



Precision, Low Power Differential 2:1 LVPECL MUX w/ Internal Termination

SY89852U Evaluation Board

General Description

The SY89854U evaluation board is designed for convenient setup and quick evaluation of the device using a single power source. The evaluation board is optimized to interface directly to 50Ω test equipment since the evaluation board is configured with AC-coupled inputs and AC-coupled outputs.

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

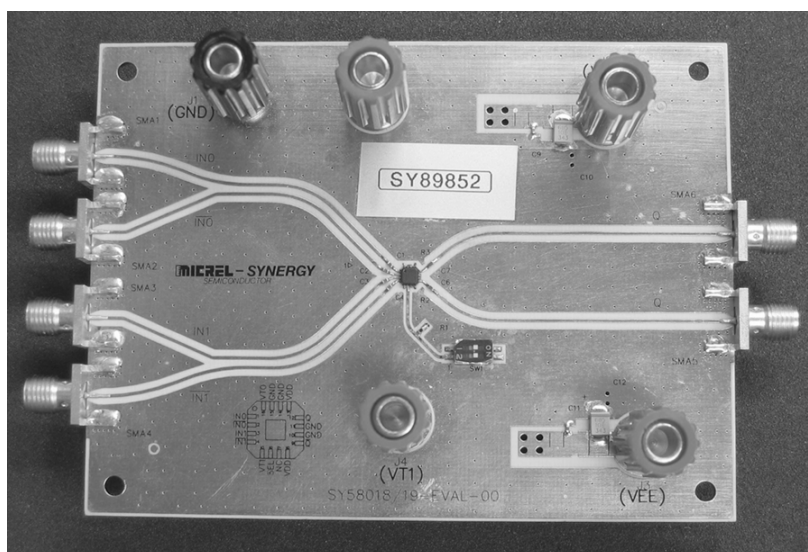
Features

- SY89852U low power differential 2:1 LVPECL MUX with internal termination
- Single +2.5V or +3.3V power supply
- AC-coupled configuration for direct interface with 50Ω test equipment
- On-board channel selection dip-switch

Related Documentation

- SY89852U, Precision, Low Power Differential 2:1 LVPECL MUX with Internal Termination Data Sheet

Evaluation Board



Evaluation Board Description

AC-Coupled Evaluation Board

The SY89852U is packed in a 16-pin MLF™. The evaluation board is designed to operate with a single 2.5V $\pm 5\%$ or 3.3V $\pm 10\%$ power supply and is configured with AC-coupled inputs and outputs. Further, the high-speed input and output channels are brought out to SMA connectors through matched length AC-coupled differential strip-line traces.

AC-Coupled Input

It is recommended that the inputs are left in AC-coupled mode for ease-of-use. In this mode, signals will automatically bias to the correct DC-operating point set by the VT jumper input. Therefore, the inputs can be driven by a differential signal as small as 100mV (200mV_{pp}) without level shifting or termination resistor network in the signal path.

AC-Coupled Output

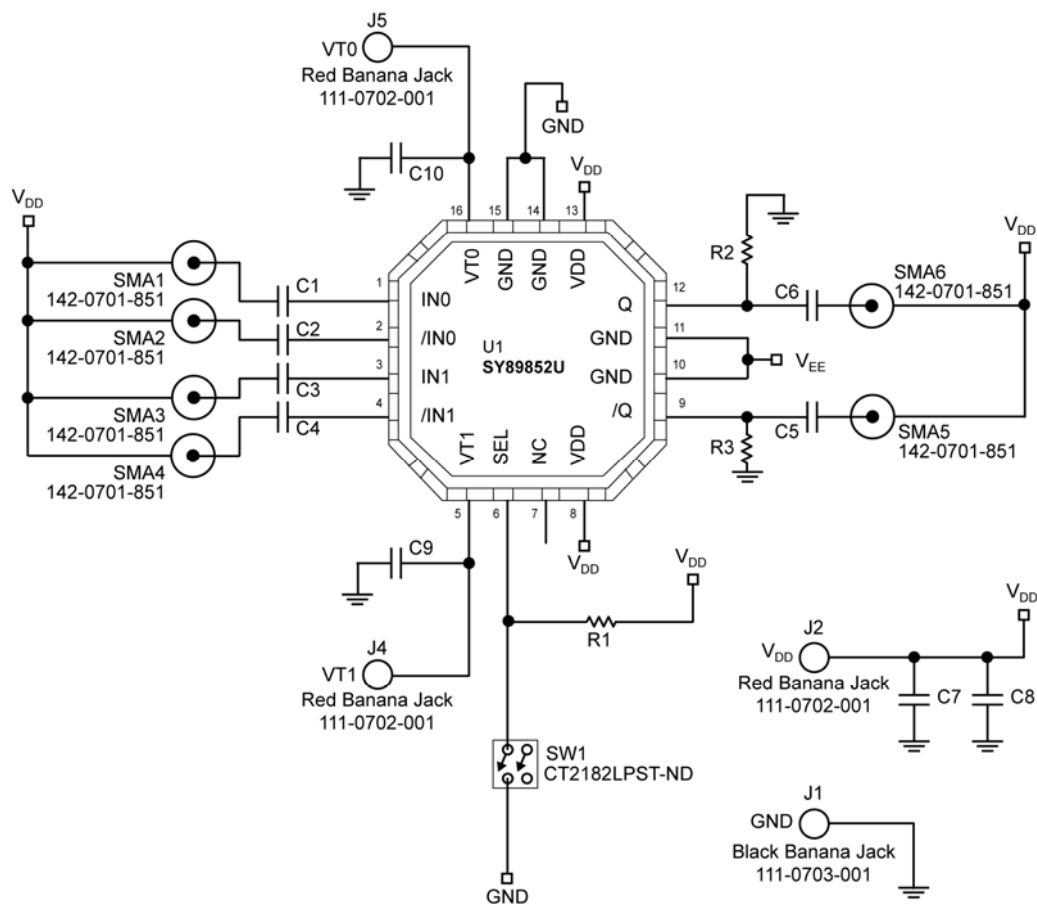
The SY89852U is configured with AC-coupled outputs allowing the board to interface directly with 50Ω equipment. AC-coupling allows the board to use a single power supply.

