Features

- ESD/Surge protect for 4 high-speed I/O channels
- Provide ESD protection for each line to
  IEC 61000-4-2 (ESD) ±27kV (air), ±25kV (contact)
  IEC 61000-4-4 (EFT) 50A (5/50ns)
  IEC 61000-4-5 (Lightning) 12A (8/20μs)
- For operating voltage of 3.3V and below
- Low capacitance : 0.5pF typical
- Fast turn-on and low clamping voltage
- Array of ESD rated diodes with internal equivalent TVS (Transient Voltage Suppression) diode
- Solid-state silicon-avalanche and active circuit triggering technology
- ***Green part***

Applications

- **High Definition Multi-Media Interface (HDMI) 1.3 & 1.4 and 2.0 version**
- **DisplayPort interface**
- **SATA and eSATA interface**
- **USB3.0**
- **V-By-One**
- **LVDS interfaces**
- Ethernet port: 10/100/1000 Mb/s
- Desktop and Notebooks PCs

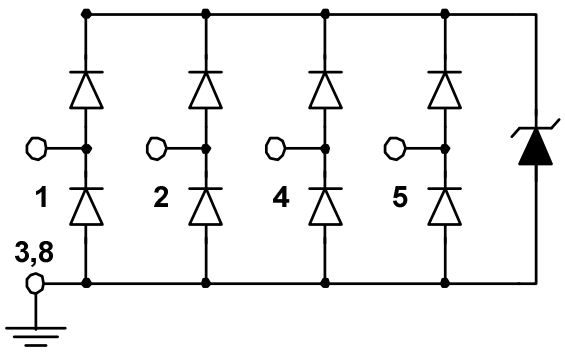
Description

AZ1243-04F is a high performance design which includes ESD rated diode arrays to protect high speed data interfaces. The AZ1243-04F has been specifically designed to protect sensitive components, which are connected to data and transmission lines, from over-voltage caused by Electrostatic Discharging (ESD), Lightning, and Cable Discharge Event (CDE).

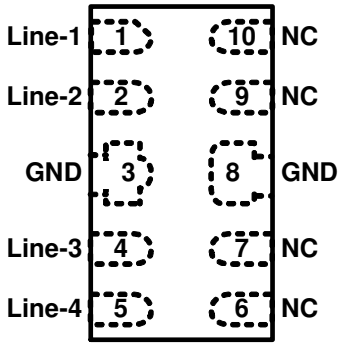
AZ1243-04F is a unique design which includes ESD rated, ultra low capacitance steering diodes and a unique design of clamping cell which is an equivalent TVS diode in a single package. During transient conditions, the steering diodes direct the transient to either the internal ESD line or to ground line. The internal unique design of clamping cell prevents over-voltage on the internal ESD line and on the I/O line, which is protecting any downstream components.

AZ1243-04F may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 (±15kV air, ±8kV contact discharge).

Circuit Diagram



Pin Configuration



DFN2510P10E (Top View)

SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS (T_A= 25°C, unless otherwise specified)			
PARAMETER	**SYMBOL**	**RATING**	**UNITS**
Peak Pulse Current (tp =8/20μs)	I_{PP} (Note 1)	12	A
Operating Voltage (I/O pin-GND)	V_{DC}	3.6	V
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V_{ESD-1} V_{ESD-2}	27 25	kV
Lead Soldering Temperature	T_{SOL}	260 (10 sec.)	°C
Operating Temperature	T_{OP}	-55 to +125	°C
Storage Temperature	T_{STO}	-55 to +150	°C

