

USING PICKIT™ 3 IN-CIRCUIT DEBUGGER

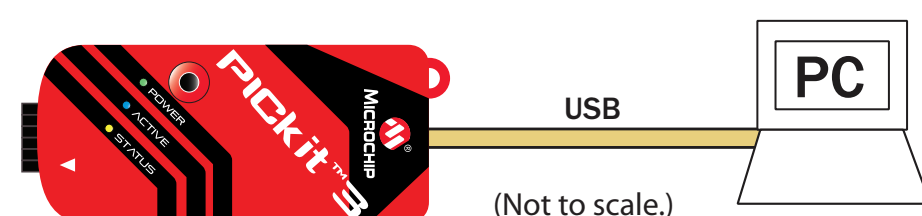
1 Install the Latest Software

Install the MPLAB® IDE software onto your PC using the MPLAB IDE CD-ROM or download the software from the MPLAB IDE page of the Microchip web site (www.microchip.com/MPLAB). Check the latest Release Notes for additional information.

2 Configure PC USB Communications

Connect the PICKIT™ 3 development programmer/debugger to a PC USB port via a USB cable. PICKIT 3 uses the standard HID USB Windows® driver.

Note: If a USB hub is used, the hub must be powered with its own power supply.



3 Build Your Project

1. Launch MPLAB IDE.
2. Load your project or use the Project Wizard to create a new one.
4. Build your project based on your configurations and options.
5. Select the PICKIT 3 as either a debugger (*Debugger>Select Tool>PICKIT 3*) or as a programmer (*Programmer>Select Programmer>PICKIT 3*).

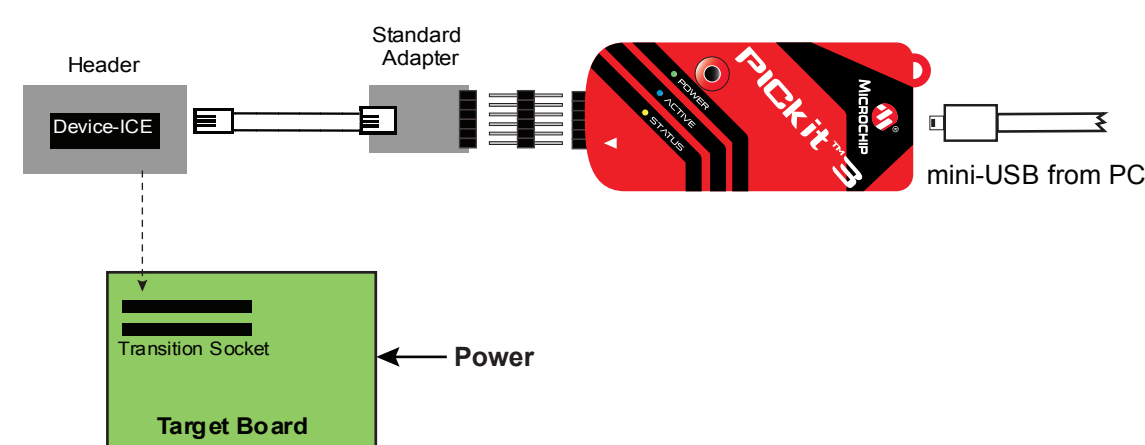
4 Connect to Target and Power

1. Attach the PICKIT 3 to the PC using the USB cable, if not already.
2. Attach the communications cable between the debugger and target board.
3. Connect power to the target board.

Typical Debugger System – Device With On-Board ICE Circuitry:



Alternate Debugger System – ICE Device:



5 Program and Debug

1. Program your device.
2. As a programmer, PICKIT 3 will automatically run your code. As a debugger, you can run, halt, single step and set breakpoints in your code.

Note: For information on Reserved Resources used by the debugger, see the PICKIT 3 on-line help.

