Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

2.5V/3.3V, High Bandwidth, Hot Insertion,4-Bit, 2-Port Bus Switch with Individual Enables

Features

- Near-Zero propagation delay
- 5-ohm switches connect inputs to outputs
- High Bandwidth (>400 MHz)
- Rail-to-Rail, or 2.5V or 3.3V Switching
- 5V I/O Tolerant
- 2.5V Supply Voltage Operation
- Permits Hot Insertion
- Packaging (Pb-free & Green available):
  – 14-pin 150-mil wide plastic SOIC (W)
  – 14-pin 170-mil wide plastic TSSOP (L)
  – 16-pin 150-mil wide plastic QSOP (Q)
  – 16-contact TFDN (ZJ)

Applications

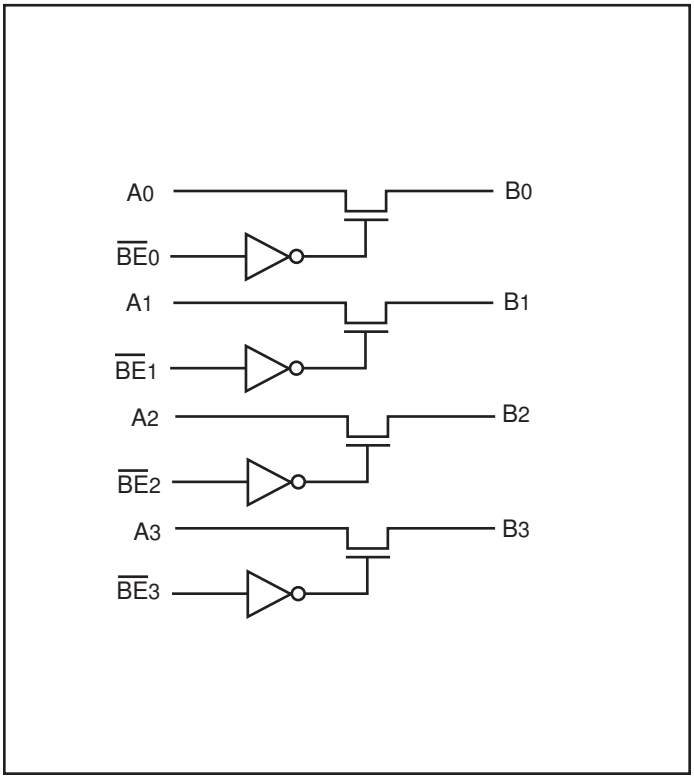
- High Bandwidth Data Switching
- Hot Docking

Description

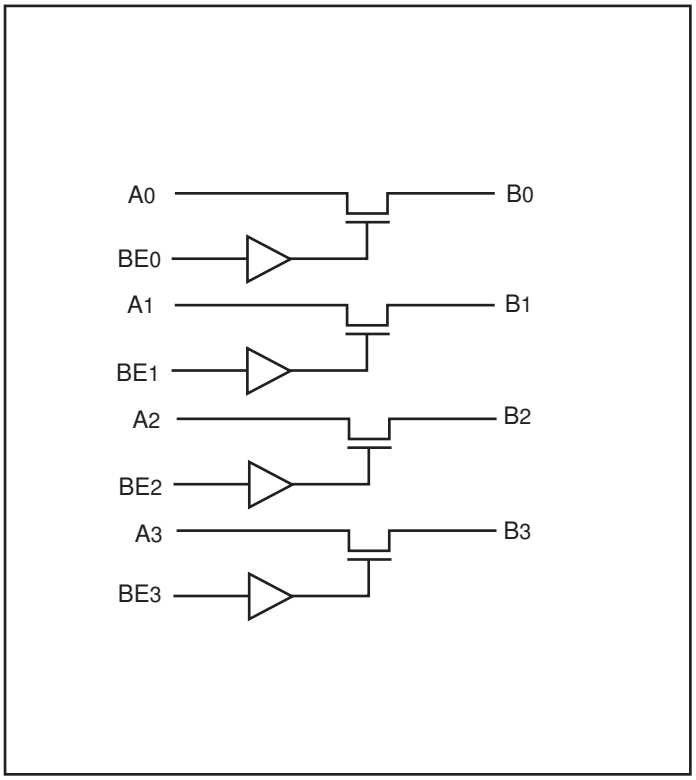
Pericom Semiconductor's PI3C3125 and PI3C3126 are 2.5 volt or 3.3 volt, 4-bit bus switches designed with four individual 5-ohm bus switches with fast indiviual enables in an industry standard 74XX125/126 pinout. When enabled via the associated Bus Enable pin, the "A" pin is directly connected to the "B" pin for that particular gate. The bus switch introduces no additional propagation delay or additional ground bounce noise.

