

**Smallest Package**



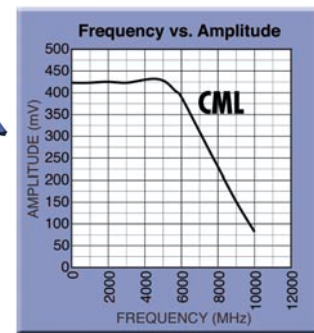
**16-Pin: 3mm x 3mm MLF™**  
**8 pin: 2mm x 2mm MLF™**

## Timing Solutions that Simplify Designs

### Highest Precision in the Industry

- ◆ Guaranteed ultra-low jitter: <math><10\text{ps}\_{\text{PK-PK}}</math> total jitter
- ◆ Guaranteed maximum frequency: 1.5GHz — 6GHz (clock)
- ◆ Lowest within-device skew: <math><15\text{ps}</math>
- ◆ Fastest edge rates ( $t_r/t_f$ )
  - <math><110\text{ps}</math> standard LVPECL (800mV)
  - <math><60\text{ps}</math> reduced swing LVPECL (400mV)
  - <math><60\text{ps}</math> CML
  - <math><200\text{ps}</math> LVDS

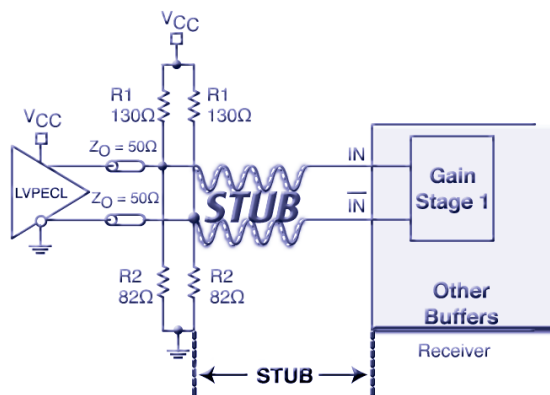
**CML Output Swing vs. Frequency**



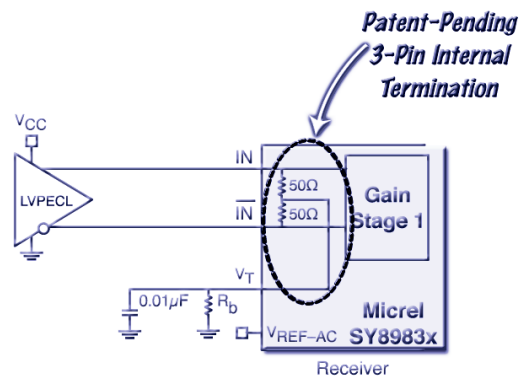
### More Differential I/O Options

- ◆ Standard LVPECL (800mV)
- ◆ Reduced Swing LVPECL (400mV)
- ◆ CML (Current Mode Logic)
- ◆ LVDS

### No More Stubs!



**THE OLD WAY**



**THE MICREL WAY**

**Contact Micrel Semiconductor**

HBW Applications Help: (408) 955-1690 hbwhelp@micrel.com

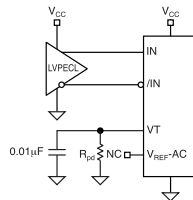
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MLF™ and MicroLead Frame™ are Trademarks of Amkor Technology.

# Design With Ease: Unique Internal Termination Directly Interfaces to AC- or DC-coupled Differential Signals

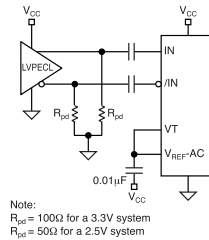
Micrel's precision clock distribution/fanout family is optimized for the most stringent communications, networking and test equipment applications. Now you can simplify clock distribution designs with more I/O logic

options, internal termination, low voltage (2.5V & 3.3V) operation, and ultra-low jitter and skew performance guaranteed over temperature and voltage.

