27MHz XO IC with Audio Clock (for Set Top Boxes & MPEG Video)

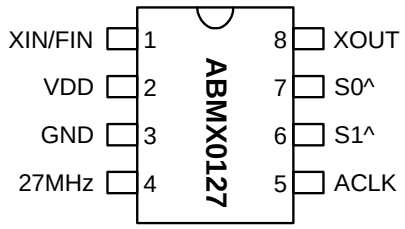
FEATURES

- 27MHz reference output (from 27MHz crystal input or clock input).
- Selectable Audio Clocks supporting:
  - F_S of 32kHz, 44.1kHz, 48kHz, 64kHz and 96kHz
  - 8.192MHz, 11.2896MHz, 12.288MHz, and 24.576MHz audio frequencies
- On-the-fly switching of the audio frequency.
- 3.3V Operating Voltage.
- Available in 8-Pin SOIC.

DESCRIPTION

The ABMX0127 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, it provides the most common audio clocks (8.192, 11.2896, 12.288, and 24.576MHz) required by sampling rates of 32kHz, 44.1kHz, 48kHz, 64kHz and 96kHz, making the chip ideal for STB and MPEG Video applications.

PACKAGE PIN CONFIGURATION

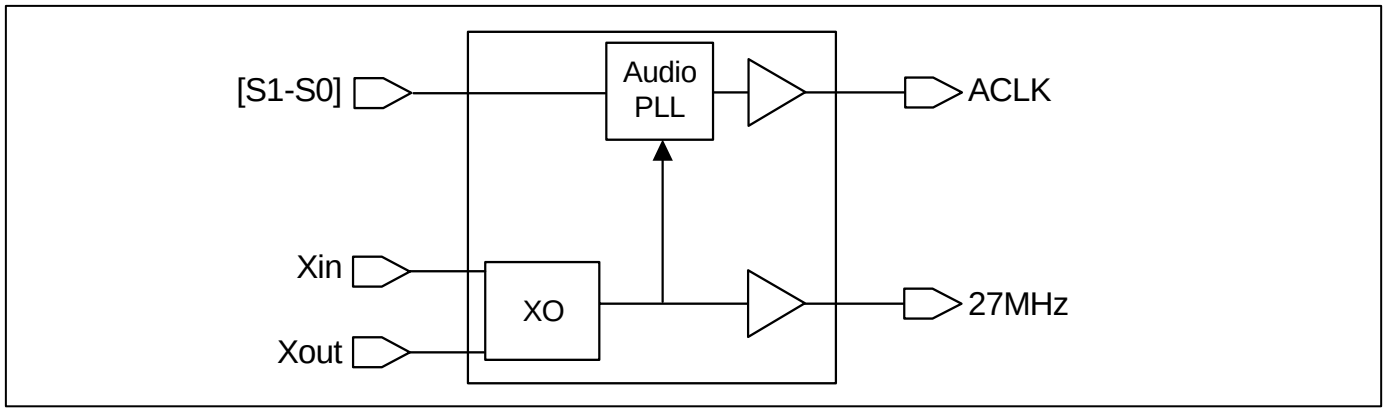


Note: ^: Internal pull-up resistor. The internal pull-up resistor results in a default high value when no pull-down resistor is connected to this pin.

AUDIO CLOCK SELECTION

S1	S0	ACLK (MHz)
0	0	8.192
0	1	11.2896
1	0	12.288
1	1	24.576

BLOCK DIAGRAM



27MHz XO IC with Audio Clock (for Set Top Boxes & MPEG Video)

PIN DESCRIPTIONS

Name	Pin #	Type	Description
XIN	1	I	Crystal input to be connected to fundamental parallel mode crystal. (C_L=15 pF) or clock input.
VDD	2	P	Power supply.
GND	3	P	Ground.
27MHz	4	O	27MHz reference output.
ACLK	5	O	Audio clock output (see selection table on page 1).
S1	6	I	Digital control input to select audio frequency. 60kΩ internal pull-up.
S0	7	I	Digital control input to select audio frequency. 60kΩ internal pull-up.
XOUT	8	I	Crystal output.

Notes: I – input pin; P – power supply/ground pin.

