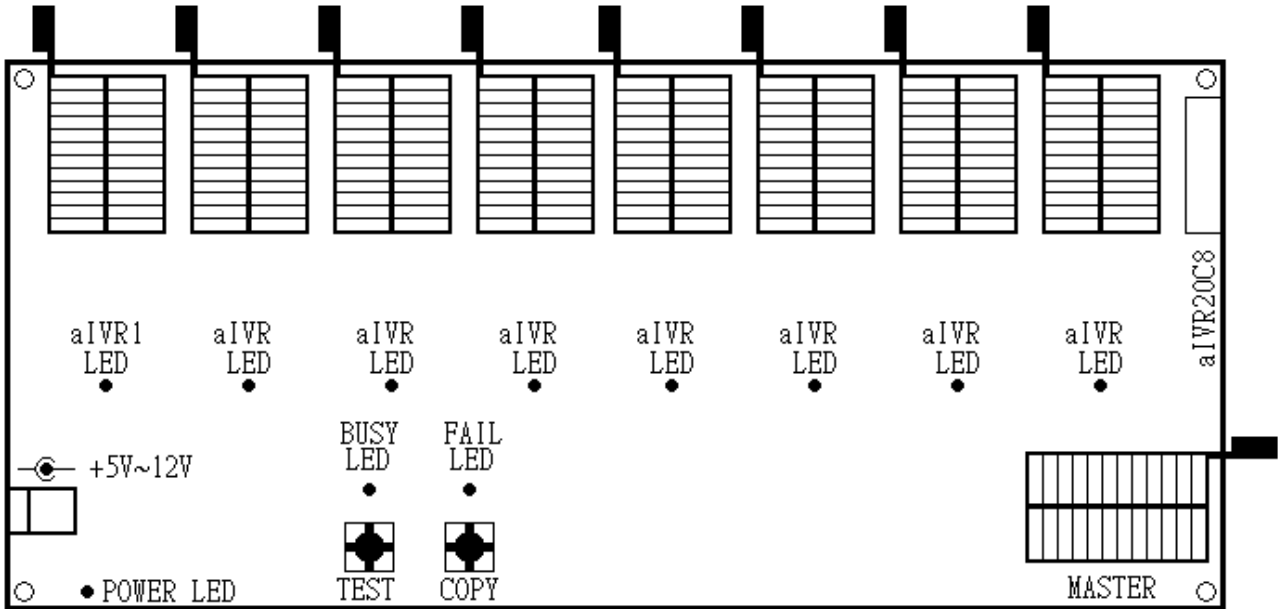# APLUS Integrated Circuits Inc.

aIVR20C8 User Manual

1-To-8 Copier for aIVR1004 / 2104 / 4208 / 8511 / 341N

PCB Top View (Not To Scale)

1. INTRODUCTION

The aIVR 1-To-8 copier is designed to fast copy Aplus' aIVR devices for mass production. Devices supported are included aIVR1004, 2104, 4208, 8511 and 341N.

At each time, one and up to eight pieces of blank aIVR devices can be copied. To make a copy, a MASTER chip with voice data in it, is inserted in the MASTER socket.   Blank chips are inserted into the aIVR1 to aIVR8 sockets. Finally, the COPY button is pressed to start copying.

	Busy LED (Yellow)	Fail LED (Red)	Status LED (Green) x8
Testing in Progress	Flash at 1 Hz	Off	Off
Copying in Progress	Flash at 2 Hz	Off	Off
System Error	Flash at 4 Hz	Flash at 4 Hz	Flash at 4 Hz
Test/Copy Fail (All)	Off	On	All Off
Test Pass (Not All)	Off	On	Flash at 1 Hz / Off
Test Pass (All)	Off	Off	All Flash at 1 Hz
Copy Pass (Not All)	Off	On	On/Off
Copy Pass (All)	Off	Off	All On

Table 1. Mode of operation

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2. POWER SUPPLY CONNECTION

A regulated DC 5V~12V power supply minimum 1Amp capacity should be used as the power source.   The centre of the DC jack is positive terminal while the outer contact is the GND terminal.   Incorrect connection to the terminals will damage the copier board.   When the power supply is correctly connected, the copier board will undergo power-up reset and all LEDs will flash for two times.   This represents the copier board is ready for use.

3. MASTER CHIPS PREPARATION

The MASTER chip inserted into the MASTER socket provides the source of voice data to copy into the blank aIVR ICs.   The MASTER chip is produced by the PC based programmer.   Please refer to the PC based aIVR developing system user guide for the details of how to compile and program an aIVR chip using the PC based USB programmer.

