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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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1:5/1:7 2.5V Clock Buffer for Networking Applications

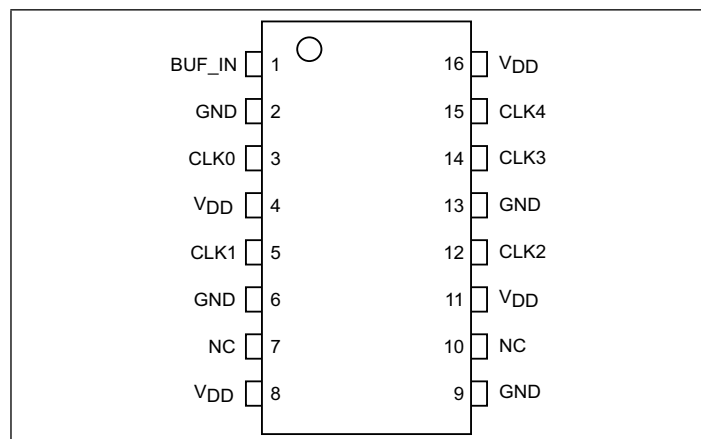
Features

- High Frequency >150 MHz
- High-speed, low-noise, non-inverting clock buffer
 - PI49FCT20802 is a 1:5 buffer
 - PI49FCT20803 is a 1:7 buffer
- Low skew < 150ps
- Low duty cycle distortion < 300ps
- Low propagation delay < 3.5ns
- Multiple V_{DD}, GND pins for noise reduction
- 2.5V supply voltage and 3V tolerant input
- Packaging (Pb-free & Green):
 - 16-pin TSSOP (L)
 - 16-pin QSOP (Q) - PI49FCT20802 only

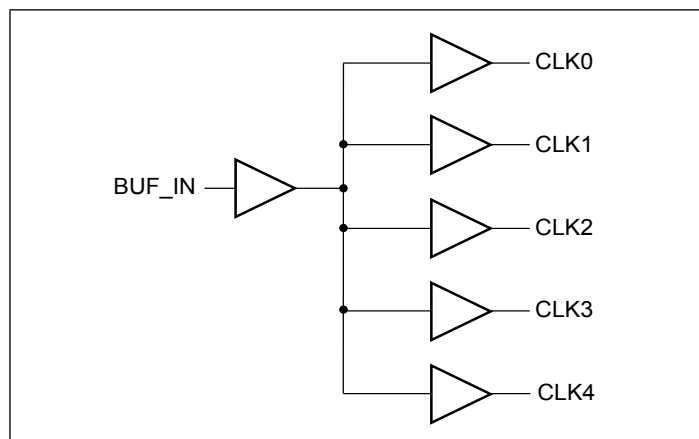
Description

The PI49FCT2080x is 2.5V, high-speed, low noise, non-inverting clock buffer. It is designed to target networking applications that require low-skew, low-jitter, and high-frequency clock distribution. It provides output-to-output skew as low as 150ps, and is an ideal clock distribution device for synchronous systems. PI49FCT2080x is a clock buffer from a single input that produces five outputs on PI49FCT20802 and seven outputs on PI49FCT20803. PI49FCT2080x is characterized for operation from -40°C to 85°C.

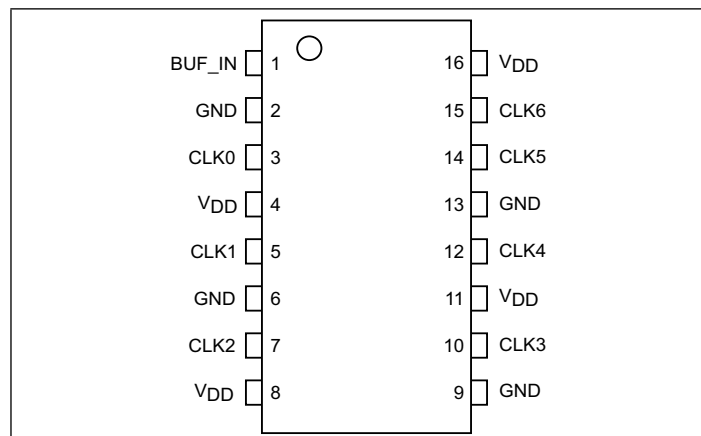
Pin Configuration (PI49FCT20802)