The PI3C3125 device has active LOW enables, and the PI3C3126 has active HIGH enables. It is very useful in switching signals that have high bandwidth (>400 MHz).

PI3C3125 Block Diagram



PI3C3126 Block Diagram



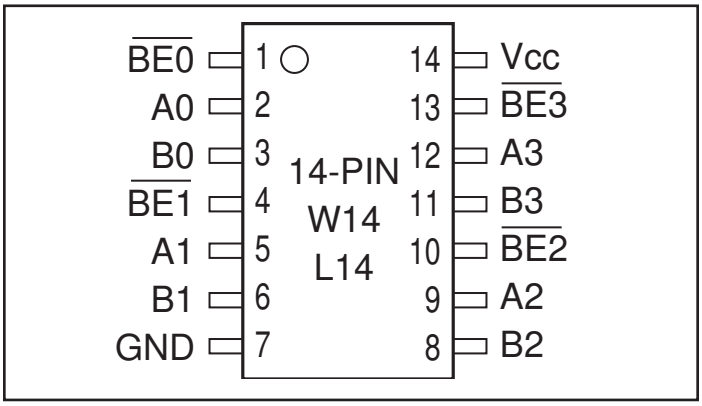
Maximum Ratings

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

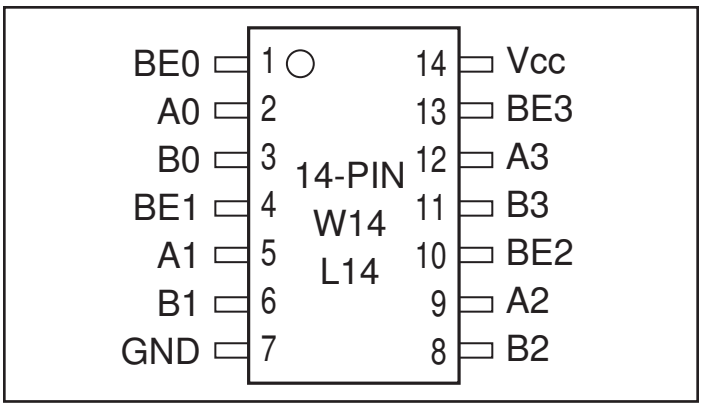
Storage Temperature	–65°C to +150°C
Ambient Temperature with Power Applied	–40°C to +85°C
Supply Voltage to Ground Potential (Inputs & V_{CC} Only)	–0.5V to +4.6V
Supply Voltage to Ground Potential (Outputs & D/O Only)	–0.5V to +4.6V
DC Input Voltage	–0.5V to +5.5V
DC Output Current	120mA
Power Dissipation	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.

