

PI6C49CB04BQ

Low Skew, 1-TO-4 LVCMOS/LVTTL Fanout Buffer

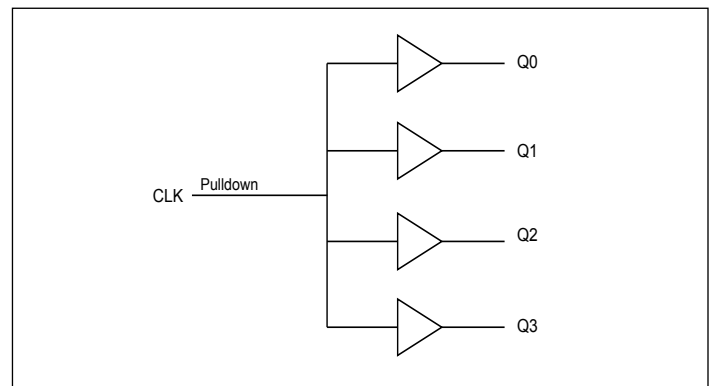
Features

- Four LVCMOS / LVTTL Outputs
- LVCMOS / LVTTL Clock Input
- CLK Accepts LVCMOS, LVTTL Input Levels
- Maximum Output Frequency: 250MHz
- Additive Phase Jitter, RMS: 0.173ps (Typical) @ 3.3V
- Output Skew: 45ps (Maximum) @ 3.3V
- Part-to-Part Skew: 500ps (Maximum)
- Small 8 Lead SOIC Package Saves Board Space
- Full 3.3V, 2.5V, 1.8V Operation Mode or 3.3V/2.5V/1.8V Core with 2.5V, 1.8V, 1.5V Supply Modes
- AEC-Q100 Qualified
- Automotive Grade 2 Temperature Range (-40°C to 105°C)
- Automotive Grade 3 Temperature Range (-40°C to 85°C)
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- The PI6C49CB04BQ is suitable for automotive applications requiring specific change control and is AEC-Q100 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.
- <https://www.diodes.com/quality/product-definitions/>
- Packaging (Pb-free & Green): 8-pin, SOIC (W)

Description

The PI6C49CB04BQ is a low-skew, 1-to-4 fanout buffer. Guaranteed output and part-to-part skew characteristics make the PI6C49CB04BQ ideal for clock distribution applications that demand well-defined performance and repeatability.

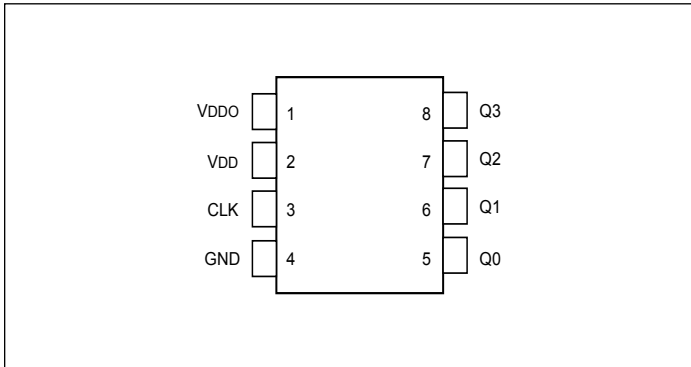
Block Diagram



Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Pin Configuration



Pin Descriptions

Pin#	Pin Name	Pin Type		Pin Description
1	V _{DDO}	Power	—	Output supply pin
2	V _{DD}	Power	—	Positive supply pin
3	CLK	Input	Pulldown	LVC MOS / LVTTL clock input
4	GND	Power	—	Power supply ground
5	Q0	Output	—	Single clock output. LVC MOS / LVTTL interface levels
6	Q1	Output	—	Single clock output. LVC MOS / LVTTL interface levels
7	Q2	Output	—	Single clock output. LVC MOS / LVTTL interface levels
8	Q3	Output	—	Single clock output. LVC MOS / LVTTL interface levels

Note: *Pulldown* refers to internal input resistors. See Table 2, *Pin Characteristics*, for typical values.

