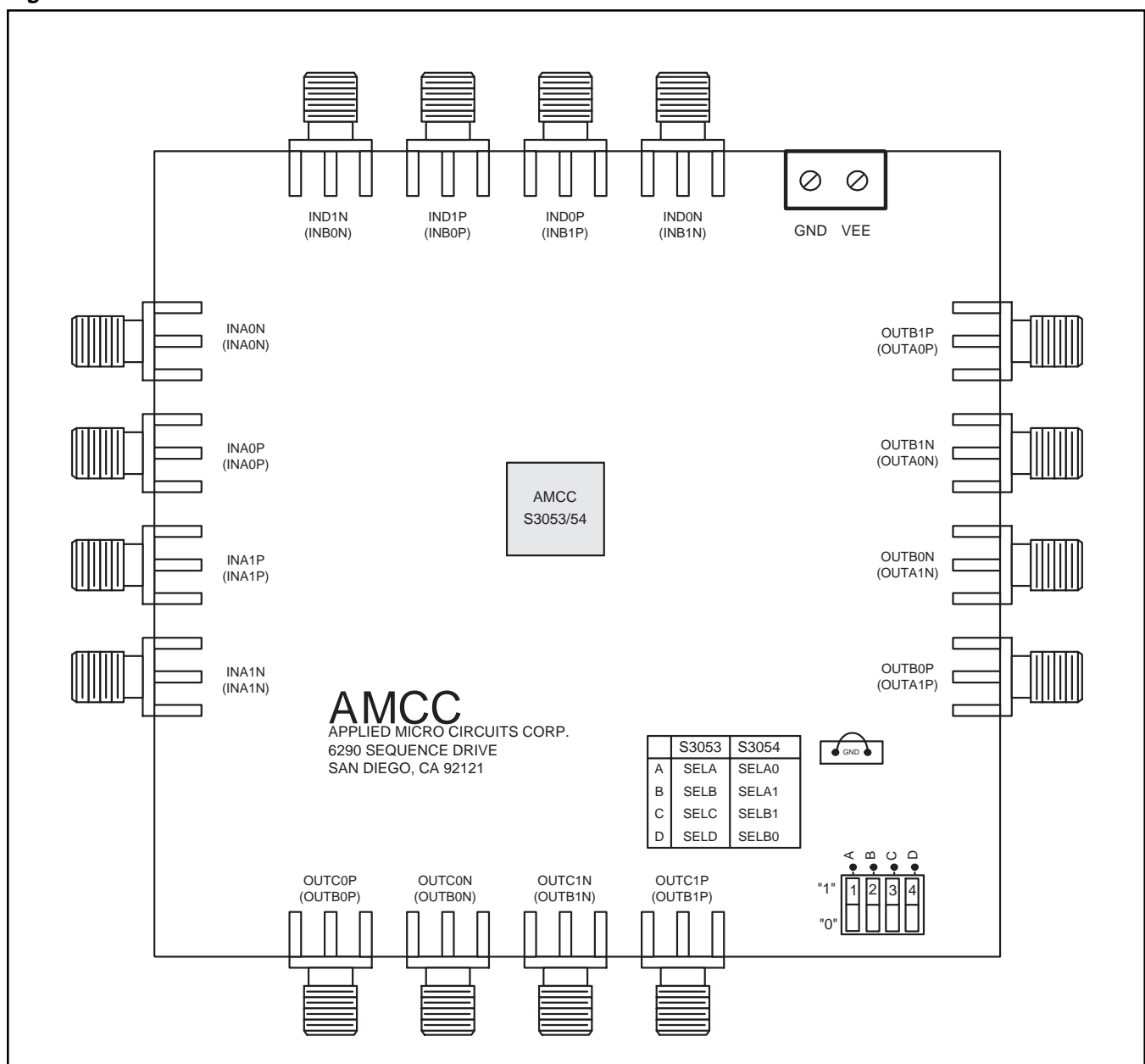


DESCRIPTION

The S3053/54 Evaluation Board provides a flexible platform for verifying the operation of the S3053 QUAD MUX and S3054 2 X 2 DUAL CROSSPOINT SWITCH interface circuit. This document provides information on board contents. It should be used in conjunction with the S3053/54 data sheet, which contains full technical details on chip operation.

Figure 1 shows the outline of the S3053/54 Evaluation Board and Figures 7 and 8 show the block diagram of how the S3053/54 Evaluation Board should be connected to test equipment.

Figure 1. S3053/54 Evaluation Board



The block diagram in Figures 2 and 3 show basic operation of the S3053 and S3054.

