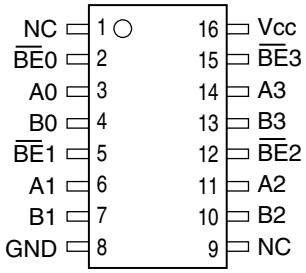
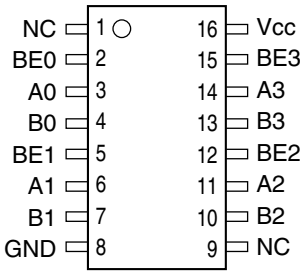
PI5C3125 16-Pin Configuration



PI5C3126 16-Pin Configuration



Pin Description

Pin Name	Description
$\overline{BE}$n	Switch Enable (PI5C3125)
BEn	Switch Enable (PI5C3126)
A3-A0	Bus A
B3-B0	Bus B
V_{CC}	Power
GND	Ground

Truth Table(1)

PI5C3125 $\overline{BE}$n	PI5C3126 BEn	An	Bn	V_{CC}	Function
X(2)	X	Hi-Z	Hi-Z	GND	Disconnect
H	L	Hi-Z	Hi-Z	V_{CC}	Disconnect
L	H	Bn	An	V_{CC}	Connect

Notes:
1. H = High Voltage Level, L = Low Voltage Level, HI-Z = High Impedance, X = Don't Care
2. A pull-up resistor should be provided for power-up protection.

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 to Ground Potential (Inputs & V_{CC} Only)	–0.5V to +7.0V
Supply Voltage to Ground Potential (Outputs & D/O Only)	–0.5V to +7.0V
DC Input Voltage	–0.5V to +7.0V
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 (Over the Operating Range, T_A = –40°C to +85°C, V_{CC} = 5V ± 10%)

Parameters	Description	Test Conditions[1]		Min.	Typ[2]	Max.	Units
V_{IH}	Input HIGH Voltage	Guaranteed Logic HIGH Level		2.0			V
V_{IL}	Input LOW Voltage	Guaranteed Logic LOW Level		–0.5		0.8	
I_{IH}	Input HIGH Current	V_{CC} = Max., V_{IN} = V_{CC}				±1	µA
I_{IL}	Input LOW Current	V_{CC} = Max., V_{IN} = GND				±1	
I_{OZH}	High Impedance Output Current	0 ≤ A, B ≤ V_{CC}				±1	
V_{IK}	Clamp Diode Voltage	V_{CC} = Min., I_{IN} = –18mA			–0.7	–1.2	V
I_{OS}	Short Circuit Current[3]	A (B) = 0 V, B (A) = V_{CC}			100		mA
V_H	Input Hysteresis at Control Pins				150		mV
R_{ON}	Switch On-Resistance[4]	V_{CC} = Min., V_{IN} = 0.0V,	I_{ON} = 48mA		5	7	Ω
		V_{CC} = Min., V_{IN} = 2.4V,	I_{ON} = 15mA		10	15	
		V_{CC} = 4V, V_{IN} = 2.4V,	I_{ON} = 15mA	16	22		

Notes:
1. For Max. or Min. conditions, use appropriate value specified under Electrical Characteristics for the applicable device type.
2. Typical values are at V_{CC} = 5.0V, T_A = 25°C ambient and maximum loading.
3. Not more than one output should be shorted at one time. Duration of the test should not exceed one second.
4. Measured by the voltage drop between A and B pin at indicated current through the switch. ON resistance is determined by the lower of the voltages on the two (A, B) pins.

Capacitance (T_A = 25°C, f = 1 MHz)

Parameters[1]	Description	Test Conditions	Typ.	Max.	Units
C_{IN}	Input Capacitance	V_{IN} = 0V		6	pF
C_{OFF}	A/B Capacitance, Switch Off			6	
C_{ON}	A/B Capacitance, Switch On			8	

Notes:
1. This parameter is determined by device characterization but is not production tested.

Power Supply Characteristics

Parameters	Description	Test Conditions[1]		Min.	Typ[2]	Max.	Units
I_{CC}	Quiescent Power Supply Current	V_{CC} = Max.	V_{IN} = GND or V_{CC}		0.1	3.0	µA
ΔI_{CC}	Supply Current per Input @ TTL HIGH	V_{CC} = Max.	V_{IN} = 3.4V[3]			2.5	mA
I_{CCD}	Supply Current per Input per MHz[4]	V_{CC} = Max., A and B Pins Open $\overline{BE}n/BEn$ = GND Control Input Toggling 50% Duty Cycle				0.25	mA/ MHz

Notes:
1. For Max. or Min. conditions, use appropriate value specified under Electrical Characteristics for the applicable device.
2. Typical values are at V_{CC} = 5.0V, +25°C ambient.
3. Per TTL driven input (V_{IN} = 3.4V, control inputs only); A and B pins do not contribute to I_{CC}.
4. This current applies to the control inputs only and represent the current required to switch internal capacitance at the specified frequency. The A and B inputs generate no significant AC or DC currents as they transition. This parameter is not tested, but is guaranteed by design.

