

Introduction

The Synthesizer Evaluation Kit is designed for evaluating M/A-COM's synthesizers. The kit consists of two PCB assemblies, a data cable and the software to program the synthesizer.

Description of Motherboard (Diagram 1)

The motherboard supplies a clean, regulated voltage level to the VCO and PLL of the synthesizer and buffers the DATA signal received from the computer. The voltage regulator steps down the 12V input to a clean 5V. The motherboard includes a switch to provide the option of either 5V or 3.3V for the PLL. There is a Power Indicator LED and a Lock Indicator LED.

The motherboard regulators may be bypassed by removing R30 & R32 and connecting the voltage supply directly to test points T3, T4 & T5.

The motherboard also features a Trigger Test Point (T6 & T7). This is to allow the switching speed of the unit to be measured.

Description of Daughterboard (Diagram 2)

The daughterboard includes decoupling capacitors. The motherboard and daughterboard may be connected directly together or connected using a serial cable. The serial cable allows the DUT to be placed in a temperature chamber without compromising the performance of the motherboard. The Daughterboard is currently available for two package styles: LSM6 (P/N 1000026009) and LSM8 (P/N 1000026010).

Equipment Required

- Power Supply (12V)
- Data cable, 25 pin to 9 pin (P/N 1000026133)
- Serial cable, male D/female D connectors (optional)
- Motherboard, P/N 1000026117
- Daughterboard
 - LSM6, P/N 1000026009
 - LSM8, P/N 1000026010
- M/A Com Synthesizer Evaluation Kit Software (ANI-006). Download from www.macom.com.

Set Up (Diagram 3)

1. Connect the 12V power supply to the motherboard. It should draw ~15mA.
2. Connect the data cable.
3. Set the switch to 5V or 3.3V.
4. Connect the motherboard to the daughterboard (with DUT), directly or with a serial cable.
5. Connect the Reference Input and the RF Output. The Board should draw ~60mA. The Power Indicator LED should be "on".
6. Program the synthesizer by following the on-screen instructions of the software.
7. When the DUT locks, the Lock Detect LED should be "on". The Board should draw ~80mA.

Attachments

- Diagram 1: Motherboard (P/N 1000026117)
- Diagram 2: Daughterboard (LSM6 version shown)
- Diagram 3: Set up of Evaluation Kit
- Table 1: Data cable wiring layout
- Table 2: Test Point (TP) function table
- Schematic 1: Motherboard schematic
- Schematic 2: Daughterboard schematic
- Table 3: Motherboard Bill of Material

