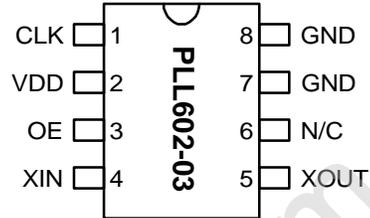


**Low Phase Noise CMOS XO (48MHz to 100MHz)**

**FEATURES**

- Low phase noise XO output for the 48MHz to 100MHz range (-130 dBc at 10kHz offset).
- CMOS output.
- 12 to 25MHz crystal input.
- Integrated crystal load capacitor: no external load capacitor required.
- Low jitter (RMS): 7-9ps period jitter (1 sigma).
- 3.3V operation.
- Available in 8-Pin TSSOP or SOIC.

**PIN CONFIGURATION**



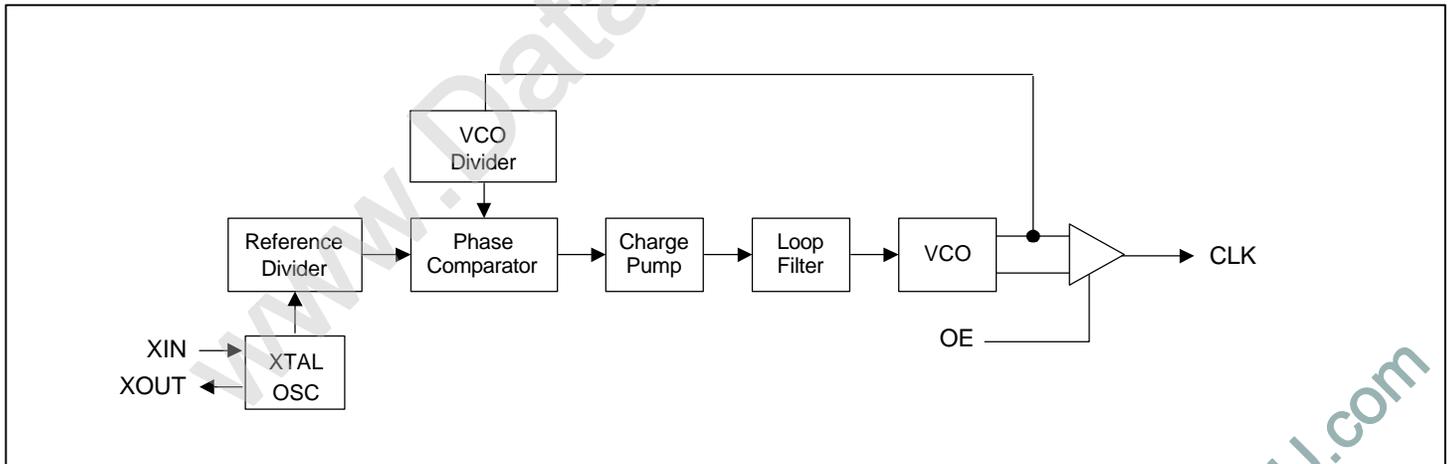
**DESCRIPTIONS**

The PLL602-03 is a low cost, high performance and low phase noise XO, providing less than -130dBc at 10kHz offset in the 48MHz to 100MHz operating range. The very low jitter (7 ps to 9 ps RMS period jitter) makes this chip ideal for applications requiring reference frequency sources. Input crystal can range from 12 to 25MHz (fundamental resonant mode).

**OUTPUT RANGE**

MULTIPLIER	FREQUENCY RANGE	OUTPUT BUFFER
X4	48 - 100MHz	CMOS

**BLOCK DIAGRAM**



## Low Phase Noise CMOS XO (48MHz to 100MHz)

### PIN DESCRIPTIONS

Name	Number	Type	Description
CLK	1	O	Output clock pin.
VDD	2	P	+3.3V VDD power supply pin.
OE	3	I	Output enable input pin. Disables (tri-state) output when low. Internal pull-up enables output by default if pin is not connected to low.
XIN	4	I	Crystal input pin.
XOUT	5	I	Crystal output pin.
N/C	6	-	Not connected.
GND	7, 8	P	Ground pin.

