

## ESD Protection TVS Zener Diode Arrays

### Features:

- 2, 3, 4, 5 and 6 transient voltage suppressors (TVS) Zener diodes in a miniature package
- Compact SMT package saves board space and facilitates layout in space-critical applications
- In-system ESD protection to  $\pm 15\text{kV}$  contact discharge, per the IEC 61000-4-2 international standard
- Full ROHS compliant

### Applications:

- ESD Protection of PC ports, including USB ports, serial ports, parallel ports, IEEE 1394 ports, docking ports, proprietary ports, etc.
- Protection of interface ports or IC pins which are exposed to high ESD levels

### Product Description

The ESD2200 family of transient voltage suppressor arrays provide a very high level of protection for sensitive electronic components, which may be subjected to electrostatic discharge (ESD). The ESD2200 devices safely dissipate ESD strikes, exceeding the IEC 61000-4-2 International Standard, Level 4 ( $\pm 8\text{kV}$  contact discharge). All pins 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  $\pm 30\text{kV}$ .

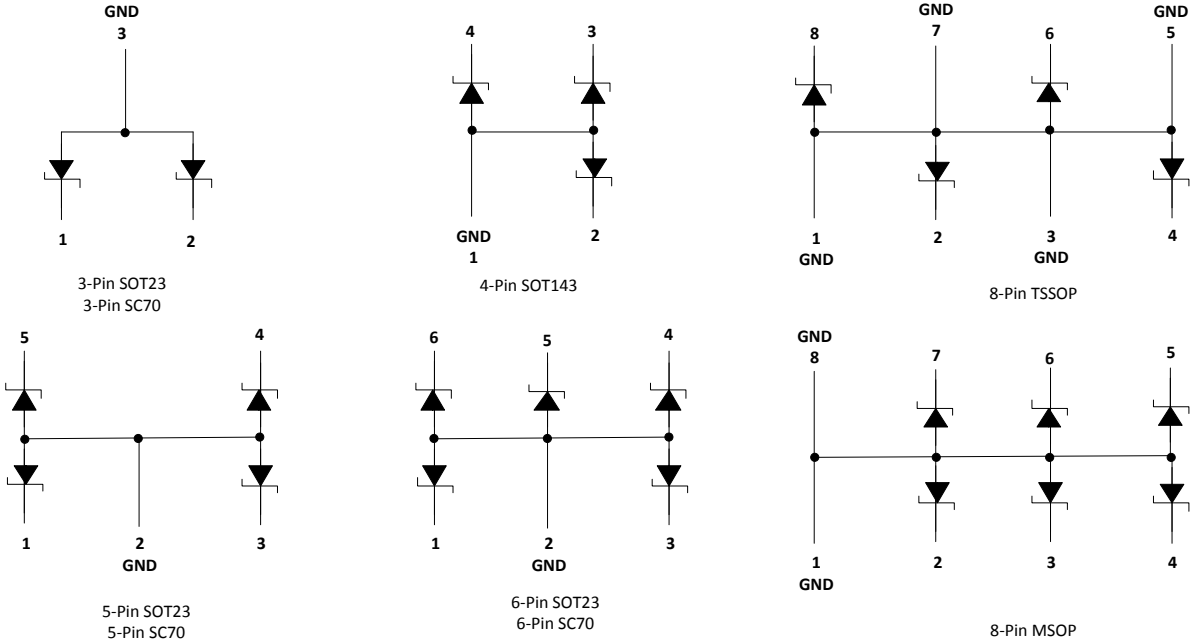
The ESD2200 is available with lead-free finishing, supporting the current global industry movement to lead-free manufacturing.

PIN DESCRIPTIONS		
PINS	NAME	DESCRIPTION
(Refer to package outline drawings)	TVS Cathode	The cathode of the respective TVS diode, which should be connected to the node requiring transient voltage protection.
(Refer to package outline drawings)	GND	The anode of the TVS diodes.