Pin Characteristics

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
C _{IN}	Input Capacitance	—	—	4	—	pF
C _{PD}	Power Dissipation Capacitance (per Output)	V _{DD} , V _{DDO} = 3.465V	—	—	15	pF
R _{PULLDOWN}	Input Pulldown Resistor	—	—	51	—	kΩ
R _{OUT}	Output Impedance	V _{DD} , V _{DDO} > 2.5V	5	7	12	Ω

Maximum Ratings

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

Supply Voltage, V_{DD}	4.6V
Inputs, V_I	-0.5V to $V_{DD}+0.5V$
Output, V_O	-0.5V to $V_{DDO}+0.5V$
Storage Temperature, T_{STG}	-65°C to 150°C
ESD Protection (HBM).....	2000V
Junction Temperature	125 °C max

Note:

Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. These ratings are stress specifications only. Functional operation of product at these conditions or any conditions beyond those listed in the DC Characteristics or AC Characteristics is not implied. Exposure to absolute maximum rating conditions for extended periods may affect product reliability.

Recommended Operation Conditions

Parameter	Min.	Typ.	Max.	Units
Ambient Operating Temperature (Automotive Grade 2)	-40	—	+105	°C
Ambient Operating Temperature (Automotive Grade 3)	-40	—	+85	°C
Power Supply Voltage (Measured in Respect to GND)	+1.425	—	+3.6	V

Table 3A. Power Supply DC Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
VDD	Core Supply Voltage	3.3V Operation	3.135	3.3	3.465	V
		2.5V Operation	2.375	2.5	2.625	
		1.8V Operation	1.6	1.8	2.0	
VDDO	Output Power Supply Voltage	3.3V Supply	3.135	3.3	3.465	V
		2.5V Supply	2.375	2.5	2.625	
		1.8V Supply	1.6	1.8	2.0	
		1.5V Supply	1.425	1.5	1.575	
$I_{DD} + I_{DDO}$	Total Power Supply Current	5pF, 100MHz	—	—	38	mA

DC ELECTRICAL CHARACTERISTICS
VDD = 1.8V, VDDO = 1.5 V ±5%, Ambient temperature -40°C to +105°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
VDD	Operating Voltage	—	1.7	1.8	1.89	V
VDDO	Output Operating Voltage	—	1.425	1.5	1.575	V
V _{IH}	Input High Voltage	CLK ⁽¹⁾	0.9	—	3.6	V
V _{IL}	Input Low Voltage	CLK ⁽¹⁾	—	—	0.575	V
I _{IH}	Input High Current	CLK ⁽¹⁾	—	—	40	μA
I _{IL}	Input Low Current	CLK ⁽¹⁾	—	—	1	μA
V _{OH}	Output High Voltage	I _{OH} = -6mA	0.95	—	—	V
V _{OL}	Output Low Voltage	I _{OL} = 6mA	—	—	0.45	V
IDD	Operating Supply Current	5pF, 160MHz	—	15	21	mA
		5pF, 100MHz	—	13	17	mA
		5pF, 50MHz	—	7	9	mA
		5pF, 25MHz	—	4	5.5	mA
Z _O	Nominal Output Impedance	—	—	20	—	Ω
C _{IN}	Input Capacitance	CLK	—	5	—	pF
I _{OS}	Short-Circuit Current	—	—	±12	—	mA

Notes: 1. Nominal switching threshold is VDD/2.

VDD, VDDO=1.8 V ±5%, Ambient temperature -40°C to +105°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
VDD, VDDO	Operating Voltage	—	1.7	1.8	1.89	V
V _{IH}	Input High Voltage	CLK ⁽¹⁾	1.1	—	3.6	V
V _{IL}	Input Low Voltage	CLK ⁽¹⁾	—	—	0.6	V
I _{IH}	Input High Current	CLK ⁽¹⁾	—	—	50	μA
I _{IL}	Input Low Current	CLK ⁽¹⁾	—	—	1	μA
V _{OH}	Output High Voltage	I _{OH} = -8mA	1.4	—	—	V
V _{OL}	Output Low Voltage	I _{OL} = 8mA	—	—	0.4	V
IDD	Operating Supply Current	5pF, 160MHz	—	22	28	mA
		5pF, 100MHz	—	17	21	mA
		5pF, 50MHz	—	9	12	mA
		5pF, 25MHz	—	5	7	mA
Z _O	Nominal Output Impedance	—	—	20	—	Ω
C _{IN}	Input Capacitance	CLK	—	5	—	pF
I _{OS}	Short-Circuit Current	—	—	±20	—	mA