Figure 2. S3053 Functional Block Diagram

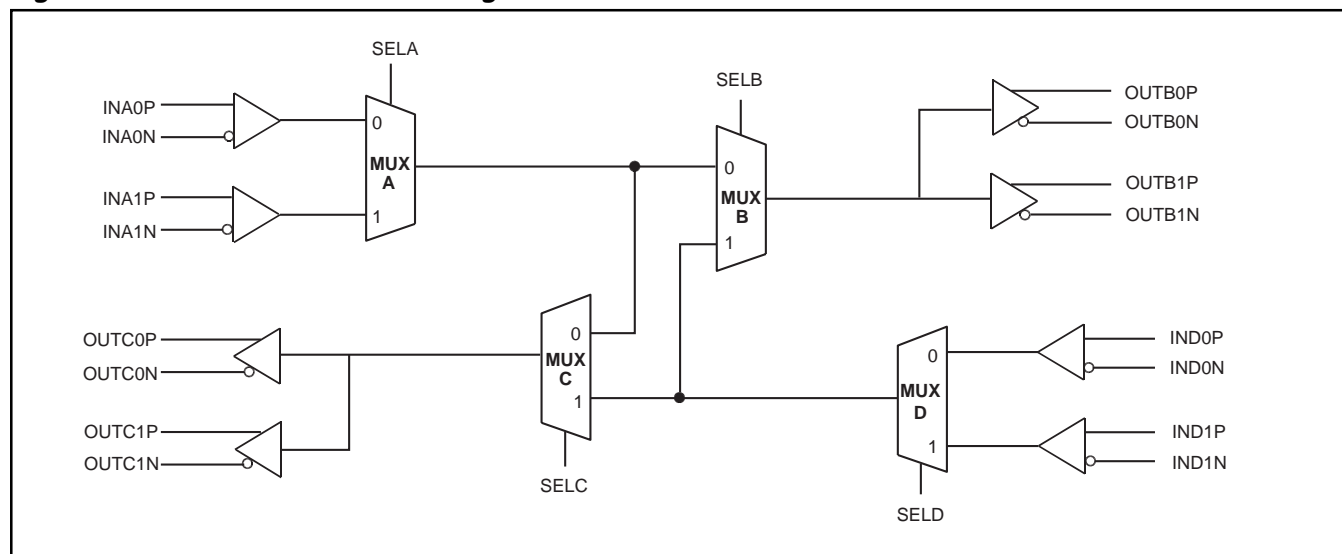
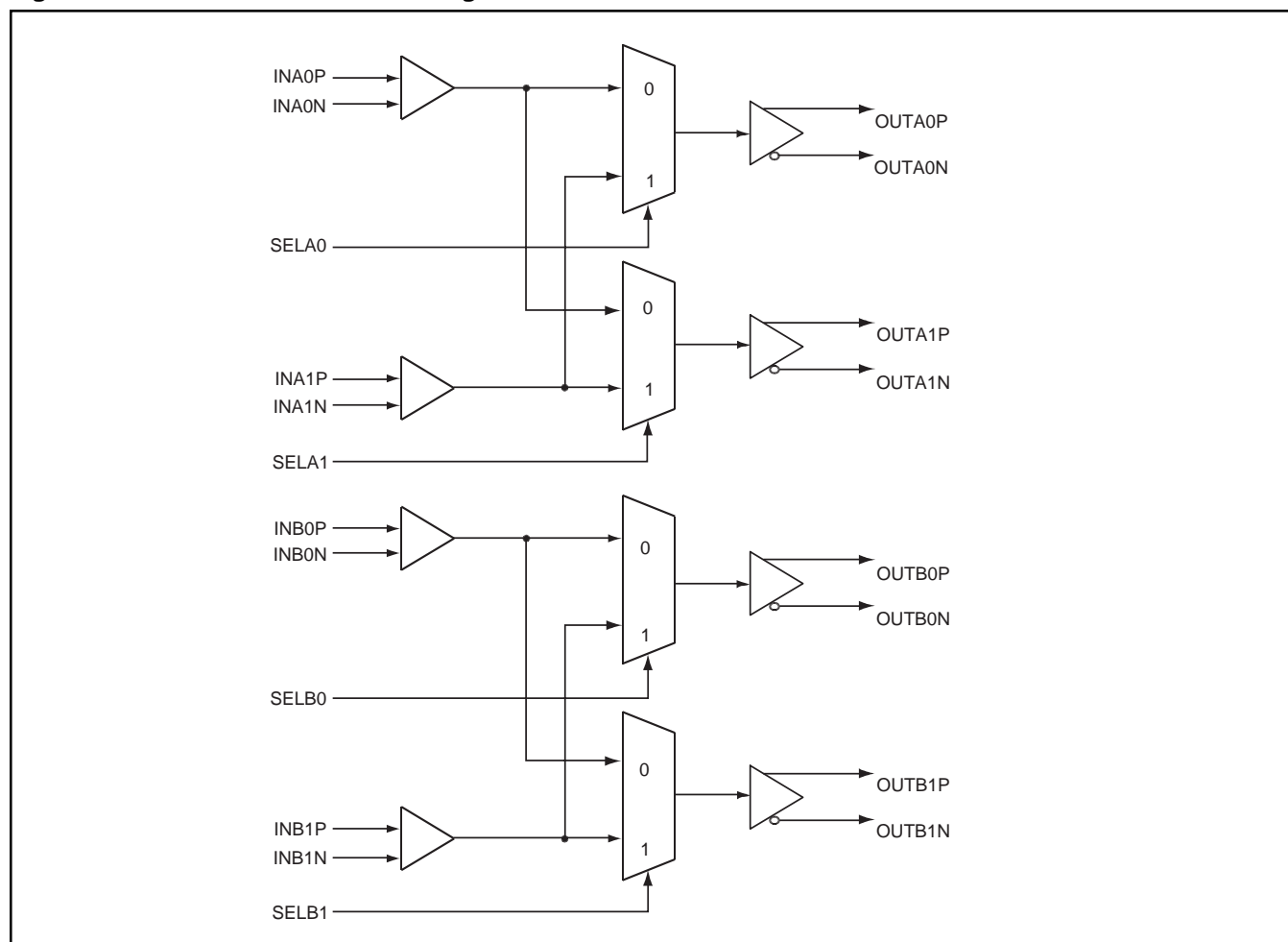


Figure 3. S3054 Functional Block Diagram



The diagram illustrates the S3053 integrated circuit, a 13-pin device. The central component is the S3053 IC, which is shown with its internal structure and pin connections. The pins are numbered 1 through 13, and the internal components are labeled with their respective pin numbers.

