



TRIPLE DIFFERENTIAL 2:1 MULTIPLEXER

SY10E457
SY100E457

FEATURES

- Differential D and Q
- Extended 100E VEE range of -4.2V to -5.5V
- VBB output for single-ended use
- 700ps max. propagation delay
- High frequency outputs
- Separate and common select
- Internal 75KΩ input pulldown resistors
- Available in 28-pin PLCC package

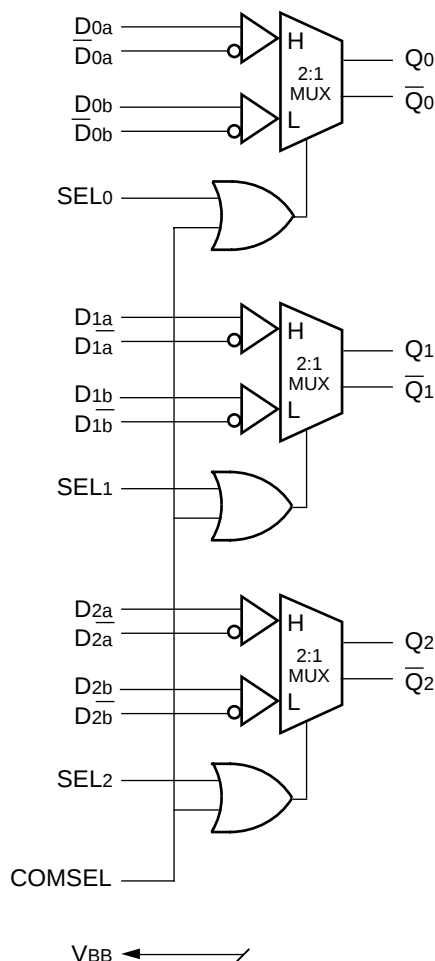
DESCRIPTION

The SY10/100E457 are 3-bit differential 2:1 multiplexers. The fully differential data path makes the devices ideal for multiplexing low skew clock or other skew sensitive signals. Multiple VBB pins are provided to ease AC coupling input signals.

The higher frequency outputs provide the device with a >1.0GHz bandwidth to meet the needs of the most demanding system clock.

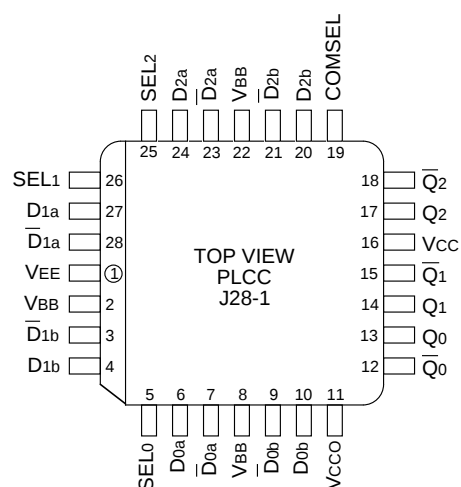
Both separate selects and a common select are provided to make the device well suited for both data path and random logic applications.

BLOCK DIAGRAM



PIN NAMES

Pin	Function
D _n [0:2], $\overline{D_n}$ [0:2]	Differential Data Inputs
SEL	Individual Select Input
COMSEL	Common Select Input
VBB	VBB Reference Output
Q[0:2], $\overline{Q}$ [0:2]	Differential Data Outputs
VCCO	Vcc to Output

PACKAGE/ORDERING INFORMATION**28-Pin PLCC (J28-1)****Ordering Information⁽¹⁾**

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10E457JC	J28-1	Commercial	SY10E457JC	Sn-Pb
SY10E457JCTR ⁽²⁾	J28-1	Commercial	SY10E457JC	Sn-Pb
SY100E457JC	J28-1	Commercial	SY100E457JC	Sn-Pb
SY100E457JCTR ⁽²⁾	J28-1	Commercial	SY100E457JC	Sn-Pb
SY10E457JZ ⁽³⁾	J28-1	Commercial	SY10E457JZ with Pb-Free bar-line indicator	Matte-Sn
SY10E457JZTR ^(2, 3)	J28-1	Commercial	SY10E457JZ with Pb-Free bar-line indicator	Matte-Sn
SY100E457JZ ⁽³⁾	J28-1	Commercial	SY100E457JZ with Pb-Free bar-line indicator	Matte-Sn
SY100E457JZTR ^(2, 3)	J28-1	Commercial	SY100E457JZ with Pb-Free bar-line indicator	Matte-Sn

Notes:

1. Contact factory for die availability. Dice are guaranteed at $T_A = 25^\circ\text{C}$, DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

DC ELECTRICAL CHARACTERISTICSV_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = V_{CCO} = GND

Symbol	Parameter	T _A = 0°C			T _A = +25°C			T _A = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
V _{BB}	Output Reference Voltage										V	—
	10E	-1.38	—	-1.27	-1.35	—	-1.25	-1.31	—	-1.19		
	100E	-1.38	—	-1.26	-1.38	—	-1.26	-1.38	—	-1.26		
I _{IH}	Input HIGH Current	—	—	150	—	—	150	—	—	150	μA	—
I _{EE}	Power Supply Current										mA	—
	10E	—	92	110	—	92	110	—	92	110		
	100E	—	92	110	—	92	110	—	106	127		
V _{PP} (DC)	Input Sensitivity	50	—	—	50	—	—	50	—	—	mV	1
V _{CMR}	Common Mode Range	-1.5	—	0	-1.5	—	0	-1.5	—	0	V	2