Notes: 1. Nominal switching threshold is VDD/2.

VDD, VDDO = 2.5 V ±5%, Ambient temperature -40°C to +105°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
VDD, VDDO	Operating Voltage	—	2.375	2.5	2.625	V
V _{IH}	Input High Voltage	CLK ⁽¹⁾	1.7	—	3.6	V
V _{IL}	Input Low Voltage	CLK ⁽¹⁾	—	—	0.7	V
I _{IH}	Input High Current	CLK ⁽¹⁾	—	—	60	μA
I _{IL}	Input Low Current	CLK ⁽¹⁾	—	—	1	μA
V _{OH}	Output High Voltage	I _{OH} = -8mA	2	—	—	V
V _{OL}	Output Low Voltage	I _{OL} = 8mA	—	—	0.4	V
IDD	Operating Supply Current	5pF, 100MHz	—	24	30	mA
		5pF, 50MHz	—	12	15	mA
		5pF, 25MHz	—	7	9	mA
Z _O	Nominal Output Impedance	—	—	20	—	Ω
C _{IN}	Input Capacitance	CLK	—	5	—	pF
I _{OS}	Short-Circuit Current	—	—	±50	—	mA

Notes: 1. Nominal switching threshold is VDD/2.

VDD, VDDO = 3.3 V ±10%, Ambient temperature -40°C to +105°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
VDD, VDDO	Operating Voltage	—	3.0	3.3	3.6	V
V _{IH}	Input High Voltage	CLK ⁽¹⁾	2.4	—	3.6	V
V _{IL}	Input Low Voltage	CLK ⁽¹⁾	—	—	0.7	V
I _{IH}	Input High Current	CLK ⁽¹⁾	—	—	85	μA
I _{IL}	Input Low Current	CLK ⁽¹⁾	—	—	1	μA
V _{OH}	Output High Voltage	I _{OH} = -8 mA	2.8	—	—	V
V _{OL}	Output Low Voltage	I _{OL} = 8 mA	—	—	0.2	V
IDD	Operating Supply Current	5pF, 100MHz	—	32	38	mA
		5pF, 50MHz	—	16	19	mA
		5pF, 25MHz	—	10	12	mA
Z _O	Nominal Output Impedance	—	—	20	—	Ω
C _{IN}	Input Capacitance	CLK	—	5	—	pF
I _{OS}	Short-Circuit Current	—	—	±50	—	mA

Notes: 1. Nominal switching threshold is VDD/2.

AC ELECTRICAL CHARACTERISTICS

VDD = 1.8V, VDDO=1.5 V ±5%, Ambient temperature -40°C to +105° C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
F _{OUT}	Output Frequency	—	0	—	160	MHz
t _{OR}	Output Rise Time	20% to 80%	—	1.0	1.5	ns
t _{OF}	Output Fall Time	20% to 80%	—	1.0	1.5	ns
T _{PD}	Propagation Delay (Note1)	—	2	3	5	ns
T _{SK}	Output-to-Output Skew (Note2)	Rising edges at VDD/2	—	0	±250	ps

VDD, VDDO =1.8 V ±5%, Ambient temperature -40°C to +105° C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
F _{OUT}	Output Frequency	—	0	—	160	MHz
t _{OR}	Output Rise Time	20% to 80%	—	1.0	1.5	ns
t _{OF}	Output Fall Time	20% to 80%	—	1.0	1.5	ns
T _{PD}	Propagation Delay (Note 1)	—	1.3	2	4	ns
T _{SK}	Output-to-Output Skew (Note 2)	Rising edges at VDD/2	—	0	±250	ps
J _{ADD}	Additive Jitter	@ 156.25MHz, 12k to 20MHz	—	0.1	—	ps