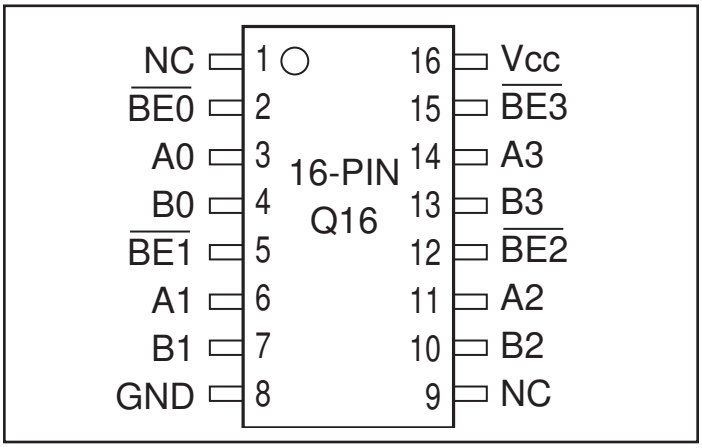
PI3C3125 14-Pin Configuration



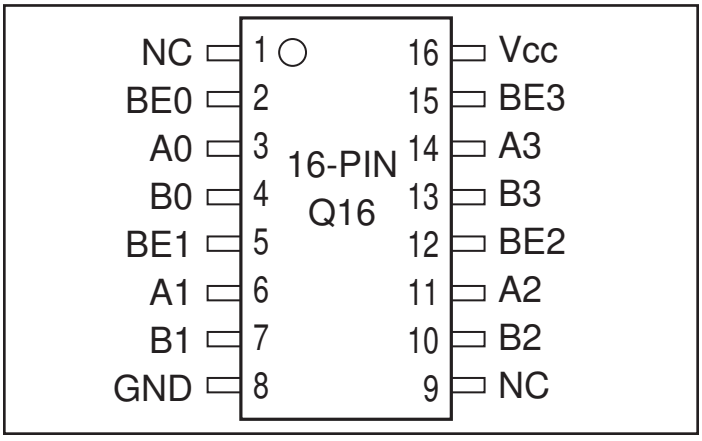
PI3C3126 14-Pin Configuration



PI3C3125 16-Pin Configuration



PI3C3126 16-Pin Configuration



Pin Description

Pin Name	Description
$\overline{BEn}$	Switch Enable (PI3C3125)
BEn	Switch Enable (PI3C3126)
A3 - A0	Bus A
B3 - B0	Bus B
V_{CC}	Power
GND	Ground

Truth Table(1)

PI3C3125 $\overline{BEn}$	PI3C3126 BEn	An	Bn	V_{CC}	Function
X*	X	Hi-Z	Hi-Z	GND	Disconnect
H	L	Hi-Z	Hi-Z	V_{CC}	Disconnect
L	H	Bn	An	V_{CC}	Disconnect

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

DC Electrical Characteristics (Over Operating Range, T_A = –40°C to +85°C, V_{CC} = 3.3V ±10%)

Parameters	Description	Test Conditions(1)	Min.	Typ.(2)	Max	Units
V_{IH}	Input HIGH Voltage	Guearanteed 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	µA
I_{OZH}(3)	High Impedance Output Current	0 ≤ A, B ≤ V_{CC}			±1	
V_{IK}	Clamp Diode Voltage	V_{CC} = Min., I_{IN} = –18mA		–0.73	–1.2	V
R_{ON}	Switch ON Resistance(4)	V_{CC} = Min., V_{IN} = 0.0V, I_{ON} = 48mA or 60mA V_{CC} = Min., V_{IN} = 2.4V, I_{ON} = 15mA		5 8	7 15	Ω

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} = 3.3V, 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.	Units
C_{IN}	Input Capacitance	VIN = 0V	3.5	pF
C_{OFF}	A/B Capacitance, Switch Off	VIN = 0V	5.0	
C_{ON}	A/B Capacitance, Switch On	VIN = 0V	10.0	

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

Power Supply Characteristics

Parameters	Description	Test Conditions		Min.	Typ.(2)	Max.	Units
I_{CC}	Quiescent Power Supply Current	V_{CC} = Max	V_{IN} = GND or V_{CC}		260	500	µA
ΔI_{CC}	Supply Current per Input HIGH	V_{CC} = Max	V_{IN} = 3.0V(3)			750	

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} = 3.3V, +25°C ambient.
3. Per driven input (control input only); A and B pins do not contribute to ΔI_{CC}.

