MAS9271

IC FOR 10.00 – 30.00 MHz PXO

This is preliminary information on a new product under development. Micro Analog Systems reserves the right to make any changes without notice.

Preliminary

- **Low Power**
- **Wide Supply Voltage Range**
- **Square Wave Output**
- **Very High Level of Integration**
- **Electrically Trimmable**
- **Very Low Phase Noise**
- **Low Cost**

DESCRIPTION

The MAS9271 is an integrated circuit well suited to make initial offset trimming of the crystal in oscillator. The trimming is done by a serial bus and the calibration information is stored in an internal PROM.

To build a Precision Crystal Oscillator (PXO) only one additional component, a crystal is needed.

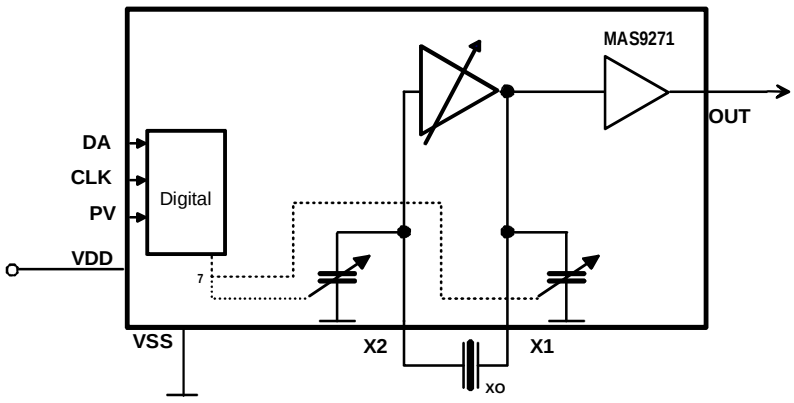
FEATURES

- Very small size
- Minimum current draw
- Wide operating temperature range
- Phase noise <-130 dBc/Hz at 1 kHz offset
- Square wave output

APPLICATIONS

- PXO for data terminals
- PXO for telecommunication applications
- PXO for computer application

BLOCK DIAGRAM



PIN DESCRIPTION

Pin Description	Symbol	x-coordinate	y-coordinate
Power Supply Voltage	VDD	254	1022
Serial Bus Data Input	DA	454	1022
Serial Bus Clock Input	CLK	728	1022
Programming Input	PV	972	1021
Crystal Oscillator Output	X1	194	229
Power Supply Ground	VSS	376	229
Crystal Oscillator Input	X2	624	229
Buffer Output	OUT	1065	229

Note: Because the substrate of the die is internally connected to VDD, the die has to be connected to VDD or left floating. Please make sure that VDD is the first pad to be bonded. Pick-and-place and all component assembly are recommended to be performed in ESD protected area.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Unit	Note
Supply Voltage	V_{DD} - V_{SS}	-0.3	6.0	V	
Input Voltage	V_{IN}	V_{SS} -0.3	V_{DD} + 0.3	V	1)
Power Dissipation	P_{MAX}		100	mW	
Operating Temperature	T_{OP}	-35	85	^{o}C	
Storage Temperature	T_{ST}	-40	120	^{o}C	

Note: Not valid for programming pin PV

RECOMMENDED OPERATION CONDITIONS

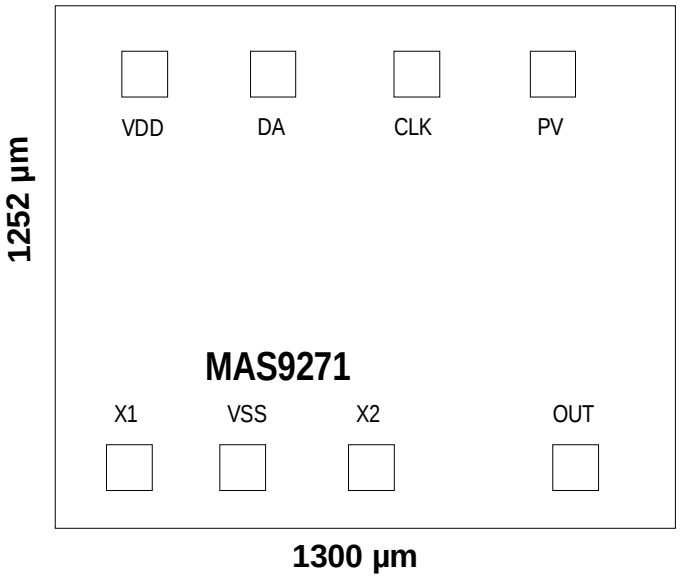
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{DD}		2.7	2.8	5.5	V
Supply Current	I_{CC}	Vdd = 2.8 Volt		2.3		mA
Operable Temperature	T_C		-30		+85	^{o}C
Storage Temperature	T_S	Relative humidity = 15%…70%	-5		+40	^{o}C

ELECTRICAL CHARACTERISTICS

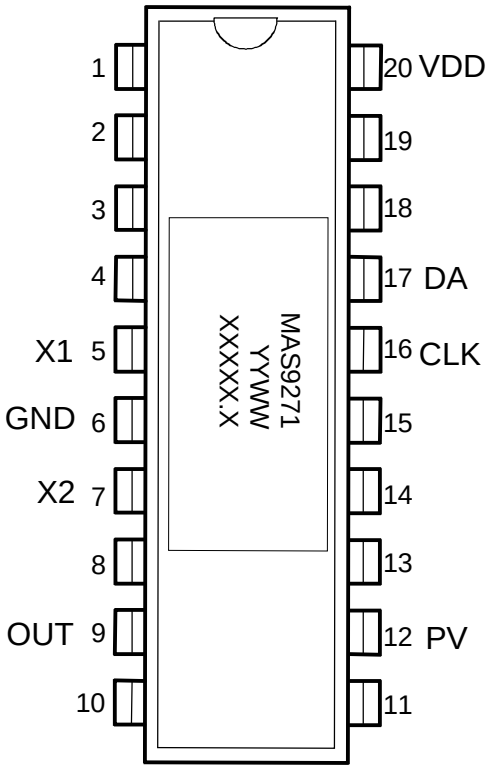
Parameter	Symbol	Min	Typ	Max	Unit	Note
Frequency range	f_o	10.00		40.00	MHz	
Output Voltage (10 pF, Vdd 2.7V)	V_{out}		2.3		Vpp	
Output Voltage (10 pF, Vdd 5.0V)	V_{out}		4.5		Vpp	
Rise and Fall Time (10 - 50pF)				10	ns	
Output Symmetry			40-60		%	
Compensation Cload (7 Bit)	C_{X1}	C10		C10 + 13	pF	1)
Startup Time	T_{START}		2		ms	

Note 1: typical C10 = 6pF

IC OUTLINES



SAMPLES IN SB20 DIL PACKAGE



Top marking:
YYWW = Year, Week
XXXXX.X = Lot number

ORDERING INFORMATION

Product Code	Product	Package	Comments
MAS9271ATB1	IC FOR PXO	Tested wafers 480 µm	Die size 1300 x 1252 µm
MAS9271ATG1	IC FOR PXO	Tested wafers 215 µm	Die size 1300 x 1252 µm

Please contact Micro Analog Systems Oy for other wafer thickness options.

LOCAL DISTRIBUTOR

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