

Double bonding check on writer for specific packages

1. Purpose

For specific packages of some chip and requires a complete IO pin open/short circuit test check on the writer.

2. Application scope

PFC151: U06(SOT23-6), 2N08(DFN2X2)
 PFC161: U06(SOT23-6), 2N08(DFN2X2)
 PMS161: U06A(SOT23-6), U06B(SOT23-6), 2N06(DFN2X2)
 PMS164: U06(SOT23-6), 2N06(DFN2X2), 2N08(DFN2X2), EY10B(ESSOP10)

3. Preface

Some specific package is the use of chip two IO pins share one package pin, and need to ensure the reliability of the package wire bonding, therefore, need to do a complete and detailed IO pin open/short circuit test on the writer. For example, if PA6/PA7 are connected to the fourth pin on the package at the same time, PA7 is faulty and causes open circuit, the PA7 open circuit problem may not be correctly detected because the same package pin is shared. As shown in Figure 1 below.

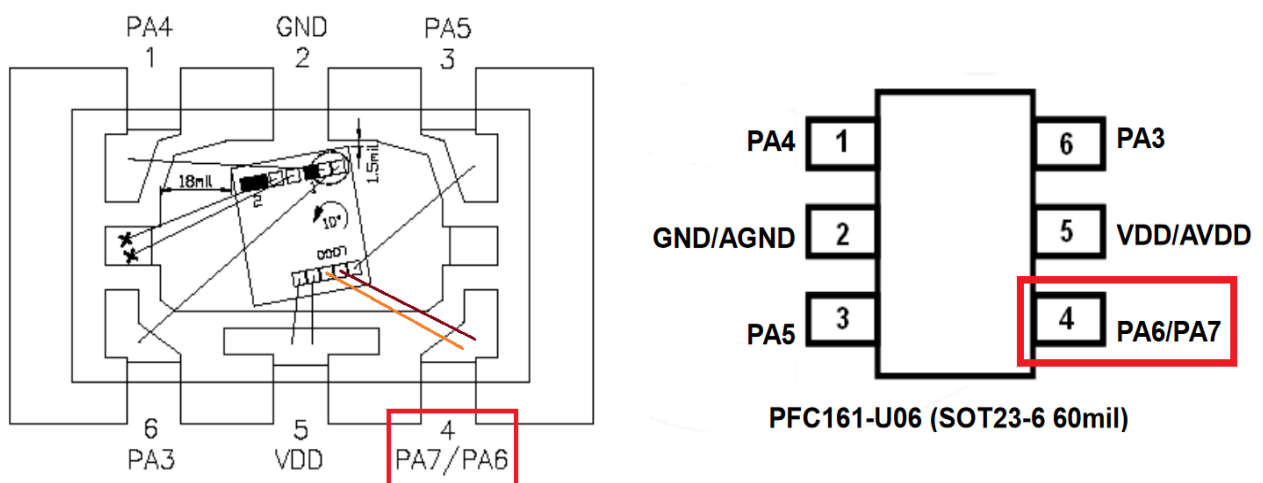


Fig. 1: General view of PA6/PA7's double wire bonding

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4. Explain and improve measures

The user needs to insert the test program in the user code. The test program will use PA3 to do handshake communication with the writer, in order to check whether the PA7 pin can output normally. According to the following inspection test procedures, the writer can detect whether the PA6/PA7 pin of the chip to be programmed is fully connected and whether the pin function is normal during programming.

Add a functional test command instruction after the macro directive of ADJUST_IC, such as the following instruction with the red part:

```
.ADJUST_IC      SYSCLK=....., Run=Add_Run:200us;
```

200us time is set to the test time of the writer. It is the required time for the writer waiting Add_Run () program to execute, users can adjust according to the actual state.

Insert the following test program into the user code:

Mini C	Assembly
<pre>void Add_Run (void) { .ifidni <@Now_CPU_Name>, <PFC161> ROP = 7; .elseifidni <@Now_CPU_Name>, <PMS161> MISC3 = 4; .elseifidni <@Now_CPU_Name>, <PMS164> MISC3 = 3; .endif .wait1 PA.3; PAC.6 = 0; PA.7 = 1; PAC.7 = 1; .wait0 PA.3; PAC.7 = 0; PAC.6 = 1; }</pre>	<pre>Add_Run: .ifidni <@Now_CPU_Name>, <PFC161> ROP = 7; .elseifidni <@Now_CPU_Name>, <PMS161> MISC3 = 4; .elseifidni <@Now_CPU_Name>, <PMS164> MISC3 = 3; .endif .wait1 PA.3; PAC.6 = 0; PA.7 = 1; PAC.7 = 1; .wait0 PA.3; PAC.7 = 0; PAC.6 = 1; ret</pre>

The above test procedure may vary according to different chip specifications. If in doubt, you can contact FAE for assistance.



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To specify Checksum to be added anywhere in the program, set the Checksum command introduction. For example:

```
.Check_Sum      Modify      0x12345678
```

The following message will appear if the test fails on the writer for a specific packaged double bonding:

The PC software will display “ Check Ext.Run fail ”

"IC Not Work :Run" will be displayed on the LCD screen of P003Bx writer.

5. Suitable for writer type model

PDK5S-P-003 and PDK5S-P-003Bx.

If you have further questions to the application, please consult our agent at your nearest location or contact us at fae@padauk.com.tw.