EK51

INTRODUCTION

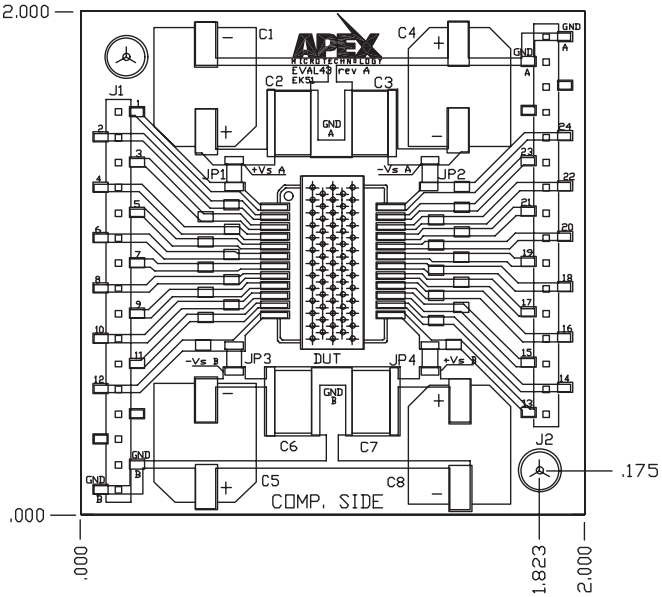
The EK51 evaluation kit provides a fast and easy breadboard solution for all devices in Apex's PSOP1 package (24 PIN PSOP). The EK51 includes the EVAL43 board shown in Figure 1, as well as the universal EVAL36 board. The combination of the two boards provides a large area for breadboard circuit space while also providing an effective method of thermal management of the surface mount package. The device under evaluation is surface mounted directly to the EVAL43 PC board which provides a foil footprint area the size of the heat slug. This foil heat slug connection area consists of plated through thermal vias. The thermal vias offer a cost-effective way to decrease the thermal resistance between one side of the PC board which allows for the direct mounting of a heat sink or heat sink surface mount fan on the back side of the PC board.

PARTS LIST

Part#	Description	Qty
EVAL36	Universal PC Board, Apex	1
EVAL43	PC Board, PSOP1, Apex	1
TSM-116-01-T-SV	Terminal Strip, 16pin, Samtec	2
SSW-116-01-T-S	Socket Strip, 16pin, Samtec	2
OX7R105KWN	Cap, 200V, 1µF, Ceramic	4
*ERJ-6GEYOR00V	Res, 0.0Ω, 0805SMD, Panasonic	4
*AVS336M2AG24T	Cap, 100V, 33µF, CDE	4
*031606	Heat Sink w/ Fan, 3.4°C/W, AAVID	1
or	or	
*031613	Heat Sink, 11.0°C/W, AAVID	1

* Parts not supplied. Parts are application dependent. Suggested part numbers are provided.

Figure 1: EVAL 43



ASSEMBLY

The PSOP1 should be assembled to the EVAL43 PC board using surface mount processes. Solder paste may be dispensed or screen-printed on the DUT pads as well as the foil heat slug pad. The heat slug on the bottom surface of the PSOP1 provides maximum heat dissipation capabilities when soldered to the PCB foil footprint area. However, for prototype purposes, the tab can be thermally connected to the PCB foil area using thermal grease.

If soldering the heat slug, ideally the PSOP1 should be soldered to the PCB using a solder reflow furnace. If a reflow furnace is not available, a heat plate capable of solder reflow temperatures may be used. Otherwise, the leads may be carefully soldered individually to the PCB with a thin tip soldering iron. However, in this case, the use of thermal grease under the heat tab is recommended instead of solder for thermal connection through the thermal vias.

The kit comes with ceramic bypass capacitors, which should be soldered on the space provided on the EVAL43 board. Also, space is provided for the appropriate electrolytic by-pass capacitors. Although these capacitors are not provided in the kit, a recommended capacitor is listed for 100V applications. For higher voltage applications, a larger electrolytic capacitor can be mounted on the EVAL36 board.

The EVAL43 is a generic evaluation board for the PSOP1. Jumpers are required to make appropriate connection to +Vs, -Vs and ground. When applicable, surface mount 0805 0Ω resistors can be used in the locations provided.

Once all the surface mount components are installed, the heat sink can then be mounted to the back of the PC board. High thermal conductive grease should be used when mounting the heat sink to the PC board. Note: A heat sink is not supplied with the kit, but several options are listed which are produced by AAVID Thermal Product, Inc.

Review Figure 2 on the next page for all other assemblies needed to construct this evaluation kit.

BEFORE YOU GET STARTED

* All Apex amplifiers should be handled using proper ESD precautions.
* Always provide the appropriate heat sinking.
* Always use adequate power supply bypass capacitors.
* 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.

Figure 2: EVAL36