Pin Connections:

- Pin 1:** VEE
- Pin 2:** VSWC0
- Pin 3:** VEEC0
- Pin 4:** OUTC0P
- Pin 5:** OUTC0N
- Pin 6:** VCC
- Pin 7:** VEE
- Pin 8:** VCC
- Pin 9:** OUTC1N
- Pin 10:** OUTC1P
- Pin 11:** VEEC1
- Pin 12:** VSWC1
- Pin 13:** VEE

Internal Components and Connections:

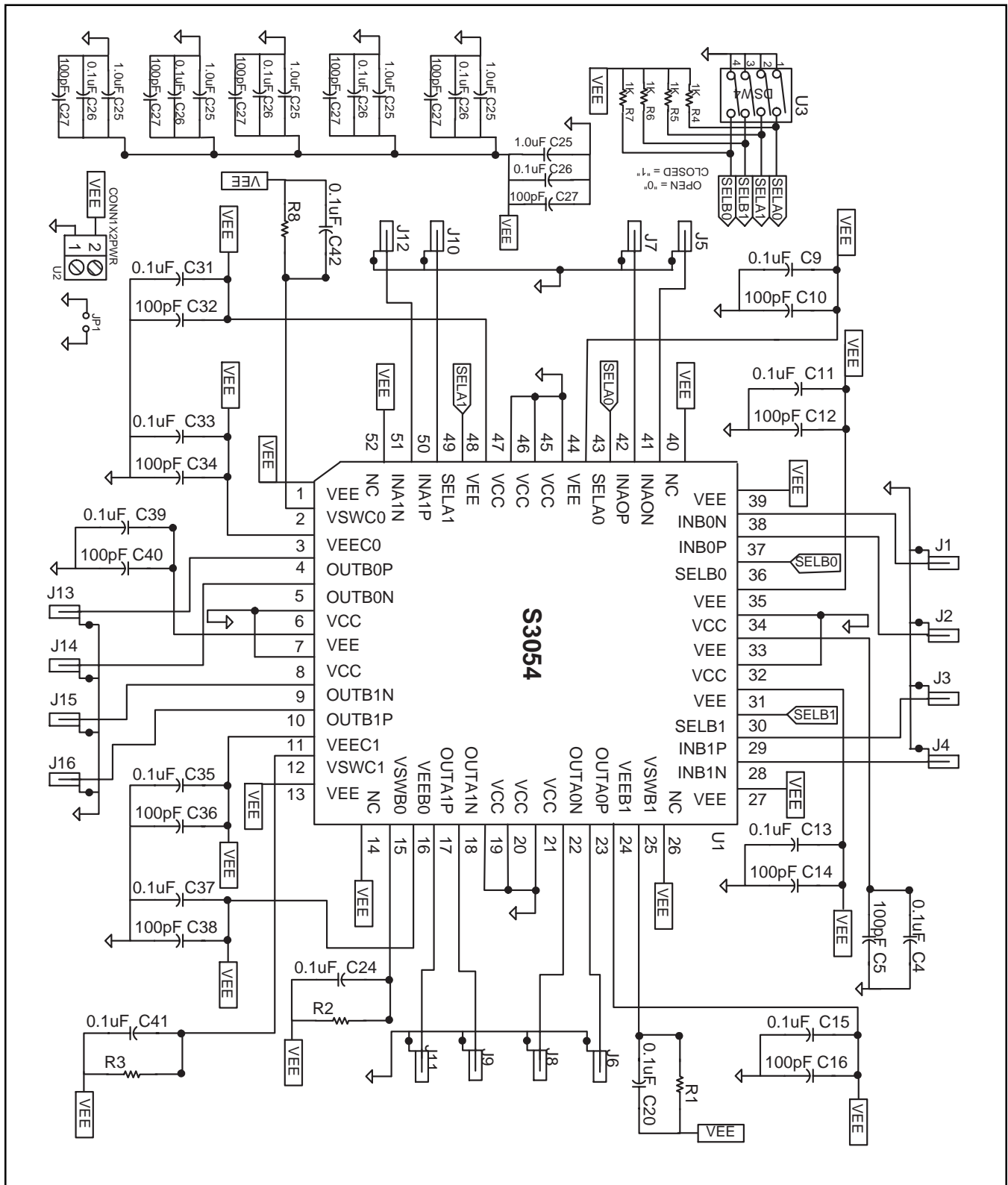
- U1:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U2:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U3:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U4:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U5:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U6:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U7:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U8:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U9:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U10:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U11:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U12:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.
- U13:** A 13-pin component connected to pins 1 through 13. It has internal connections to VEE, VCC, and VSWC0/VSWC1.

External Components:

- Resistors:** R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100.
- Capacitors:** C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34, C35, C36, C37, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C51, C52, C53, C54, C55, C56, C57, C58, C59, C60, C61, C62, C63, C64, C65, C66, C67, C68, C69, C70, C71, C72, C73, C74, C75, C76, C77, C78, C79, C80, C81, C82, C83, C84, C85, C86, C87, C88, C89, C90, C91, C92, C93, C94, C95, C96, C97, C98, C99, C100.
- Diodes:** D1, D2, D3, D4, D5, D6, D7, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D21, D22, D23, D24, D25, D26, D27, D28, D29, D30, D31, D32, D33, D34, D35, D36, D37, D38, D39, D40, D41, D42, D43, D44, D45, D46, D47, D48, D49, D50, D51, D52, D53, D54, D55, D56, D57, D58, D59, D60, D61, D62, D63, D64, D65, D66, D67, D68, D69, D70, D71, D72, D73, D74, D75, D76, D77, D78, D79, D80, D81, D82, D83, D84, D85, D86, D87, D88, D89, D90, D91, D92, D93, D94, D95, D96, D97, D98, D99, D100.
- Transistors:** T1, T2, T3, T4, T5, T6, T7, T8, T9, T10, T11, T12, T13, T14, T15, T16, T17, T18, T19, T20, T21, T22, T23, T24, T25, T26, T27, T28, T29, T30, T31, T32, T33, T34, T35, T36, T37, T38, T39, T40, T41, T42, T43, T44, T45, T46, T47, T48, T49, T50, T51, T52, T53, T54, T55, T56, T57, T58, T59, T60, T61, T62, T63, T64, T65, T66, T67, T68, T69, T70, T71, T72, T73, T74, T75, T76, T77, T78, T79, T80, T81, T82, T83, T84, T85, T86, T87, T88, T89, T90, T91, T92, T93, T94, T95, T96, T97, T98, T99, T100.

See Figure 6 for external resistor values.

Figure 5. S3054 Schematic



See Figure 6 for external resistor values.

Figure 6. Typical Single-Ended Voltage Swing vs. R_{ext} and Temperature

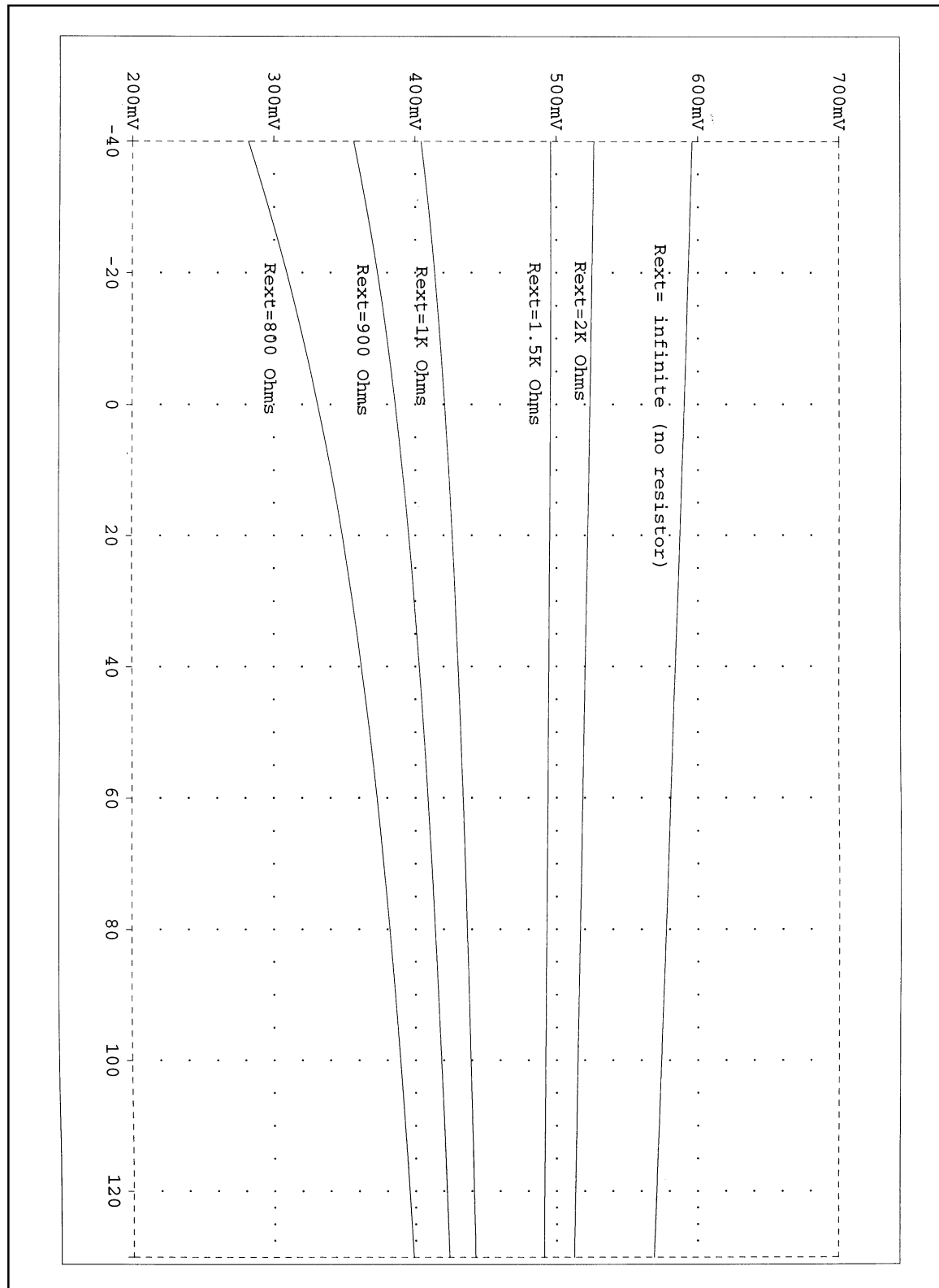


Figure 7 depicts how the S3053/54 Evaluation Board can be connected for BER measurements and shows the setup for rise/fall time, propagation delay, jitter transfer and eye opening measurements.