PI3C3125/PI3C3126 Switching Characteristics over 3.3V Operating Range

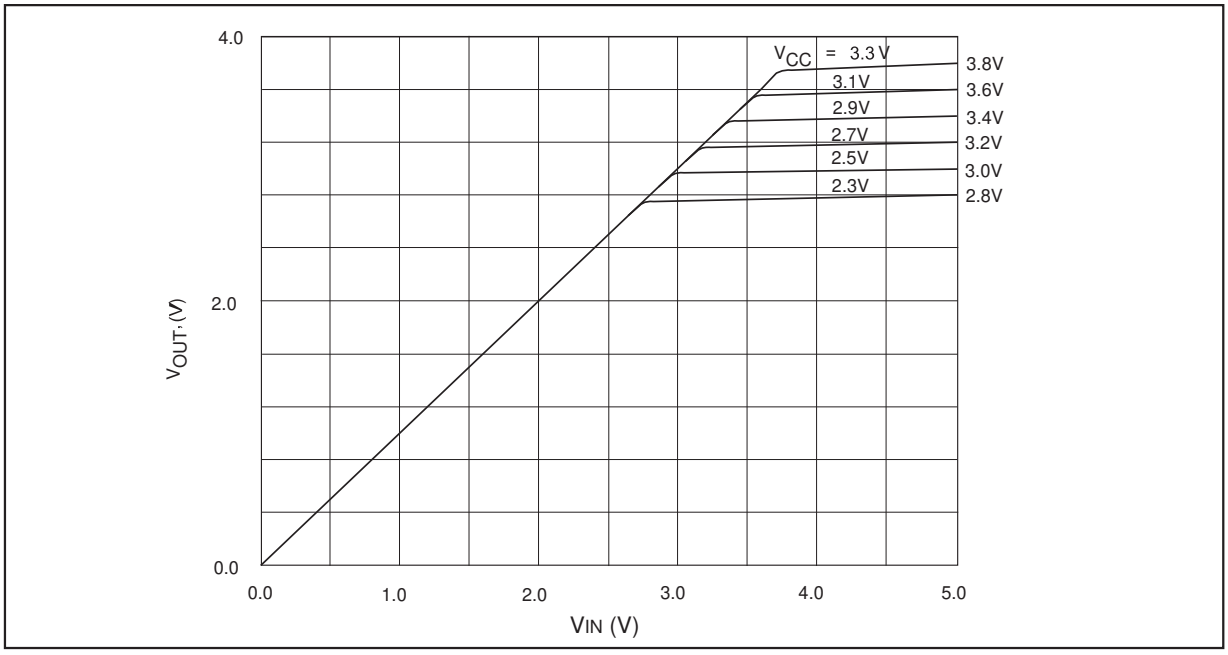
Parameters	Description	Conditions	PI3C3125/PI3C3126 Com. Min.	PI3C3125/PI3C3126 Com. Max.	Units
t_{PLH} t_{PHL}	Propogation Delay(1,2) A to B, B to A	C_L =50pF R_L = 500Ω		0.25	ns
t_{PZH} t_{PZL}	Bus Enable Time	C_L =50pF R_L = 500Ω R = 500Ω	1.5	6.5	
t_{PHZ} t_{PLZ}	Bus Disable Time		1.5	5.5	

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.