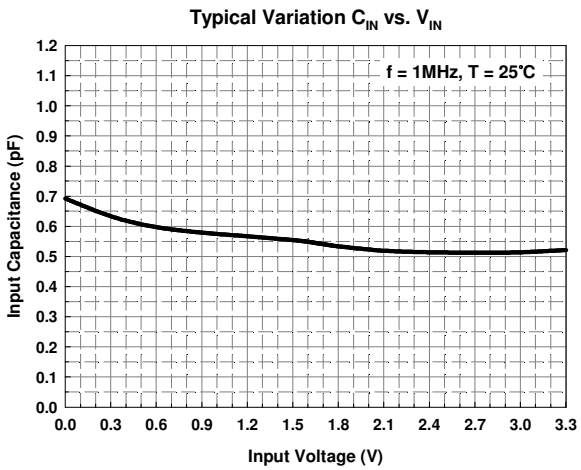
ELECTRICAL CHARACTERISTICS						
PARAMETER	**SYMBOL**	**CONDITIONS**	**MIN**	**TYP**	**MAX**	**UNITS**
Reverse Stand-Off Voltage	V_{RWM}	Pin-1,-2,-4,-5 to pin-3,-8, T = 25 °C.			3.3	V
Channel Leakage Current	$I_{CH-Leak}$	$V_{Pin-1,-2,-4,-5}$ = 3.3V, $V_{Pin-3,-8}$ = 0V, T = 25 °C.			1	μA
Reverse Breakdown Voltage	V_{BV}	I_{BV} = 1mA, T = 25 °C, Pin-1,-2,-4,-5 to pin-3,-8.	4.5		7.5	V
Forward Voltage	V_F	I_F = 15mA, T = 25 °C, pin-3,-8 to pin-1,-2,-4,-5.	0.6		1.2	V
Lightning Clamping Voltage (Note 1)	$V_{CL-surge}$	I_{PP} = 5A, tp = 8/20μs, T = 25 °C, I/O pin to GND.		5.5		V
ESD Clamping Voltage (Note 2)	V_{clamp}	IEC 61000-4-2 +8kV (I_{TLP} = 16A), Contact mode, T = 25°C, I/O pin to GND.		8.5		V
ESD Dynamic Turn on Resistance	$R_{dynamic}$	IEC 61000-4-2 0 ~ +8kV,T = 25°C, Contact mode, I/O pin to GND.		0.22		Ω
Channel Input Capacitance	C_{IN}	$V_{pin-3,-8}$ = 0V, **V_{IN} = 1.65V**, f = 1MHz, T = 25 °C, any I/O pin to GND.		0.5	0.65	pF
Channel to Channel Input Capacitance	C_{CROSS}	$V_{pin-3,-8}$ = 0V, **V_{IN} = 1.65V**, f = 1MHz, T = 25 °C, between I/O pins.		0.06	0.1	pF

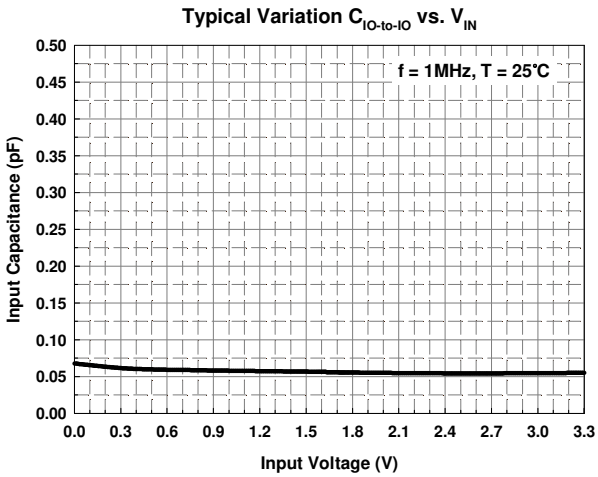
Note 1: The Peak Pulse Current measured conditions: tp = 8/20μs, 2ohm source impedance.

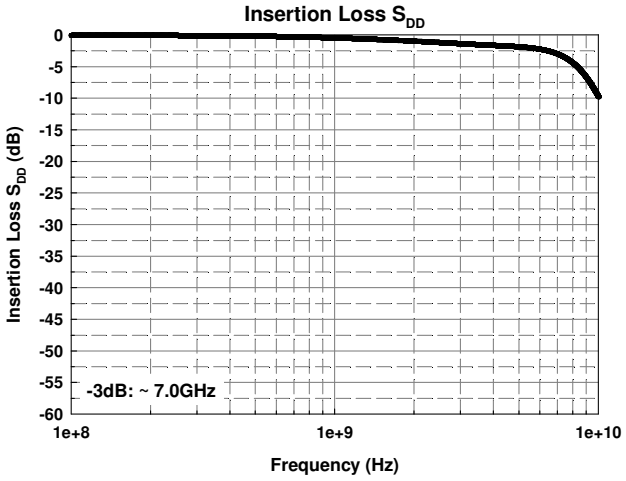
Note 2: ESD Clamping Voltage was measured by Transmission Line Pulsing (TLP) System.

