

INTRODUCTION

This kit provides a solid mechanical platform with good shielding and grounding to breadboard 20 lead and 30 lead HSOP packages. This kit is not intended as an alternate for kits dedicated to specific amplifiers. This kit does not offer a means to heat sink the exposed slug of the 20 lead and 30 lead HSOP packages. Care must be taken when selecting the level of power to be dissipated in the amplifier. Excessive power dissipation without proper heat sinking will lead to the failure of the amplifier and possibly destruction of the specialized HSOP sockets. However, the flexibility of this kit offers the option to construct a multitude of circuit configurations offering a bread boarding area for external components. This board is ideal for determining product functionality in a number of different configurations, as well as allowing the user to test a number of sample devices in the same circuit configuration without damaging the device leads.

See www.apexmicrotech.com for availability of dedicated kits. Construction will involve through-hole, surface mount and 3D techniques. Holes are provided to mount standard banana and BNC connectors for I/O. Standard 100 mil socket pitch is provided for the MS11 pin receptacle which accommodates a multitude of external through hole components.

BEFORE YOU GET STARTED

- Attempt to visualize the finished circuit mechanically and in terms of where the high currents flow.
- Use proper ESD precautions.
- Do not make or break any connection on a hot circuit.
- Be sure to allow time for power supplies and bypass capacitors to “bleed off.”
- Start with lowest rated voltages.
- Checking for oscillations with an oscilloscope is a must.

PARTS LIST - EK64

Part#	Designator/Reference	Qty
EVAL64	Evaluation Board, 20/30 lead HSOP	1
PB99-P11	PC BOARD, SIDE	2
PB99-P7	PC BOARD, END	2
678-3201211	20 lead HSOP SOCKET	1
678-3303211	30 lead HSOP SOCKET	1
MS11	PIN RECEPTACLE	4

ORDERING OPTIONS

Part# Description

EK64 Includes all devices on parts list.
 EK64-20 EK64 without 30 lead HSOP socket: 678-3303211
 EK64-30 EK64 without 20 lead HSOP socket: 678-3201211



FIGURE 1. ASSEMBLED EVAL64

TOOLS AND MATERIALS REQUIRED

- Standard low temperature wire solder is recommended.
- Standard high temperature soldering iron.
- Standard tools such as pliers for connecting banana jacks and BNC connectors.
- Standard wire strippers and cutters.
- Scotch tape is useful when assembling the Side and End PCB boards to one another and then to Eval64.
- Standard 22 gauge copper wire is recommended for use as circuit jumpers and power connections.
- Standard de-soldering wick, 16” long, cut into eight 2” lengths (Size #3 is adequate).
- Selecting and placing the proper bypass capacitors as close as possible to the device power pins is critical (See Apex Microtechnology Application Note 1, Paragraph 4.2, Power Supply Bypassing).

ASSEMBLY

Prior to beginning assembly, it is necessary to determine whether you will be using the 20 lead or the 30 lead HSOP socket. Once this is determined, decide whether you want your components to be on the bottom of the EVAL64 board (inside the box), or on the top of the board, outside the box. Having the components on the top makes for easier substitution of parts while having them on the bottom reduces clutter, makes for a neater appearance and minimizes possible EMI.

Once the socket size is determined and soldered into place, it is time to solder in the MS11 pin receptacles. If you are using the 20 lead HSOP socket, cut three MS11 strips into strips of 10 pin receptacles each. After assembly, you will have one strip of 10 pin receptacles left over. If you are using the 30 lead HSOP socket, cut four MS11 strips into strips of 15 pin receptacles each. There will be no pin receptacles left over with the 30 lead HSOP socket configuration.

Having cut the MS11 pin receptacles into the proper lengths, place four strips into the holes on either side of the selected socket. For a top-mount configuration, insert the strips from the top, and for a bottom-mount configuration, insert the strips from the bottom. Being careful to not let any strips fall out, invert the EVAL64 board so that the bottom of the receptacles are facing up. Solder in each receptacle, ensuring that no solder gets into the receptacle. After soldering all receptacles in, invert the board once more and remove and discard the 8 carriers.

Next, tack one short (end) and one long (side) together, forming a right angle. Using a piece of scotch tape to hold the pieces together is a great assist. Repeat with the other short and long sides. Now, tack the two L-shaped pieces together, to form the body of the box. Place the EVAL64 board upside down on your work surface and carefully tack one end of the box to the bottom side of the board (which is now facing up). Carefully align the sides and corners of the box to the top and tack the sides in place. Once all sides and ends are attached, solder the entire length of each seam.

After completing the box assembly, insert one of the 2" lengths of de-soldering braid half-way into one of the holes in the corner of the top. Fold the outside part of the braid over the top and end (short) of the box and tack it into place, inside and out. Insert another of the lengths of braid and fold it over the top and (long) side of the box and tack it into place, inside and out. Repeat for the other three corners. When all 8 pieces of braid have been tacked into place, go back and solder them completely into place. This ensures that all the surfaces, inside as well as outside, are electrically tied together.

The physical assembly of the EK64 box is now complete. All that remains is to determine where you want to attach the Power and Signal connectors. Soldering Power Supply Common (Ground) to the box grounds the entire surface of the box. We recommend using 22-gauge wire for signal connections, and 20-gauge for power. On each side and end surface, there are two holes which are slightly larger than the others. These are the precise side for Bulkhead Mount BNC jacks, with the case being grounded. The remaining holes are sized to fit standard insulated banana jacks.

If desired, the bread board area above and between the two sockets may be used as you desire. Spring pin sockets with tails may be installed, or components may be soldered directly in and wired to the socket. Be sure to trim excess wire protruding through each socket terminal. Not doing so may potentially cause shorting.



FIGURE 2. MS11 PIN STRIP

FIGURE 3. PRINTED CIRCUIT BOARDS INCLUDED.

