

Preliminary Data Sheet

Wire-bondable ESD/TVS Zener Diode Arrays

Features:

- 2, 4, 6 & 8 channel transient voltage suppressors (TVS) ESD Zener diodes as bare-die for chip & wire assembly
- Product is offered with the option of Anode (P) or Cathode (N) Top Wire-bond Pad
- In-system ESD protection to $\pm 15\text{kV}$ contact discharge, per the IEC 61000-4-2 international standard
- Full ROHS compliant

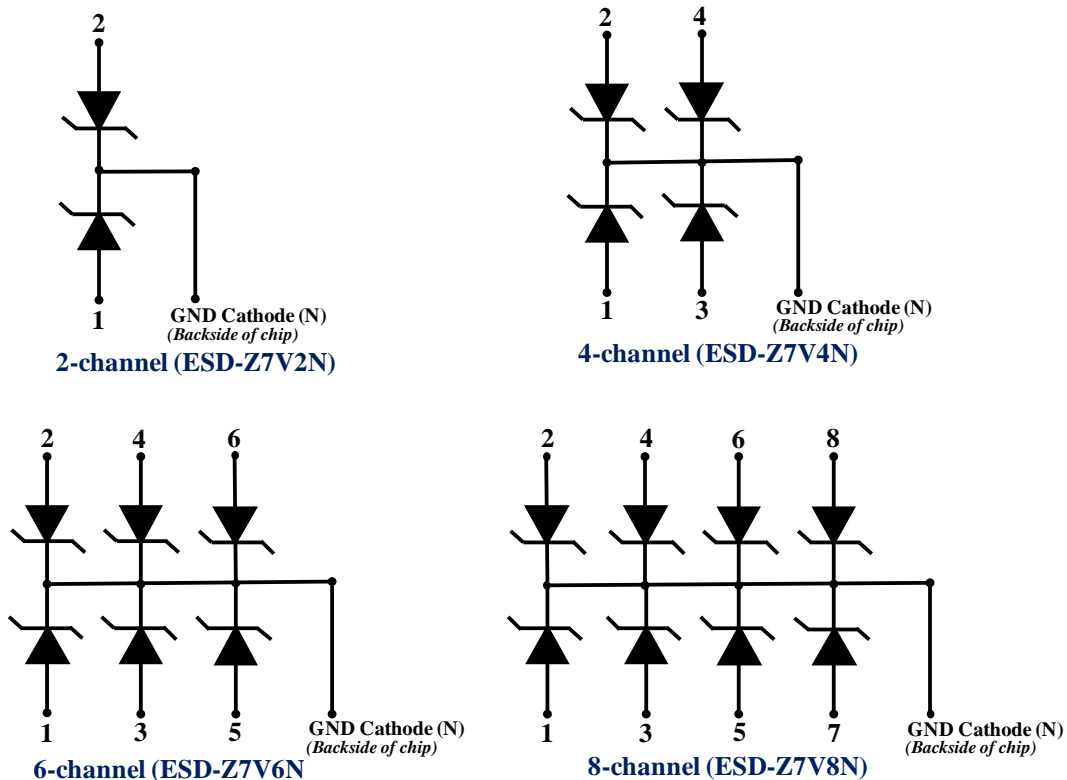
Applications:

- ESD/TVS Protection of HB LED, RFID Tags, MCM, COB, Smart Connectors and other proprietary ports
- Protection of interface ports or IC pins which are exposed to high ESD levels

Product Description

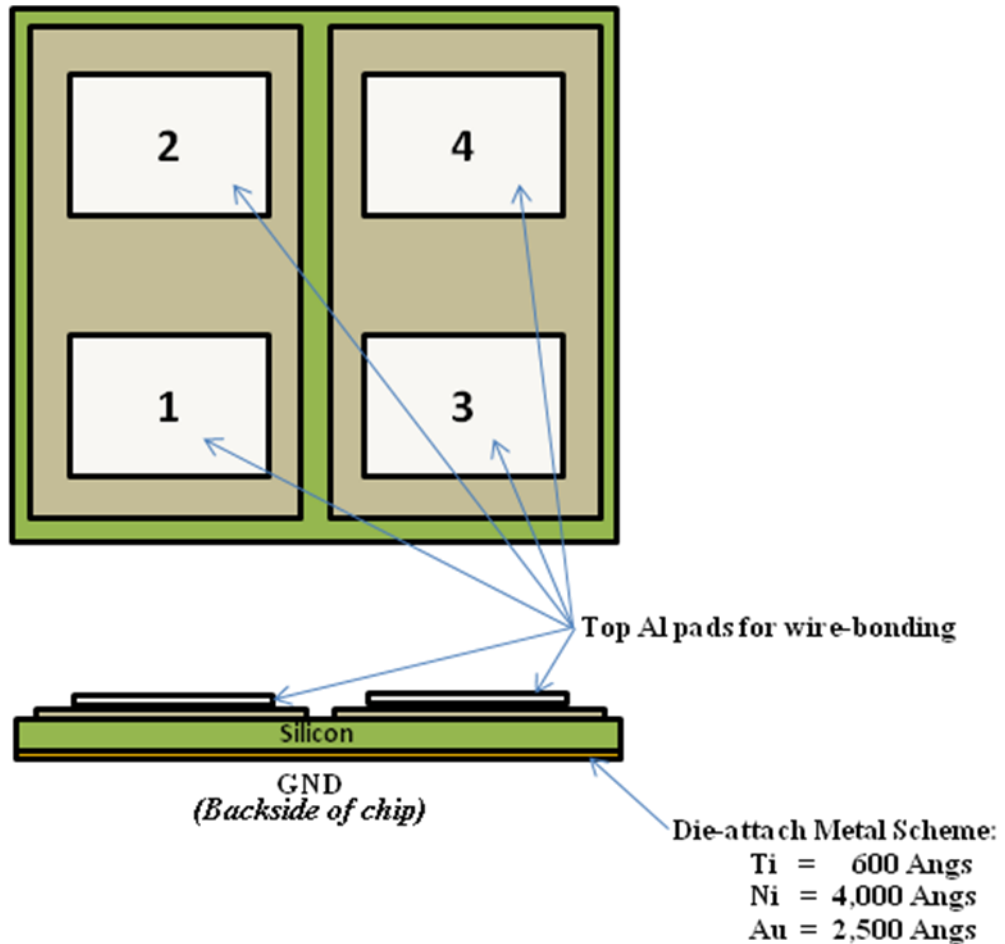
The ESD-Z7V family of transient voltage suppressor arrays provides a very high level of protection for sensitive electronic components, which may be subjected to electrostatic discharge (ESD). The ESD-Z7V devices safely dissipate ESD strikes, exceeding the IEC 61000-4-2 International Standard, Level 4 ($\pm 8\text{kV}$ contact discharge). All pads are rated to withstand $\pm 15\text{kV}$ ESD pulses using the IEC 61000-4-2 contact discharge method. Using the MIL-STD-883D (Method 3015) specification for Human Body Model (HBM) ESD, all pins are protected from contact discharges of greater than $\pm 30\text{kV}$.