Notes:

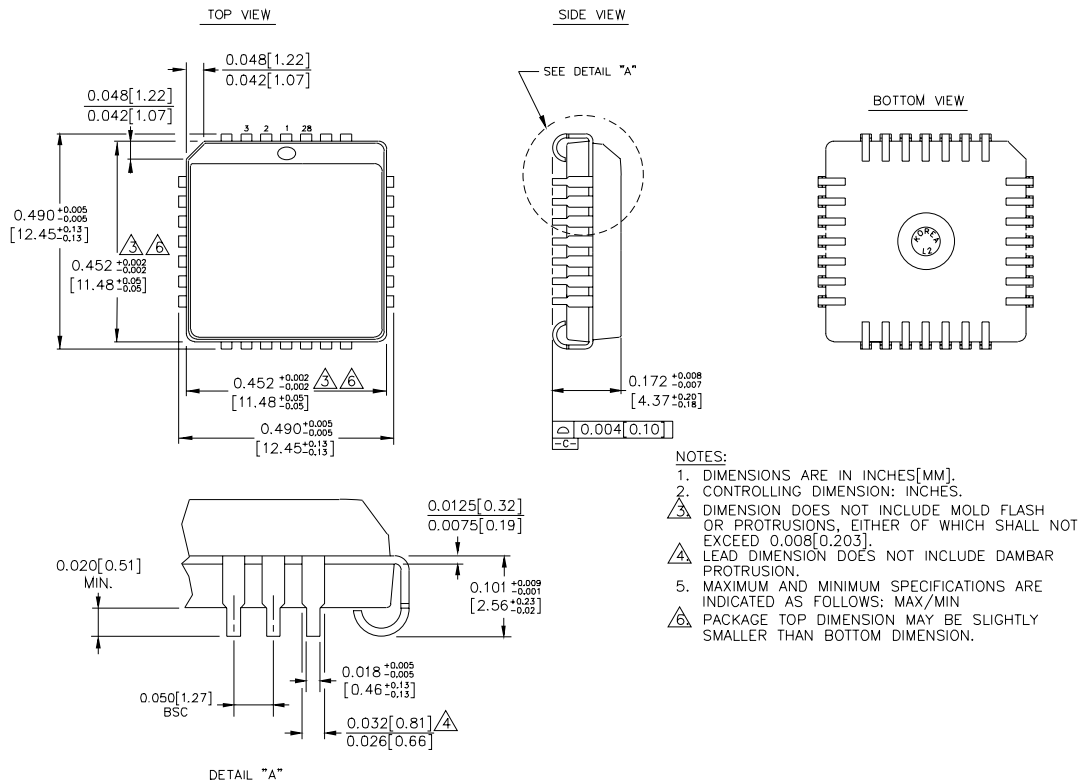
1. Differential input voltage required to obtain a full ECL swing on the outputs.
2. V_{CMR} is referenced to the most positive side of the differential input signal. Normal operation is obtained when the input signals are within the V_{CMR} range and the input swing is greater than V_{PP} (min.) and <1V.

AC ELECTRICAL CHARACTERISTICSV_{EE} = V_{EE} (Min.) to V_{EE} (Max.); V_{CC} = V_{CCO} = GND

Symbol	Parameter	T _A = 0°C			T _A = +25°C			T _A = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
t _{PD}	Propagation Delay to Output										ps	—
	D (Diff)	375	475	650	375	475	650	375	475	650		
	D	325	475	700	325	475	700	325	475	700		
	SEL	350	500	725	350	500	725	350	500	725		
	COMSEL	375	525	750	375	525	750	375	525	750		
t _{skew}	Within-Device Skew	—	40	—	—	40	—	—	40	—	ps	1
t _{skew}	Duty Cycle Skew t _{PLH} –t _{PHL}	—	±10	—	—	±10	—	—	±10	—	ps	2
V _{PP} (AC)	Minimum Input Swing	150	—	—	150	—	—	150	—	—	mV	3
t _r t _f	Rise/Fall Time	150	275	450	150	275	450	150	275	450	ps	—
	20–80%											

Notes:

1. Within-device skew is defined as identical transitions on similar paths through a device.
2. Duty cycle skew guarantee holds only for differential operation when the delays are measured from the cross point of the inputs to the cross point of the outputs.
3. Minimum input swing for which AC parameters are guaranteed.

28-PIN PLCC (J28-1)

Rev. 03

MICREL, INC. 2180 FORTUNE DRIVE SAN JOSE, CA 95131 USATEL + 1 (408) 944-0800 FAX + 1 (408) 474-1000 WEB <http://www.micrel.com>

The information furnished by Micrel in this data sheet is believed to be accurate and reliable. However, no responsibility is assumed by Micrel for its use. Micrel reserves the right to change circuitry and specifications at any time without notification to the customer.

Micrel Products are not designed or authorized for use as components in life support appliances, devices or systems where malfunction of a product can reasonably be expected to result in personal injury. Life support devices or systems are devices or systems that (a) are intended for surgical implant into the body or (b) support or sustain life, and whose failure to perform can be reasonably expected to result in a significant injury to the user. A Purchaser's use or sale of Micrel Products for use in life support appliances, devices or systems is at Purchaser's own risk and Purchaser agrees to fully indemnify Micrel for any damages resulting from such use or sale.

© 2006 Micrel, Incorporated.