

MPLAB® PM3 Socket Module AC164335 modification for dsPIC33FJ16GS504-I/PT

Symptom: The MPLAB PM3 socket module AC164335 may have a problem programming the dsPIC33FJ16GS504-I/PT on some MPLAB PM3 programmers. The dsPIC33FJ16GS504-I/PT device to be programmed with the AC164335 socket module is not able to enter into the programming mode, and the PM3 will report a programming failure.

Problem: The problem is the high current surge (I_{DD}) required by this device during the start of the programming operation. The current is limited by the PM3 drivers and therefore, the device under test (DUT) is not able to enter into the programming mode. The problem is being reported on the MPLAB PM3 with assembly # 10-00398, with socket module AC164335 (44P-TQFP package).

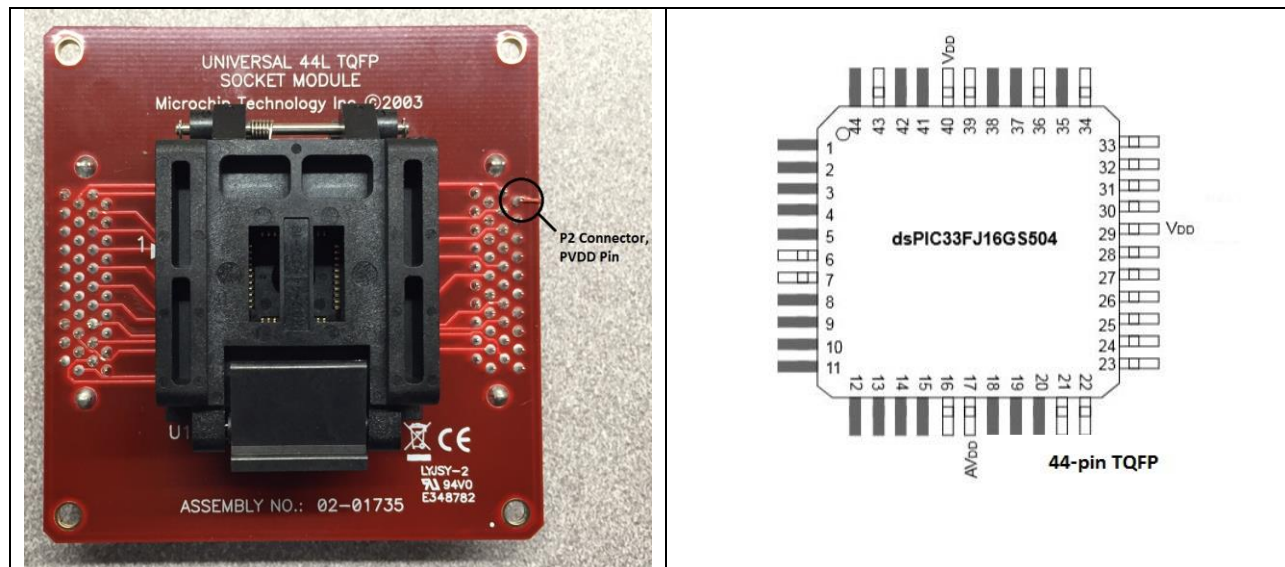
Solution: One quick solution is to simply bypass the MPLAB PM3 drivers and provide a high-current source voltage (PV_{DD}) directly to the V_{DD} pin of the DUT. In addition, the current V_{DD} connections to the DUT are removed. The modification is done in the AC164335 socket module.

Materials:

1. PM3 Universal TQFP socket Module **AC164335**
2. Soldering tools
3. Wire and wire-wrap tool.

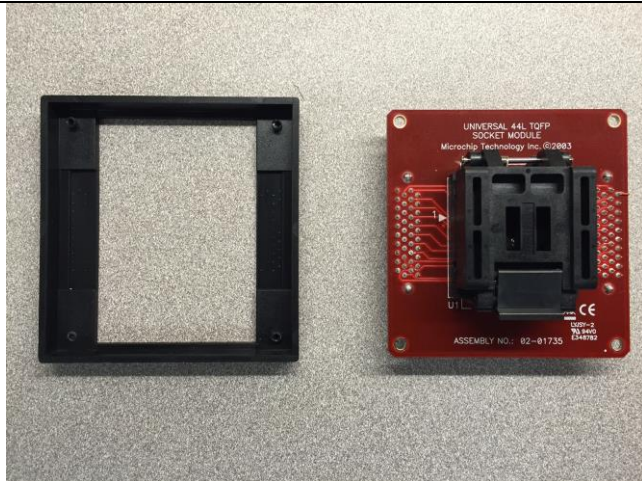
Steps for modifying the AC164335 TQFP Module:

To start, here is the pinout for the 44P TQFP for the dsPIC33FJ16GS504-I/PT, and a picture showing where the PV_{DD} signal is in the AC164335 socket module.



The goal is to provide the PV_{DD} high-current voltage source directly to the V_{DD} (pins 17, 29, and 40) of the TQFP device while removing the current V_{DD} connections.

