3.3V, Low Capacitance 12-Bit to 24-Bit Mux/DeMux *NanoSwitch*™

Features

- R_{ON} is 8-ohm (typ.)
- Pulldown on B Ports
- Low Power: 1mW
- Industrial Operation Temperature: –40ºC to 85ºC
- Near-Zero Propagation Delay
- Switching Speed: 4.5ns (max.)
- Channel on capacitance: 11pF (typ.)
- V_{CC} Operating Range: 3.3V±10%
- >100 MHz bandwidth
- Packaging (Pb-free & Green available):
  – 40-pin BQSOP (B)

Description

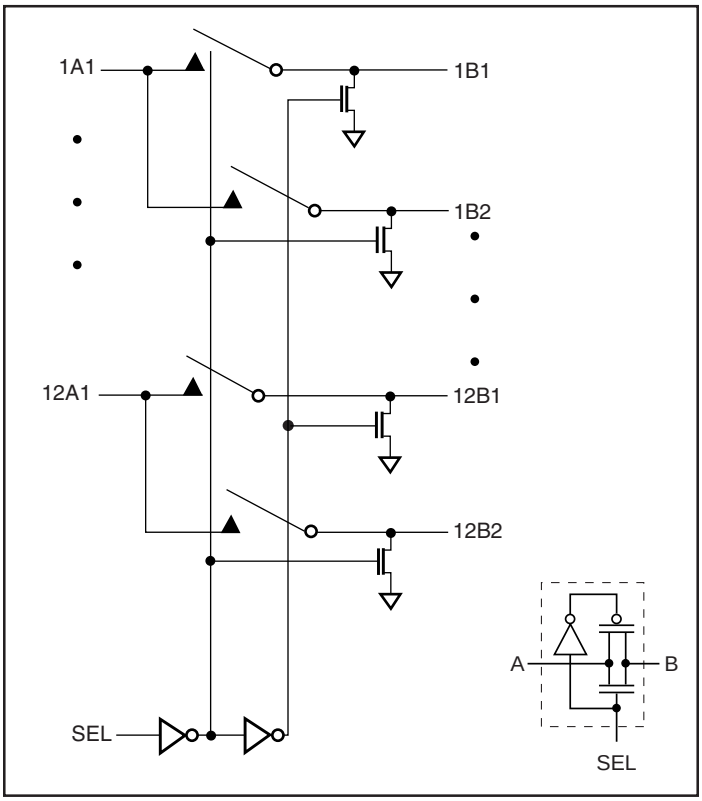
Pericom Semiconductor's PI3B16226 is a 12-bit to 24-bit Mux/DeMux switch. Industry leading advantages include almost zero propagation delay of 500ps because of 8-ohm channel resistance and low I/O capacitance.

A1 port demultiplexes to either port B1 or B2. The switch is bidirectional.