Diagram 1: Motherboard

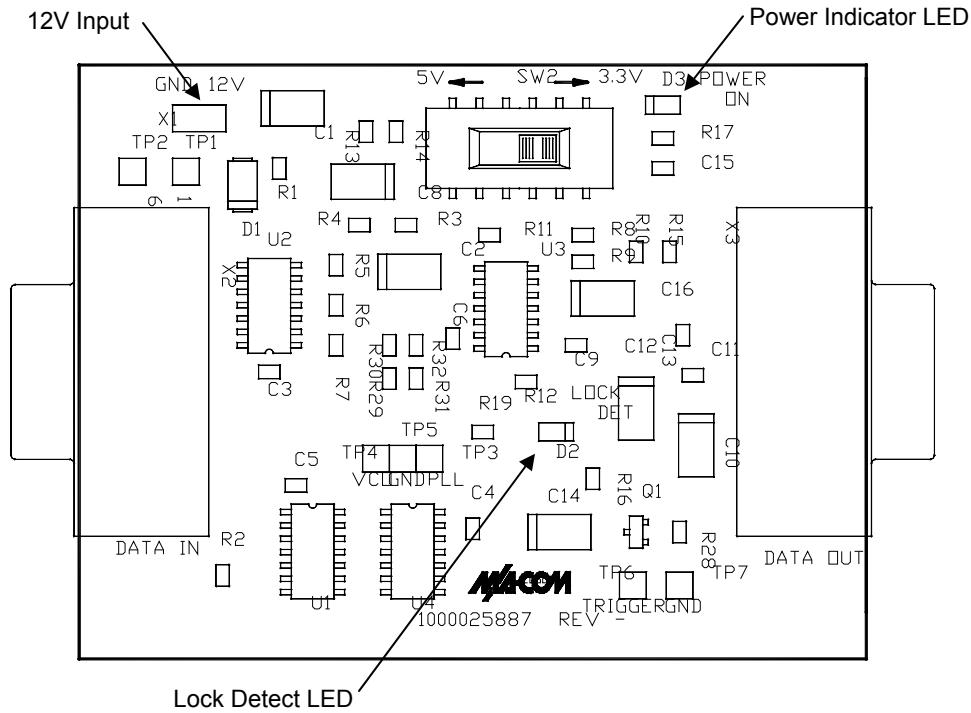


Diagram 2: Daughterboard

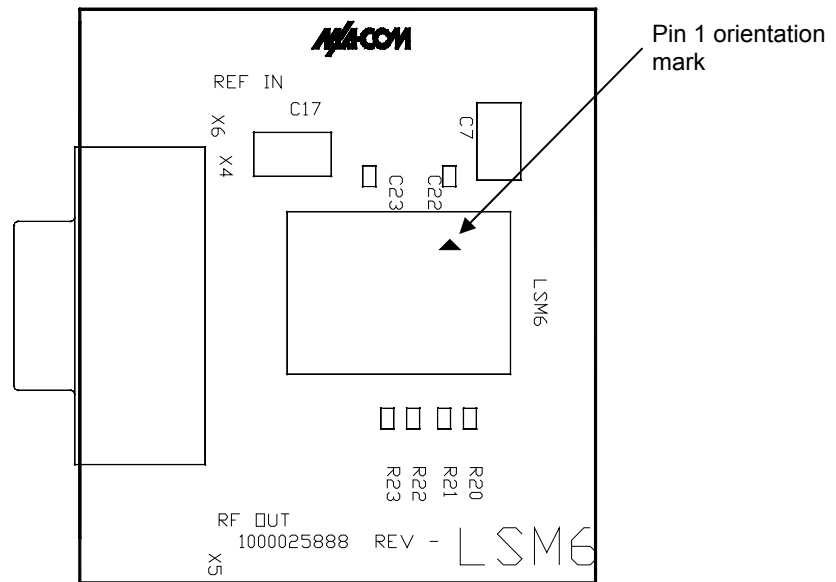