PI3C3125/PI3C3126 Switching Characteristics over 2.5V Operating Range

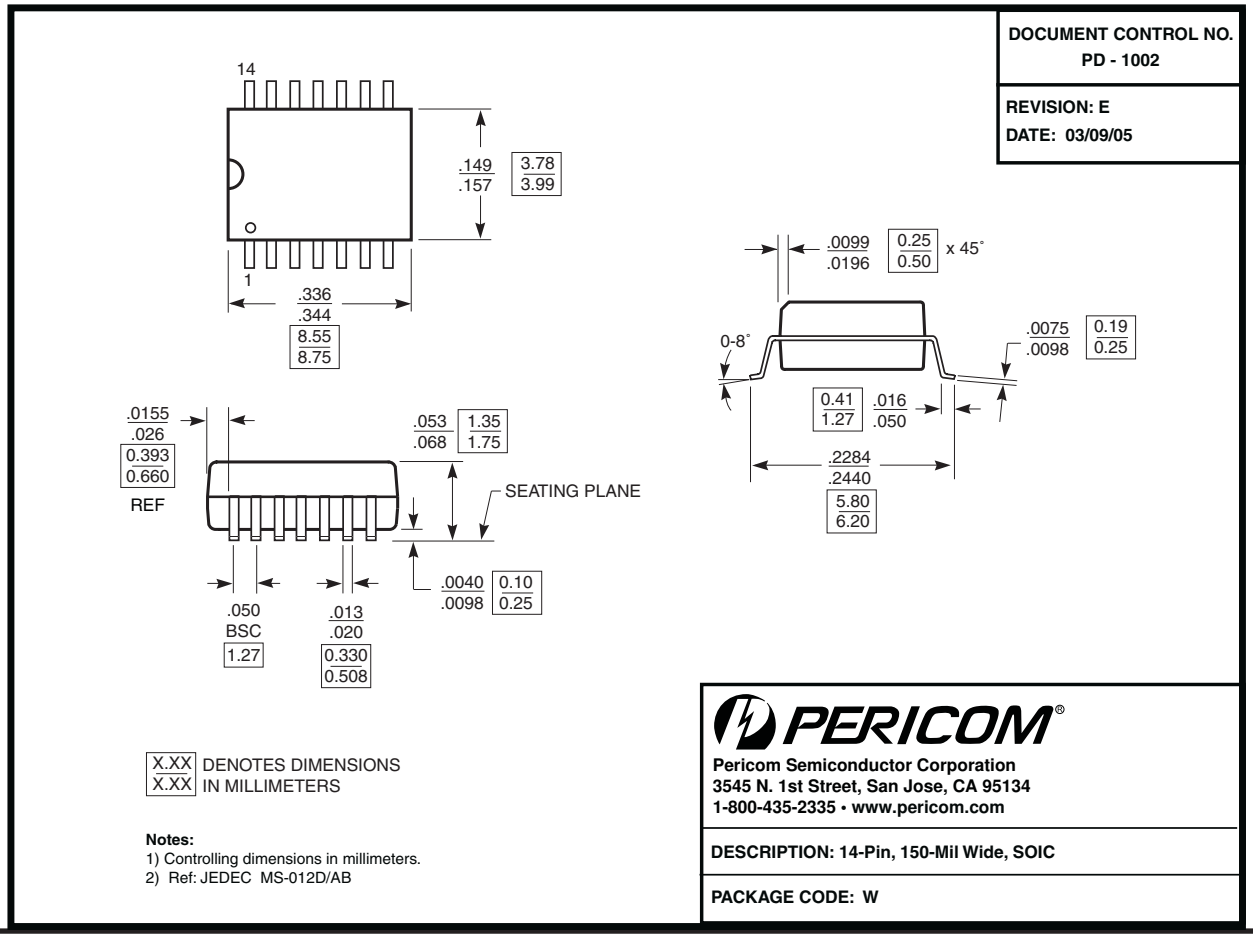
Parameters	Description	Conditions	PI3C3125/PI3C3126 Com. Min.	PI3C3125/PI3C3126 Com. Max.	Units
t_{PLH} t_{PHL}	Propogation Delay(1,2) A to B, B to A	C_L =50pF R_L = 500Ω		0.25	ns
t_{PZH} t_{PZL}	Bus Enable Time	C_L =50pF R_L = 500Ω R = 500Ω	1.5	9.8	
t_{PHZ} t_{PLZ}	Bus Disable Time		1.5	8.3	

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.