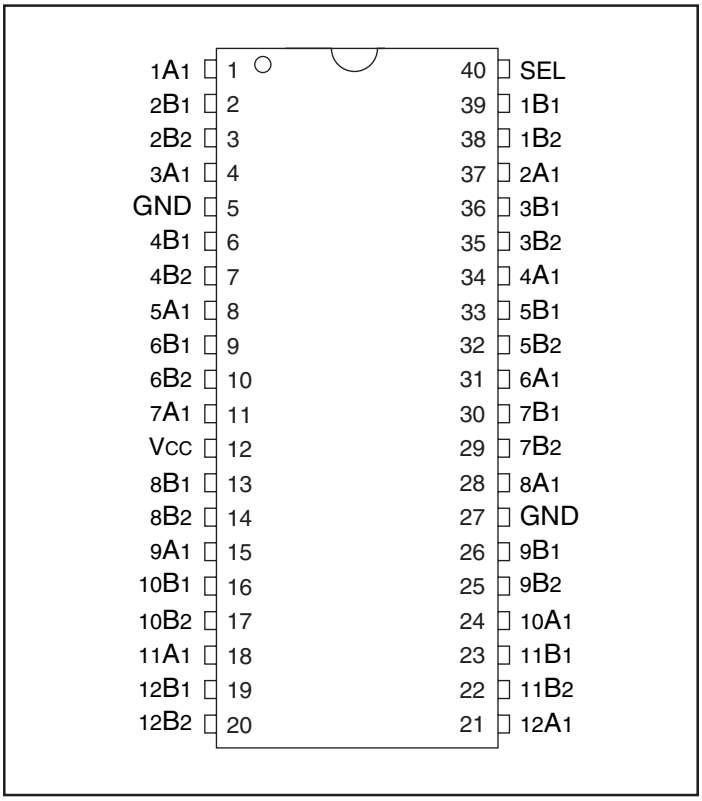
Application

- Memory Switching

Block Diagram



Pin Configuration



Function Table

SEL	FUNCTION
L	nA1 to nB1
H	nA1 to nB2

Note: n = 1–12

Maximum Ratings

(Above which useful life may be impaired. For user guidelines, not tested.)

Storage Temperature Range, T_{STG}	–65ºC to +150ºC
Supply Voltage Range, V_{CC}	–0.5V to +4.6V
Bias Voltage Range, BIASV	–0.5V to +4.6V
Input Voltage Range	–0.5V to +4.6V
DC Output Current	120mA
Power Dissipation	0.5W

Note:
Stresses greater than those listed under MAXIMUM RATINGS may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.

DC Electrical Characteristics (V_{CC} = 3.3V ±10%, T_A = –40ºC to 85ºC)

Parameters	Description	Test Conditions	Min.	Typ.(1)	Max.	Units
V_{IH}	Input HIGH Voltage	SEL	2.0			V
V_{IL}	Input LOW Voltage		–0.5		0.8	
I_{IH}	Input High Current				1	µA
I_{IL}	Input Low Current				1	
R_{ON}	Switch ON Resistance	V_{CC} = Min., V_{IN} = 0.0V, I_{ON} = 48mA V_{CC} = Min., V_{IN} = 2.4V, I_{ON} = 8mA		8 12	12 23	
I_O	B Port Pulldown Current	V_{CC} = Min., V_O = V_{CC} SEL = High for B1, SEL = Low for B2	2.5			mA
C_{IN}	Input Capacitance	V_{IN} = 0V		2.6	3.3	
C_{ON}	A/B Capacitance, Switch On			11	14	pF
I_{CC}	Power Supply Quiescent				20	µA
ΔI_{CC}	Supply current per input @ TTL HIGH	V_{CC} = Max., V_{IN} = 3V			2.5	mA

Notes:
1. Typical values are shown at V_{CC} = 3.3V, +25ºC ambient and maximum loading.

AC Timing Characteristics (V_{CC} = 3.3V ±10%, T_A = –40ºC to 85ºC)

Parameters	Description	Test Conditions	Min.	Typ.	Max.	Units
t_{PLH}	Propagation Delay	C_L = 25pF, R_L = 500-ohm(1)			500	ps
t_{PHL}						
t_{PE}	Bus Disable	C_L = 25pF, R_L = 500-ohm	1.3		4.5	ns
t_{PD}						

Notes:
1. Guaranteed by design.