Note that the chip copied from the copier cannot be used as MASTER chip because it is security protected (i.e. cannot be read out by the copier).

4. TEST OPERATION

The following procedures will blank check the beginning 16K bytes of memory.

1. Insert the MASTER chip (note 1) to the MASTER socket of the copier.
2. Insert from 1 pc up to a maximum of 8 pcs blank aIVR IC into the aIVR1 to aIVR8 sockets (any socket can be empty if there is less than 8 pcs blank ICs are used).
3. Press the TEST button.   The BUSY LED will flash when the operation is in progress.
4. The BUSY LED turns OFF again to indicate the end of the test operation.
5. When the GREEN aIVR LED is Flashing, it indicates the corresponding aIVR IC has passed the test.   If the GREEN LED is OFF, it indicates the corresponding aIVR IC is not blank or unable to be copied.
6. The RED FAIL LED will turn ON if any one of the ICs under test is failed.

Note: The aIVR chip should be inserted into the socket in the way of bottom aligned. See the figure below:

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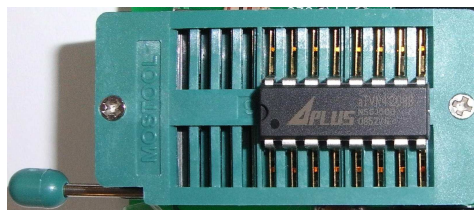
5.   COPY OPERATION

This function will copy the data from the MASTER chip to the chips inserted into the aIVR1 to aIVR8.   Follow the procedures below to do the COPY operation:

1.   A master aIVR chip (the chip with original voice data) is inserted into the MASTER socket of the copier board.
2.   Insert from 1 pc up to a maximum of 8 pcs blank aIVR IC into the aIVR1 to aIVR8 sockets (any socket can be left empty if there is less than 8 pcs blank ICs are used.) .
3.   Press the COPY button to start copy and the BUSY LED begins to flash.
4.   The BUSY LED stops and turns OFF when the copying is finished.
5.   The GREEN aIVR LED under the corresponding aIVR socket turns ON to indicate the aIVR IC is successfully programmed. When it is OFF, the corresponding aIVR IC is not copied successfully. When any one of the programmed aIVR IC is failed after programming or cannot be detecte , the RED FAIL LED will turn ON.

4.   ERROR CHECKING OF THE MASTER IC

There is an error checking mechanism to check the data integrity of the MASTER chip.   This is important because if the data of the MASTER IC is corrupted, the copied aIVR ICs will have wrong data copied.

At the beginning of the COPY operation, the data integrity of the MASTER chip is checked. If the copier board finds data error in the MASTER chip, it will prevent the COPY operation to process.   The whole system will be Halted to prevent any further operation and all LED flash non-stop.

When this happens, user must remove all the aIVR ICs and the MASTER chip.   Disconnect the DC power supply and reconnect again to reset the board. Insert another MASTER chip to replace the bad one, insert the blank aIVR ICs and press COPY button to try copy again.

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aIVR20C8 QUICK START GUIDE

1-To-8 Copier for aIVR1004 / 2104 / 4208 / 8511 / 341N

1. Connecting Power Supply
   - DC 5V to 12V regulated power supply with min. 1Amp current capacity is needed.
   - Connect the +ve to the centre and GND to outer terminal of the power jack.
   - All LEDs flash two times to indicate ready for use.

2. TEST Operation
   - Insert the MASTER chip to the MASTER socket.
   - Insert aIVR ICs to be tested to any one of the empty aIVR sockets.
   - Press TEST button to start.
   - BUSY LED flashes indicate testing is in progress.
   - Green aIVR LED turns Flash means aIVR under check is passed.
   - Red FAIL LED turns ON when there is any one aIVR under check is not passed or cannot be detect.

3. COPY Opteration
   - Insert aIVR IC with source data into the MASTER socket.
   - Insert aIVR ICs to be copied to any one of the empty aIVR socket.
   - Press COPY button to start copying.
   - BUSY LED flashes indicate copying is in progress.
   - Green aIVR LED turns ON means aIVR ICs copy is passed.
   - Red FAIL LED turns ON when there is any one aIVR IC copy is not passed or cannot be detect .

4. Master IC Error (When the COPY button is pressed but all LED flash non-stop)
   - This indicates the copier board finds the MASTER IC has certain problem.
   - Remove all aIVR ICs including the MASTER IC.
   - Disconnect the DC power supply.
   - Wait for 30 sec and re-connect the power supply.
   - Repeat the Copy procedure above.
   - If the copy process still cannot start, replace the MASTER IC and repeat power down and power up action again.