

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

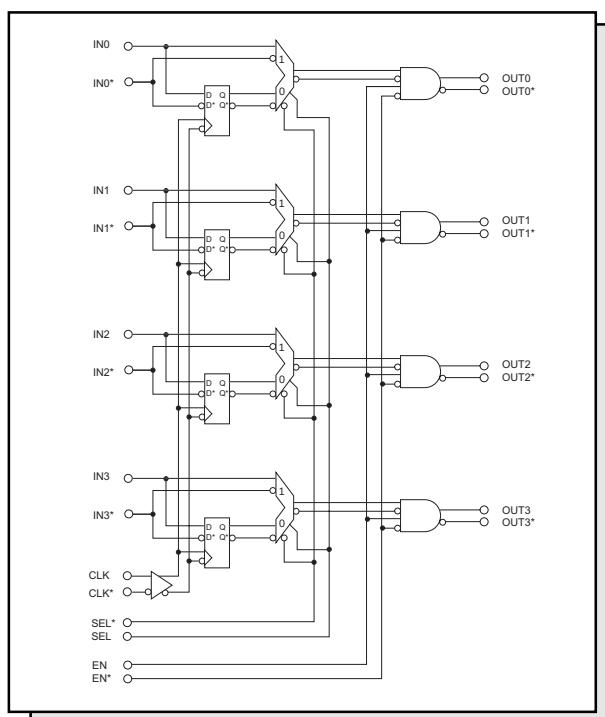
The SK4440 is an extremely fast, stable and accurate low skew quad buffer or cable driver / receiver. It can asynchronously pass four distinct signals, or it can resynchronize them to a common clock. In addition, all four outputs may be asynchronously enabled or disabled. It is also capable of receiving inputs of any technology or voltage level.

The SK4440 has 100Ω input termination resistors across each of the four inputs to help reduce system component count and increase integration.

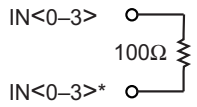
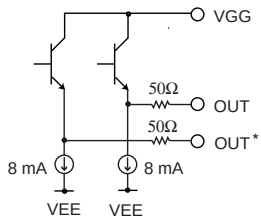
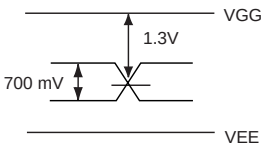
The SK4440 uses 50Ω outputs with sink/source capability, and is optimized for applications that require:

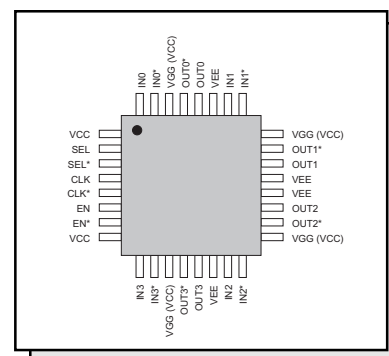
- Point to point, double terminated, timing critical lines
- Point to point, series terminated, timing critical lines

Functional Block Diagram



Quad Buffer / Receiver
3 GHz Fmax
3.3V / 5.2V Compatible

Input Options	Output Options
100Ω 	50Ω Source / Sink 
Input Swing	Output Swing
	

 32 pin, 5 mm x 5 mm
 TQFP Package


DC Characteristics

Parameter	Symbol	Min	Typ	Max	Units
Inputs					
Input High	V _{IH}	V _{EE} + 2.0		V _{CC}	V
Input Low	V _{IL}	V _{EE}		V _{CC} - .2	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	I _{IH}	+1		+25	μA
Input Low Current	I _{IL}	-1		+1	μA
IN / IN* Differential Input Resistance	R _{IN}	100 - TBD	100	100 + TBD	Ω
Functional Inputs (EN / EN*, SEL / SEL*) Input Current	I _{IH} , I _{IL}	-420		+250	μA
Outputs					
Digital Output High Voltage	OUT - OUT*	600	700		mV
Output Common Mode Range	(OUT + OUT*) / 2	V _{GG} -1.5	V _{GG} -1.3	V _{GG} -1.1	V
Internal Current Source	I _{SINK}	6.5	8.0	10.0	mA
Output Impedance	R _{OUT}	40	45	50	Ω
Power Supply					
Power Supply Current	I _{EE}	TBD	155	TBD	mA
	I _{CC}	TBD	50	TBD	mA
Positive Supply Voltage	V _{CC}	2.0	3.3	3.3	V
	V _{GG}	-0.1	0	0.2	V
Negative Supply Voltage	V _{EE}	-3.6	-3.3	-2.0	V
	V _{CC} - V _{GG}	2.0		3.6	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)	T _{pd}	X - 100	X	X + 100	ps
CLK to OUT[0:3] (SEL = 0)	T _{pd}	Y - 100	Y	Y + 100	ps
Channel to Channel Skew				<10	ps
Maximum Operating Frequency (Note 1)	F _{max}	3			GHz
Minimum Pulse Width (Note 1)	PW min	160			ps
IN to CLK (Note 1)					
Set Up Time	T _{su}	100			ps
Hold Time	T _h	100			ps
Output Rise and Fall Times (20% / 80%)	T _r / T _f		125	150	ps
Temperature Coefficient (Note 1)	ΔT _{pd} / ΔT		<1		ps / °C

AC Test Conditions: Outputs terminated with 50Ω to V_{GG} - 2V.

Note 1: Guaranteed by characterization. Not production tested.