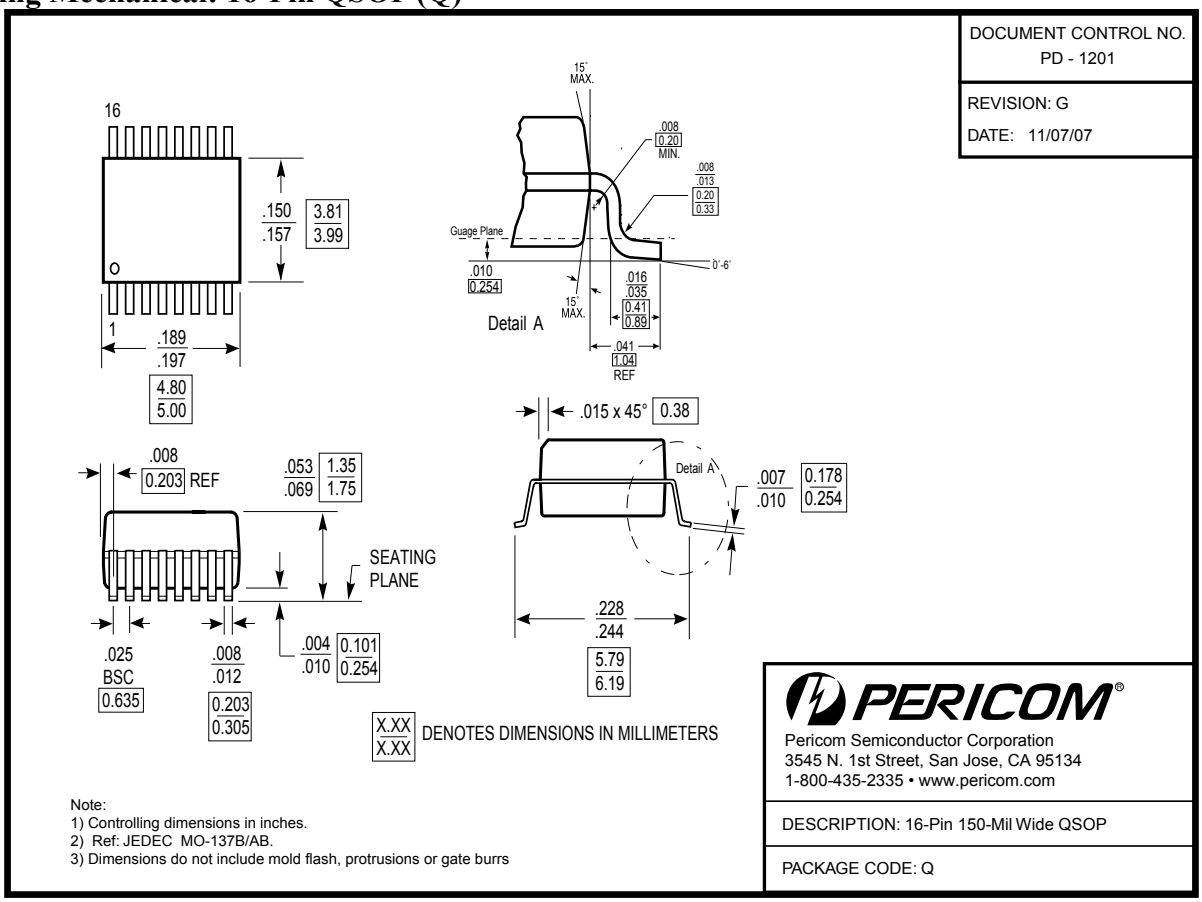
Switching Characteristics over Operating Range

Parameters	Description	Conditions	Com.		Units
			Min.	Max.	
t_{PLH} t_{PHL}	Propagation Delay[1,2] A to B, B to A	C_L = 50pF R_L = 500Ω		0.25	ns
t_{PZH} t_{PZL}	Bus Enable Time		0.5	5.4	
t_{PLZ} t_{PHZ}	Bus Disable Time		0.5	4.7	

Notes:

1. This parameter is guaranteed but not tested on Propagation Delays.
2. The bus switch contributes no propagational delay other than the RC delay of the On-Resistance of the switch and the load capacitance. The time constant for the switch alone is of the order of 0.25ns for 50pF load. Since this time constant is much smaller than the rise/fall times of typical driving signals, it adds very little propagational delay to the system. Propagational delay of the bus switch when used in a system is determined by the driving circuit on the driving side of the switch and its interaction with the load on the driven side.

Packaging Mechanical: 16-Pin QSOP (Q)



Ordering Information

Ordering Code	Package Type	Package Description
PI5C3125QE	Q	Pb-free & Green, 16-pin QSOP
PI5C3126QE	Q	Pb-free & Green, 16-pin QSOP

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