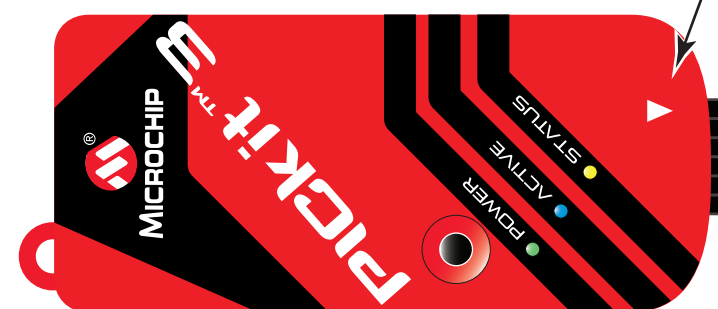
ADDITIONAL INFORMATION

Circuitry and Connector Pinouts

Target Connector Pinout

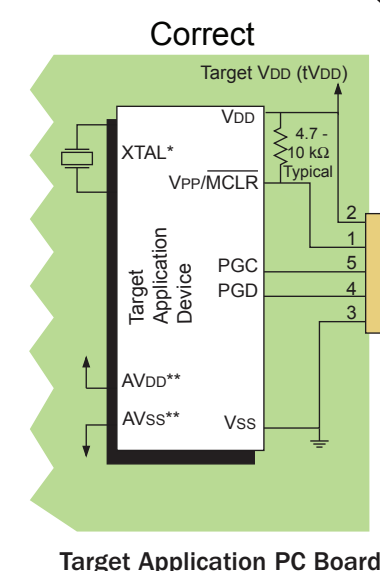
Pin	Signal
1	MCLR/V _{PP}
2	V _{DD} Target
3	V _{SS} Ground
4	ICSPDAT/PGD
5	ICSPCLK/PGC
6	LVP

Pin 1 Indicator



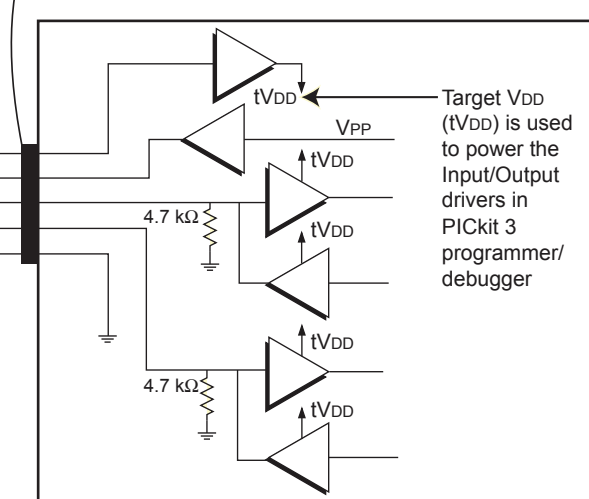
PICKIT 3 Connector Pinout

Pin	Signal
1	MCLR/V _{PP}
2	V _{DD} Target
3	V _{SS} Ground
4	ICSPDAT/PGD
5	ICSPCLK/PGC
6	LVP

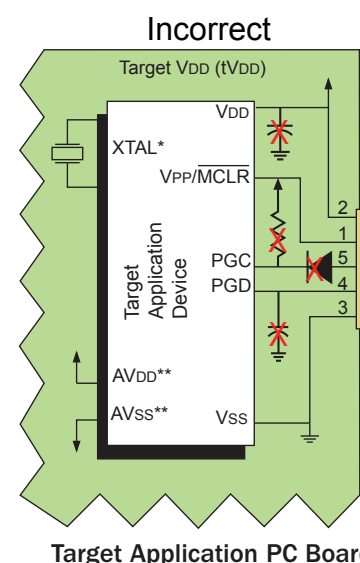


*Target device must be running with an oscillator for the debugger to function as a debugger.
**If the device has AVDD and AVSS lines, they must be connected for the debugger to operate.

PICKIT 3 Internal Circuitry (simplified)



Target Circuit Design Precautions



- **Do not use multiplexing on PGC/PGD** – they are dedicated for communications to PICKIT 3.
- **Do not use pull-ups on PGC/PGD** – they will divide the voltage levels since these lines have 4.7 kΩ pull-down resistors in PICKIT 3.
- **Do not use capacitors on PGC/PGD** – they will prevent fast transitions on data and clock lines during programming and debug communications.
- **Do not use capacitors on MCLR** – they will prevent fast transitions of V_{PP}.
- **Do not use diodes on PGC/PGD** – they will prevent bidirectional communication between PICKIT 3 and the target PIC® MCU.

Recommended Settings

COMPONENT	SETTING
Oscillator	• OSC bits set properly • Running
Power	Supplied by target
WDT	Disabled (device dependent)
Code Protect	Disabled
Table Read Protect	Disabled
LVP	Disabled
BOD	V _{DD} > BOD V _{DD} min
JTAG	Disabled
AVDD and AVSS	Must be connected
PGCx/PGDx	Proper channel selected, if applicable
Programming	V _{DD} voltage levels meet programming specs

Note: See the PICKIT 3 User's Guide for more component and setting information.

The Microchip name and logo, the Microchip logo, MPLAB and PIC are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries. PICKIT is a trademark of Microchip Technology Incorporated in the U.S.A. and other countries.
© 2008 Microchip Technology Incorporated. All Rights Reserved. 12/08

www.microchip.com



DS51792A