1. Remove the top cover from the socket module.

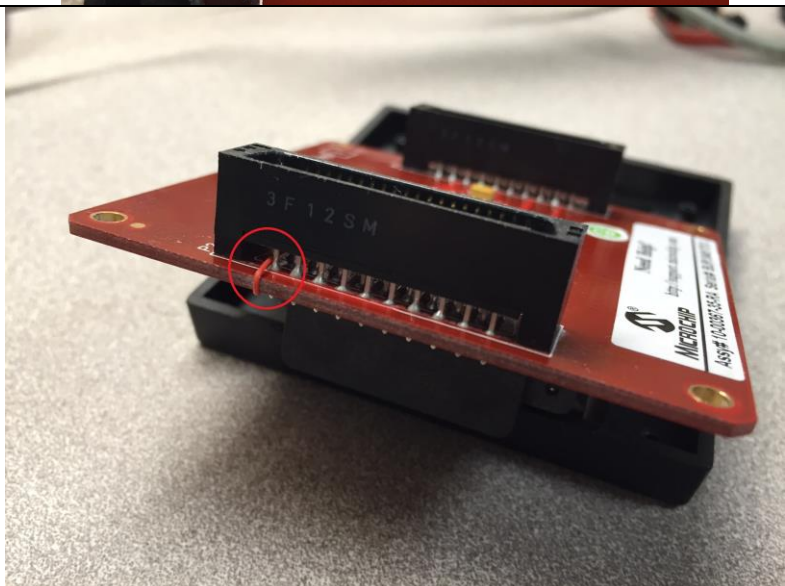
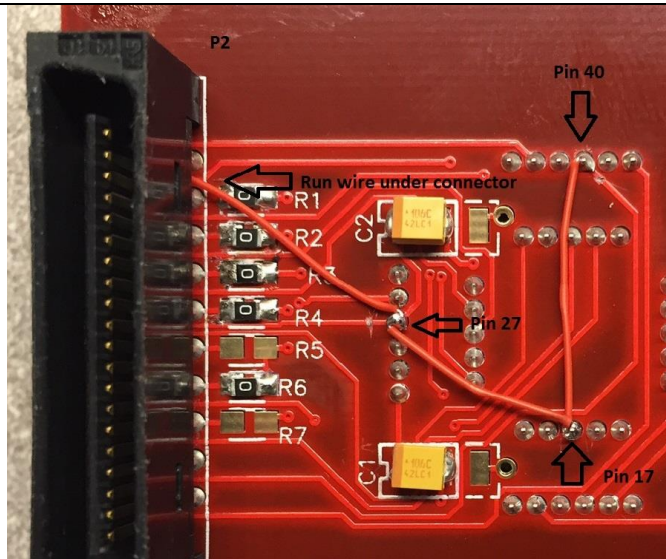


2. On the bottom of the 44-TQFP socket module solder a wire to from U1 pin 40 to pin 17.

Solder another wire from U1 pin 17 to pin 27.

These pins correspond to the dsPIC33EP16FJ504-I/PT V_{DD}.

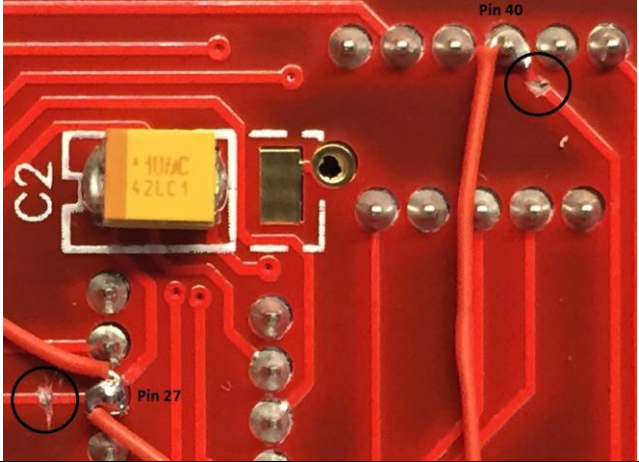
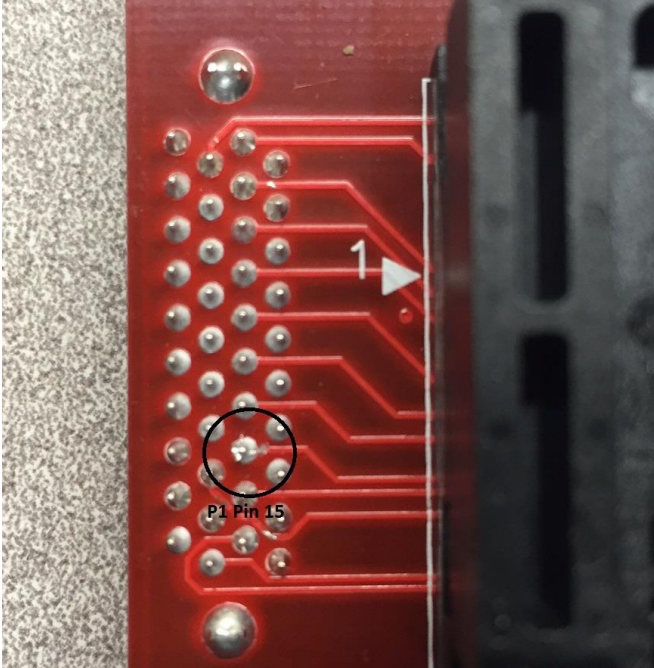
Solder another wire from U1 pin 27 which will be run under the P2 connector to the top of the socket module.



3. Solder the other end of the wire connected to U1 pin 27 (from Step 2) to connector P2, pin 2 as shown.

The V_{DD} of the device are now connected to the PV_{DD} of the PM3.



<p>4. V_{DD} from the PM3 must be prevented from going to the target device. To do that, cut the socket module traces as follows;</p>	
<p>a. On the bottom of the socket module, cut the trace at U1 pin 40 and U1 pin 27 as shown.</p>	
<p>b. On the top of the socket module, cut the trace at P1, Pin 15.</p>	

5. Replace the socket module cover..

