



FEATURES

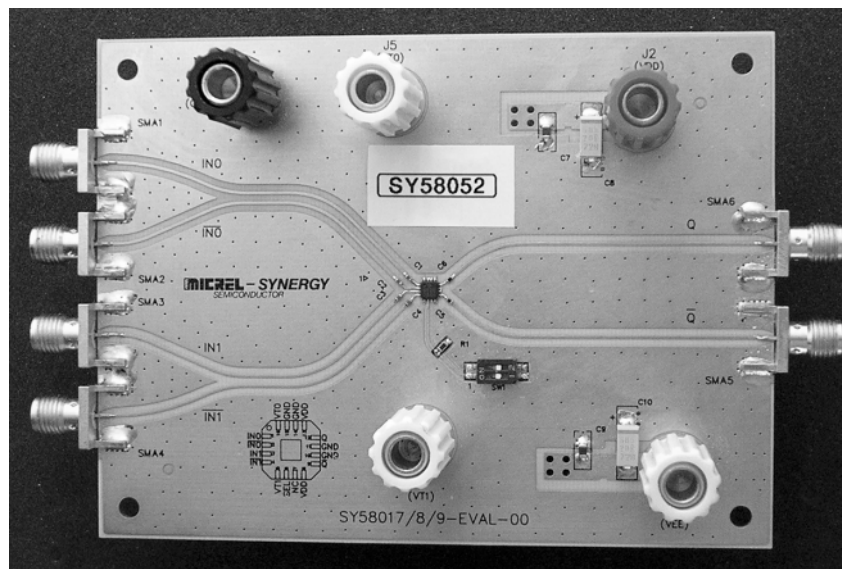
- SY58052U
- Single +2.5V or +3.3V power supply
- AC-coupled input and output configuration for ease-of-use
- Evaluation board configured to directly interface with 50Ω lab equipment
- Evaluation board re-configurable for DC-coupled output
- User controlled V_T jacks for AC-coupled applications
- Fully assembled and tested

GENERAL DESCRIPTION

The SY58052U evaluation board is designed for convenient setup and quick evaluation of the part. The board allows the user to evaluate the part over the full voltage and temperature range without modifications to the board. For ease-of-use, the board is configured in AC-coupled mode which directly interfaces with 50Ω lab equipment. For applications that require DC-coupled mode, instructions for modifying the board are included. The board is fully assembled and tested and is accompanied with all necessary documentation.

All data sheets and support documentation can be found on Micrel's web site at www.micrel.com.

EVALUATION BOARD



EVALUATION BOARD DESCRIPTION

The SY58052U is designed to operate with a single +2.5V ±5% or +3.3V ±10% power supply. The board is configured in AC-coupled mode which allows the user to interface the board directly to 50Ω lab equipment and all boards are shipped in this configuration. The evaluation board can be reconfigured in DC-coupled mode by modifying the board. Since the board can be reconfigured in DC-coupled configuration the board offers the user flexibility in selecting the mode that is right for the application.

AC-Coupled Board

AC-coupled configuration is suited for most customers and is preferred by the majority of users because of its ease-of-use. AC-coupling requires either a +2.5V ±5% or +3.3V ±10% supply and offers the most flexibility in interfacing to a variety of signal standards.

The DC-bias levels are set by the V_T jack and AC-coupling capacitors are supplied on-board for each input making it unnecessary for the user to vary the offset voltage or change any components on the board as the power supply voltage varies. The user needs only to supply a minimum input voltage swing and the bias voltage will automatically adjust the input to the correct level as the power supply voltage varies.

DC-Coupled Evaluation Board

For applications that are not suited for AC-coupled mode such as data or clock that are turned off for extended periods of time, the board can be user-configured for DC-coupled mode. DC-coupled mode requires the user to remove capacitors C5 and C6, and replace the capacitors with 0Ω resistors.