Figure 7. S3053/54 Test Setup

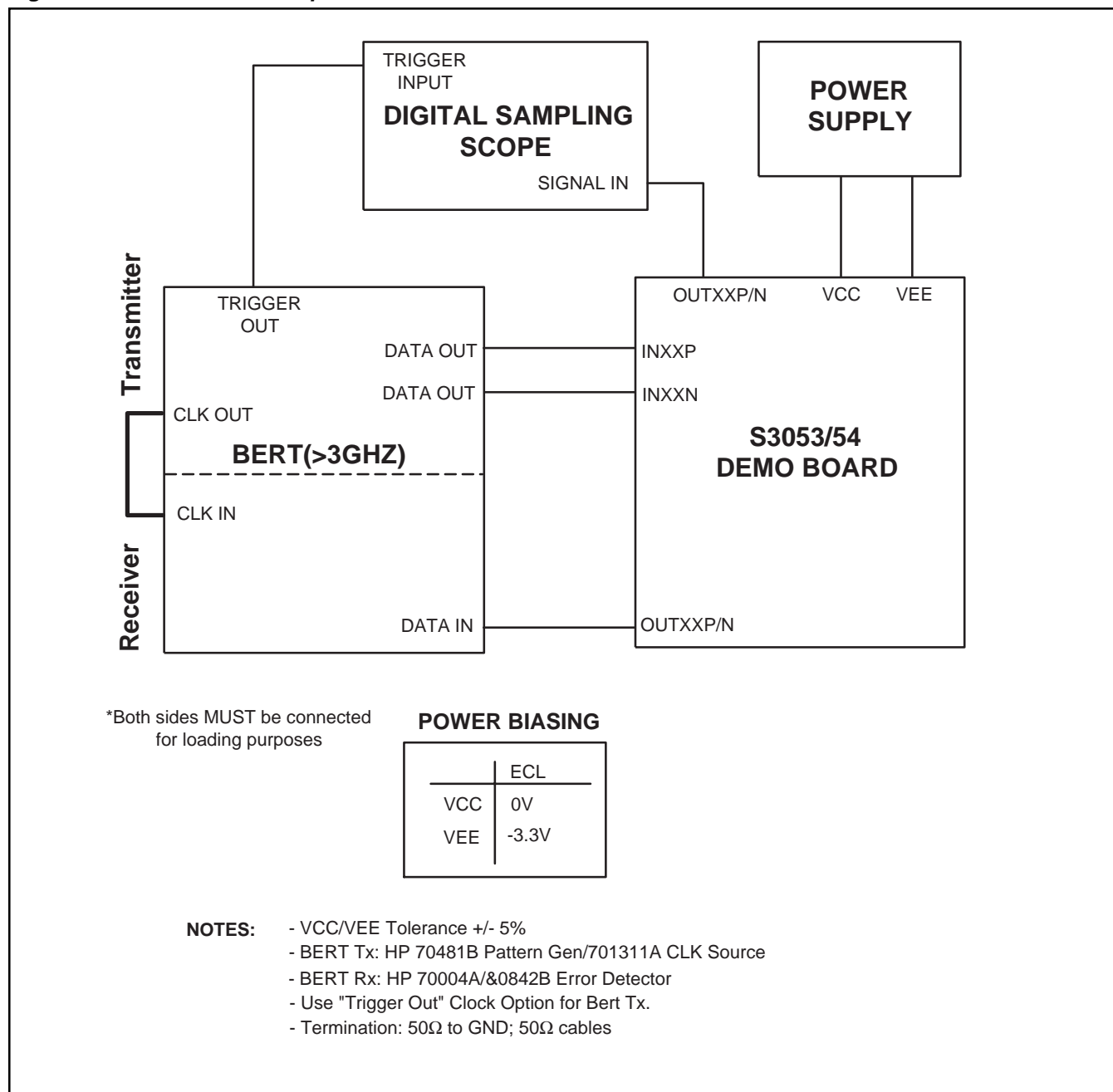
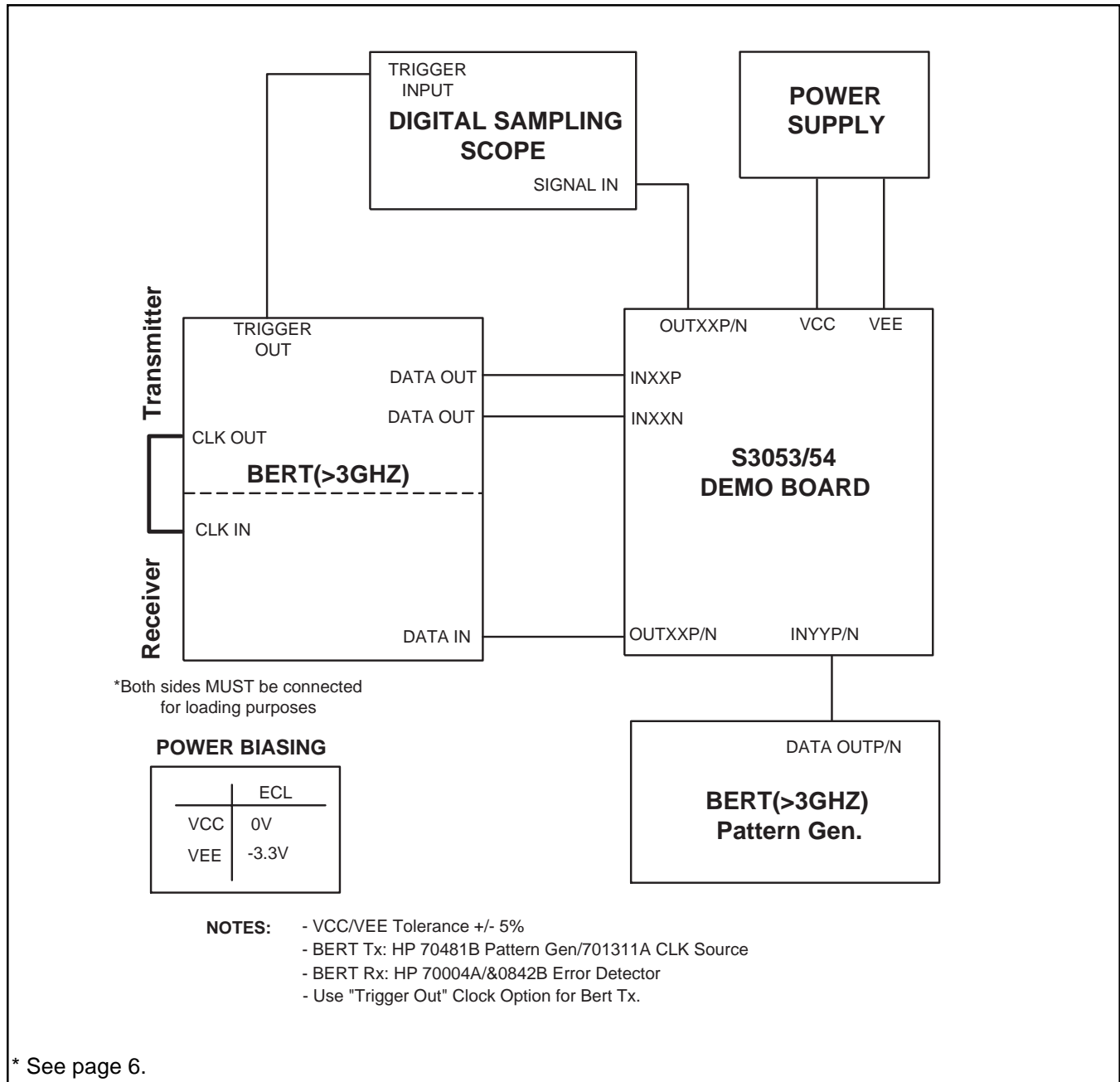


