



**9/10 CHANNEL LIVE ESD PROTECTION ARRAY**

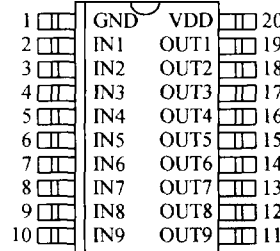
**Features**

- ◆ Live ESD protection up to 10KV
- ◆ EMI noise filter for very high frequencies

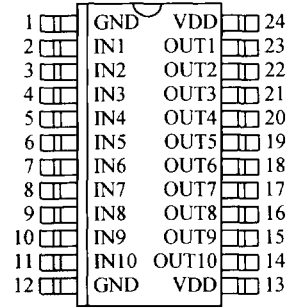
**Applications**

- ◆ EMI/RFI filtering
- ◆ Protection of sensitive devices against latch-up
- ◆ Protection of IC terminals which are exposed to ESD discharge during operation

**Pin Assignments**



**IPEC 27A90**



**IPEC 27A91**

**Application Information**

With VDD connected to the positive rail and VSS connected to the negative rail of a power supply and the lines from an integrated circuit, to be protected from ESD discharges, connected to the outputs of the IPEC 27A90/91 and the inputs of the IPEC 27A90/91 connected to an external connector, this IC will effectively protect the other IC from ESD discharges up to 10KV (human body model, 100pF through 1.5KΩ MIL-STD-883), which also includes prevention of ESD induced latch-up. It also will present a low pass filter to the signals coming from the logic circuitry to the connector which attenuates or eliminates the very high frequency components (RFI/EMI). In case only the negative rail, e.g. ground, is accessible for the IPEC 27A90/91, the use of a single, discrete zener diode from the VDD pin to the VSS pin will effectively replace the positive supply and protect the driver chip from positive ESD discharges as well.

Another alternative, in case that only the negative rail is available, is to connect a capacitor from the VDD pin to the VSS pin with least 1μF value. An unlikely but possible problem with this solution is that the first low to high signal transition of any of the signal lines after a power-up or after extended periods with all signal lines low will be loaded with that 1μF capacitor via a forward biased diode.

**Absolute Maximum Ratings**

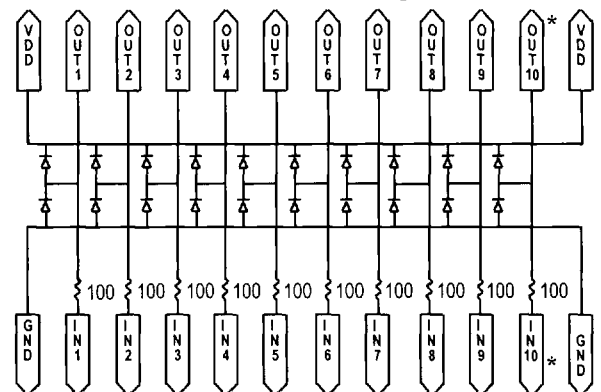
Parameter	Symbol	Rating	Unit
Supply Voltage	VDD-GND	-0.3 ... +7	V
DC-Voltage at any channel input	V <sub>in</sub>	-5 ... VDD + 5	V
DC-Voltage at any channel output	V <sub>out</sub>	-0.8 ... VDD + 0.8	V
Channel clamp current (continuous)	I <sub>in</sub>	±50	mA
Channel clamp current (peak, ≤ 20ns)	I <sub>clamp</sub>	±8	A
Power Dissipation, I <sub>F</sub> ≤ 50 mA/channel, T <sub>A</sub> -75°C		600	mW
Storage Temperature	T <sub>stg</sub>	-65 ... +150	°C

The absolute maximum ratings are limiting values, to be applied individually, beyond which the device may be permanently damaged. Functional operation under any of these conditions is not guaranteed. Exposing the device to its absolute maximum rating may affect its reliability.

**Electrical Characteristics (T<sub>A</sub> = 0 ... 70°C)**

Parameter	Conditions	Min	Typ	Max	Unit
Resistance (IN - OUT)		95	100	105	Ω
Diode clamping voltage	I <sub>out</sub> = 100mA		VDD + 1.2		V
	I <sub>out</sub> = -100mA		-1.0		V
Channel leakage	0 ≤ V <sub>in</sub> ≤ VDD		100		nA
Output capacitance	V <sub>out</sub> = 0V		8		pF

**Functional Block Diagram**



\* Applicable to 10 channel array type.

**ORDERING INFORMATION**

Array Type	Package		Ordering Code		Part Marking
	Pins	Style	Tubes	Tape & Reel	
9 Channel	20	SOIC	IPEC27A90/T	IPEC27A90/R	IPEC27A90
10 Channel	24	SOIC	IPEC27A91/T	IPEC27A91/R	IPEC27A91