Preliminary Information

January 20, 2000

This document contains information on a new product. The parametric information, although not fully characterized, is the result of testing initial devices.

Functional Description

The SK4414 is an extremely fast, stable and accurate low skew quad buffer or cable driver / receiver. It can asynchronously pass four distinct signals, or it can resynchronize them to a common clock. In addition, all four outputs may be asynchronously enabled or disabled.

The SK4414 has 100Ω input termination resistors across each of the four inputs to help reduce system component count and increase integration.

The SK4414 uses 50Ω outputs with sink/source capability, and is optimized for applications that require:

- Point to point, double terminated, timing critical lines
- Point to point, series terminated, timing critical lines

Functional Block Diagram
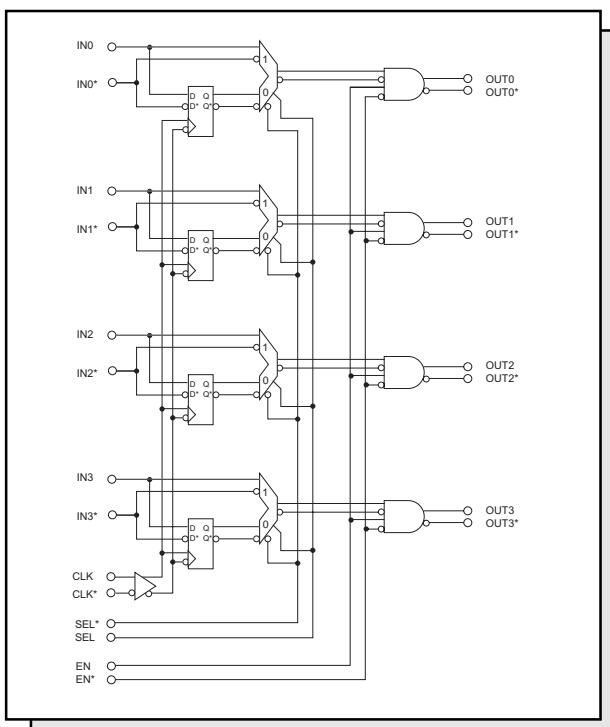
Quad Buffer / Receiver
3 GHz Fmax
3.3V / 5.2V Compatible

Input Options

100Ω
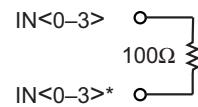
Output Options

50Ω Source / Sink
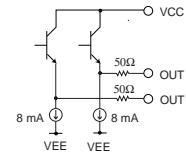
Output Swing
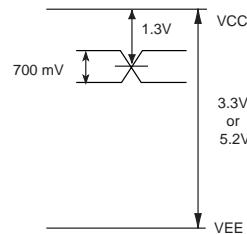
32 pin, 5 mm x 5 mm TQFP Package

Edge Semiconductor • 10021 Willow Creek Rd., San Diego, CA 92131
Ph: (858) 695-1808 • Fax: (858) 695-2633 • email: sales@edgesemi.com
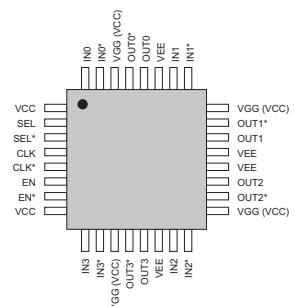
DC Characteristics

Parameter	Symbol	Min	Typ	Max	Units
Inputs					
Input High Input Low	VIH VIL	VEE + 2.0 VEE		VCC VCC − .2	V V
(IN − IN*, CLK − CLK*, EN − EN*, SEL − SEL*) Differential Input Voltage	| Input − Input* |	.2		4.3	V
Timing Inputs (CLK / CLK*) Input High Current Input Low Current IN / IN* Differential Input Resistance	IIH IIL RIN	+1 −1 100 − TBD	100	+25 +1 100 + TBD	µA µA Ω
Functional Inputs (EN / EN*, SEL / SEL*) Input Current	IIH, IIL	−420		+250	µA
Outputs					
Digital Output Voltage Output Common Mode Range Internal Current Source Output Impedance	| OUT − OUT* | (OUT + OUT*) / 2 ISINK ROUT	600 VCC −1.5 6.5 40	700 VCC −1.3 8 45	VCC −1.1 10.0 50	mV V mA Ω
Power Supply					
Power Supply Current Power Supply Voltage	IEE VCC − VEE	TBD 3.0	155	TBD 5.5	mA V

DC Test Conditions: Outputs unterminated.

AC Characteristics

Parameter	Symbol	Min	Typ	Max	Units
High Performance Option					

Propagation Delay
  IN[0:3] to OUT[0:3] (SEL = 1)
  CLK to OUT[0:3] (SEL = 0)
	Tpd
	Tpd
		X − 100
		Y − 100
			X
			Y
				X + 100
				Y + 100
					ps
					ps

Channel to Channel Skew				<10	ps
Maximum Operating Frequency (Note 1)	Fmax	3.0			GHz
Minimum Pulse Width (Note 1)	PW min	160			ps

IN to CLK (Note 1)
  Set Up Time
  Hold Time
	Tsu
	Th
		100
		100
					ps
					ps

Output Rise and Fall Times (20% / 80%)	Tr / Tf		125	150	ps
Temperature Coefficient (Note 1)	∆Tpd / ∆T		<1		ps / °C

AC Test Conditions: Outputs terminated with 50Ω to VCC − 2V.
Note 1: Guaranteed by characterization. Not production tested.