}$) (Between I/O_1 and I/O_2)	CESD	Typ. 8	pF

Rating and Characteristic Curves

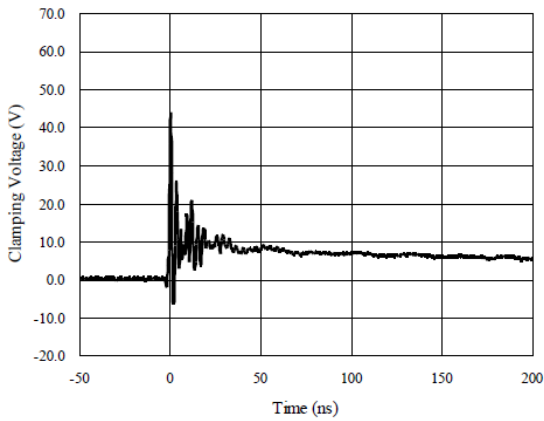
TLP Measurement



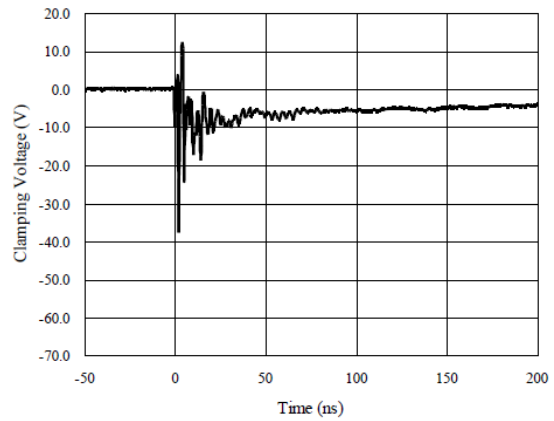
Voltage Sweeping of I/O_1 to I/O_2



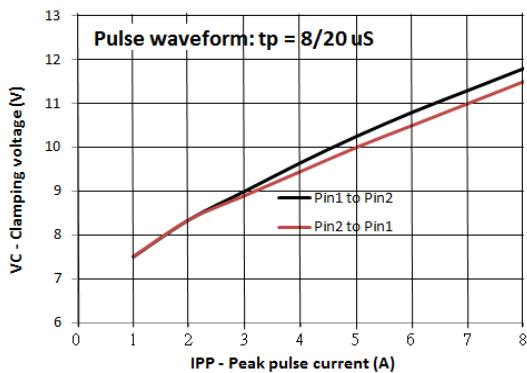
ESD Clamping of I/O_1 to I/O_2 (+8kV Contact per IEC 61000-4-2)



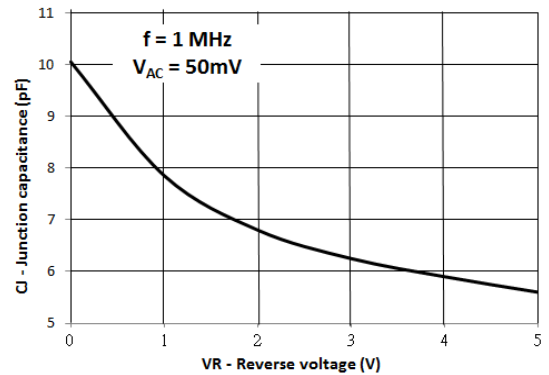
ESD Clamping of I/O_1 to I/O_2 (-8kV Contact per IEC 61000-4-2)



Clamping Voltage vs. Peak Pulse Current

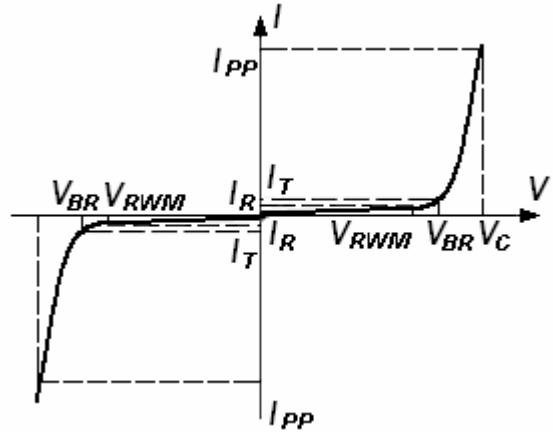


Capacitance vs. Reverse voltage



Electrical Parameter

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
I_T	Test Current
V_{BR}	Breakdown Voltage @ I_T



Package Outline Dimensions

Model	0402 (DFP1006)
Length(L)	1.00 ±0.05
Width(W)	0.55 ±0.10
Thickness(T)	0.55 ±0.10
Termination(a)	0.25±0.05

Suggested Pad Layout

(Unit : mm)

	A	B	C	D
0402	0.4~0.5	1.4~1.8	0.55~0.65	0.4~0.7

