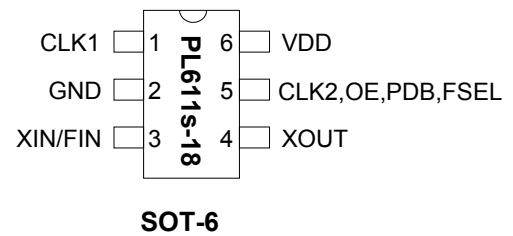
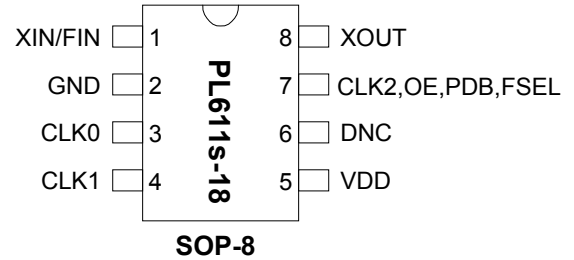


3KHz-200MHz Output Programmable Clock™

FEATURES

- Advanced programmable PLL design
- Up to 3 programmable outputs
- Output frequency 3KHz to 200MHz CMOS.
- Accepts Crystal or reference clock inputs
 - Fundamental crystal: 10MHz-30MHz
 - Reference input: Up to 200MHz
- Accepts <1.0V reference signal input voltage
- One programmable I/O pin can be configured as Programmable clock, or Frequency Selection input, or output Enable (OE) or Power Down (PDB) input.
- Single 2.5V or 3.3V ± 10% power supply
- Operating temperature range from 0°C to 70°C
- Available in 8-pin SOIC, and 6-pin SOT **GREEN**/RoHS compliant Packages.

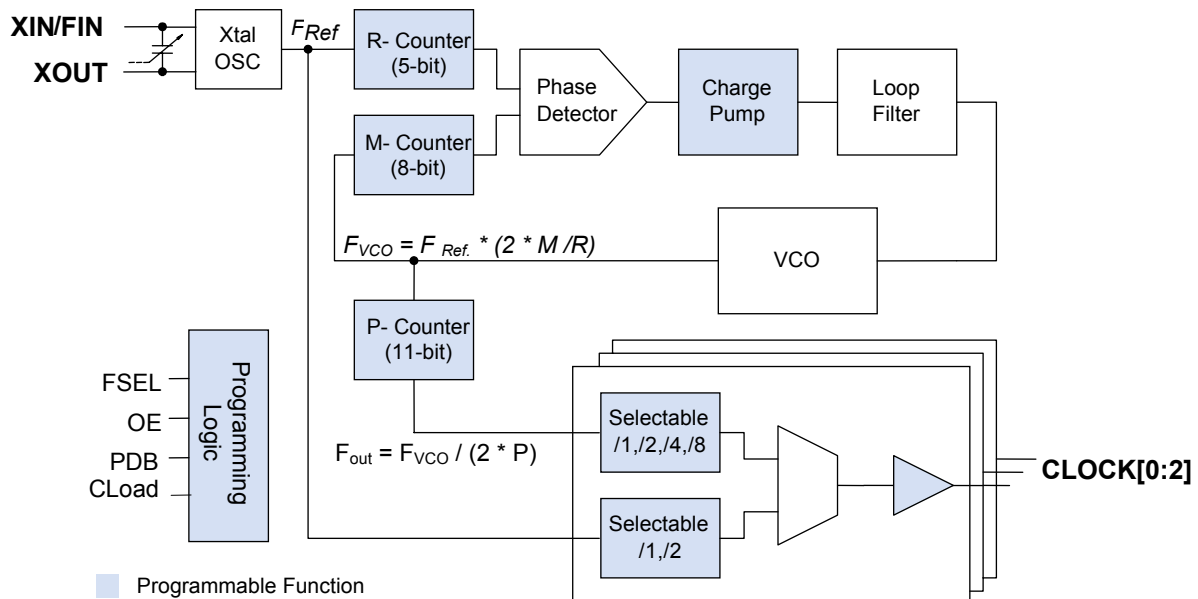
PIN CONFIGURATION



DESCRIPTION

The PL611s-18 is a low-cost general purpose frequency synthesizer and a member of PhaseLink’s Factory Programmable ‘Quick Turn Clock (QTC)’ family. PhaseLink’s PL611s-18 offers the versatility of using a single Crystal (MHz) or Reference Clock input and producing up to three 32KHz system clocks, or a combination of Reference and low frequency outputs. It accepts 10MHz - 30MHz crystal input, or a Reference clock input of up to 200 MHz. Cascading of the PL611s-18 with other PhaseLink programmable products allow generating system level clocking requirements, thereby reducing the overall system implementation cost.

BLOCK DIAGRAM



3KHz-200MHz Output Programmable Clock™

KEY PROGRAMMING PARAMETERS

CLK[0:2] Output Frequency	Output Drive Strength	Crystal Load	Programmable Input/Output	Charge-Pump Current
$F_{out} = F_{IN} * M / (R * P)$ where M = 8 bits R = 5 bits P = 11 bits 1. CLK[0:2] = $F_{out}/[1,2,4,8]$ 2. CLK[0:2] = F_{IN} or $F_{IN}/2$	Std: 10mA (default) High: 24mA	+/- 200ppm tuning.	One output pin can be configured as 1. CLK2 - output 2. FSEL - input 3. OE - input 4. PDB - input	4 levels of pump current settings