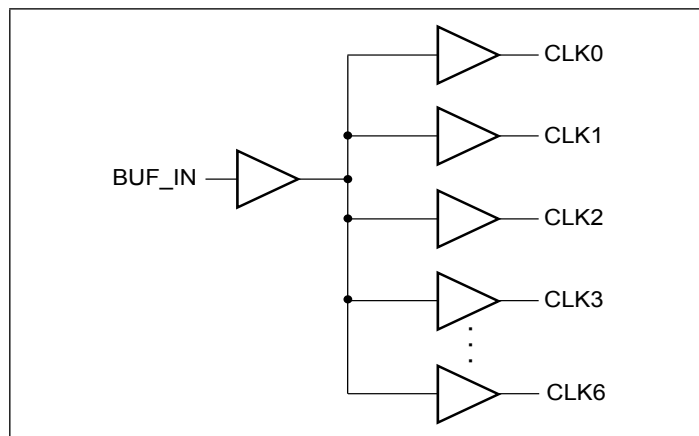
Block Diagram (PI49FCT20802)



Pin Configuration (PI49FCT20803)



Block Diagram (PI49FCT20803)



Absolute Maximum Ratings (Over operating free-air temperature range)

Parameter	Min.	Max.	Units
Storage temperature	-65	150	°C
Supply Voltage V_{DD}	-0.5	3.6	V
Input/Output Voltages ⁽¹⁾	-0.5	$V_{DD} + 0.5$	V
DC Output Current	-60	60	mA
Power Dissipation	-	500	mW

Stress beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device.

Operating Range

Parameter	Min.	Max.	Units
V_{DD} Voltage	2.5±0.2		V
Industrial Temperature	-40	85	°C
Commercial Temperature	0	70	°C
Capacitive Loading	10	25	pF

DC Electrical Characteristics (Over the Operating Range)

Parameters	Description	Test Conditions ⁽¹⁾	Min	Typ ⁽²⁾	Max	Units
V_{IH}	Input HIGH Voltage		1.7			V
V_{IL}	Input LOW Voltage				0.7	
I_I	Input Current	$V_{DD} = 0$ or V_{DD}			±1	mA
V_{IK}	Clamp Diode Voltage	$V_{DD} = \text{Min.}, I_{IN} = -18 \text{ mA}$		-0.7	-1	V
V_{OH}	Output HIGH Voltage	$V_{DD} = \text{Min.}$	$I_{OH} = -1 \text{ mA}$	2		
			$I_{OH} = -8 \text{ mA}$	1.8 ⁽³⁾		
V_{OL}	Output LOW Voltage	$V_{DD} = \text{Min.}$	$I_{OH} = 1 \text{ mA}$		0.4	
			$I_{OH} = 8 \text{ mA}$		0.6	

Notes:

- This value is limited to 3.6V maximum.
- For Max. or Min. conditions, use appropriate value specified under Electrical Characteristics for the applicable device type.
- Typical values are at $V_{DD} = 2.5\text{V}$, +25°C ambient and maximum loading.

Power Supply Characteristics

Parameters	Description	Test Conditions ⁽⁴⁾	Min	Typ ⁽⁵⁾	Max	Units
I_{DDQ}	Quiescent Power Supply Current	$V_{IN} = 0$ or V_{DD}		0.1	20	μA
ΔI_{DD}	Supply Current per Input	$V_{IN} = V_{DD} - 0.6V^{(6)}$		47	300	
I_{DD}	Dynamic Supply Current (See Graph 1)	$V_{DD} = 2.7V$, 15pF & 33-ohm load, $f = 150$ MHz		136		mA