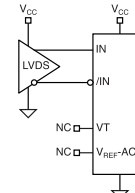
**DC-coupled LVPECL Input**



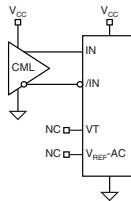
**AC-coupled LVPECL Input**



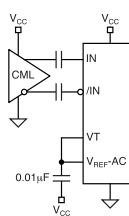
**LVDS Input**



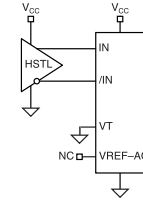
**DC-coupled CML Input**



**AC-coupled CML Input**



**Differential HSTL Input**



## Simplify Your Designs — Order Evaluation Boards Today!

P/N	Fanout	Input	Output	Supply Voltage	Within Device Skew (ps)	Total Jitter <sup>1</sup> (ps <sub>pk-pk</sub> )	Fmax	Max Tr/Tf (ps)	Price <sup>2</sup>
SY58011U	1:2	Any Diff IN, Internal Termination <sup>3</sup>	CML	2.5V - 3.3V	<15	<10	>7GHz	<60	\$4.45
SY58012U	1:2	Any Diff IN, Internal Termination <sup>3</sup>	LVPECL	2.5V - 3.3V	<15	<10	>5GHz	<110	\$4.45
SY58013U	1:2	Any Diff IN, Internal Termination <sup>3</sup>	400mV LVPECL	2.5V - 3.3V	<15	<10	>6GHz	<80	\$4.45
SY89311U	1:2	LVPECL	LVPECL	2.5V-5V	<15	<10	>3GHz	<200	\$1.95
SY58020U	1:4	Any Diff IN, Internal Termination <sup>3</sup>	CML	2.5V - 3.3V	<15	<10	>6GHz	<60	\$5.57
SY58021U	1:4	Any Diff IN, Internal Termination <sup>3</sup>	LVPECL	2.5V - 3.3V	<15	<10	>4GHz	<110	\$5.57
SY58022U	1:4	Any Diff IN, Internal Termination <sup>3</sup>	400mV LVPECL	2.5V - 3.3V	<15	<10	>5.5GHz	<80	\$5.57
SY89830U	1:4 w/ 2:1 Mux	ECL, (LV)PECL, HSTL	(LV)ECL, (LV)PECL	2.5V - 5V	<25	<10	>2.5GHz	<225	\$3.99
SY89831U	1:4	Any Diff IN, Internal Termination <sup>3</sup>	LVPECL	2.5V - 3.3V	<20	<10	>2.5GHz	<250	\$3.99
SY89832U	1:4	Any Diff IN, Internal Termination <sup>3</sup>	LVDS	2.5V	<20	<10	>2GHz	<200	\$3.99
SY89833L	1:4	Any Diff IN, Internal Termination <sup>3</sup>	LVDS	3.3V	<20	<10	>2GHz	<190	\$3.99
SY89834U	1:4 w/ 2:1 Mux	LVTTTL, CMOS	LVPECL	2.5V - 3.3V	<20	<10	>2GHz	<250	\$3.99
SY58031U	1:8	Any Diff IN, Internal Termination <sup>3</sup>	CML	2.5V - 3.3V	<15	<10	>7GHz	<60	\$7.59
SY58032U	1:8	Any Diff IN, Internal Termination <sup>3</sup>	LVPECL	2.5V - 3.3V	<15	<10	>4GHz	<110	\$7.59
SY58033U	1:8	Any Diff IN, Internal Termination <sup>3</sup>	400mV LVPECL	2.5V - 3.3V	<15	<10	>6GHz	<80	\$7.59
SY58034U	1:6 w/ 2:1 MUX	Any Diff IN, Internal Termination <sup>3</sup>	CML	2.5V - 3.3V	<15	<10	>7GHz	<60	\$7.59
SY58035U	1:6 w/ 2:1 MUX	Any Diff IN, Internal Termination <sup>3</sup>	LVPECL	2.5V - 3.3V	<15	<10	>5GHz	<110	\$7.59
SY58036U	1:6 w/ 2:1 MUX	Any Diff IN, Internal Termination <sup>3</sup>	400mV LVPECL	2.5V - 3.3V	<15	<10	>7GHz	<80	\$7.59
SY89808L	1:9	LVPECL, HSTL	HSTL	3.3V, 1.8V	<25	<20	>500 MHz	<400	\$7.66
SY89823L	1:22	LVPECL, HSTL	HSTL	3.3V, 1.8V	<50	<20	>500 MHz	<700	\$10.72
SY89825U	1:22 w/ 2:1 Mux	LVPECL, LVDS (w/ int term)	LVPECL	2.5 - 3.3V	<35	<20	>2.0GHz	<600	\$11.90
SY89826L	1:22 w/ 2:1 Mux	LVPECL, LVDS (w/ int term)	LVDS	3.3V	<50	<20	>1.0GHz	<400	\$11.90
SY89827L	Dual 1:10 w/ 2:1 Mux	PECL & HSTL	HSTL	3.3V	<50	<20	>500MHz	<700	\$11.90
SY89828L	Dual 1:10 w/ 2:1 Mux	LVPECL, LVDS (w/ int term)	LVDS	3.3V	<50	<20	>1.0GHz	<400	\$11.90
SY89829U	Dual 1:10 w/ 2:1 Mux	LVPECL, LVDS (w/ int term)	LVPECL	2.5 - 3.3V	<35	<20	>2.0GHz	<600	\$11.90

**Notes:**

- 1) Total Jitter (TJ) definition: with an ideal clock input source of frequency  $\leq F_{max}$ , no more than one output edge in  $10^{12}$  output edges will deviate by the specified peak-to-peak jitter value.
- 2) Pricing is 1,000 piece suggested resale, FOB, USA.
- 3) Unique internal input termination and extended CMVR accepts DC- and AC-coupled inputs (CML, LVPECL, LVDS, or HSTL).

Contact Micrel Semiconductor

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