SP334 FAQ

Sipex Part: SP334
Date: Aug14-07

Question:

Regarding ESD protection on the SP334: We are using it in an application and our customer claims that we need to add ESD protection. The datasheet shows none, but we see other inferences to 2KVolt ESD Human Body Model protection that is standard to all Sipex devices. Can we say that it is good for greater than 2KV? Is it a true statement?

Answer:

That is correct, the SP334 exceeds +/-2kV ESD HBM on all pins and this is the standard for all Sipex products even if it is not listed in the datasheet. Legacy interface product with versions that exceed the 15kV standard usually have an E (Enhanced ESD) suffix . New interface products like the SP508 and SP509 which were designed to have the enhanced ESD protection do not carry the suffix. This enhanced ESD typically applies only to the bus data lines. Unfortunately, the 334 does not come in an enhanced ESD version.

Question:

Does Sipex have a variant of this that is good for 15KV in the same package... pin compatible?

Answer:

There is no foot-print compatible replacement with high ESD for the SP334. The closest production part would be the SP526. A new product SP336E is scheduled to release early 2008.

Question:

What is θ_{JC} theta-jc or θ_{CA} theta-ca for this device? (Junction to case or Case to Ambient thermal resistance).

Answer:

We are sorry that we cannot provide the requested data. Sipex only characterizes theta-ja. We do not characterize θ_{JC} theta-jc or θ_{CA} theta-ca for our packages.

Question:

The customer would like to use a pre-defined d-sub-pinning for RS485 and RS232. It should be possible to switch between the two standards per software.

RS485:	RS232:
pin 3: RX,TX non-inverting	pin 2: RxD
pin 5: GND	pin 3: TxD
pin 8: /RX,/TX inverting	pin 5: GND
pin 1,2,4,6,7,9: not connected	pin 7: RTS
in the RS485-cable	pin 8: CTS
	pin 1,4,6,9: not connected in the RS232-cable

The SP334 should solve the problem. It's necessary to multiplex on the TTL-side, but it's possible!
The connection for the SP334,pin 4 with D-Sub,pin 3 and SP334,pin 3 with D-Sub,pin 8. (among other things)

Here is the question:

In RS485-Mode everything is alright, but in RS232-Mode D-Sub, pin 8 is CTS (receiver).
Datasheet: RS485-Mode, pin 3: N/C
Is this pin in a high-impedance or is it driven into a predefined state?

Answer:

On the bench we measured an SP334 device. Pin 3 is not tri-state in RS232 mode. It appears to have low impedance pullup to the Vcc. If pin 2 is pull high in RS232 mode, the pullup looks like 1k Ohm to VCC.

Followup Question:

Is it possible, to connect pin 3 (N/C) and pin 15 together (in RS232-Mode) and drive these both pins with an external RS232 (+/-12V)-Signal? Can I detect the right RS232-Signal at pin 19?

Answer:

Pin 3 and pin 15 could be tied together but since pin 3 is a low impedance to Vcc the driver may have a hard time driving this pin. Pull pin 2 high and if your driver can drive 1k Ohm you may be able to achieve what you want. As long as your driver is strong enough to drive the pin3,15 combination then pin 19 will respond.

Question:

Do you have any advice on how to implement the SP334 in a setup where all three protocols (RS232/422/485) could be used? This setup would have to be capable of:
--turning the differential terminations on and off (would need to be off to operate in RS232)
--switching between half and full duplex when in RS422/485 mode
--being controlled with a microcontroller that could select the protocol to be used.

Answer:

The SP334 does not allow for both RS-232 and RS-485 protocols at the same time. Yes, it is correct in that if a termination resistor is used for RS-485 mode it must be fully removed from circuit during RS-232 mode. This can be done by using either relay or low resistance FET to connect / disconnect the termination resistor. The SP334 RS-485 protocol can be used for Half-duplex operation by connecting RXIN to TXout. If you wish to switch from Half-duplex to Full-duplex you will need a switch / relay for this operation or manual jumpers.