VDD, VDDO =2.5 V ±5%, Ambient temperature -40°C to +105°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
F _{OUT}	Output Frequency	—	0	—	160	MHz
t _{OR}	Output Rise Time	20% TO 80%	—	1.0	1.5	ns
t _{OF}	Output Fall Time	20% TO 80%	—	1.0	1.5	ns
T _{PD}	Propagation Delay ⁽¹⁾	—	0.8	1.5	3	ns
T _{SK}	Output-to-Output Skew ⁽²⁾	Rising edges at VDD/2	—	0	±250	ps
J _{ADD}	Additive Jitter	@ 156.25MHz, 12k to 20MHz	—	0.05	—	ps

Notes:

1. With rail-to-rail input clock.
2. Between any two outputs with equal loading.

VDD, VDDO =3.3 V ±10%, Ambient temperature -40°C to +105°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
F _{OUT}	Output Frequency	—	0	—	100	MHz
t _{OR}	Output Rise Time	20% TO 80%	—	1.0	1.5	ns
t _{OF}	Output Fall Time	20% TO 80%	—	1.0	1.5	ns
T _{PD}	Propagation Delay ⁽¹⁾	—	0.8	1.0	2.5	ns
T _{SK}	Output-to-Output Skew ⁽²⁾	Rising edges at VDD/2	—	0	±250	ps
J _{ADD}	Additive Jitter	@ 156.25MHz, 12k to 20MHz	—	0.05	—	ps

Notes:

1. With rail-to-rail input clock.
2. Between any two outputs with equal loading.

DC ELECTRICAL CHARACTERISTICS
VDD = 1.8V, VDDO = 1.5 V ±5%, Ambient temperature -40°C to +85°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
VDD	Operating Voltage	—	1.7	1.8	1.89	V
VDDO	Output Operating Voltage	—	1.425	1.5	1.575	V
V _{IH}	Input High Voltage	CLK ⁽¹⁾	0.9	—	3.6	V
V _{IL}	Input Low Voltage	CLK ⁽¹⁾	—	—	0.575	V
I _{IH}	Input High Current	CLK ⁽¹⁾	—	—	40	μA
I _{IL}	Input Low Current	CLK ⁽¹⁾	—	—	1	μA
V _{OH}	Output High Voltage	I _{OH} = -6 mA	0.95	—	—	V
V _{OL}	Output Low Voltage	I _{OL} = 6 mA	—	—	0.45	V
IDD	Operating Supply Current	5pF, 160MHz	—	15	21	mA
		5pF, 100MHz	—	13	17	mA
		5pF, 50MHz	—	7	9	mA
		5pF, 25MHz	—	4	5.5	mA
Z _O	Nominal Output Impedance	—	—	20	—	Ω
C _{IN}	Input Capacitance	CLK	—	5	—	pF
I _{OS}	Short-Circuit Current	—	—	±12	—	mA

Notes: 1. Nominal switching threshold is VDD/2.

VDD, VDDO = 1.8 V ±5%, Ambient temperature -40°C to +85°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
VDD, VDDO	Operating Voltage	—	1.7	1.8	1.89	V
V _{IH}	Input High Voltage	CLK ⁽¹⁾	1.1	—	3.6	V
V _{IL}	Input Low Voltage	CLK ⁽¹⁾	—	—	0.6	V
I _{IH}	Input High Current	CLK ⁽¹⁾	—	—	50	μA
I _{IL}	Input Low Current	CLK ⁽¹⁾	—	—	1	μA
V _{OH}	Output High Voltage	I _{OH} = -8mA	1.4	—	—	V
V _{OL}	Output Low Voltage	I _{OL} = 8mA	—	—	0.4	V
IDD	Operating Supply Current	5pF, 160MHz	—	22	28	mA
		5pF, 100MHz	—	17	21	mA
		5pF, 50MHz	—	9	12	mA
		5pF, 25MHz	—	5	7	mA
Z _O	Nominal Output Impedance	—	—	20	—	Ω
C _{IN}	Input Capacitance	CLK	—	5	—	pF
I _{OS}	Short-Circuit Current	—	—	±20	—	mA

Notes: 1. Nominal switching threshold is VDD/2.

