

3.3V, Low Capacitance 16-Bit to 32-Bit Mux/DeMux NanoSwitch™

Features

- R_{ON} is 8-ohm (typ.)
- Pulldown on B Ports
- Low Power: 1mW
- Industrial Operation Temperature: -40°C to 85°C
- Near-Zero Propagation Delay
- Switching Speed: 4.5ns (max.)
- Channel on capacitance: 11pF (typ.)
- V_{CC} Operating Range: $3.3\text{V} \pm 10\%$
- >100 MHz Bandwidth
- Packaging (Pb-free & Green available):
– 56-pin 240-mil wide plastic TSSOP (A)

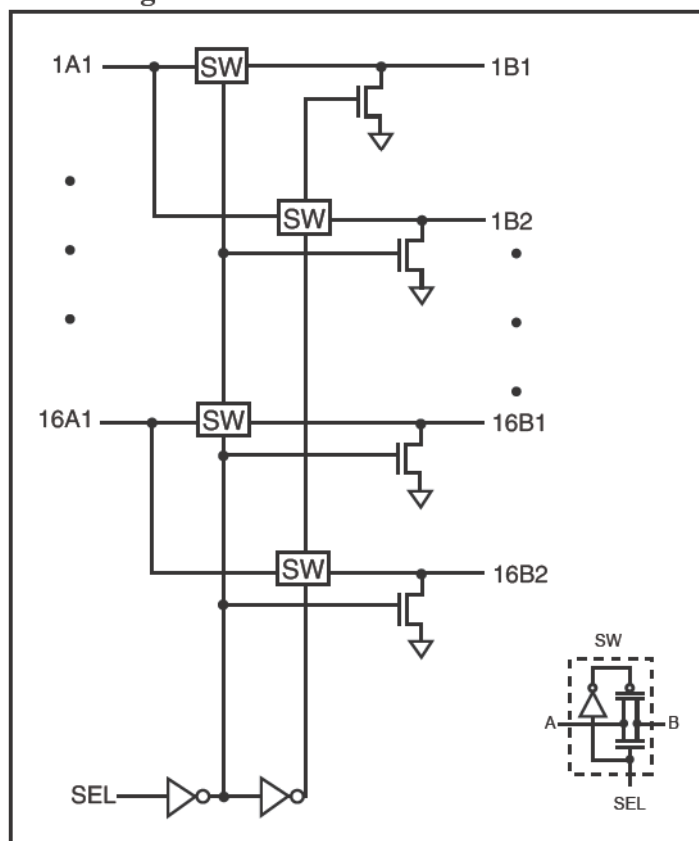
Description

Pericom Semiconductor's PI3B16234 is a 16-bit to 32-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

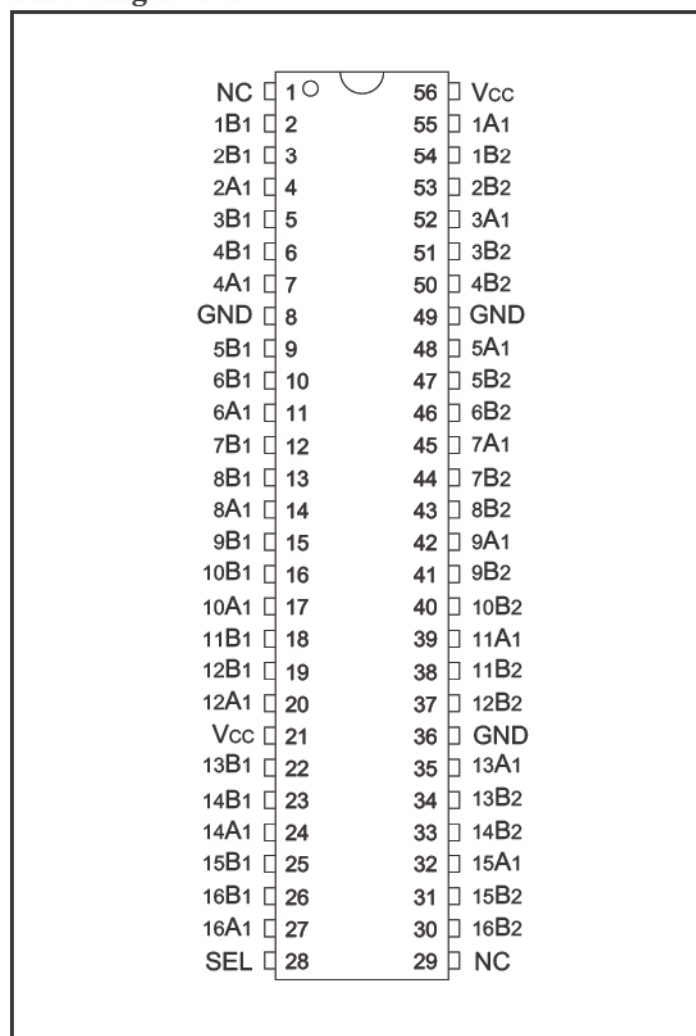


Function Table

SEL	FUNCTION
L	nA1 to nB1
H	nA1 to nB2

Note: n = 1–16

Pin Configuration



Maximum Ratings

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

Storage Temperature	−65°C to +150°C
Ambient Temperature with Power Applied	−40°C to +85°C
Supply Voltage Range	−0.3V to +4.6V
DC Input Voltage	−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 ($V_{CC} = 3.3V \pm 10\%$, $T_A = -40^\circ\text{C}$ to 85°C)

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

Notes:

- Typical values are shown at $V_{CC} = 3.3V$, $+25^\circ\text{C}$ ambient and maximum loading.