Applications Information

Logic Inputs

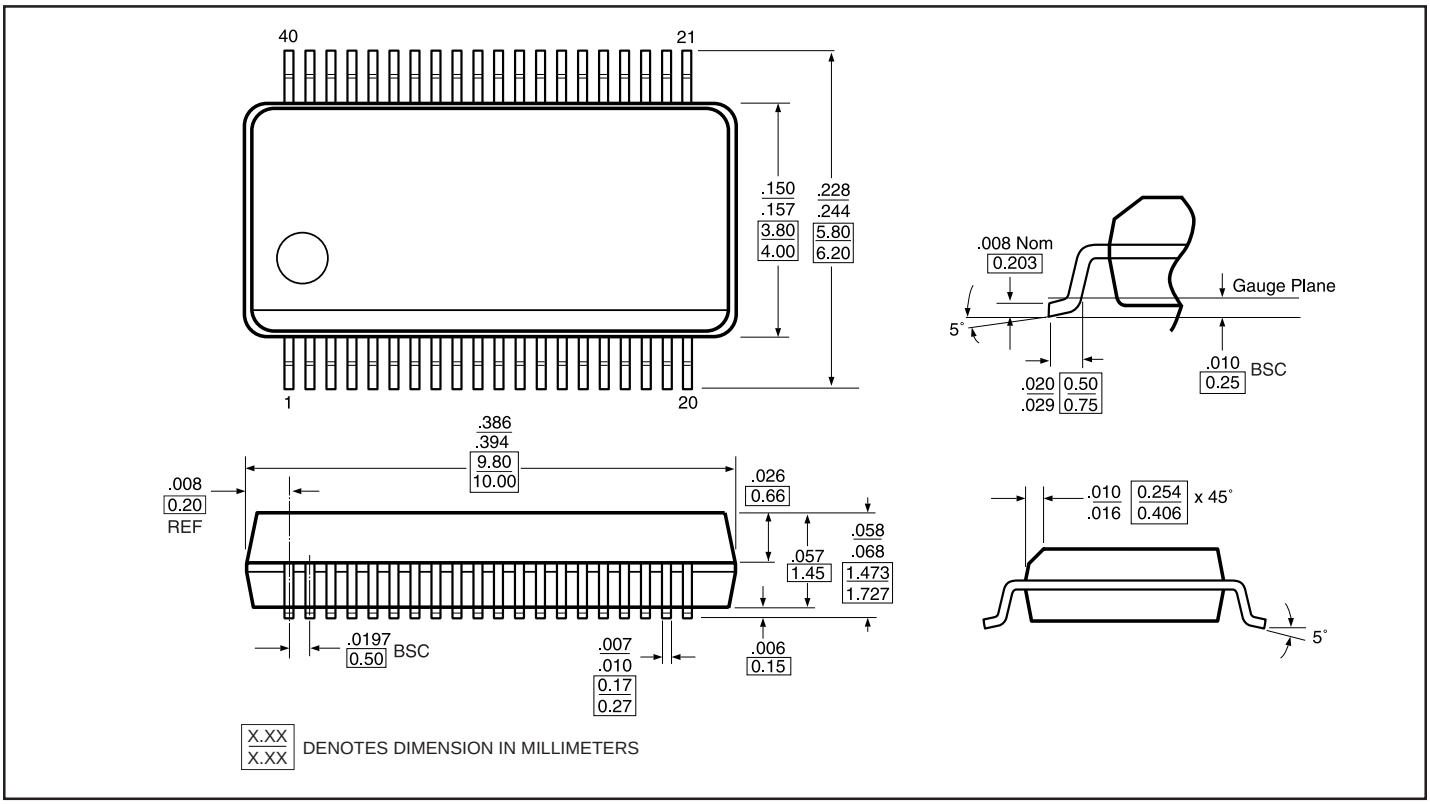
The logic control inputs can be driven up to +3.6V regardless of the supply voltage. For example, given a + 3.3V supply, IN may be driven low to 0V and high to 3.6V. Driving IN Rail-to-Rail® minimizes power consumption.

Power-Supply Sequencing and Hot-Plug Information

Proper power-supply sequencing is recommended for all CMOS devices. Always apply V_{CC} and GND before applying signals to input/output or control pins.

Rail-to-Rail is a registered trademark of Nippon Motorola, Ltd.

Packaging Mechanical: 40-pin BQSOP (B)



Ordering Information

Ordering Code	Package Code	Package Type
P13B16226B	B	40-pin BQSOP
P13B16226BE	B	Pb-free & Green, 40-pin BQSOP

Notes:

- Thermal characteristics can be found on the company web site at www.pericom.com/packaging/
- E = Pb-free & Green
- X suffix = Tape/Reel