Unused Output

Single-Ended to Scope

Unused complimentary output should be terminated into 50Ω-to-ground.

Evaluation Board



SY89852U LVPECL AC-Coupled Evaluation Board

AC-Coupled Evaluation Board Setup

Setting up the SY89852U AC-Coupled Evaluation Board

1. Set the voltage on a DC supply to either 2.5V or 3.3V depending on the application and turn off the supply. Connect the GND terminal to the negative side of a DC power supply. Connect the V_{CC} terminal to the positive side of a DC power supply.
2. For a LVPECL input signal, set V_T to $V_{CC}-1.3V$.
3. Signal Generator: Using a differential signal source, set the amplitude of each side of the differential pair to 400mV (800mV measured differentially). Set the offset to a positive value, the value of the offset is not critical, since the AC-coupled inputs will be automatically biased. Turn off the outputs of the signal source.
4. I/O Cable Interface: Using equal length 50 Ω impedance coaxial cables connect the signal source to the inputs on the evaluation board. Using equal length 50 Ω impedance coaxial cables connect the outputs of the evaluation board to the oscilloscope of another measurement device that has an internal 50 Ω termination. Unequal length cables are not recommended since they introduce duty cycle distortion and unwanted signal delays.
5. Connect the trigger input of the scope to the trigger output of the signal generator.
6. Set the evaluation board dipswitch to the appropriate input selection.
7. Enable the signal source, turn on the DC source, and monitor the outputs.

Evaluation Board Layout

PC Board Layout

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

L1	GND and Signal
L2	GND
L3	VCC
L4	GND

Table 1. Layer Stack

Bill of Materials

Item	Part Number	Manufacturer	Description	Qty.
C1–C7, C9, C10	VJ0402Y104KXXAT	Vishay ⁽¹⁾	0.1μF, 25V, 10% Ceramic Capacitor, Size 0402, X5R, Dielectric	9
C8	293D685X0025C2T	Vishay ⁽¹⁾	6.8μF, 20V, 10% Tantalum Electrolytic Capacitor, Size C	1
J1	111-0703-001	Johnson Components ⁽²⁾	Black Banana Jack	1
J2, J5, J6	111-0702-001	Johnson Components ⁽²⁾	Red Banana Jack	3
R1	142-0701-851	Vishay ⁽¹⁾	3kΩ, 10%, 1/16W Resistor SMD, Size 0402	1
R2, R3			82Ω, 10%, 1/16W Resistor SMD, Size 0402	2
SMA1–SMA6	142-0701-851	Johnson Components ⁽²⁾	Jack Assembly End Launch SMA	6
U1	SY89852U	Micrel⁽³⁾	Low Power Differential 2:1 LVPECL MUX w/ Internal Termination	1

Notes:

1. Vishay: www.vishay.com
2. Johnson Components: www.johnsoncomponents.com
3. Micrel, Inc.: www.micrel.com.

Micrel Cross Reference

To find an equivalent Micrel part, go to Micrel's website at: <http://www.micrel.com> and follow the steps below:

1. Click on Dynamic Cross Reference.
2. Enter competitor's part number in the Dynamic Cross Reference field.
3. To download a PDF version of this information, click on the Cross Reference PDF tab.

products, SONET jitter measurement, and other High Bandwidth products 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 Hints and Application Notes."

HBW Support

Hotline: 408-955-1690

Email Support: HBWHelp@micrel.com

Application Hints and Notes

For application notes on high speed termination on PECL and LVPECL products, clock synthesizer

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