ELECTRICAL SPECIFICATIONS

1. Absolute Maximum Ratings

PARAMETERS	SYMBOL	MIN.	MAX.	UNITS
Supply Voltage	V_{DD}		4.6	V
Input Voltage, dc	V_I	-0.5	V_{DD}+0.5	V
Output Voltage, dc	V_O	-0.5	V_{DD}+0.5	V
Storage Temperature	T_S	-65	150	°C
Ambient Operating Temperature*	T_A	-40	85	°C
Junction Temperature	T_J		125	°C
Lead Temperature (soldering, 10s)			260	°C
ESD Protection, Human Body Model			2	kV

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.

2. Crystal Specifications

PARAMETERS	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Crystal Resonator Frequency	F_{XIN}	Parallel Fundamental Mode		27		MHz
Crystal Loading Rating	$C_{L\ (xtal)}$			15		pF
Recommended ESR	R_E	AT cut			30	Ω

27MHz XO IC with Audio Clock (for Set Top Boxes & MPEG Video)

3. General Electrical Specifications

PARAMETERS	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Supply Current, Dynamic (with Loaded Outputs)	I_{DD}	15pF Load		20	30	mA
Operating Voltage	V_{DD}		2.97	3.30	3.63	V

4. AC Electrical Specifications

PARAMETERS	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Input Crystal Frequency				27		MHz
Output Clock Rise Time		0.8V ~ 2.0V with 10 pF load			1.5	ns
		0.3V ~ 3.0V with 15 pF load		2.4	5	
Output Clock Fall Time		2.0V ~ 0.8V with 10 pF load			1.5	
		3.0V ~ 0.3V with 15pF load		2.4	5	
Output Clock Duty Cycle		Measured @ 1.4V	45	50	55	%
Short Circuit Current				±50		mA

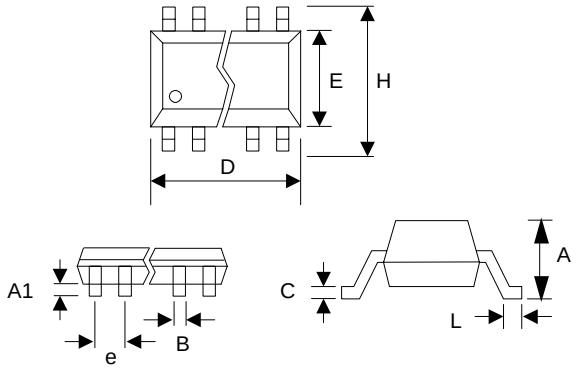
5. Jitter Specifications

PARAMETERS	CONDITIONS	FREQUENCY	MIN.	TYP.	MAX.	UNITS
Cycle to Cycle Jitter	$T_{cyc-cyc}$	27MHz		100		ps
Cycle to Cycle Jitter	$T_{cyc-cyc}$	Audio Clock		150		ps

27MHz XO IC with Audio Clock (for Set Top Boxes & MPEG Video)

PACKAGE INFORMATION

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:
30332 Esperanza., Rancho Santa Margarita, Ca 92688
Ph: 949-546-8000 Fax: 949-546-8001

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

ABMX0127 X X X X

PART NUMBER

- NONE= TUBE, T=TAPE AND REEL
- NONE=NORMAL PACKAGE, L=GREEN PACKAGE
- TEMPERATURE, C=COMMERCIAL, I=INDUSTRIAL
- PACKAGE TYPE, S=SOIC

Order Number	Marking	Package Option
ABMX0127SC	ABMX0127SC	SOIC - Tube
ABMX0127SC-T	ABMX0127SC	SOIC - Tape and Reel
ABMX0127SCL	ABMX0127SCL	SOIC - Tube
ABMX0127SCL-T	ABMX0127SCL	SOIC - Tape and Reel

Abracon Corporation, reserves the right to make changes in its products or specifications, or both at any time without notice. The information furnished by Abracon is believed to be accurate and reliable. However, Abracon makes no guarantee or warranty concerning the accuracy of said information and shall not be responsible for any loss or damage of whatever nature resulting from the use of, or reliance upon this product.
LIFE SUPPORT POLICY: Abracon's products are not authorized for use as critical components in life support devices or systems without the express written approval of the President of Abracon Corporation.