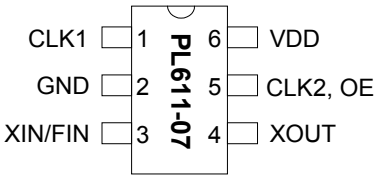
PL611-07

Programmable Quick Turn Clock™

FEATURES

- Advanced programmable PLL design
- Very low Jitter and Phase Noise (30-70ps Pk-Pk typical)
- Up to 2 programmable outputs
- Output frequency up to 75MHz CMOS
- Programmable Output Enable (OE) pin
- Accepts Crystal clock input
  - Fundamental crystal: 10MHz-30MHz
  - Reference input: Up to 100MHz
- Single 2.5V or 3.3V ± 10% power supply
- Operating temperature range from -40°C to 85°C
- Available in 6-pin SOT Green/RoHS compliant Pkg.

PIN CONFIGURATION



SOT-23

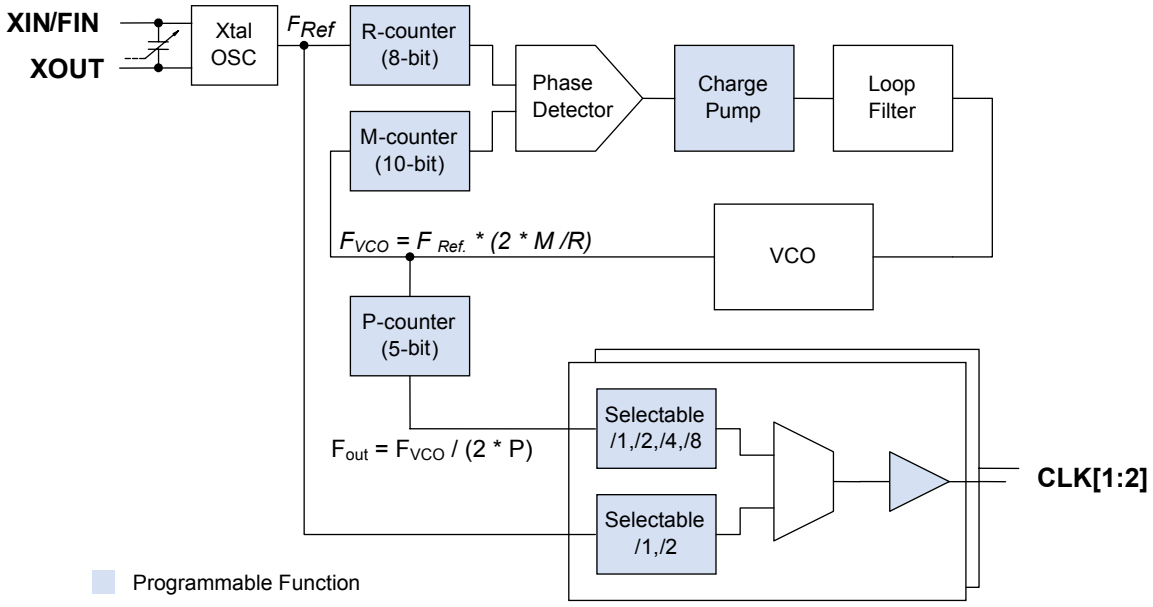
DESCRIPTION

The PL611-07 is a low-cost general purpose frequency synthesizer and a member of PhaseLink's Programmable 'Quick Turn Clock (QTC)' family. PhaseLink's PL611-07 offers generating two system clock frequencies of up to 75MHz form a 10-30MHz fundamental crystal or a Reference clock source. One clock output can be programmed to operate as OE or be used as a Reference output. Cascading of the ICs to produce additional clock frequencies is also supported.

PIN DESCRIPTION

Name	Pin #	Type	Description
CLK1	1	O	Programmable Clock Output
GND	2	P	GND connection
XIN/FIN	3	I	Crystal or Reference input pin
XOUT	4	O	Crystal output pin
CLK2, OE	5	B	Programmable Clock or Reference Output, or OE
VDD	6	P	VDD connection (2.25~3.63V)

BLOCK DIAGRAM



ELECTRICAL SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS

PARAMETERS	SYMBOL	MIN.	MAX.	UNITS
Supply Voltage Range	V_{DD}	-0.5	4.6	V
Input Voltage Range	V_I	-0.5	V_{DD}+0.5	V
Output Voltage Range	V_O	-0.5	V_{DD}+0.5	V
Soldering Temperature (Green package)			260	°C
Data Retention @ 85°C		10		Year
Storage Temperature	T_S	-65	150	°C
Ambient Operating Temperature		-40	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.