Electrical Schematic for Anode (P) top-pads (ESD-Z7VxN)

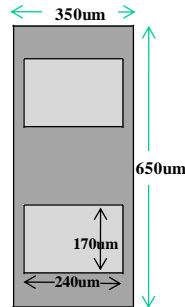


ELECTRICAL PARAMETERS for ESD-Z7VxN		MIN	TYP	MAX	UNIT
LEAKAGE CURRENT AT V=5V, 25C			1	100	nA
SIGNAL CLAMP VOLTAGE AT 25C	POSITIVE CLAMP, 10mA	0.6	1	1.3	V
	NEGATIVE CLAMP, 10mA	-8.5	-7.5	-7	
ESD WITHSTAND VOLTAGE	HBM (MIL STANDARD 883, 3015)	30			Kv
CLAMPING VOLTAGE DURING ESD DISCHARGE (MIL STD-883, 3015)	POSITIVE			1.5	V
	NEGATIVE	-9			V
DIODE INPUT CAPACITANCE @0V			15		pF
TEMPERATURE RANGE	OPERATING	-40		150	C
	STORAGE	-65		150	C

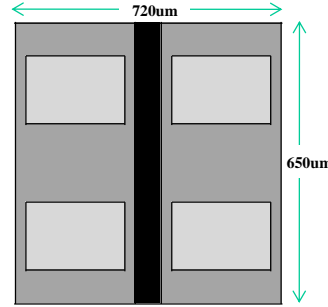
Below is the top-view and side-view for a 4-channel (ESD-Z7V4):



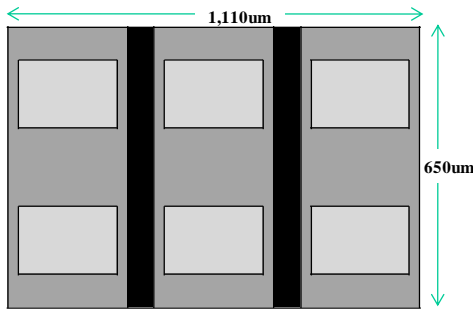
Mechanical specifications:		Unit
Die composition	Silicon wafer, n+ doped or p+ doped	
Die shape	Rectangle	
Pad length	170	μm
Pad width	240	μm
Top Pad Metal	Aluminum	
Back Metal Composition	Ti(600Angs) / Ni(4,000Angs) / Au(2,500Angs)	



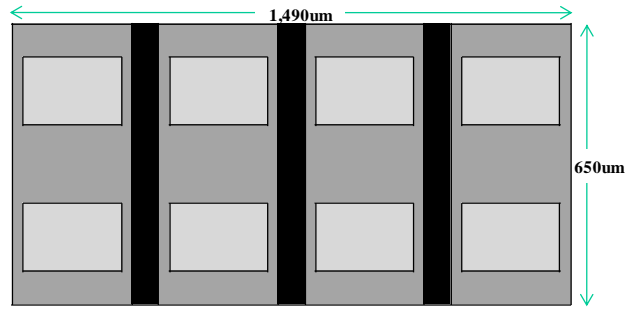
2-channel



4-channel



6-channel



8-channel

Ordering Part No.						
Part Family	Number of Channels	Substrate Type	Chip Thickness	Ship Method	Front Metal Pad for Wire-bonding	Back Metal for Die Attach (Typical thickness)
ESD-Z7V	2 = 2-ch	N = N-type Silicon	4 = 4 mils	W = Shipped as unsawn full wafer	A = Aluminum	1 = Ti/Ni/Au (550A/4,000A/2,500A)
	4 = 4-ch	P = P-type Silicon	6 = 6 mils	B = Diced and shipped on mylar/tape	G = Gold	2 = Ti/Ag (550A/5,000A)
	6 = 6-ch		8 = 8 mils	P = Waffle or GelPaks		3 = Ti/Ni/AuSn (550A/2,000A/3um)
	8 = 8-ch		9 = 9 mils			4 = Ti/Ni/Au/AuSn/Au (100A/3,000A/100A/2um/200A)

Part Number Example: ESD-Z7V2N8BA1 is 7Volt, 2-channel Zener Diode ESD chip with N-type silicon substrate, 8 mils thickness, shipped as diced 5" wafers in saw rings with Aluminum top pads and Ti/Ni/Au back metal.