Preliminary **PLL601-26**

Audio Clock Generator

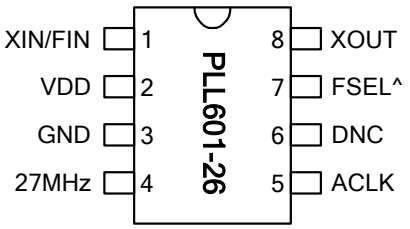
FEATURES

- Supports the following output frequencies
  - o 12.288MHz audio clock output
  - o 24.576MHz audio clock output
  - o 27MHz reference output
- Accepts Crystal or reference clock inputs
  - o Fundamental crystal: 27MHz
  - o Reference input: 27MHz
- On-the-fly switching of the two audio frequencies (12.288MHz, and 24.576MHz).
- Accepts <1.0V reference signal input voltage
- Single 2.5V or 3.3V ± 10% power supply
- Available in 8-Pin SOIC GREEN/RoHS compliant Package.

DESCRIPTION

The PLL601-26 is a low cost integrated XO IC designed to work with a fundamental 27MHz crystal or a clock input. In addition to a 27MHz clock reference output, it provides two selectable audio frequencies (12.288MHz, and 24.576MHz), making the chip ideal for handheld, STB and MPEG Video applications. Additional system frequencies can also be supported by cascading the PLL601-26 with PhaseLink's QTC programmable clock family.

PACKAGE PIN CONFIGURATION

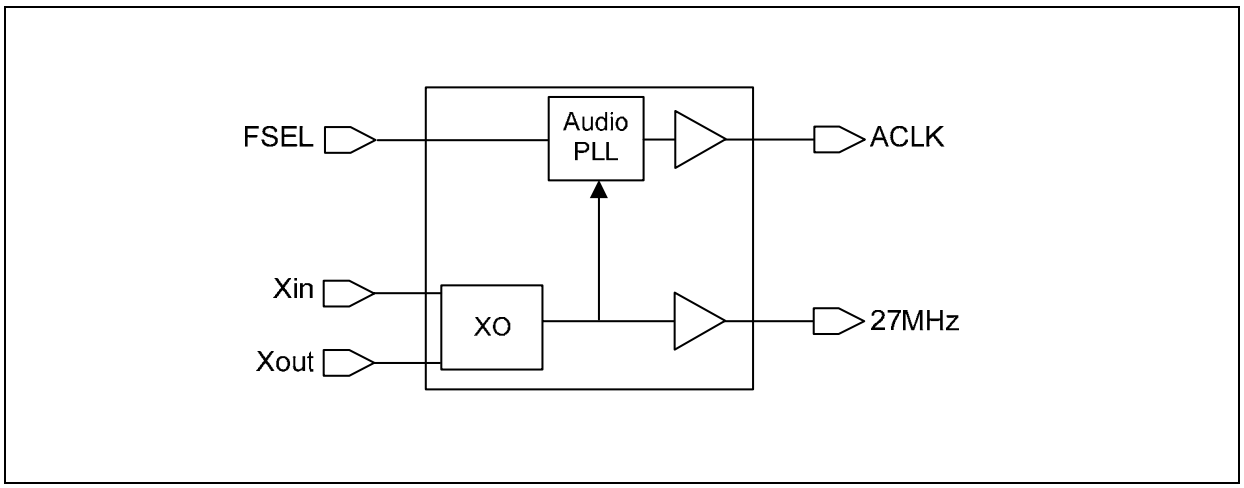


Note: ^: Internal pull-up resistor. The internal pull-up resistor results in a default high value when no pull-down resistor is connected to this pin.

AUDIO CLOCK SELECTION

FSEL	ACLK (MHz)
0	12.288
1(Default)	24.576

BLOCK DIAGRAM



PIN DESCRIPTIONS

Name	Pin #	Type	Description
XIN/FIN	1	I	27Mhz Crystal or Reference input.
VDD	2	P	Power supply connection.
GND	3	P	Ground connection.
27MHz	4	O	27MHz reference output.
ACLK	5	O	Audio clock output (see selection table on page 1).
DNC	6	I	Do Not Connect.
FSEL	7	I	On-The-Fly audio frequency Switching (selector) Input. This pin has an internal 60 KΩ pull up resistor.
XOUT	8	I	Crystal output. Do Not Connect if reference input is used.