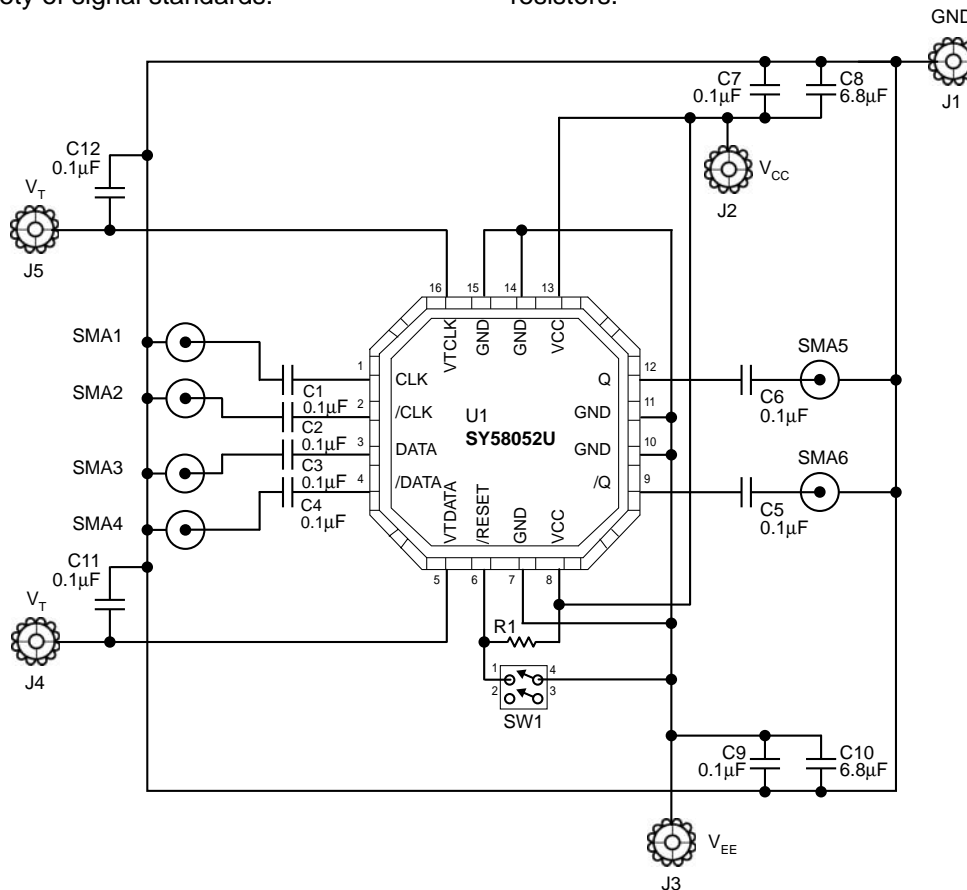


Figure 1. SY58052U Evaluation Board Schematic

I/O	Power Supply	V _{CC}	GND	V _{EE}	C5–C6
AC-IN/AC-OUT ⁽¹⁾	2.5V/3.3V	+2.5V/+3.3V	0V	0V	0.1µF
AC-IN/DC-OUT ⁽²⁾	2.5V/3.3V	0V	0V	–2.5V/–3.3V	0Ω

Table 1. Configuration Table

Notes:

1. Default condition.
2. Remove C5–C6 and replace capacitors with 0Ω, 0402 resistors.

AC-COUPLED EVALUATION BOARD SET-UP

The following steps describe the procedure for setting up the evaluation board:

1. Connect +2.5V or +3.3V to V_{CC} , set GND and V_{EE} to 0V, and set V_{EE} to 0V.
2. Set the V_T jumpers to $V_{CC}-1.3V$.
3. Turn off the power supply.
4. Using a differential signal source set the amplitude of the differential output to 400mV single-ended or 800mV differential. Set the offset to a positive value; the value of the offset is not critical, since the AC-coupled inputs will automatically bias to V_T . Next, turn off or disable the outputs of the signal source.
5. Using equal length 50 Ω impedance coaxial cables, connect the signal source to the inputs on the evaluation board.
6. Using equal length 50 Ω impedance coaxial cables, connect the outputs of the evaluation board to the oscilloscope or other measurement device that has an internal 50 Ω termination.
7. Turn on the power and verify the current is <90mA.
8. Configure the dip-switch, and enable the signal source and monitor the outputs.

EVALUATION BOARD LAYOUT

PC Board Layout

The evaluation board is constructed with Rogers 4003 material and is coplanar in design fabricated to minimize noise, achieve high bandwidth, and minimize crosstalk.

L1	Signal/GND
L2	Impedance GND
L3	V_{EE}/V_{DD}
L4	Signal/GND

Table 2. Layer Stack

RELATED PRODUCT AND SUPPORT DOCUMENTATION

Part Number	Function	Data Sheet Link
SY58052U	Ultra-Precision CML Data and Clock Synchronizer with Internal Input/Output Termination Data Sheet	www.micrel.com/product-info/products/sy58052u.shtml

BILL OF MATERIALS**AC-Coupled Evaluation Board**

Item	Part Number	Manufacturer	Description	Qty.
C1–C6, C7, C9 C11, C12	VJ0402Y104KXQCW1BC	Vishay ⁽¹⁾	0.1 μ F, 10V, 10% Ceramic Capacitor, Size 0402, X7R Dielectric	10
C8, C10	293D685X0010	Vishay ⁽¹⁾	6.8 μ F, 20V, Tantalum Electrolytic Capacitor, Size B	2
R1	CRCW04023001F	Vishay ⁽¹⁾	3k Ω , 1/16W, 5% Thick-film Resistor, Size 0402	1
SMA1–SMA6	142-0701-851	Johnson Components ⁽²⁾	Jack Assembly End Launch SMA	6
SW1	CT2182LPST-ND	Digikey ⁽³⁾	2-Position Dip-Switch	1
J1–J5			Banana Jack	3
U1	SY58052U	Micrel, Inc.⁽⁴⁾	Ultra-Precision CML Data and Clock Synchronize with Internal Termination	1

DC-Coupled Evaluation Board

Item	Part Number	Manufacturer	Description	Qty.
C5, C6	CRCW04020R00F	Vishay ⁽¹⁾	0 Ω , 1/16W, 5% Thick-film Resistor, Size 0402	2

Notes:

1. Vishay tel: 402-563-6866.
2. Johnson Components tel: 800-247-8256.
3. Digikey tel: 800-344-4539.
4. Micrel, Inc. tel: 408-944-0800.

HBW SUPPORT**Help Line**

Micrel's HBW Applications helpline is available to assist you. Please call (408) 955-1690 or e-mail hbwhelp@micrel.com for assistance.

Application Hints and Notes

For application notes on high-speed termination on PECL and LVPECL products, clock synthesizer products, SONET jitter measurement, and other High Bandwidth product go to Micrel's website at <http://www.micrel.com>. Once in Micrel's website, follow the steps below:

1. Click on "Product Info."
2. In the "Applications Information Box," choose "Application Hint and Note Index."

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