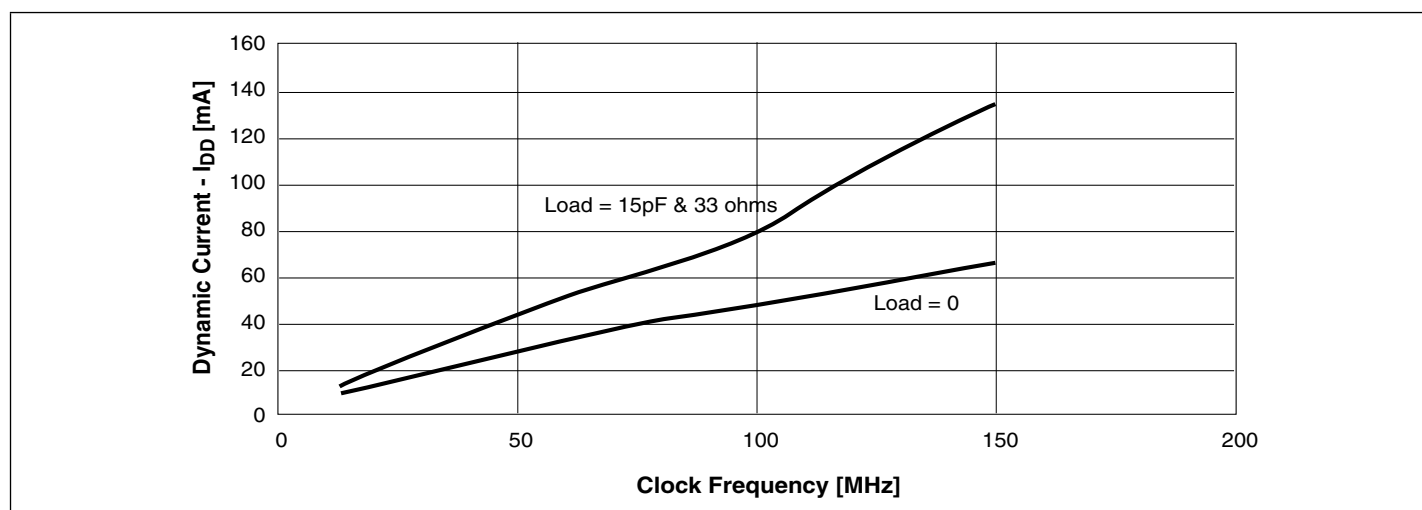
Notes:

4. For Max. or Min. conditions, use appropriate value specified under Electrical Characteristics for the applicable device.

5. Typical values are at $V_{DD} = 2.5V$, +25°C ambient and maximum loading.

6. Per TTL driven input ($V_{IN} = V_{DD} - 0.6V$); all other inputs at V_{DD} or GND.

Graph 1. Dynamic Current vs. Clock Frequency



Capacitance ($T_A = 25^\circ C$, $f = 1$ MHz)

Parameters ⁽³⁾	Description	Test Conditions	Typ ⁽⁷⁾	Max	Units
C_{IN}	Input Capacitance	$V_{IN} = 0V$	3	4	pF
C_{OUT}	Output Capacitance	$V_{OUT} = 0V$		6	

Notes:

7. This parameter is determined by device characterization but is not production tested.


Switching Characteristics (VDD = 2.5V ± 0.2V, TA = 85°C)

Parameters	Description	Test Conditions ⁽⁸⁾	Min	Typ	Max	Units
f _{CLK}	Output Frequency				150	MHz
t _{R/tF}	Rise/Fall time V _O = 0.7V ~ 1.7 V	C _L = 22pF, 100 MHz		1.0	1.25	ns
		C _L = 12pF, 150 MHz		1.0	1.2	
t _{PD}	Propagation Delay	C _L = 22pF, 100 MHz		3.5	3.5	
		C _L = 12pF, 150 MHz		2.4	2.7	
t _{SK(o)}	Output Skew	C _L = 22pF, 100 MHz		100	150	ps
		C _L = 12pF, 150 MHz		100	150	
t _{SK(p)}	Pulse Skew	C _L = 22pF, 100 MHz		250	300	
		C _L = 12pF, 150 MHz		250	300	
t _{SK(d)}	Device-to-device skew ⁽⁹⁾	C _L = 12pF, 150 MHz		400	600	