VDD, VDDO = 2.5 V ±5%, Ambient temperature -40°C to +85°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
VDD	Operating Voltage	—	2.375	2.5	2.625	V
V _{IH}	Input High Voltage	CLK ⁽¹⁾	1.7	—	3.6	V
V _{IL}	Input Low Voltage	CLK ⁽¹⁾	—	—	0.7	V
I _{IH}	Input High Current	CLK ⁽¹⁾	—	—	60	μA
I _{IL}	Input Low Current	CLK ⁽¹⁾	—	—	1	μA
V _{OH}	Output High Voltage	I _{OH} = -8 mA	2	—	—	V
V _{OL}	Output Low Voltage	I _{OL} = 8 mA	—	—	0.4	V
IDD	Operating Supply Current	5pF, 200MHz	—	46	56	mA
		5pF, 100MHz	—	24	30	mA
		5pF, 50MHz	—	12	15	mA
		5pF, 25MHz	—	7	9	mA
Z _O	Nominal Output Impedance	—	—	20	—	Ω
C _{IN}	Input Capacitance	CLK	—	5	—	pF
I _{OS}	Short-Circuit Current	—	—	±50	—	mA

Notes: 1. Nominal switching threshold is VDD/2.

VDD, VDDO = 3.3 V ±10%, Ambient temperature -40°C to +85°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
VDD	Operating Voltage	—	3.0	3.3	3.6	V
V _{IH}	Input High Voltage	CLK ⁽¹⁾	2.4	—	3.6	V
V _{IL}	Input Low Voltage	CLK ⁽¹⁾	—	—	0.7	V
I _{IH}	Input High Current	CLK ⁽¹⁾	—	—	85	μA
I _{IL}	Input Low Current	CLK ⁽¹⁾	—	—	1	μA
V _{OH}	Output High Voltage	I _{OH} = -8mA	2.8	—	—	V
V _{OL}	Output Low Voltage	I _{OL} = 8mA	—	—	0.2	V
IDD	Operating Supply Current	5pF, 200MHz	—	62	75	mA
		5pF, 100MHz	—	32	38	mA
		5pF, 50MHz	—	16	19	mA
		5pF, 25MHz	—	10	12	mA
Z _O	Nominal Output Impedance	—	—	20	—	Ω
C _{IN}	Input Capacitance	CLK	—	5	—	pF
I _{OS}	Short-Circuit Current	—	—	±50	—	mA

Notes: 1. Nominal switching threshold is VDD/2.

AC ELECTRICAL CHARACTERISTICS

VDD = 1.8V, VDDO = 1.5 V ±5%, Ambient temperature -40°C to +85°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
F _{OUT}	Output Frequency	—	0	—	166	MHz
t _{OR}	Output Rise Time	20% to 80%	—	1.0	1.5	ns
t _{OF}	Output Fall Time	20% to 80%	—	1.0	1.5	ns
T _{PD}	Propagation Delay (Note 1)	—	2	3	5	ns
T _{SK}	Output-to-Output Skew (Note 2)	Rising edges at VDD/2	—	0	±250	ps

VDD, VDDO = 1.8 V ±5%, Ambient temperature -40°C to +85°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
F _{OUT}	Output Frequency	—	0	—	166	MHz
t _{OR}	Output Rise Time	20% to 80%	—	1.0	1.5	ns
t _{OF}	Output Fall Time	20% to 80%	—	1.0	1.5	ns
T _{PD}	Propagation Delay (Note 1)	—	1.3	2	4	ns
T _{SK}	Output-to-Output Skew (Note 2)	Rising edges at VDD/2	—	0	±250	ps
J _{ADD}	Additive Jitter	@156.25MHz, 12k to 20MHz	—	0.1	—	ps