Diagram 3: Set Up

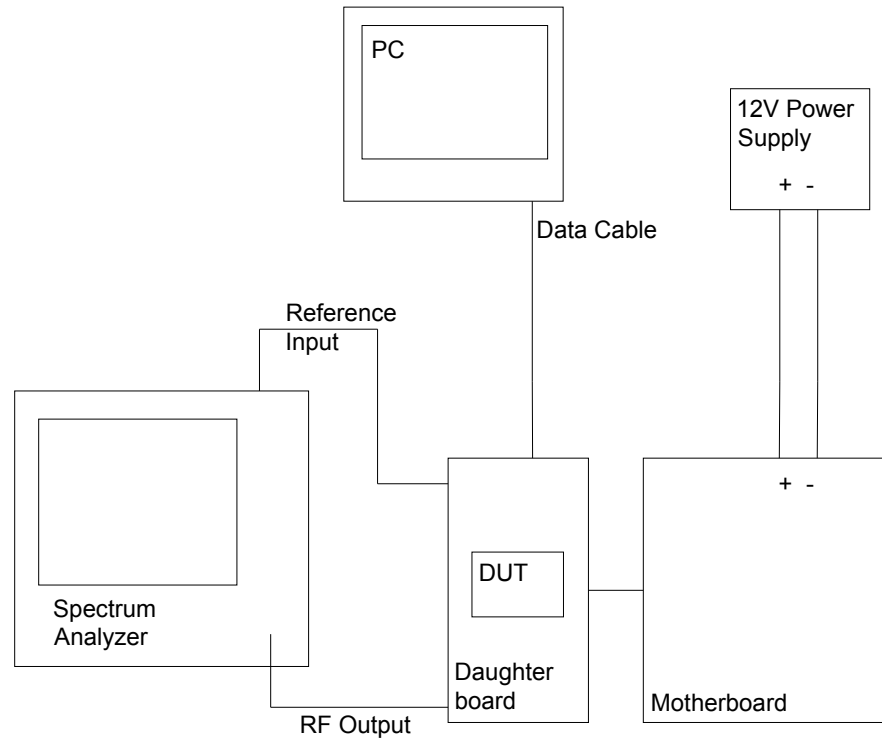
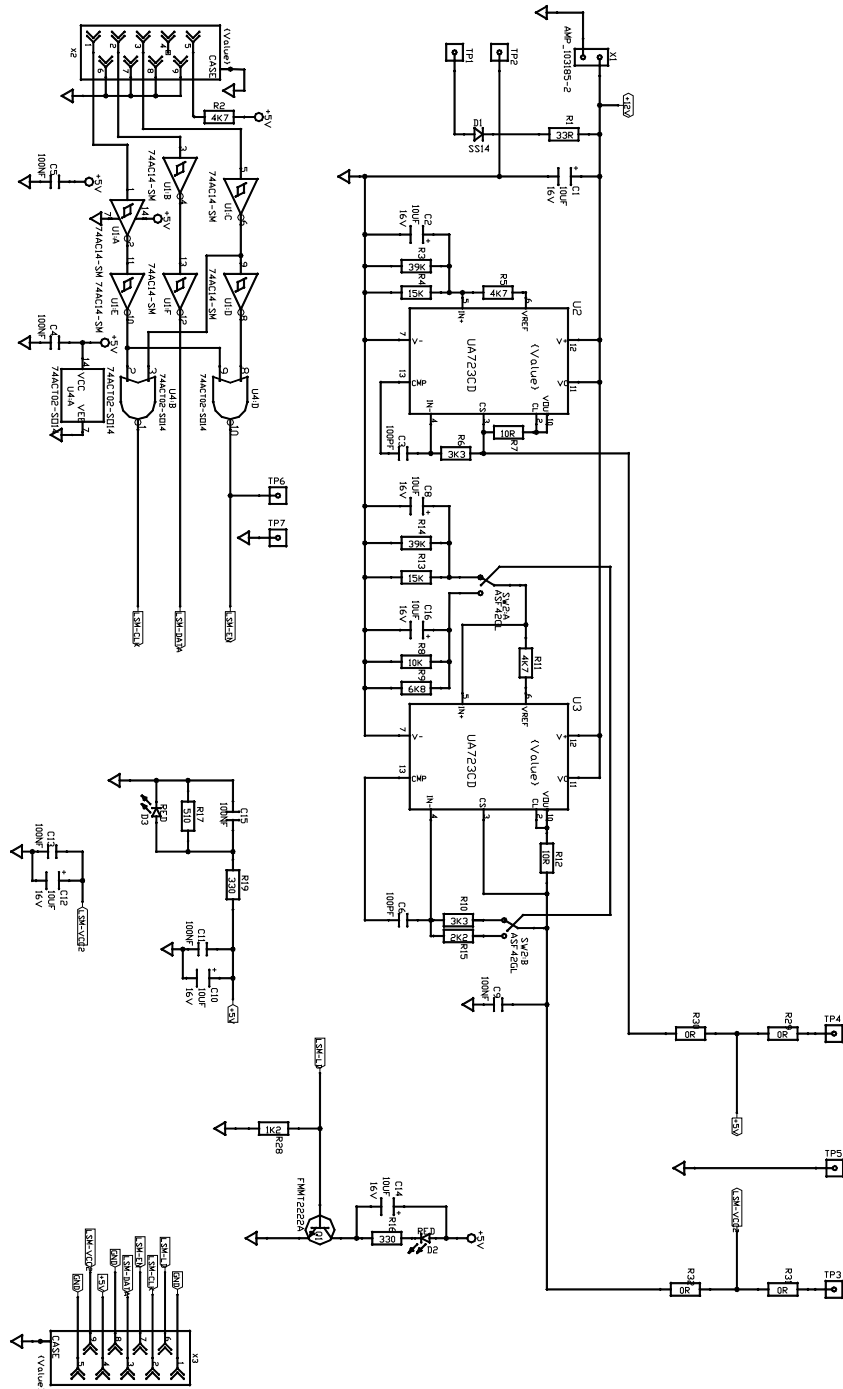