### ELECTRICAL SPECIFICATIONS

#### 1. Absolute Maximum Ratings

PARAMETERS	SYMBOL	MIN.	MAX.	UNITS
Supply Voltage Range	$V_{CC}$	-0.5	7	V
Input Voltage Range	$V_I$	-0.5	$V_{CC}+0.5$	V
Output Voltage Range	$V_O$	-0.5	$V_{CC}+0.5$	V
Soldering Temperature			260	°C
Storage Temperature	$T_S$	-65	150	°C
Ambient Operating Temperature		-10	85	°C

Exposure of the device under conditions beyond the limits specified by Maximum Ratings for extended periods may cause permanent damage to the device and affect product reliability. These conditions represent a stress rating only, and functional operations of the device at these or any other conditions above the operational limits noted in this specification is not implied.

#### 2. AC Specification

PARAMETERS	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Input Frequency		12		25	MHz
Output Frequency		48		100	MHz
Output Rise Time	0.8V to 2.0V with 10pF load			1.5	ns
Output Fall Time	2.0V to 0.8V with 10pF load			1.5	ns
Duty Cycle	At VDD/2	45	50	55	%

## Low Phase Noise CMOS XO (48MHz to 100MHz)

### 3. Jitter and Phase Noise specification

PARAMETERS	CONDITIONS	MIN.	TYP.	MAX.	UNITS
RMS Period Jitter (1 sigma – 1000 samples)	at 80MHz, with capacitive decoupling between VDD and GND.		9		ps
Phase Noise relative to carrier	80MHz @100Hz offset		-80		dBc/Hz
Phase Noise relative to carrier	80MHz @1kHz offset		-110		dBc/Hz
Phase Noise relative to carrier	80MHz @10kHz offset		-130		dBc/Hz
Phase Noise relative to carrier	80MHz @100kHz offset		-125		dBc/Hz
Phase Noise relative to carrier	80MHz @1MHz offset		-130		dBc/Hz

### 4. DC Specification

PARAMETERS	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Supply Current, Dynamic, with Loaded Outputs	$I_{DD}$	$F_{XIN} = 12 - 25\text{MHz}$ Output load of 10pF		10		mA
Operating Voltage	$V_{DD}$		3.13		3.47	V
Output High Voltage	$V_{OH}$	$I_{OH} = -12\text{mA}$	2.4			V
Output Low Voltage	$V_{OL}$	$I_{LO} = 12\text{mA}$			0.4	V
Output High Voltage at CMOS level	$V_{OHC}$	$I_{OH} = -4\text{mA}$	$V_{DD} - 0.4$			V
Output drive current		At TTL level (High drive)	36	51		mA
		At TTL level (Low drive)	12	17		mA
Short Circuit Current				$\pm 50$		mA
ESD Protection		Human Body Model, all pads except XT and XTB	3000			V
		Human Body Model, XT and XTB pads	2000			

### 5. Crystal Specifications

PARAMETERS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Crystal Resonator Frequency	$F_{XIN}$	12		25	MHz
Crystal Loading Capacitance Rating	$C_L$ (xtal)		20		pF
Driving power			1		mW
ESR	$R_s$			30	$\Omega$

**Low Phase Noise CMOS XO (48MHz to 100MHz)**

**PACKAGE INFORMATION**

8 PIN ( dimensions in mm )

Symbol	Narrow SOIC		TSSOP	
	Min.	Max.	Min.	Max.
A	1.47	1.73	-	1.20
A1	0.10	0.25	0.05	0.15
B	0.33	0.51	0.19	0.30
C	0.19	0.25	0.09	0.20
D	4.80	4.95	2.90	3.10
E	3.80	4.00	4.30	4.50
H	5.80	6.20	6.20	6.60
L	0.38	1.27	0.45	0.75
e	1.27 BSC		0.65 BSC	

**ORDERING INFORMATION**

***For part ordering, please contact our Sales Department:***  
 47745 Fremont Blvd., Fremont, CA 94538, USA  
 Tel: (510) 492-0990 Fax: (510) 492-0991

**PART NUMBER**

The order number for this device is a combination of the following:  
 Device number, Package type and Operating temperature range

**PLL602-03 X C**

PART NUMBER \_\_\_\_\_

- \_\_\_\_\_ TEMPERATURE  
 C=COMMERCIAL  
 M=MILITARY  
 I=INDUSTRIAL
- \_\_\_\_\_ PACKAGE TYPE  
 S=SOIC, O=TSSOP, D=DIE

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