VDD, VDDO = 2.5 V ±5%, Ambient temperature -40°C to +85°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
F _{OUT}	Output Frequency	—	0	—	200	MHz
t _{OR}	Output Rise Time	20% TO 80%	—	1.0	1.5	ns
t _{OF}	Output Fall Time	20% TO 80%	—	1.0	1.5	ns
T _{PD}	Propagation Delay ⁽¹⁾	—	0.8	1.5	3	ns
T _{SK}	Output-to-Output Skew ⁽²⁾	Rising edges at VDD/2	—	0	±250	ps
J _{ADD}	Additive Jitter	@ 156.25MHz, 12k to 20MHz	—	0.05	—	ps

Notes:

1. With rail-to-rail input clock.
2. Between any two outputs with equal loading.

VDD, VDDO = 3.3 V ±10%, Ambient temperature -40°C to +85°C, unless stated otherwise

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
F_{OUT}	Output Frequency	—	0	—	200	MHz
tOR	Output Rise Time	20% TO 80%	—	1.0	1.5	ns
tOF	Output Fall Time	20% TO 80%	—	1.0	1.5	ns
T_{PD}	Propagation Delay ⁽¹⁾	—	0.8	1.0	2.5	ns
T_{SK}	Output-to-Output Skew ⁽²⁾	Rising edges at VDD/2	—	0	±250	ps
J_{ADD}	Additive Jitter	@ 156.25MHz, 12k to 20MHz	—	0.05	—	ps

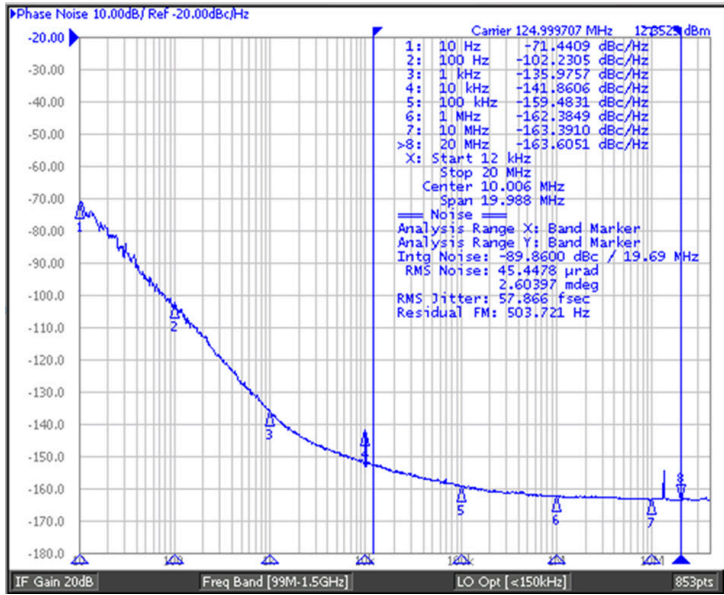
Notes:

