

7 Application Examples

The following sections illustrate possible applications of the FT232R. The illustrations have omitted pin numbers for ease of understanding since the pins differ between the FT232RL and FT232RQ package options.

7.1 USB to RS232 Converter

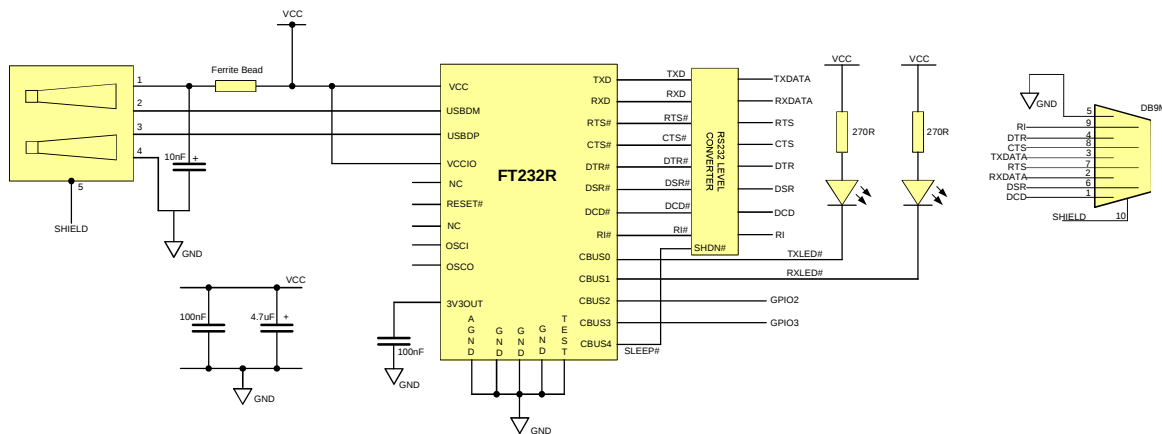


Figure 7.1 Application Example showing USB to RS232 Converter

An example of using the FT232R as a USB to RS232 converter is illustrated in Figure 7.1. In this application, a TTL to RS232 Level Converter IC is used on the serial UART interface of the FT232R to convert the TTL levels of the FT232R to RS232 levels. This level shift can be done using the popular "213" series of TTL to RS232 level converters. These "213" devices typically have 4 transmitters and 5 receivers in a 28-LD SSOP package and feature an in-built voltage converter to convert the +5V (nominal) VCC to the +/- 9 volts required by RS232. A useful feature of these devices is the SHDN# pin which can be used to power down the device to a low quiescent current during USB suspend mode.

A suitable level shifting device is the Sipex SP213EHCA which is capable of RS232 communication at up to 500k baud. If a lower baud rate is acceptable, then several pin compatible alternatives are available such as the Sipex SP213ECA, the Maxim MAX213CAI and the Analogue Devices ADM213E, which are all suitable for communication at up to 115.2k baud. If a higher baud rate is required, the Maxim MAX3245CAI device is capable of RS232 communication rates up to 1Mbaud. Note that the MAX3245 is not pin compatible with the 213 series devices and that the SHDN pin on the MAX device is active high and should be connect to PWREN# pin instead of SLEEP# pin.

In example shown, the CBUS0 and CBUS1 have been configured as TXLED# and RXLED# and are being used to drive two LEDs.