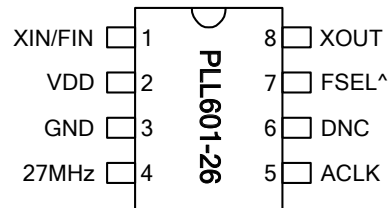


Audio Clock Generator

FEATURES

- Supports the following output frequencies
 - 12.288MHz audio clock output
 - 24.576MHz audio clock output
 - 27MHz reference output
- Accepts Crystal or reference clock inputs
 - Fundamental crystal: 27MHz
 - 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.

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.

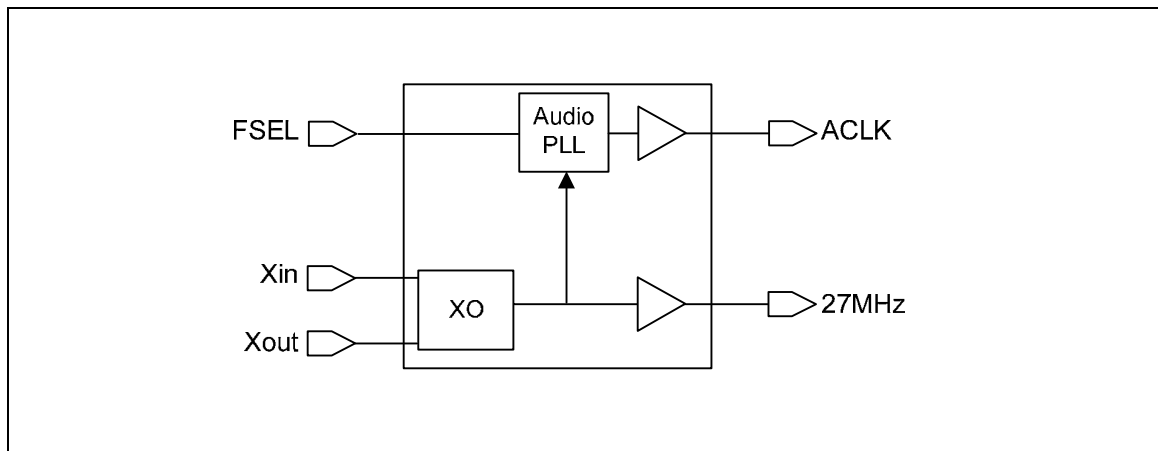
DESCRIPTION

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.

AUDIO CLOCK SELECTION

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

BLOCK DIAGRAM



Audio Clock Generator
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 K Ω 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 | $^{\circ}C$ |
| Storage Temperature | T_S | -65 | 150 | $^{\circ}C$ |
| Ambient Operating Temperature | | 0 | +70 | $^{\circ}C$ |

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 | V _{pp} |
| 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 | % |

Audio Clock Generator
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 | C_0 | | | 6 | pF |
| Effective Series Resistance, Fundamental, 27MHz | ESR | | | 30 | Ω |

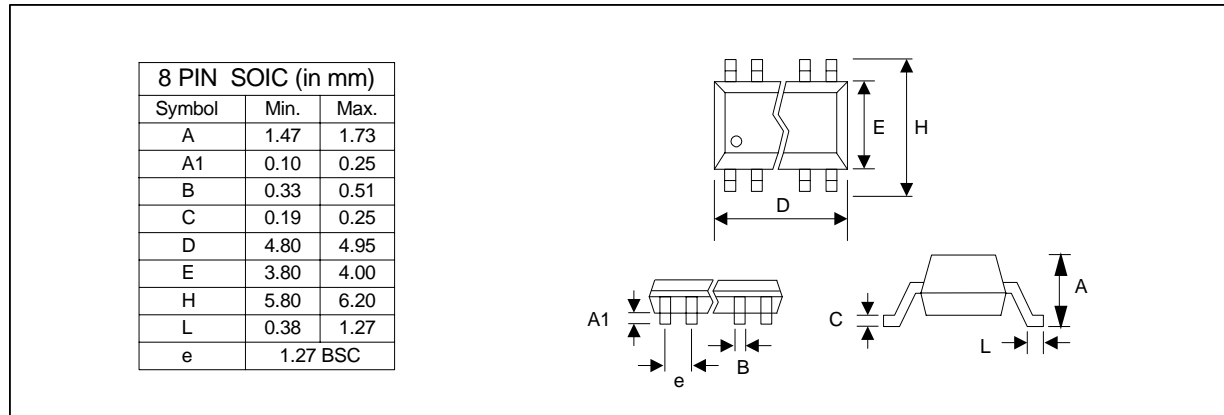
Note: A detailed crystal specification document is also available for this part

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 |

Audio Clock Generator

PACKAGE DRAWINGS (GREEN PACKAGE COMPLIANT)

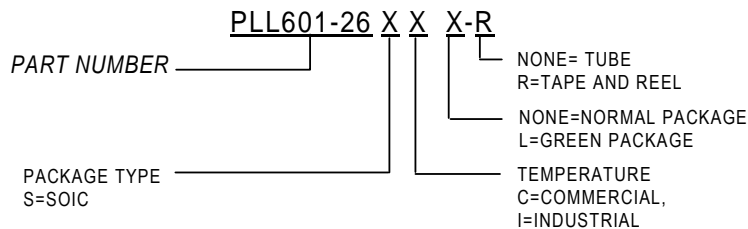


ORDERING INFORMATION

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



| 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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