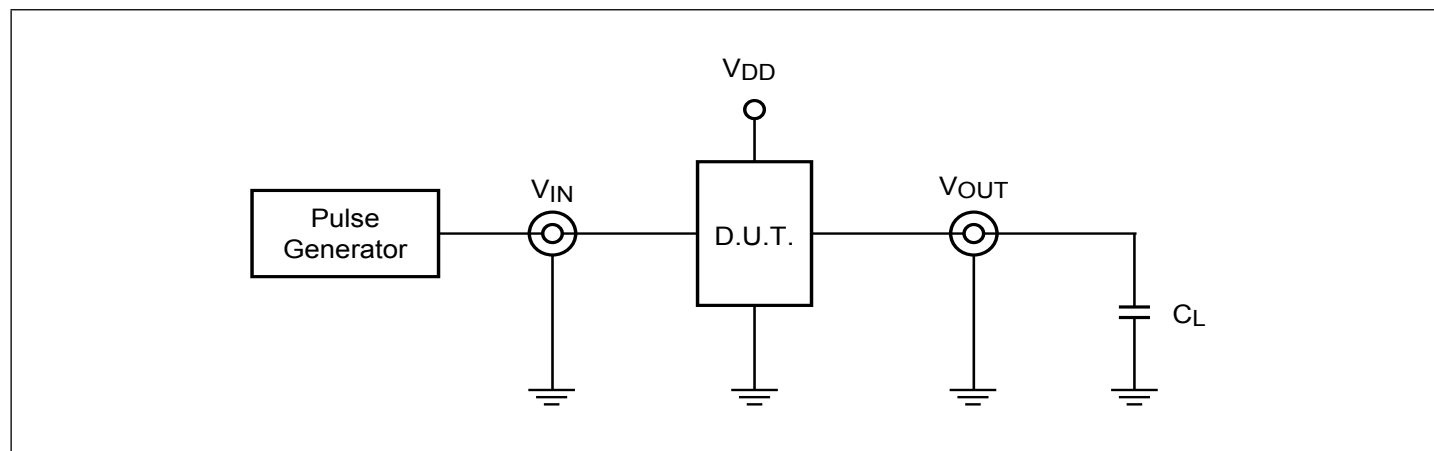
Notes:

8. See test circuit and waveforms.

9. Identical conditions: loading, transitions, supply voltage, temperature, package type and speed grade.

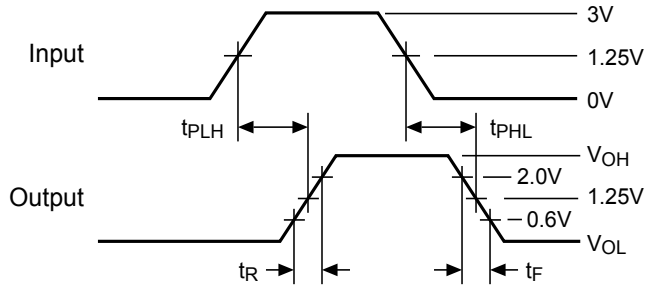
Pin Description

Pin Name		Description
PI49FCT20802	PI49FCT20803	
BUF_IN	BUF_IN	Input
CLK [0:4]	CLK [0:6]	Outputs
GND	GND	Ground
V _{DD}	V _{DD}	Power

