

Features

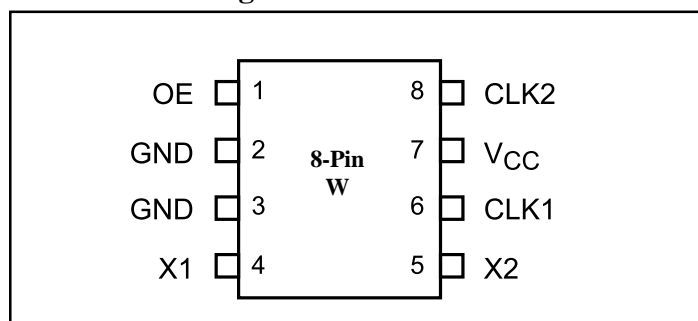
- Generate clock signal at a very low jitter rate
–competitive with crystal can-oscillators
- Excellent signal quality :
– minimal undershoot, ringback, and overshoot
– nearly perfect 50% duty cycle
- Use a low cost crystal of 10 MHz
- Operate at $V_{CC} = 5V$
- Two clock outputs: 40, 80 MHz
- OE shut down PLL
- Package available:
– 8-pin 150-mil wide, 50-mil pin-pitch, plastic SOIC (W)

Description

The PI6C951-H clock generator produces a clock output at a very low jitter rate, competitive with crystal can-oscillators. The clock output signal has a minimal undershoot, ringback, and overshoot. A 2X clock is internally generated then divided by two, therefore the clock output's duty cycle is a nearly perfect fifty percent.

A high-precision clock frequency output is produced from a 10 MHz low-cost crystal. The clock is packaged in an 8-pin SOIC package with 150-mil body width and 50-mil pin-pitch.

Product Pin Configuration



Output Clock Frequency

Part No.	CLK Output Frequency
PI6C951-H	CLK1 = 80 MHz, CLK2 = 40 MHz

Product Pin Description

PinName	I/O	Description
X1	C	Crystal Connection, 10MHz
X2	C	Crystal Connection
CLK1	O	Clock Output, 80 MHz
CLK2	O	Clock Output, 40 MHz
OE	I	Output Enable Clk 1, Clk 2 when high

Note:

1. I = Input
O = Output
C = Connection

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	0°C to +70°C
Supply Voltage to Ground Potential (Inputs & Vcc 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 at 5V⁽¹⁾ (Operating Range, Vcc = +4.75V to +5.25V, Temperature 0°C to +70°C)

Symbol	Description	Test Conditions		Min.	Typ.	Max.	Units
V _{OH}	Output HIGH Voltage	V _{CC} = Min., V _{IN} = V _{IH} or V _{IL}	I _{OH} = –8mA	2.4	—	—	V
V _{OL}	Output LOW Voltage	V _{CC} = Min., V _{IN} = V _{IH} or V _{IL}	I _{OL} = 8mA	—	—	0.4	V
V _{IH}	Select Input HIGH Voltage	Guaranteed Logic HIGH Level	V _{CC} = 5V	2.0	—	—	V
V _{IL}	Select Input LOW Voltage	Guaranteed Logic LOW Level	V _{CC} = 5V	—	—	0.8	V
I _{IH}	Select Input HIGH Current	V _{CC} = Max., V _{IN} = V _{CC}		—	—	5	μA
I _{IL}	Select Input LOW Current	V _{CC} = Max., V _{IN} = 0V		—	—	–5	μA
I _{CC}	Supply Current ⁽²⁾			—	10	20	mA
F _D	Output Freq. Change ⁽³⁾	With Respect to Typical Frequency		—	0.002	—	%
C _L	Load Capacitance	Pins X1, X2		—	20	—	pF

Notes:

1. Vcc requirement: PI6C951-H = 5.0V ±5%.
2. PI6C951-H with no load, with 10.00 mHz crystal input and Clk2 running at 40 MHz.
Power supply current varies with frequency.
3. Over temperature guaranteed by design only.

AC Electrical Characteristics at 5V (Operating Range, Vcc = +4.5V to +5.5V, Temperature 0°C to +70°C)

Symbol	Description	Test Conditions	Min.	Typ.	Max.	Units
d _T	Duty Cycle, CPU	15pF Load	45	50/50	55	%
T _{JIS}	Jitter, 1 Sigma	40, 80 MHz	—		60	ps

Note:

1. Guaranteed by design only.