

ESD/EOS Protection for

Industrial User Guide

Abstract:

Industrial personal computer (IPC) usually operates in environments where higher or lower temperatures change dramatically, moist and even vibrate. Its operating environment is much harsher than PC product. IPC application areas include security, monitoring, medical, industrial control, etc., product emphasis on stable, reliable and customized features.

For its performance requirements also pay attention to precision, accuracy, and therefore its interior will also be built with chipsets to realize increasingly complex terminal applications. However, the trend of decrease thickness of the gate oxide layer and pn-junction, system is easier to damage by ESD/EOS event.

Because the threat of ESD/EOS caused to the system malfunction or even damage, so that the cost of enterprise repair rate increased, but also detriment the goodwill of enterprise. The best way to ensure stable operation of the system and increase reliability from ESD/EOS threat is to select the right electrostatic protection component, Amazing Technology over the years focused on the field of electrostatic protection. Amazing is your best choice.

Exposed connectors form a low-impedance path for ESD events enter the system and damage internal sensitive circuit such as the CPU, repeater or transceiver. Amazing provides entire system ESD/EOS protection solution to decrease repair rate, create the value of products and brands.

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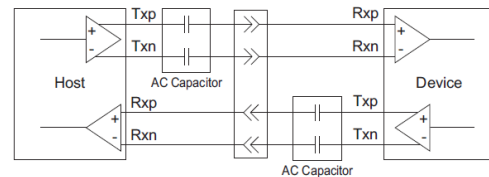
ESD/EOS solutions in USB3.1

Gen1/Gen2

USB3.1 interface introduction

USB3.1 use T_x/R_x differential pairs to speeds up to 10Gbps. Like USB2.0, USB3.1 data is bi-direction, real-time data transmission and support hot-plug function. Due to USB3.1 is high-speed application, the capacitance of TVS should be minimized to ensure signal integrity quality.

USB3.1 has been used in many applications of electronic products. It combine USB2.0 signal pins and transmit high-speed data through $T_{x+/T_{x-}}/R_{x+/R_{x-}}$. Tx/Rx adopt advance process so need more ESD protection.

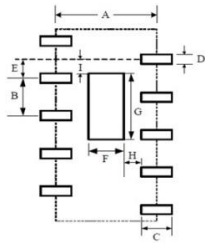


ESD/EOS solutions for USB3.1 interface

ESD/EOS solutions for USB3.0 should not have capacitance higher than 0.35pF, Amazing USB3.0 solution AZ1365-06F's capacitance is 0.35pF. And it combine $[T_x/R_x]$, $[D+,D-]$, V_{BUS} solution in one package. AZ1365-06F can help designer reduce PCB area cost and device cost. It also easier to routing for USB3.0 interface. V_{CL} is only 8.5V that AZ1365-06F provide excellent ESD protect ability.

Parts	Package	V_{RWM}	V_{BV} (Min.)	V_{CL} (ESD)	C_{IN} (Typ.)
AZ1365-06F	6 I/O Pins DP144120P10E 4.1x2.0x0.5mm	2.2V for pin4, 5, 6 and 7 3.3V for pin1 and 10 5V for pin2	4.5V	8.5V	0.35pF

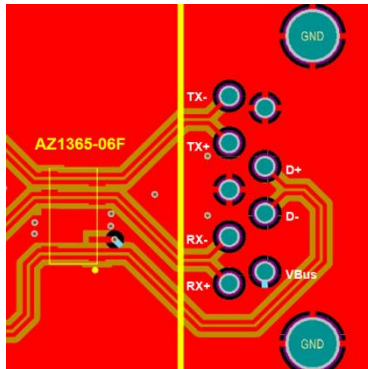
AZ1365-06F package



Symbol	Millimeters			Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	1.924	2.000	2.076	0.076	0.079	0.082
B	0.800TYP.			0.031TYP.		
C	0.600TYP.			0.023TYP.		
D	0.150	0.200	0.250	0.006	0.008	0.010
E	0.400TYP.			0.015TYP.		
F	0.700	0.800	0.900	0.028	0.031	0.035
G	1.300	1.400	1.500	0.051	0.055	0.059
H	0.200MIN.			0.008MIN.		
I	0.300TYP.			0.012TYP.		

AZ1365-06F layout

Only single AZ1365-06F chip can protect whole signal lines and V_{bus} in one USB3.0 port.
 Feed-through foot-print provide convenient for layout.



ESD/EOS solutions in USB2.0

USB2.0 interface introduction

USB2.0 communication protocol.<SKIP>....

ESD/EOS solutions for USB2.0 interface

....<SKIP>...

ESD/EOS solutions in HDMI2.0

HDMI interface introduction

HDMI is an uncompressed digital. ...<SKIP>...

ESD/EOS solutions for HDMI interface

AZ1143-04F is a 4-line array diode ESD ...<SKIP>...

ESD/EOS solutions in DisplayPort1.4

DisplayPort1.4 interface introduction

The DisplayPort consists of a main link, ...<SKIP>...

ESD/EOS solutions for Displayport1.4

interface

AZ1043-08F is a design.<SKIP>...

ESD/EOS solutions in VGA

VGA interface introduction

Video Graphics Array, referred to.<SKIP>...

ESD/EOS solutions for VGA interface

AZ1515-04S design with EOS,<SKIP>...

ESD/EOS solutions in Giga LAN

LAN RJ45 interface introduction

Gigabit Ethernet physical layer ...<SKIP>....

ESD/EOS solutions for LAN interface

AZ1513-04S includes surge protection design...<SKIP>....

AZ1513-04S package

AZ1513-04S layout

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ESD/EOS solutions in Com port RS485

interface

Com port RS485 interface introduction

RS-485 is a standard for serial ...<SKIP>....

ESD/EOS solutions for RS485 interface

AMC Transceiver is a Half-duplex ...<SKIP>....

AZRS3088 package

AZRS3088 layout

ESD/EOS solutions in PDS (power distribution system)

PDS TVS introduction

DC power supply (typically. ...<SKIP>....

ESD/EOS solutions for PDS :

Amazing' s single channel TVS have<SKIP>....

To get the full text, please contact with [FAE@amazingIC.com](mailto:F AE@amazingIC.com) directly.