Figure 8 depicts how the S3053/54 Evaluation Board can be connected for CROSSTALK measurement.

Figure 8. S3053/54 Test Setup



SMA CONNECTORS

SMA connectors are provided for the input/output signals.

S3053

INA0P/N, INA1P/N — Differential inputs to the multiplexor.

IND0P/N, IND1P/N — Differential inputs to the multiplexor.

All inputs must be driven to high or low state.

SELA — A Low level selects INA0P/N.

SELA — A High level selects INA1P/N

SELD — A Low level selects IND0P/N.

SELD — A High level selects IND1P/N.

SELB — A Low level selects MUX A output. (See Figure 2.)

SELB — A High level selects MUX D output.

SELC — A Low level selects MUX A output.

SELC — A High level selects MUX D output.

OUTB0P/N, OUTB1P/N — Serial output from MUX B. (See Figure 3.)

OUTC0P/N, OUTC1P/N — Serial output from MUX C.

S3054

INA0P/N, INB0P/N — Differential inputs.

INA1P/N, INB1P/N — Differential inputs.

All inputs must be driven to high or low state.

SELA0 — A Low level selects INA0P/N.

SELA0 — A High level selects INA1P/N.

SELA1 — A Low level selects INA0P/N.

SELA1 — A High level selects INA1P/N.

SELB0 — A Low level selects INB0P/N.

SELB0 — A High level selects INB1P/N.

SELB1 — A Low level selects INB0P/N.

SELB1 — A High level selects INB1P/N.

OUTA0P/N — Channel A0 serial output.

OUTA1P/N — Channel A1 serial output.

OUTB0P/N — Channel B0 Serial output.

OUTB1P/N — Channel B1 serial output.

DIP SWITCHES

The Evaluation Board is equipped with a DIP switch, to control the static control functions of the on-board devices. For both arrays the OFF (open = "0") condition of the DIP switch asserts a logic low on the assigned signal, and the ON (closed = "1") condition asserts a logic high.

Figure 9.

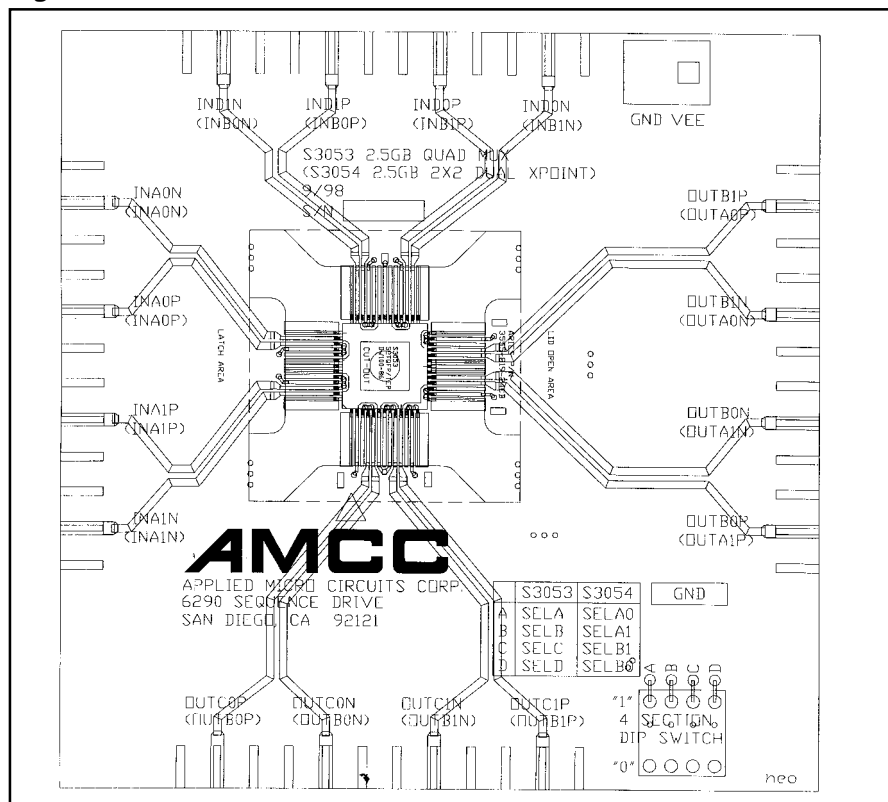


Figure 10.