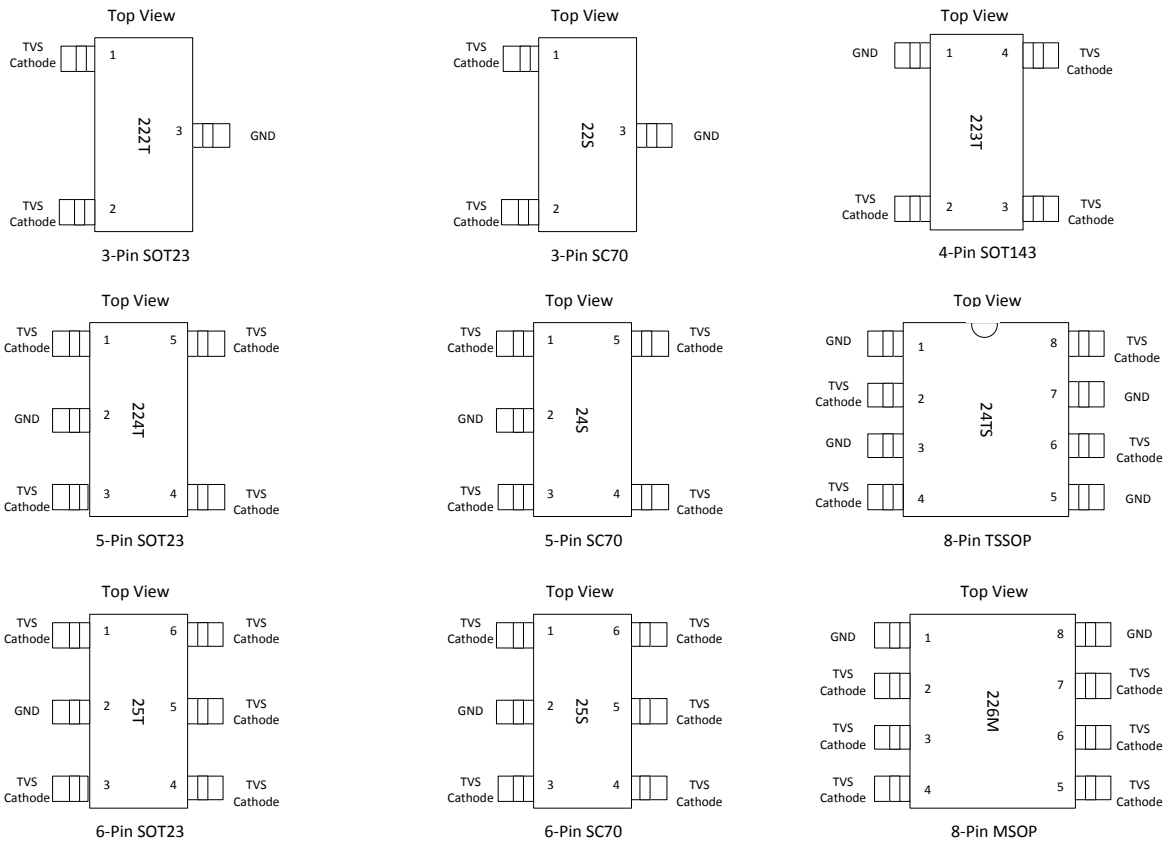
ABSOLUTE MAXIMUM RATINGS		
PARAMETER	RATING	UNITS
Storage Temperature Range	-65 to +150	$^{\circ}\text{C}$
Package Power Dissipation		
SC70	0.200	W
SOT23 & SOT143	0.225	W
TSSOP & MSSOP	0.500	W

STANDARD OPERATING CONDITIONS		
PARAMETER	UNITS	UNITS
Operating Temperature	-40 to +85	$^{\circ}\text{C}$

## Electrical Schematic



## Package / Pinout Diagrams



Note: SOT23, SC70, SOT143, TSSOP, and MSOP Packages may differ in size. These drawings are not to scale.

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	
C	Capacitance	$T_A = 25^\circ\text{C}$ , 2.5VDC, 1MHz		15		pF	
$V_{\text{RSO}}$	Reverse Stand-off Voltage	$I_R = 10\mu\text{A}$ , $T_A = 25^\circ\text{C}$	6.0			V	
		$I_R = 1\text{mA}$ , $T_A = 25^\circ\text{C}$	6.5			V	
$I_{\text{LEAK}}$	Leakage Current	$V_{\text{IN}} = 5.0\text{VDC}$ , $T_A = 25^\circ\text{C}$		1	100	nA	
$V_{\text{SIG}}$	Small Signal Clamp Voltage	Positive Clamp	$I = 10\text{mA}$ , $T_A = 25^\circ\text{C}$	7.5	9.0	12.0	V
		Negative Clamp	$I = -10\text{mA}$ , $T_A = 25^\circ\text{C}$	-0.5	-0.7	-1.3	V
$V_{\text{ESD}}$	ESD Withstand Voltage Human Body Model, MIL-STD-883, Method 3015 Contact Discharge per IEC 61000-4-2 standard	Notes 1 & 2	$\pm 30$			kV	
		Notes 1 & 2	$\pm 15$			kV	
$R_D$	Diode Dynamic Resistance	Forward Conduction		1.0		$\Omega$	
		Reverse Conduction		1.2		$\Omega$	

Note 1: Guaranteed by design and characterization.

Note 2: ESD voltage applied between channel pins & ground, one pin at a time; all other channel pins open; all GND pins grounded.

## Ordering Information:

PART NUMBERING INFORMATION					
# of Channels	Pins	Package	Ordering Part Number	Part Marking	Shipping
2	3	SC70-3	ESD2200-02SR	22S	3000 /Tape & Reel
2	3	SOT23-3	ESD2200-02TR	222T	3000 /Tape & Reel
3	4	SOT143	ESD2200-03TR	223T	3000 /Tape & Reel
4	5	SC70-5	ESD2200-04SR	24S	3000 /Tape & Reel
4	5	SOT23-5	ESD2200-04TR	224T	3000 /Tape & Reel
5	6	SC70-6	ESD2200-05SR	25S	3000 /Tape & Reel
4	8	TSSOP-8	ESD2200-04TS	24TS	2500 /Tape & Reel
6	8	MSOP-8	ESD2200-06MR	226M	4000 /Tape & Reel

Parts are shipped in Tape & Reel unless otherwise specified.