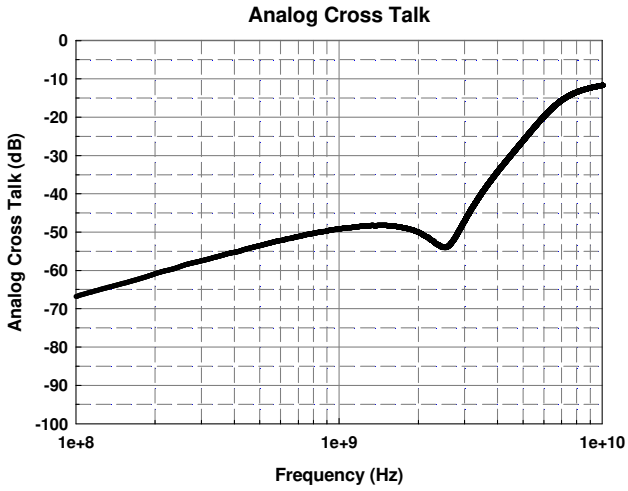
TLP conditions: Z_0= 50Ω, t_p= 100ns, t_r= 1ns.

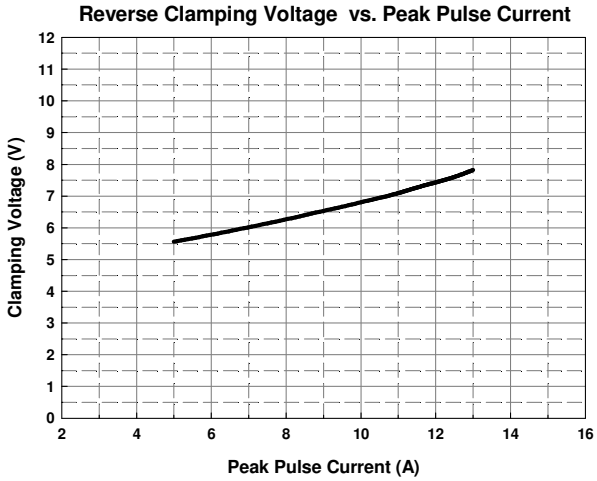
Typical Characteristics

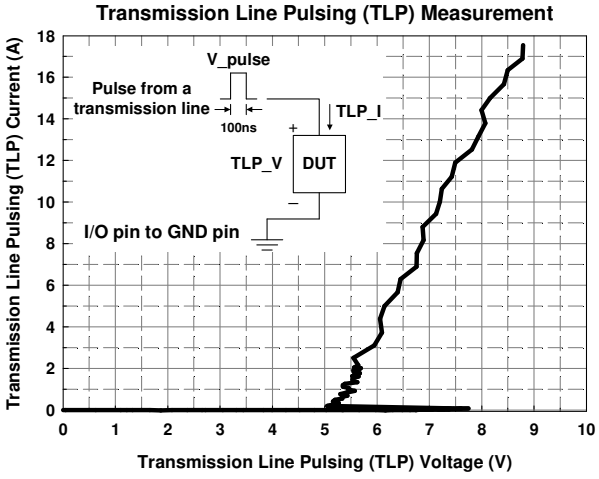




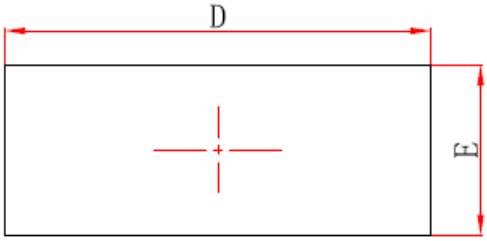




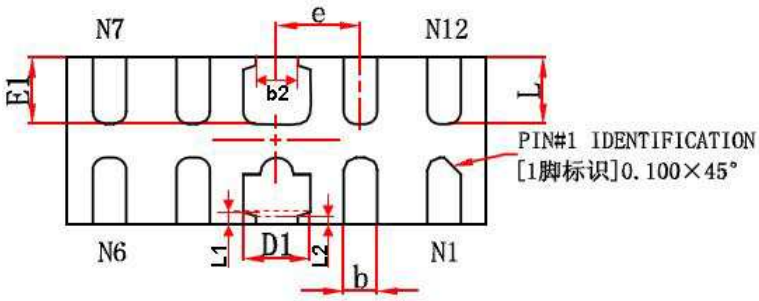




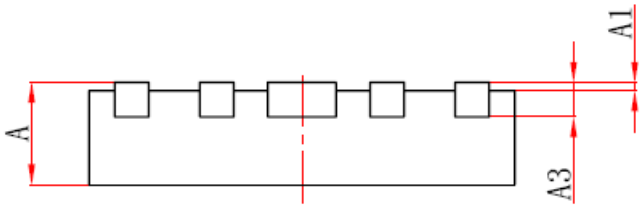
PACKAGE OUTLINE (DFN2510P10E)



TOP VIEW (unit in mm)



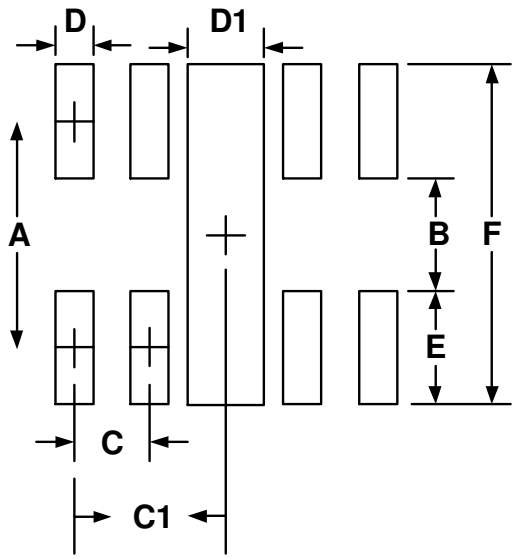
BOTTOM VIEW (unit in mm)



SIDE VIEW (unit in mm)

Symbol	Millimeters		Inches	
	min	max	min	max
A	0.40	0.55	0.016	0.022
A1	0.00	0.05	0.000	0.002
A3	0.152REF.		0.006 BSC	
D	2.45	2.55	0.096	0.100
E	0.95	1.05	0.037	0.041
D1	0.35	0.45	0.014	0.018
E1	0.35	0.45	0.014	0.018
b	0.15	0.25	0.006	0.010
e	0.5 BSC		0.019 BSC	
L1	0.075 REF		0.0029 REF	
L2	0.05 REF		0.0019 REF	
b2	0.20	0.30	0.0079	0.012