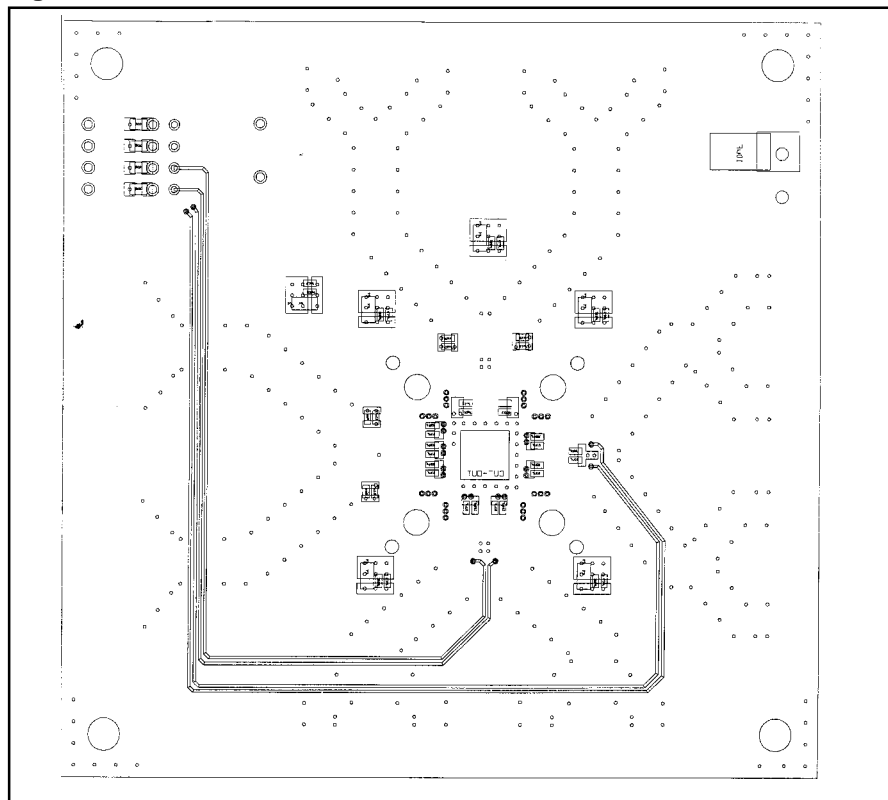


Figure 11.

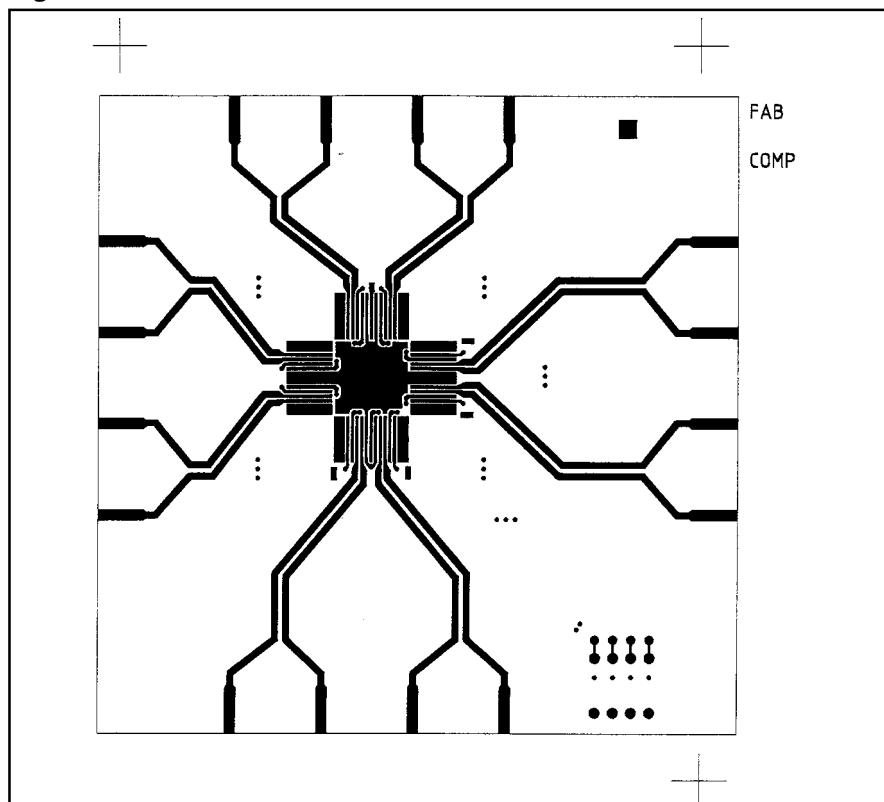


Figure 12.