1. With rail-to-rail input clock.
2. Between any two outputs with equal loading.

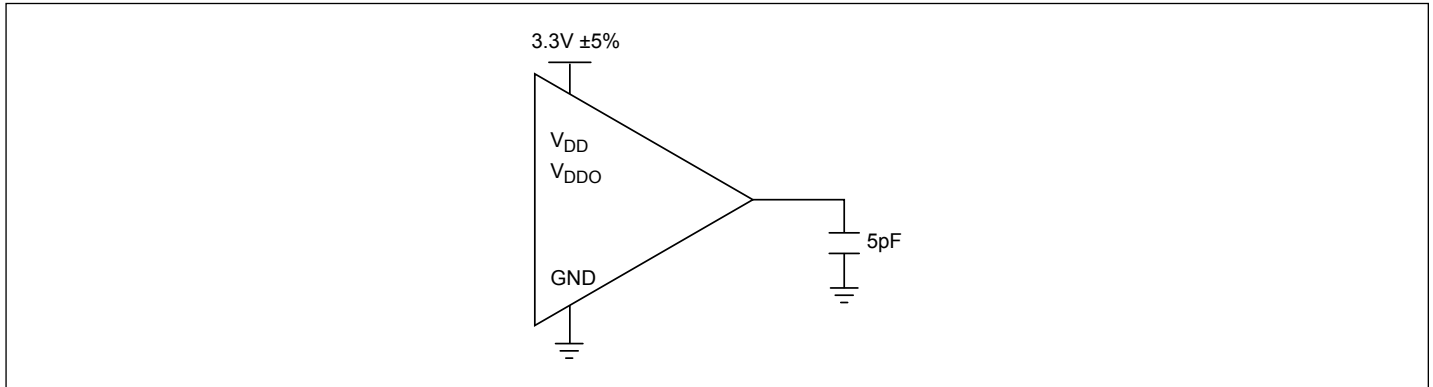
Phase Noise and Additive Jitter

Output phase noise plot provided below.

$$\text{Additive jitter} = \sqrt{(\text{Output jitter}^2 - \text{Input jitter}^2)}$$



Configuration Test Load Board Termination for LVCMOS Outputs



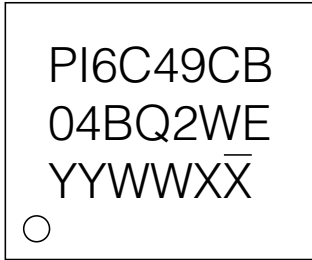
Thermal Information

Symbol	Description	Condition	
Θ _{JA}	Junction-to-Ambient Thermal Resistance	Still air	157°C/W
Θ _{JC}	Junction-to-Case Thermal Resistance	—	42°C/W

PI6C49CB04BQ

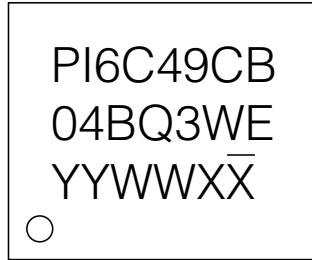
Part Marking

W Package-Q2



YY: Year
WW: Workweek
1st X: Assembly Code
2nd X: Fab Code

W Package-Q3



YY: Year
WW: Workweek
1st X: Assembly Code
2nd X: Fab Code

Packaging Mechanical:

8-SOIC (W)

SYMBOLS	MIN.	NOM.	MAX.
A	—	—	1.75
A1	0.10	—	0.25
A2	1.25	—	—
b	0.31	—	0.51
c	0.10	—	0.25
D	4.80	4.90	5.00
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27 BSC		
L	0.40	—	1.27
h	0.25	—	0.50
θ°	0	—	8

UNIT : mm

NOTE :
 1. ALL DIMENSIONS ARE IN mm. ANGLES IN DEGREES
 2. DIMENSIONS EXCLUDE BURRS, MOLD FLASH OR PROTRUSIONS
 3. REFER JEDEC MS-012

	DATE: 02/21/14
DESCRIPTION: 8-Pin, 150mil-Wide, SOIC	
PACKAGE CODE: W (W8)	
DOCUMENT CONTROL #: PD-1001	REVISION: G

15-0103

For latest package information:

See <http://www.diodes.com/design/support/packaging/pericom-packaging/packaging-mechanicals-and-thermal-characteristics/>.

Ordering Information

Ordering Code	Package Code	Package Description	Operating Temperature
PI6C49CB04BQ2WEX	W	8-pin, 150mil-Wide (SOIC)	-40°C to 105°C
PI6C49CB04BQ3WEX	W	8-pin, 150mil-Wide (SOIC)	-40°C to 85°C

Notes:

1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. Q = Automotive Compliant
5. 2 and 3 = AEC-Q100 Grade Level
6. E = Pb-free and Green
7. X suffix = Tape/Reel

IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel.

Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and definitive format released by Diodes Incorporated.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

A. Life support devices or systems are devices or systems which:

1. are intended to implant into the body, or

2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.

B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2019, Diodes Incorporated

www.diodes.com