

6 USB Power Configurations

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

All USB power configurations illustrated apply to both package options for the FT232R device. Please refer to Section 3 for the package option pin-out and signal descriptions.

6.1 USB Bus Powered Configuration

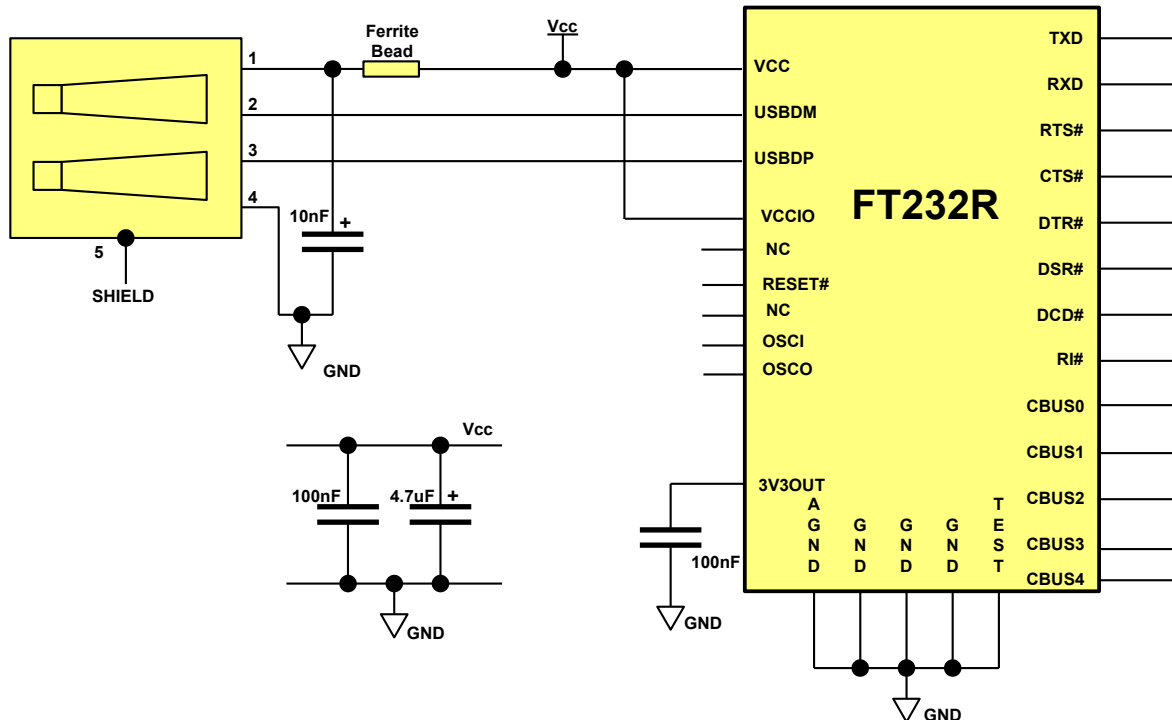


Figure 6.1 Bus Powered Configuration

Figure 6.1 Illustrates the FT232R in a typical USB bus powered design configuration. A USB bus powered device gets its power from the USB bus. Basic rules for USB bus power devices are as follows –

- i) On plug-in to USB, the device should draw no more current than 100mA.
- ii) In USB Suspend mode the device should draw no more than 2.5mA.
- iii) A bus powered high power USB device (one that draws more than 100mA) should use one of the CBUS pins configured as PWREN# and use it to keep the current below 100mA on plug-in and 2.5mA on USB suspend.
- iv) A device that consumes more than 100mA cannot be plugged into a USB bus powered hub.
- v) No device can draw more than 500mA from the USB bus.

The power descriptors in the internal EEPROM of the FT232R should be programmed to match the current drawn by the device.

A ferrite bead is connected in series with the USB power supply to reduce EMI noise from the FT232R and associated circuitry being radiated down the USB cable to the USB host. The value of the Ferrite Bead depends on the total current drawn by the application. A suitable range of Ferrite Beads is available from Steward (www.steward.com), for example Steward Part # MI0805K400R-10.

Note: If using PWREN# (available using the CBUS) the pin should be pulled to VCCIO using a 10kΩ resistor.