

Bootstrap Loader Hardware

This chapter describes simple and low-cost hardware and software solutions to access the bootstrap loader functions of the MSP430 flash devices via the serial port (RS-232) of a PC

5.1 Hardware Description

The low-cost hardware presented in this document (see Figure 2-3) consists mainly of a low-dropout voltage regulator, some inverters, and operational amplifiers. There are also some resistors, capacitors, and diodes. A complete parts list is provided in Section 5.1.4.

The functional blocks are described in more detail in the following subsections.

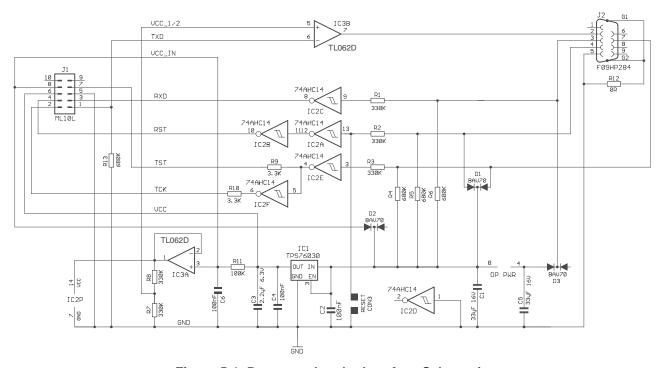


Figure 5-1. Bootstrap Loader Interface Schematic

5.1.1 Power Supply

Power for the bootstrap loader hardware can be supplied via the RS-232 interface. RS-232 signals DTR (pin 7 of the serial connector) and RTS (pin 4 of the serial connector) normally deliver a positive voltage to load capacitor C1 and power to the low-dropout voltage regulator IC1 (TI TPS76030 or LP2980-3.0, or equivalent 3-V low-dropout regulator).

Using a fairly big capacitor, it is possible to draw a short-duration current that is higher than the driving serial port can supply. This feature is required to program the flash memory, for example.

It is also possible to connect an external supply voltage to the hardware via pin 8 of the BSL target connector (J1). Diodes are used to prevent reverse-polarity flow.