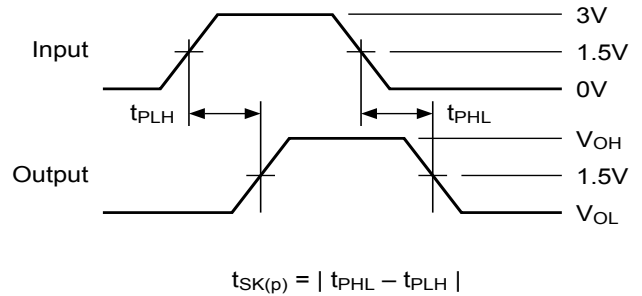
Test Circuits for All Outputs


Switching Waveforms

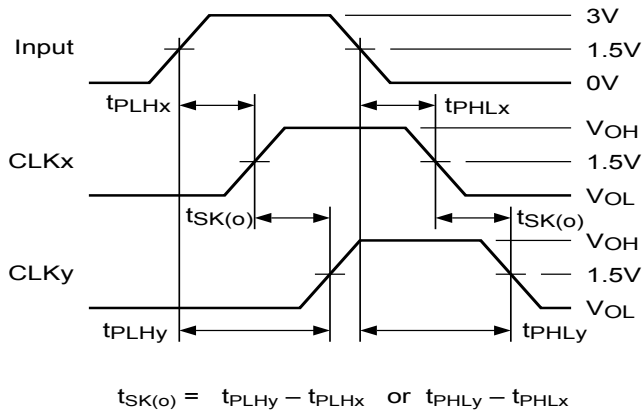
Propagation Delay



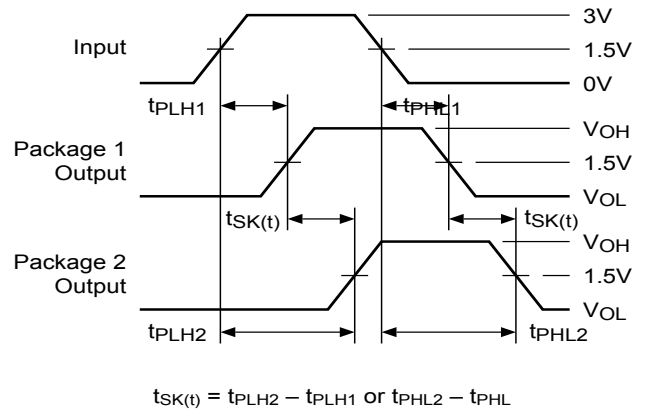
Pulse Skew - $t_{SK(P)}$



Output Skew - $t_{SK(O)}$



Package Skew - $t_{SK(T)}$



PI49FCT20802/PI49FCT20803

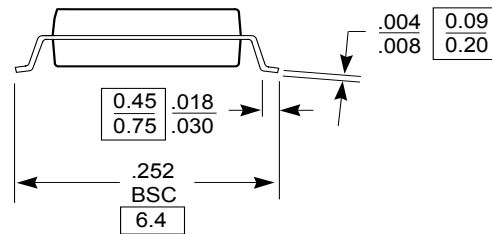
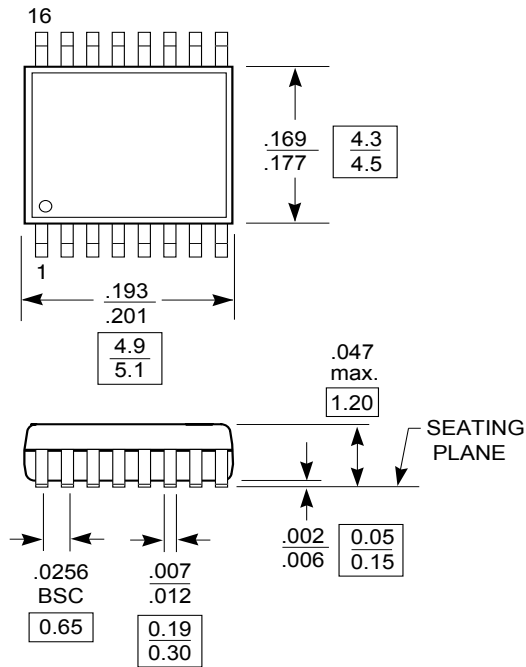
1:5/1:7 2.5V Clock Buffer for
Networking Applications



Packaging Mechanical: 16-Pin TSSOP (L)

DOCUMENT CONTROL NO.
PD - 1310

REVISION: E
DATE: 03/09/05



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



Pericom Semiconductor Corporation
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DESCRIPTION: 16-Pin, 173-Mil Wide, TSSOP