Notes: I – Input pin; O – Output pin; P – power supply/ground pin.

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
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.

* Note: Operating Temperature is guaranteed by design for all parts (COMMERCIAL and INDUSTRIAL), but tested for COMMERCIAL grade only.

AC SPECIFICATIONS

PARAMETERS	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Crystal Input Frequency(XIN)	Fundamental Crystal		27		MHz
Input (FIN) Frequency			27		MHz
Input (FIN) Signal Amplitude	Internally AC coupled	0.9		VDD	Vpp
Output Rise Time	15pF Load, 10/90%VDD		2.5	3.5	ns
Output Fall Time	15pF Load, 90/10%VDD		2.5	3.5	ns
Duty Cycle	At VDD/2	45	50	55	%

DC SPECIFICATIONS

PARAMETERS	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Supply Current, Dynamic, with Loaded Outputs	I_{DD}	At 27MHz, load=15pF			15	mA
Operating Voltage	V_{DD}		2.25		3.63	V
Output Low Voltage	V_{OL}	I_{OL} = +4mA			0.4	V
Output High Voltage	V_{OH}	I_{OH} = -4mA	V_{DD} – 0.4			V
Output Current	I_{OSD}	V_{OL} = 0.4V, V_{OH} = 2.4V			10	mA
Short-circuit Current	I_S			±50		mA

CRYSTAL SPECIFICATIONS

PARAMETERS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Fundamental Crystal Resonator Frequency	F_{XIN}		27		MHz
Crystal Loading Rating	$C_{L\ (xtal)}$		16		pF
Maximum Sustainable Drive Level				500	µW
Operating Drive Level			100		µW
Crystal Shunt Capacitance	C0			6	pF
Effective Series Resistance, Fundamental, 27MHz	ESR			30	Ω

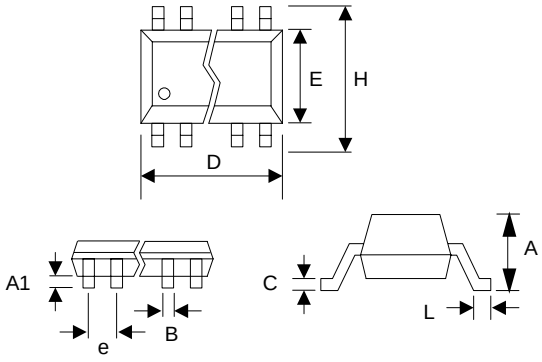
Note: A detailed crystal specification document is also available for this part

JITTER SPECIFICATIONS

PARAMETERS	CONDITIONS	FREQUENCY	MIN.	TYP.	MAX.	UNITS
Cycle to Cycle Jitter	$T_{cyc-cyc}$	27MHz		300		ps
Cycle to Cycle Jitter	$T_{cyc-cyc}$	Audio Clock		150		ps

PACKAGE DRAWINGS (GREEN PACKAGE COMPLIANT)

8 PIN SOIC (in mm)		
Symbol	Min.	Max.
A	1.47	1.73
A1	0.10	0.25
B	0.33	0.51
C	0.19	0.25
D	4.80	4.95
E	3.80	4.00
H	5.80	6.20
L	0.38	1.27
e	1.27 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

PLL601-26 X X X-R

PART NUMBER

PACKAGE TYPE
S=SOIC

TEMPERATURE
C=COMMERCIAL,
I=INDUSTRIAL

NONE=NORMAL PACKAGE
L=GREEN PACKAGE

NONE= TUBE
R=TAPE AND REEL

Part / Order Number	Marking	Package Option
PLL601-26SC	P601-26SC	8-Pin SOIC (Tube)
PLL601-26SC-R	P601-26SC	8-Pin SOIC (Tape and Reel)
PLL601-26SCL	P601-26SCL	8-Pin SOIC (Tube), GREEN
PLL601-26SCL-R	P601-26SCL	8-Pin SOIC (Tape and Reel), GREEN

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