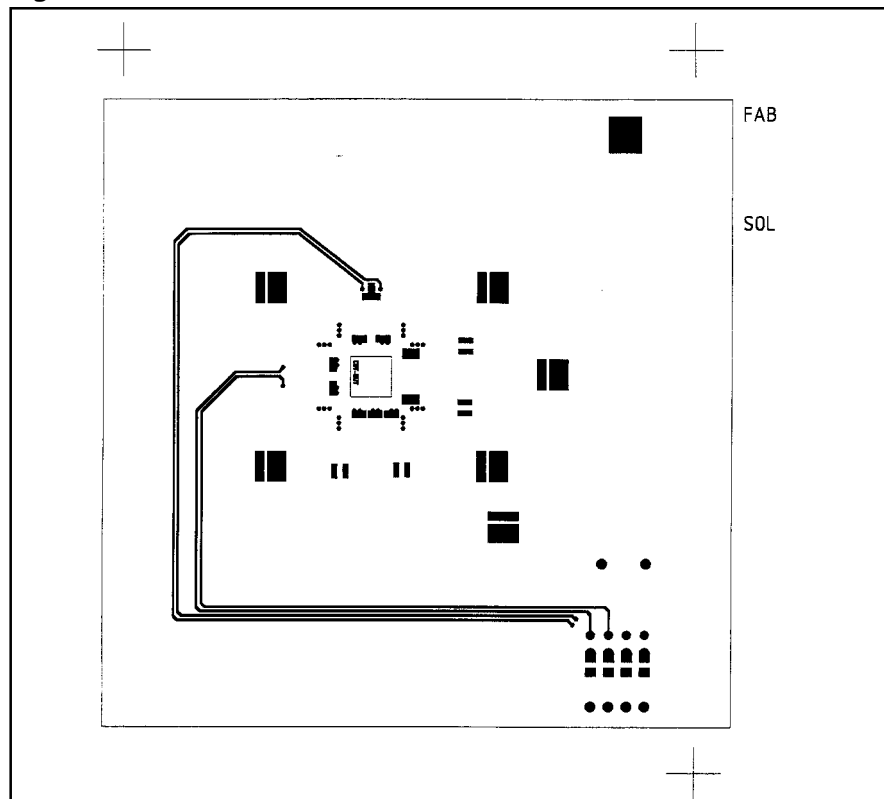
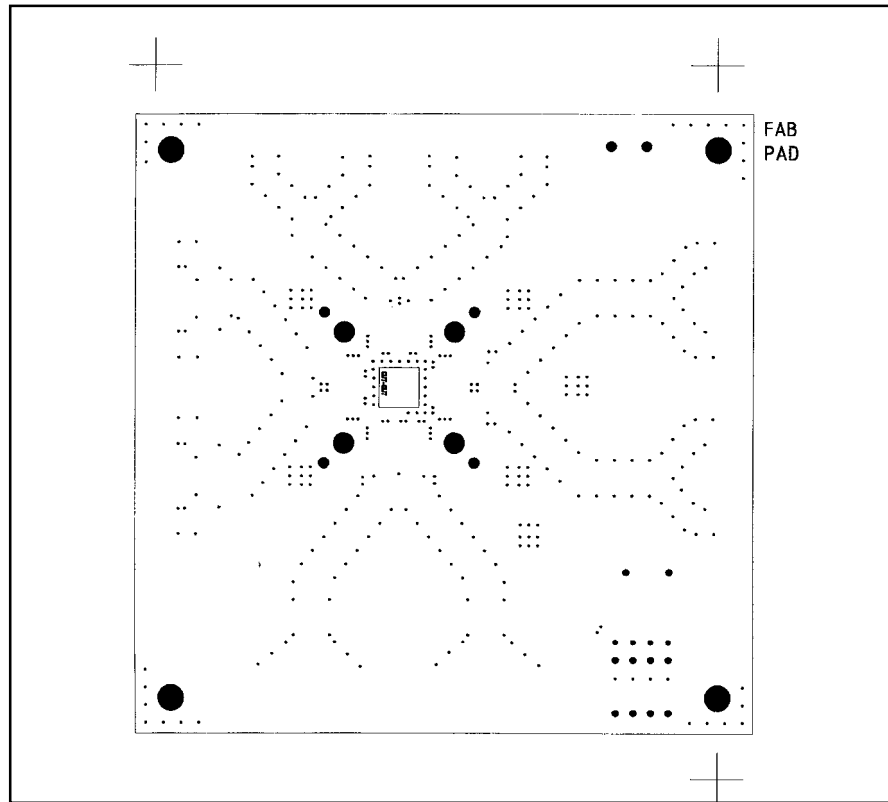


Figure 13.



Ordering Information

PREFIX	DEVICE	PACKAGE
EV – Evaluation Board	3053/54	TT – TQFP/TEP

X XXXX X
Prefix Device Package



Applied Micro Circuits Corporation • 6290 Sequence Dr., San Diego, CA 92121

Phone: (619) 450-9333 • (800) 755-2622 • Fax: (619) 450-9885

<http://www.amcc.com>

AMCC reserves the right to make changes to its products or to discontinue any semiconductor product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

AMCC does not assume any liability arising out of the application or use of any product or circuit described herein, neither does it convey any license under its patent rights nor the rights of others.

AMCC reserves the right to ship devices of higher grade in place of those of lower grade.

AMCC SEMICONDUCTOR PRODUCTS ARE NOT DESIGNED, INTENDED, AUTHORIZED, OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT APPLICATIONS, DEVICES OR SYSTEMS OR OTHER CRITICAL APPLICATIONS.

AMCC is a registered trademark of Applied Micro Circuits Corporation.
Copyright © 1999 Applied Micro Circuits Corporation