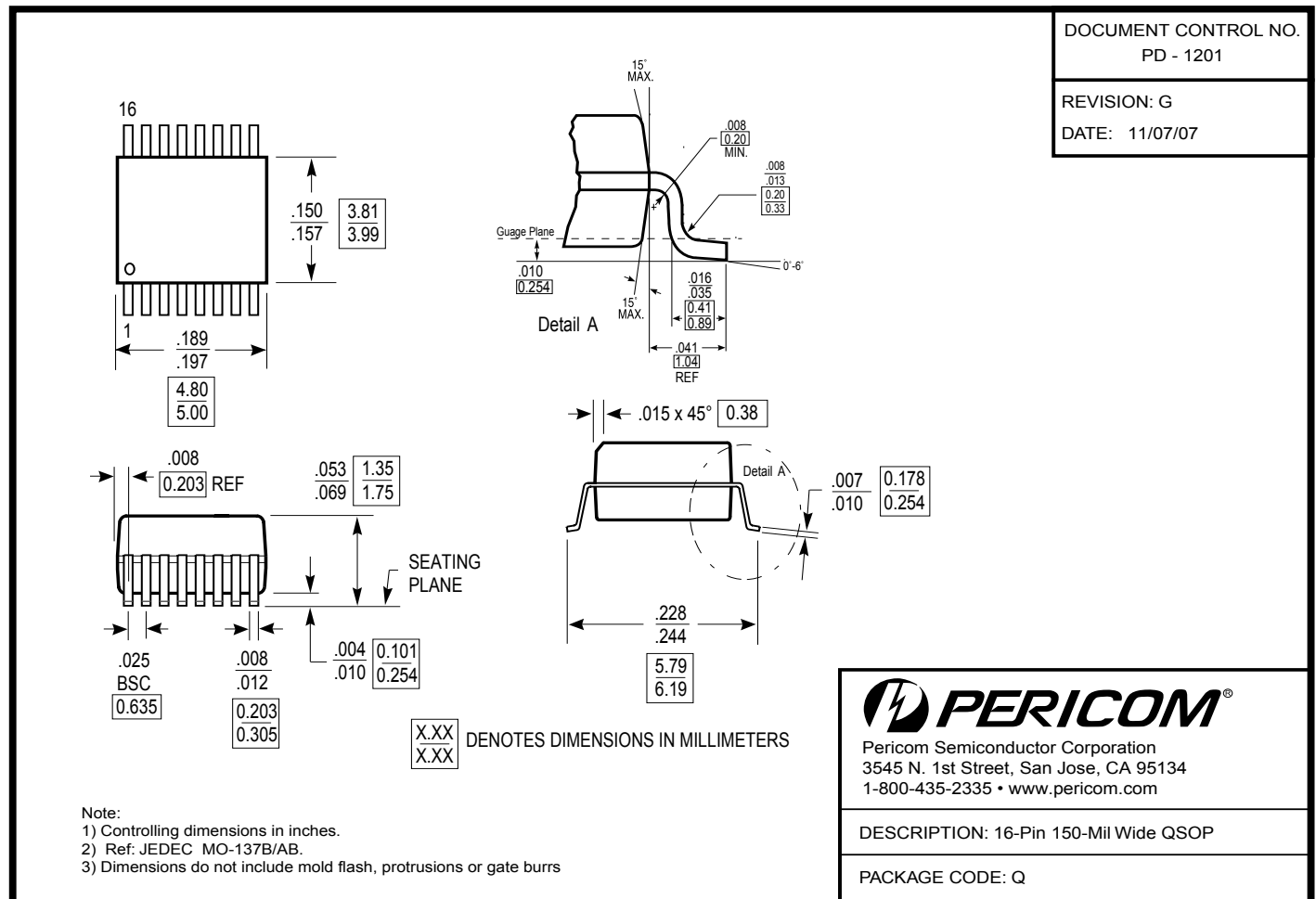
PACKAGE CODE: L

PI49FCT20802/PI49FCT20803

1:5/1:7 2.5V Clock Buffer for
Networking Applications



Packaging Mechanical: 16-Pin QSOP (Q)



Ordering Information

Ordering Code	Package Code	Package Type
PI49FCT20802QE	Q	Pb-free & Green, 16-pin 150-mil wide QSOP
PI49FCT20802LE	L	Pb-free & Green, 16-pin 173-mil wide TSSOP
PI49FCT20803LE	L	Pb-free & Green, 16-pin 173-mil wide TSSOP

1. Thermal characteristics can be found on the company web site at www.pericom.com/packaging/

2. E = Pb-free & Green

3. Adding an X suffix = Tape/Reel