



## INTRODUCTION

The EK41 evaluation kit is designed to provide a convenient way to breadboard design ideas for the MA17 high voltage, multi-channel amplifiers. The kit includes the DUT socket and evaluation board. The EVAL41 evaluation board is pre-wired for the required bypassing capacitors and gain setting resistors. The EVAL41 also includes very flexible breadboard areas for bread boarding your circuit. Please refer to applications note 30 for help with power supply bypassing and other useful information.

## BEFORE YOU GET STARTED

- All Apex amplifiers should be handled using proper ESD precautions.
- Always use adequate power supply bypassing.
- Do not change connections while the circuit is powered.
- Initially set all power supplies to the minimum operating levels allowed in the device data sheet.
- Check for oscillations.

## PARTS LIST

| Part # | Description | Quantity |
|--------|-------------|----------|
| EVAL41 | PC Board    | 1        |
| MS10   | Test Socket | 1        |

## ASSEMBLY

(See Figure 1)

1. From the component side (silk screen side) of the EVAL41 PC board insert the MS10 socket into the holes provided. Note the pin 1 location silk-screened on the PC board. Solder into place. Note, not all pins are used. Only the pins that are used have metal around the holes for solder. The unused holes are not soldered.
2. Solder in required low voltage power supply bypass capacitors C1 and C2. Solder in required high voltage power supply bypass capacitors C3, C4, C5 and C6.
3. Select the correct gain settling resistors and solder into the board. Resistors R1 through R17 are the low side gain setting

resistors. Resistors R18 through R68 are the feedback resistor locations. It is desirable to use high values for the feedback resistors to reduce power dissipation. Up to three resistors can be used in series to obtain these values if high value resistors are not conveniently obtainable. If less than three are used, be sure to insert the resistors so that the circuit is not open.

4. Install other components as needed. External connections may be soldered directly or standard banana jacks may be soldered to these pads.
5. User supplied standoffs should be installed in the holes at each corner of the EVAL41 board as legs to rest the completed breadboard on.

## TYPICAL COMPONENT FUNCTIONS

| COMP.  | FUNCTION                                                                                                                                                                                                                                                                  |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C1     | VSS supply bypass capacitor. See applications note 30. 0.1uF recommended (Required)                                                                                                                                                                                       |
| C2     | VDD supply low frequency bypass capacitor. See applications note 30. 0.1uF recommended (Required)                                                                                                                                                                         |
| C3,4   | -VHV high voltage supply bypass capacitors. These must be rated for the full supply voltage. 0.1uF is recommended. Only one is required but it may be more convenient to parallel two lower value capacitors to achieve the required voltage rating. (Required)           |
| C5,6   | +VHV high voltage supply bypass capacitors. These must be rated for the full supply voltage. 0.1uF is recommended. Only one is required but it may be more convenient to parallel two lower value capacitors to achieve the required voltage rating. (Required)           |
| R1-17  | Low side gain setting resistors.                                                                                                                                                                                                                                          |
| R18-68 | Feedback resistors.                                                                                                                                                                                                                                                       |
| R69,70 | Input voltage divider for low voltage unity gain follower. These resistors can be used to set a reference voltage at the output of the unity gain follower to bias the high voltage amplifiers to mid range of the high voltage supply when only a single supply is used. |

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