Table 1: Data Cable Pin Connections

9 Pin Female D Connector	25 Pin Male D Connector
Pin Number	Pin Number
1	1
2	2
3	7
4	N/C
5	15
6	10
7	11
8	12
9	20

Schematic 1: Motherboard



Schematic 2: Daughterboard

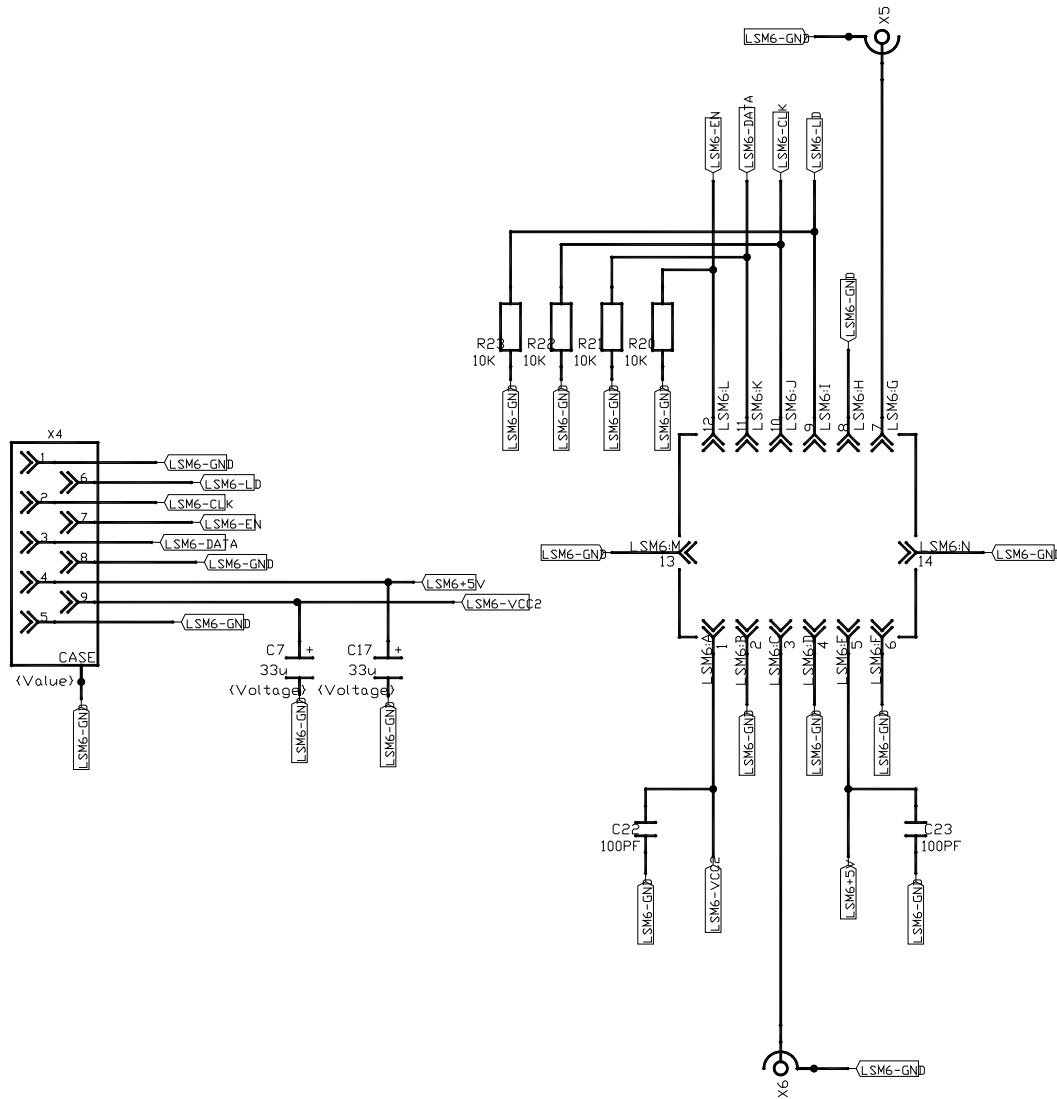


Table 2: Test Point Functions

Test Point	Function
TP1	Ground for Additional Supply Option
TP2	Power for Additional Supply Option
TP3	Independent Supply Pin for PLL
TP4	Independent Supply Pin for VCO
TP5	Independent Supply Pin for Ground
TP6	Trigger to measure Switching Speed
TP7	Ground for measuring Switching Speed

Table 3: Bill of Materials

Designator	Description	Value	Qty
U4	Buffer, 74ACT02-SO14	N/A	1
U1	Buffer, 74ACT14SC	N/A	1
C4, C5, C9, C11, C13, C15	Capacitor, 0805	100NF	6
C3, C6, C18, C22, C23, C30	Capacitor, 0805	100PF	6
R6, R10	Resistor, 0805	3K3	1
R2, R5, R11	Resistor, 0805	4K7	3
R7, R12	Resistor, 0805	10R	2
R4, R13	Resistor, 0805	15K	3
R1	Resistor, 0805	33R	1
R3, R14	Resistor, 0805	39K	3
R16	Resistor, 0805	330R	2
R18	Resistor, 0805	680R	1
R15, R20, R21, R22, R23, R24, R25, R26, R27	Resistor, 0805	2K2	10
R17	Resistor, 0805	510R	1
R8	Resistor, 0805	10K	1
R9	Resistor, 0805	6K8	1
R28	Resistor, 0805	1K2	1
R29, R30, R31, R32	Resistor, 0805	0R	4
SW2	Switch, ASF42GL	N/A	0
Q1	Transistor, FMMT222A	N/A	1
D2, D3	LED, LTST-C150KRKT	RED	2
D1	Diode, SS14	N/A	1
C7, C17, C19, C20	Capacitor, T3528	33u	4
C1, C2, C8, C10, C12, C14, C16	Capacitor, T6032	10UF	7
U2, U3	Regulator, UA723CD	N/A	2