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DS50002344B

dsPIC33E MPLAB® Starter Kit for Digital Power Information Sheet

The MPLAB® Starter Kit for Digital Power is designed to facilitate the development of Switch Mode Power Supply applications using dsPIC33E Digital Signal Controllers. This kit includes a development board featuring two DC-to-DC Converters, one Step-Down (Buck) and one Step-up (Boost) Converter. Each converter has three internal loads that can be enabled via software in any combination. The three loads include one 0.5W load and two 1.25W loads. The Digital Power Starter Kit (DPSK) includes a character display screen for voltage, power and temperature measurements, an on-board debugger/programmer, a USB cable and a 9V power supply.

Installing MPLAB® IDE and C Compilers

The MPLAB Integrated Development Environment (IDE) should be installed prior to using the dsPIC33E MPLAB Digital Power Starter Kit. While MPLAB IDE provides the assembler tools for development, most of the code examples are written in C language and require a C compiler to be installed. Microchip's MPLAB C Compiler seamlessly integrates into MPLAB IDE. Both the MPLAB IDE and MPLAB C Compiler are free (see the note below), and are available for download at www.microchip.com/MPLAB and www.microchip.com/compilers, respectively.

Note:	All optimization levels are enabled for 60 days, after which, the compiler will give an option to choose Optimization Level 0 or Level 1 only.

Code Examples and More Information

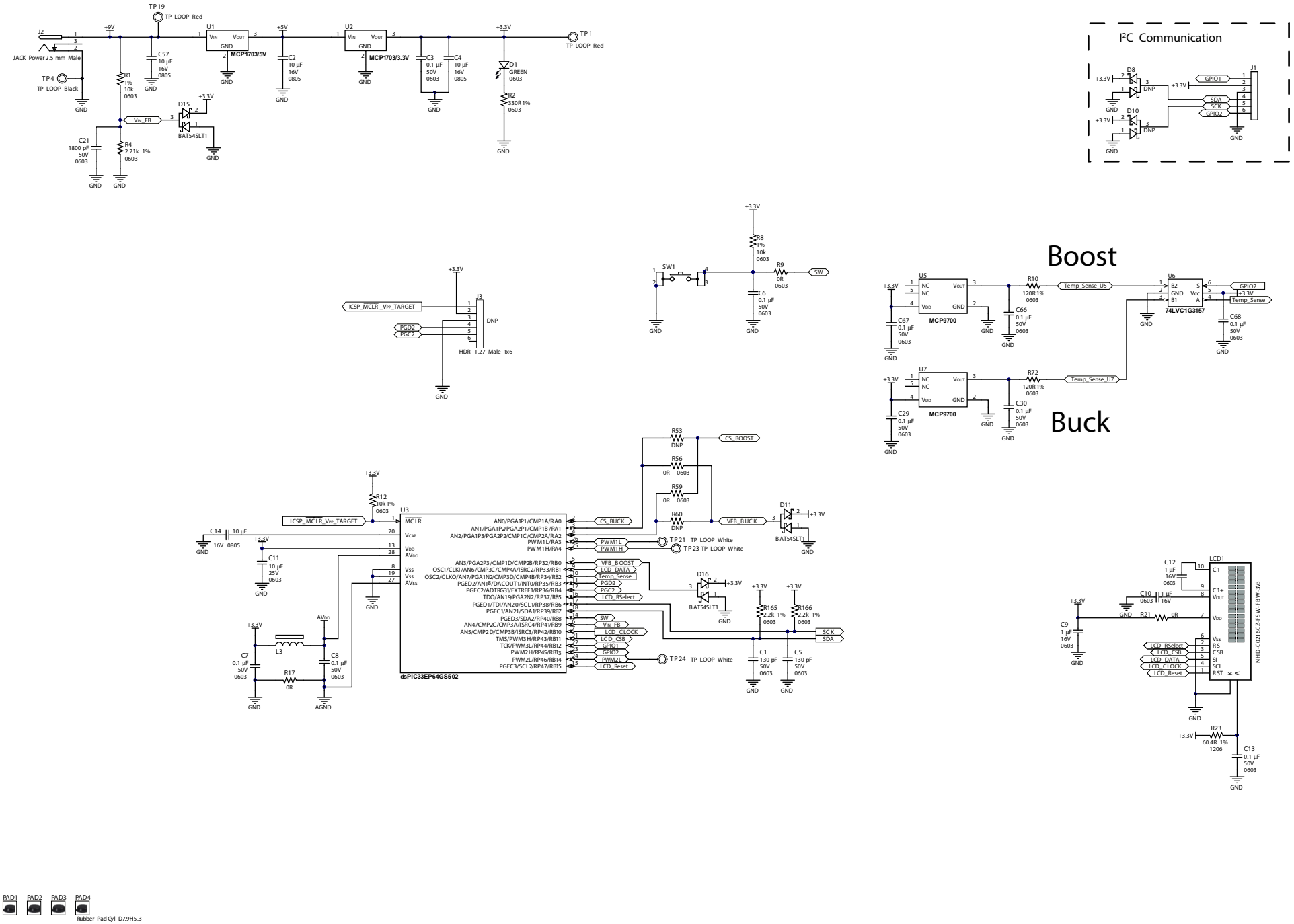
For code examples and more information, please visit the Switch Mode Power Supply (SMPS) page at http://www.microchip.com/smps. From the Development Tools menu, click **MPLAB Starter Kit** and from the resulting list, select the code for the starter kit.