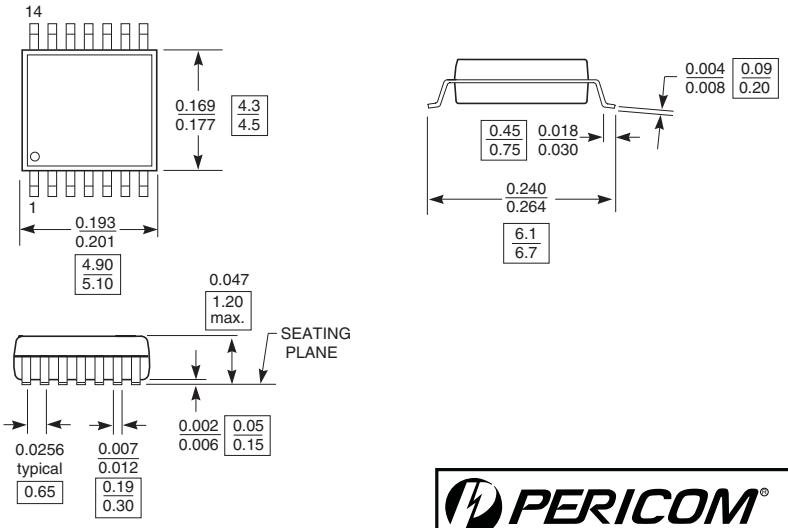
Output Voltage vs. Input Voltage over Various Supply Voltages

Packaging Mechanical: 14-pin 150-mil wide plastic SOIC (W)



Packaging Mechanical: 14-pin 173-mil wide plastic TSSOP (L)

DOCUMENT CONTROL NO. PD - 1309
REVISION: C DATE: 03/09/05



Note:
1. Package Outline Exclusive of Mold Flash and Metal Burr
2. Controlling dimentions in millimeters
3. Ref: JEDEC MO-153F/AB-1

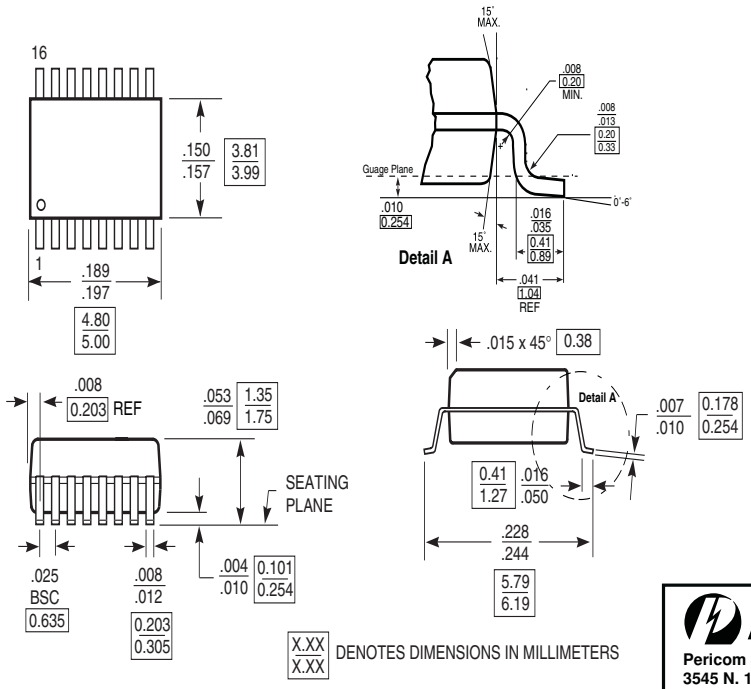
Pericom Semiconductor Corporation
3545 N. 1st Street, San Jose, CA 95134
1-800-435-2335 • www.pericom.com

DESCRIPTION: 14-Pin, 44mm Wide, TSSOP

PACKAGE CODE: L

Packaging Mechanical: 16-pin 150-mil wide plastic QSOP (Q)