L	0.35	0.45	0.014	0.018

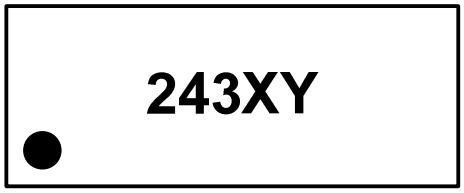
LAND LAYOUT



Dimensions		
Index	**Millimeter**	**Inches**
A	0.875	0.034
B	0.20	0.008
C	0.50	0.02
C1	1.00	0.039
D	0.25	0.01
D1	0.4	0.016
E	0.675	0.027
F	1.55	0.061

Notes:
This LAND LAYOUT is for reference purposes only. Please consult your manufacturing partners to ensure your company's PCB design guidelines are met.

MARKING CODE



243 = Device Code
X = Date Code
Y= Control Code

Part Number	Marking Code
AZ1243-04F.R7G (Green Part)	243XY

Note. Green means Pb-free, RoHS, and Halogen free compliant.

Ordering Information

PN#	Material	Type	Reel size	MOQ	MOQ/internal box	MOQ/carton
AZ1243-04F.R7G	Green	T/R	7 inch	3,000/reel	4 reels = 12,000/box	6 boxes =72,000/carton

Revision History

Revision	Modification Description
Revision 2017/05/17	Formal Release.