AC Electrical Characteristics ($V_{CC} = 3.3V \pm 10\%$, $T_A = -40^\circ\text{C}$ to 85°C)

Parameters	Description	Test Condition	Min.	Typ.	Max.	Units
t_{PLH}	Propagation Delay	$C_L = 25\text{pF}, R_L = 500\text{-ohm}^{(1)}$			500	ps
t_{PHL}						
t_{pE}	Bus Disable	$C_L = 25\text{pF}, R_L = 500\text{-ohm}$	1.3		4.5	ns
t_{pD}						

Notes:

- Guaranteed by design.

Applications Information

Logic Inputs

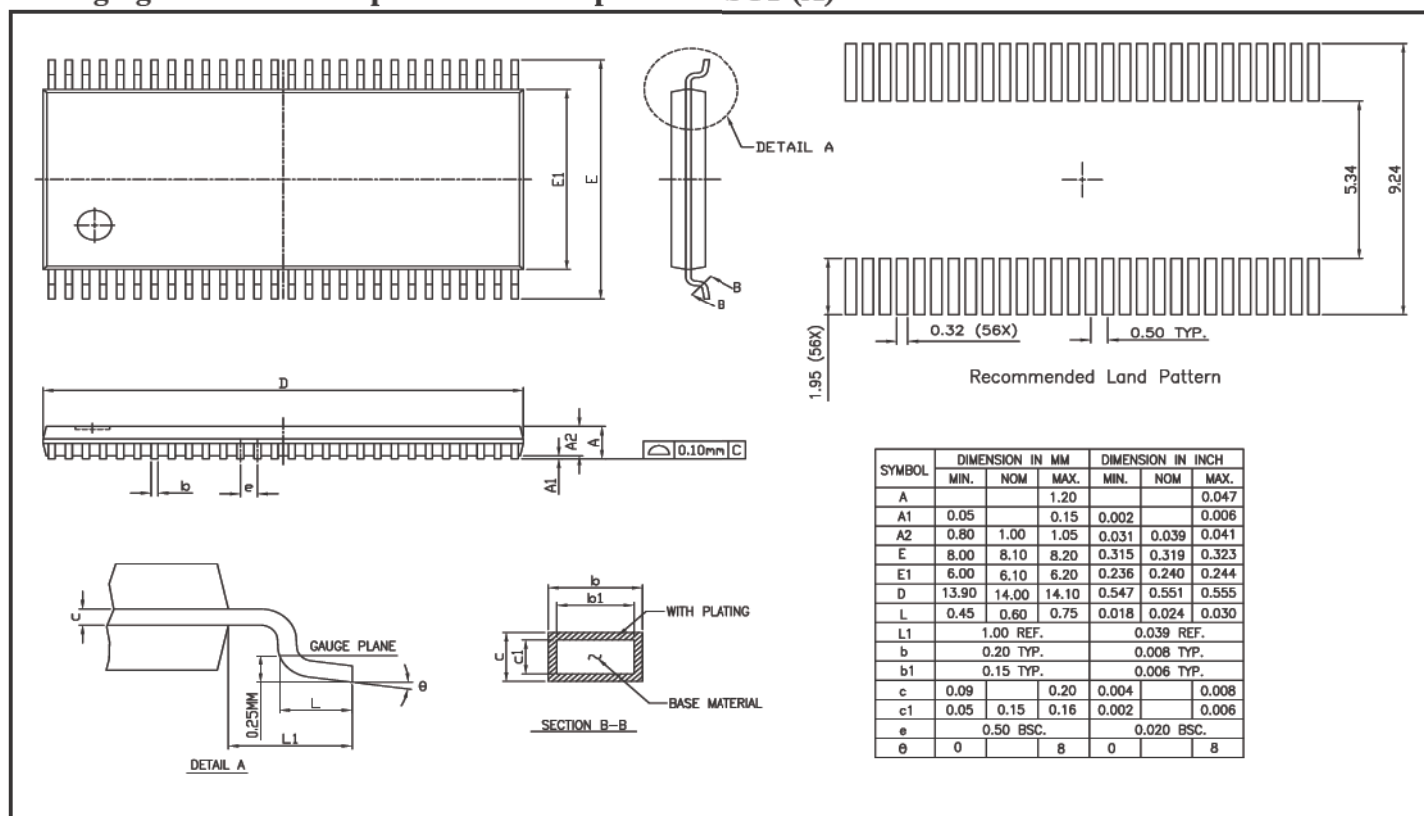
The logic control inputs can be driven up to +3.6V regardless of the supply voltage. For example, given a +3.3V supply, IN may be driven low to 0V and high to 3.6V. Driving IN Rail-to-Rail® minimizes power consumption.

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: 56-pin 240-mil wide plastic TSSOP (A)



Ordering Information

Ordering Code	Package Code	Package Type
PI3B16234A	A	56-pin TSSOP
PI3B16234AE	A	Pb-free & Green, 56-pin TSSOP

Notes:

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