PIN DESCRIPTION

Name	Pin #		Type	Description												
	SOIC-8	SOT-23														
XIN/FIN	1	3	I	Crystal or Reference input pin												
GND	2	2	P	GND connection												
CLK[0:1]	3,4	1	O	Programmable Clock Output												
VDD	5	6	P	VDD connection (2.25~3.63V)												
DNC	6			Do No Connect												
CLK2, OE, PDB, FSEL	7	5	B	This programmable I/O pin can be configured as a programmable clock output (CLK2), or Output Enable (OE) input, or Power Down input (PDB), or Frequency Selection (FSEL) input pin. This pin has an internal 60KΩ pull up resistor. <table border="1" data-bbox="873 1325 1377 1560"> <thead> <tr> <th>State</th> <th>OE</th> <th>PDB</th> <th>FSEL</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Tristate CLK[0:1]</td> <td>Power Down Mode</td> <td>Select Freq. '1'</td> </tr> <tr> <td>1 (default)</td> <td>Normal mode</td> <td>Normal mode</td> <td>Select Freq. '2'</td> </tr> </tbody> </table>	State	OE	PDB	FSEL	0	Tristate CLK[0:1]	Power Down Mode	Select Freq. '1'	1 (default)	Normal mode	Normal mode	Select Freq. '2'
State	OE	PDB	FSEL													
0	Tristate CLK[0:1]	Power Down Mode	Select Freq. '1'													
1 (default)	Normal mode	Normal mode	Select Freq. '2'													
XOUT	8	4	O	Crystal output pin												

3KHz-200MHz Output Programmable Clock™

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		0	70	°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		2		200	MHz
Input (FIN) Signal Amplitude	Internally AC coupled	0.9		V _{DD}	V _{pp}
Output Frequency		0.003		200	MHz
PLL Settling Time	After Crystal Start Up (Crystal Input)			100	μs
	After Reference Input Present (FIN)			100	μs
Output Rise Time	15pF Load, 10/90%V _{DD} , Standard drive		2.5	3.5	ns
	15pF Load, 10/90%V _{DD} , High drive		1.0	1.5	ns
Output Fall Time	15pF Load, 90/10%V _{DD} , Standard drive		2.5	3.5	ns
	15pF Load, 90/10%V _{DD} , High drive		1.0	1.5	ns
Duty Cycle	At V _{DD} /2	45	50	55	%
Max. output skew between same frequency clocks	Equal loading (15 pF). Equal frequency & drive strength			500	ps

* Note: Jitter performance depends on the programming parameters.

3KHz-200MHz Output Programmable Clock™

DC SPECIFICATIONS

PARAMETERS	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Supply Current, Dynamic, with Loaded Outputs	I _{DD}	At 32KHz, load=15pF (PDB=1)			10	mA
		PDB=0			5	μA
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	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		20	pF
Maximum Sustainable Drive Level				500	μW
Operating Drive Level			100		μW
Crystal Shunt Capacitance	C ₀			6	pF
Effective Series Resistance, Fundamental, 10-30MHz	ESR			30	Ω

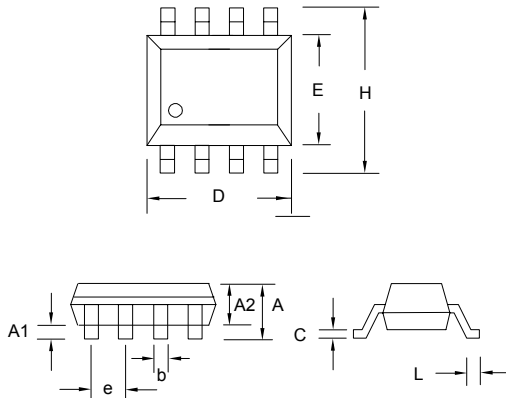
Note: A detailed crystal specification document is also available for this part

3KHz-200MHz Output Programmable Clock™

PACKAGE DRAWINGS (GREEN PACKAGE COMPLIANT)

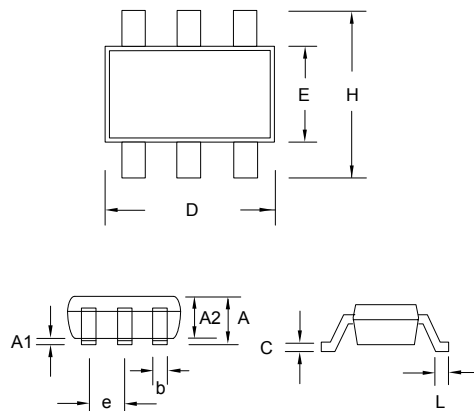
SOIC 8L

Symbol	Dimension in MM	
	Min.	Max.
A	1.35	1.75
A1	0.10	0.25
A2	1.25	1.50
B	0.33	0.53
C	0.19	0.27
D	4.80	5.00
E	3.80	4.00
H	5.80	6.20
L	0.40	0.89
e	1.27 BSC	



SOT-23 6 L

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	



3KHz-200MHz Output Programmable Clock™

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

PL611s-XXX X X-R

PART NUMBER —┐

3 DIGIT ID Code *

PACKAGE TYPE
S=SOIC
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.

Part / Order Number*	Order Number	Marking	Package Option
PL611s-XXXSC	PL611s-18-XXXSC	18XXX	8-Pin SOIC (Tube)
PL611s-XXXSC-R	PL611s-18-XXXSC-R	18XXX	8-Pin SOIC (Tape and Reel)
PL611s-XXXTC-R	PL611s-18-XXXTC-R	18XXX	6-Pin SOT-23 (Tape and Reel)

* Ordering will include Programming ID number that will be supplied at the time the samples are provided.

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