AC SPECIFICATIONS

PARAMETERS	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Crystal Input Frequency(XIN)	Fundamental Crystal	10		30	MHz
Input (FIN) Frequency				100	MHz
Input (FIN) Signal Amplitude	Internally AC coupled	0.9		VDD	Vpp
Settling Time	At power-up (after VDD increases over 1.62V)			10	ms
Output Rise Time	15pF Load, 10/90%VDD, Standard drive		2.5	3.5	ns
	15pF Load, 10/90%VDD, High drive		1.0	1.5	ns
Output Fall Time	15pF Load, 90/10%VDD, Standard drive		2.5	3.5	ns
	15pF Load, 90/10%VDD, High drive		1.0	1.5	ns
Duty Cycle	At VDD/2	45	50	55	%
Period Jitter, peak-to-peak* (measured from 10,000 samples)	With capacitive decoupling between VDD and GND. Operating only one output.		70		ps

* Note: Jitter performance depends on the programming parameters.

DC SPECIFICATIONS

PARAMETERS	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Supply Current, Dynamic, with Loaded Outputs	I_{DD}	At 10MHz, load=15pF			15	mA
		At 50MHz, load=15pF			30	mA
Operating Voltage	V_{DD}		2.25		3.63	V
Output Low Voltage	V_{OL}	I_{OL} = +4mA Standard drive			0.4	V
Output High Voltage	V_{OH}	I_{OH} = -4mA Standard drive	V_{DD} – 0.4			V
Output Current, Standard drive	I_{OSD}	V_{OL} = 0.4V, V_{OH} = 2.4V			10.7	mA
Output Current, High drive	I_{OHD}	V_{OL} = 0.4V, V_{OH} = 2.4V			24	mA
Short-circuit Current	I_S			±50		mA

CRYSTAL SPECIFICATIONS

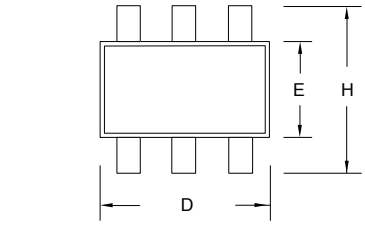
PARAMETERS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Fundamental Crystal Resonator Frequency	F_{XIN}	10		30	MHz
Crystal Loading Rating (The IC can be programmed for any value in this range.)	$C_{L\ (xtal)}$	5	16*	20	pF
Maximum Sustainable Drive Level				500	µW
Operating Drive Level			100		µW
Crystal Shunt Capacitance	C0			6	pF
Effective Series Resistance, Fundamental, 10-30MHz	ESR			30	Ω

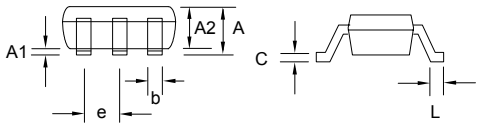
Note: C_L = 16pF is used when not specified. A detailed crystal specification document is also available for this part.

PACKAGE DRAWINGS (GREEN PACKAGE COMPLIANT)

SOT-23 6L

Symbol	Dimension in MM	
	Min.	Max.
A	1.05	1.35
A1	0.05	0.15
A2	1.00	1.20
B	0.30	0.50
C	0.08	0.20
D	2.80	3.00
E	1.50	1.70
H	2.60	3.0
L	0.35	0.55
e	0.95 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

PL611-XXX X X-R

PART NUMBER

3 DIGIT ID Code *

PACKAGE TYPE
T=SOT

NONE= TUBE
R=TAPE and REEL

TEMPERATURE
C=COMMERCIAL
I = INDUSTRIAL

* PhaseLink will assign a unique 3-digit ID code for each approved programmed part number.
* PhaseLink offers Green Package Only for this product family.

Part / Order Number*	Marking	Package Option
PL611-07-XXXTC-R	C7XXX	6-Pin SOT-23 (Tape and Reel)