Running and Debugging Applications

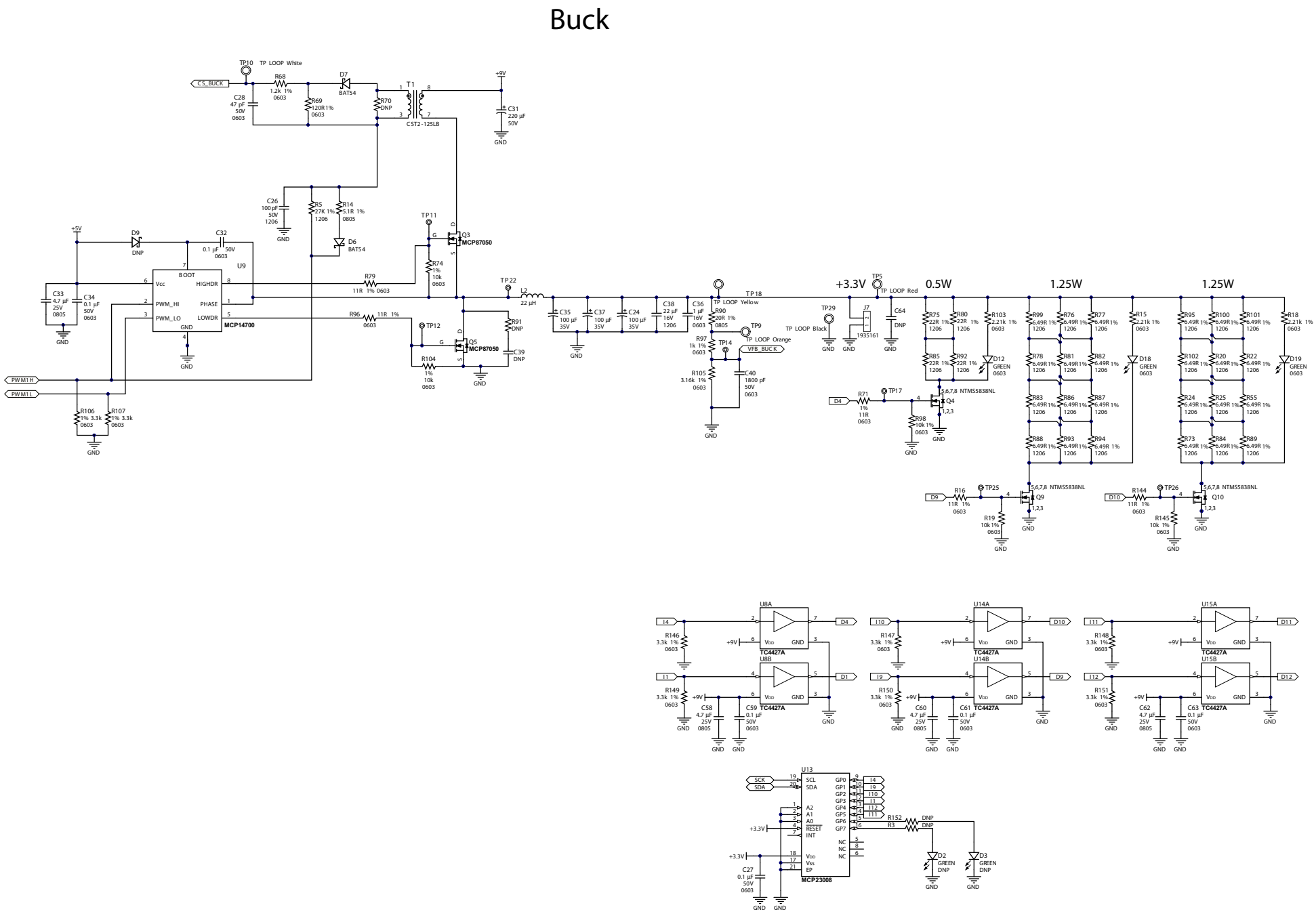
The dsPIC33E MPLAB® Starter Kit for Digital Power is preprogrammed, fully functional and ready for use after connecting the 9V power supply to the J2 connector. However, if you want to modify the starter kit software, download the code example and install the development tools, as described in **"Code Examples and More Information"**, and then use the following procedure to build and run your software:

1. Using the J2 connector, connect the 9V power supply to the dsPIC33E MPLAB Starter Kit for Digital Power.
2. Using a USB cable, connect the USB port on the starter kit board to a USB port on the development computer. This provides power to the on-board debugger/programmer and connects it to the development computer.
3. Extract the dsPIC33E MPLAB® Starter Kit for Digital Power software from the archive file and load the software project into the development environment.
4. If using **MPLAB X IDE**, do the following:
   a) Select *Run > Set Project Configuration > Customize*.
   b) Select the required tool under Hardware Tools and then click **Apply**, followed by **OK**.
   c) Select *Run > Run Main Project* to download the code to the target device.
5. After the code has been downloaded to the device, the USB connection can be removed. In Release mode, only the 9V power supply is needed. In Debug mode, both the 9V power supply and the USB connection must be used.
6. By pressing the SW1 button, the LCD will toggle between the DC-to-DC Converter Output Voltage/Power measurements and the Input Voltage/Temperature measurements of the starter kit board.

Schematics Version 1.3 (Sheet 1 of 3)



Schematics Version 1.3 (Sheet 2 of 3)



Schematics Version 1.3 (Sheet 3 of 3)

Boost