

LPM232 Serial Converter

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Doc. Rev.0 (17/06/10)



Features

- All-In-One Serial Converter RS232-CMOS/TTL.
- Wide Supply Voltage Range 3.0V to 5.5V.
- Data rate up to 250kbps.
- No external components required.
- Low Shutdown current consumption 1 μ A.
- Enable pin to disable TX output (three-state).
- Very small footprint (39x14.6mm).
- Pitch 2.54mm (100mils) for easy mouting on prototype boards.
- Typical Application: connection of microcontroller to PC through RS232 serial cable.

Description

LPM232 is a spacial serial connector with built-in RS232-CMOS/TTL converter.

The LPM232 size is similar to the one of a standard RS232 connector (lateral module's pin added), but it incorporates also the RS232-CMOS/TTL conversion logic so you save a lot of space on the board.

The module allows to connect directly an RS232 device (i.e. a PC) to a CMOS/TTL device (i.e. a microcontroller). It is provided also with /SHDWN pin that puts the module in Shutdown mode for very low power consumption. There is also an /EN pin that if pulled high disables the output lines of the module RS232-TX and RS232-RTS putting them in three-state.

Typical Application

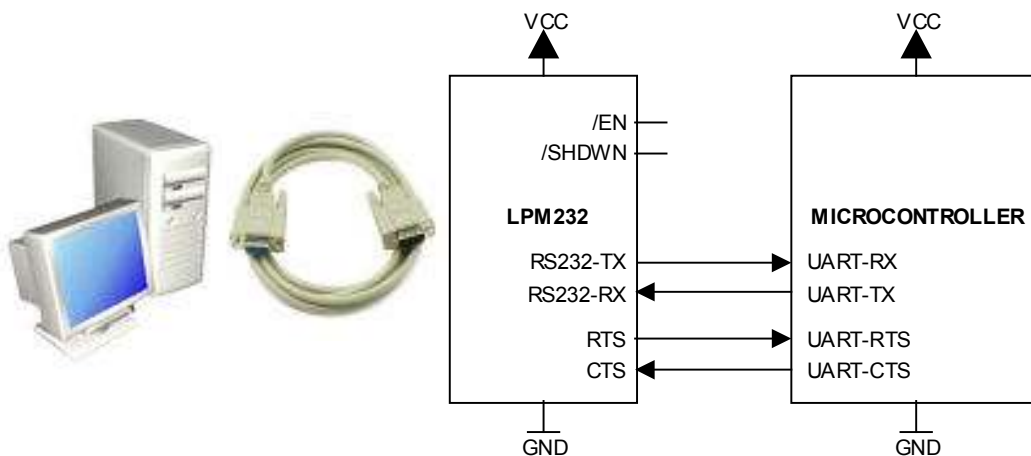


Figure 1 – Typical Application schematic

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Pin Diagram

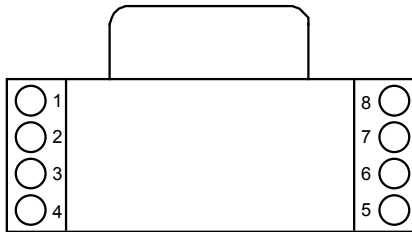


Figure 2 – Pin Diagram (Top View)

Pin Description

Pin number	Pin Name	Pin Type	Description
1	/EN	IN	Active low enable pin for output lines. An internal pull-down enables the RS232-TX and RS232-RTS lines by default. Set this input to high in order to put the output lines in three-state.
2	VCC	POWER	Supply voltage
3	GND	POWER	Ground.
4	/SHDWN	IN	Active low shutdown pin. An internal pull-up enables the module by default. Set this input to low in order to put the module in shutdown and reduce power consumption.
5	RS232-CTS	IN	CTS line of serial communication. The CTS pin status is transmitted to the RS232 interface.
6	RS232-RX	IN	RX line of serial communication. The RX pin status is transmitted to the RS232 interface.
7	RS232-RTS	OUT	RTS line of serial communication. The RTS pin status is received from the RS232 interface.
8	RS232-TX	OUT	TX line of serial communication. The TX pin status is received from the RS232 interface.

Table 1 – Pin Description

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Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

Symbol	Parameter	Rating
V _{CC}	Supply Voltage	-0.3V to +6.0V
V _{IN}	Input Voltages /EN, /SHDWN, RS232-CTS, RS232-RX	-0.3V to +6.0V
V _{OUT}	Output Voltages RS232-RTS, RS232-TX	±13.2V

Recommended Operating Conditions

The Recommended Operating Conditions table defines the conditions for actual device operation. Recommended operating conditions are specified to ensure optimal performance to the datasheet specifications. It is not recommended exceeding them or designing to absolute maximum ratings.

Symbol	Parameter	Rating
V _{CC}	Supply Voltage	+3.0V to +5.5V
T _A	Operating ambient temperature range	0°C to +70°C

Electrical Characteristics

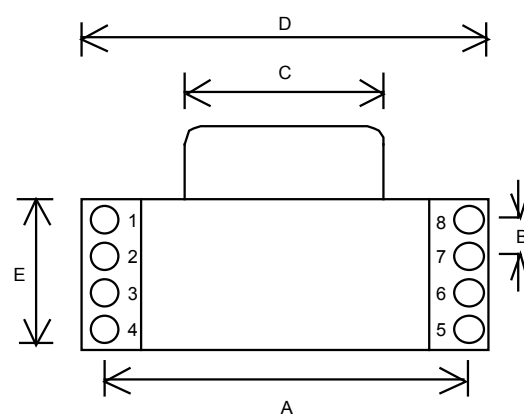
Symbol	Parameter	Min	Max
I _{VCC}	DC maximum supply current on V _{CC}	-	1mA
I _{VCC-SHDWN}	DC maximum supply current on V _{CC} in Shutdown	-	1μA
Baud	Data Baudrate	-	250Kbps
V _{IH}	High level input voltage on digital pin	2.4V	-
V _{IL}	Low level input voltage on digital pin	-	0.8V
V _{OH}	High level output voltage on digital pin	V _{CC} -0.6V	-
V _{OL}	Low level output voltage on digital pin	-	0.4V

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Packaging Informations



Dim	Millimeters	Mils
A	35.56	1400
B	2.54	100
C	1.5	39
D	39	1535
E	14.6	575

Figure 3 – Package Dimensions