DOCUMENT CONTROL NO. PD - 1201
REVISION: F DATE: 03/09/05



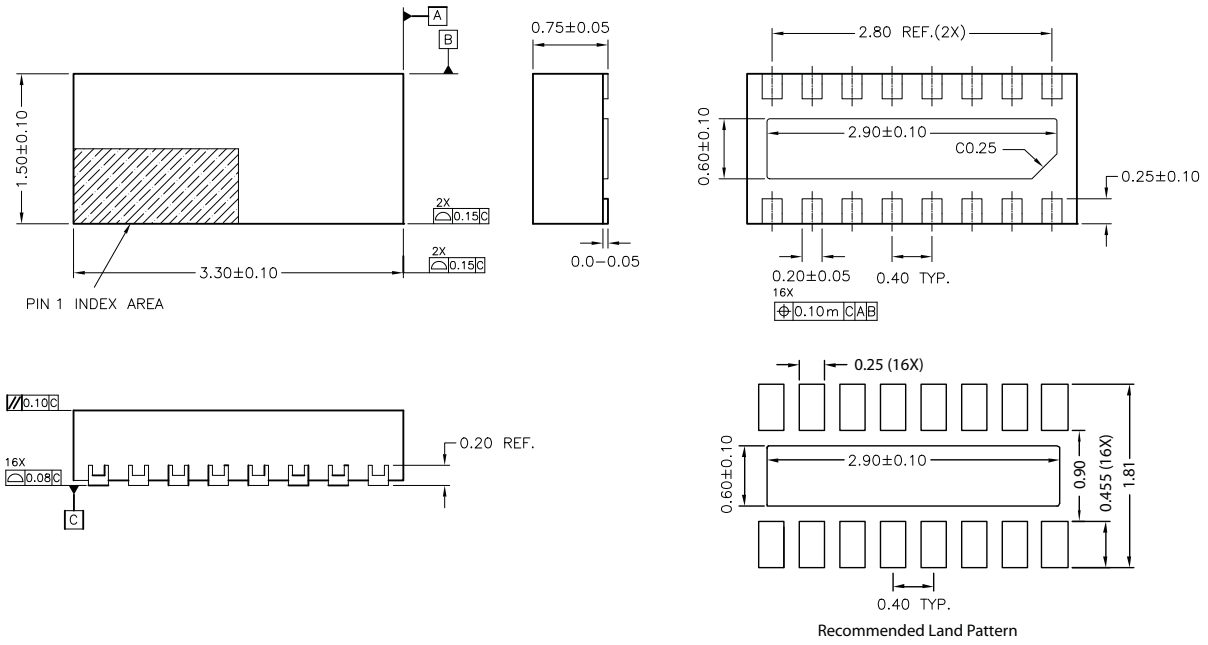
Note:
1) Controlling dimensions in inches.
2) Ref: JEDEC MO-137B/AB

Pericom Semiconductor Corporation
3545 N. 1st Street, San Jose, CA 95134
1-800-435-2335 • www.pericom.com

DESCRIPTION: 16-Pin 150-Mil Wide QSOP

PACKAGE CODE: Q

Packaging Mechanical: 16-pin 150-mil wide plastic QSOP (Q)



Notes:
1) All dimensions are in millimeters
2) Ref JEDEC: MO-229 (Ref.)
3) Bilateral coplanarity zone applies to the exposed heat sink slug as well as the terminals

PERICOM Semiconductor Corporation — DATE: 03/30/06

DESCRIPTION: 16-contact, Thin Dual-in-line Flat No-Lead (TDFN)
PACKAGE CODE: ZJ (ZJ16)
DOCUMENT CONTROL #: PD-2042 — REVISION: B

Ordering Information

Ordering Code	Packaging Code	Package Type	Top Mark
PI3C3125L	L	14-pin TSSOP	
PI3C3125LE	L	Pb-Free & Green, 14-Pin TSSOP	
PI3C3125W	W	14-pin SOIC	
PI3C3125WE	W	Pb-free & Green, 14-pin SOIC	
PI3C3125Q	Q	16-pin QSOP	
PI3C3125QE	Q	Pb-free & Green, 16-pin QSOP	
PI3C3125ZJE	ZJ	Pb-free & Green, 16-pin TDFN	TA
PI3C3126L	L	14-pin TSSOP	
PI3C3126LE	L	Pb-free & Green, 14-pin TSSOP	
PI3C3126W	W	14-pin SOIC	
PI3C3126WE	W	Pb-free & Green, 14-pin SOIC	
PI3C3126Q	Q	16-pin QSOP	
PI3C3126QE	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