MAS9275

IC FOR 10.00 – 30.00 MHz VCXO

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

Preliminary

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

DESCRIPTION

The MAS9275 is an integrated circuit well suited to build VCXO for telecommunication application. To build a VCXO only one additional component a crystal is needed.

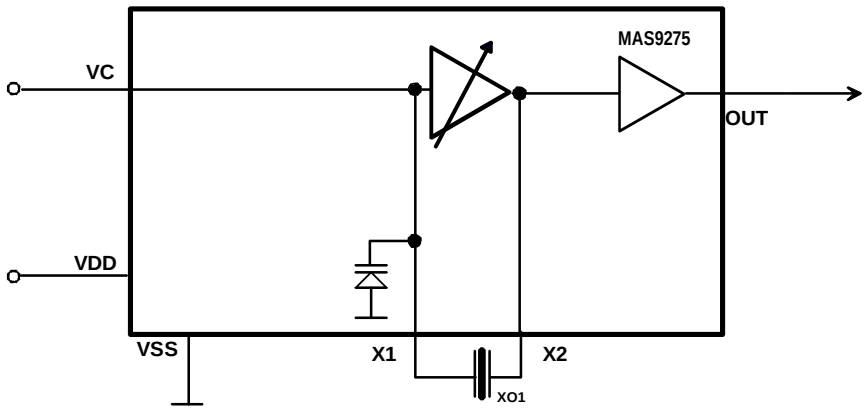
FEATURES

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

APPLICATIONS

- VCXO for mobile phones
- VCXO for other telecommunications systems

BLOCK DIAGRAM



D1

PIN DESCRIPTION

Pin Description	Symbol	x-coordinate	y-coordinate	Note
Crystal/Varactor Oscillator Input	X1	209	209	
Voltage Control Input	VC	425	213	
Power Supply Ground	VSS	600	226	
Buffer Output	OUT	1029	1076	
Power Supply Voltage	VDD	371	1065	
Crystal Oscillator Output	X2	197	1080	
Tri State	PD	830	1076	1)

Note1: Output buffer is off during voltage in PD pin stays between 1.6 V and VDD.
Note: Because the substrate of the die is internally connected to GND, the die has to be connected to GND or left floating. Please make sure that GND is the first pad to be bonded. Pick-and-place and all component assembly are recommended to be performed in ESD protected area.
Note: Pad coordinates are measured from the left bottom corner of the chip to the center of the pads. The coordinates may vary depending on sawing width and location, however, distances between pads are accurate.

ABSOLUTE MAXIMUM RATINGS

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

RECOMMENDED OPERATION CONDITIONS

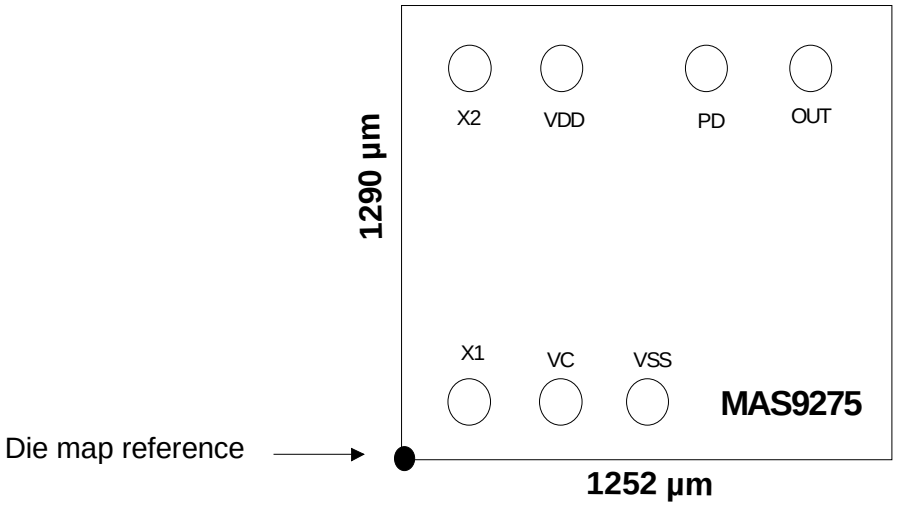
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{DD}		2.7	2.8	5.5	V
Supply Current	I_{dd}	VDD = 2.8 Volt		2.3		mA
Operating Temperature	T_{OP}		-30		+85	^{o}C
Storage Temperature	T_S	Relative humidity = 15%…70%	-5		+40	^{o}C
Crystal Pulling Sensitivity	S			30		ppm/pF
Crystal Load Capacitance	C_L			7		pF

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit	Note
Frequency Range	f_o	10.00		30.00	MHz	
Voltage Control Range	V_C	0		VDD	V	
Voltage Control Sensitivity	V_{CSENS}		100		ppm/V	1)
Output Voltage (10 pF, VDD 2.7 V)	V_{out}		2.3		Vpp	
Output Voltage (10 pF, VDD 5.0 V)	V_{out}		4.5		Vpp	
Rise and Fall Time (10 - 50 pF)				10	ns	
Output Symmetry			40-60		%	
Startup Time	T_{START}		2		ms	

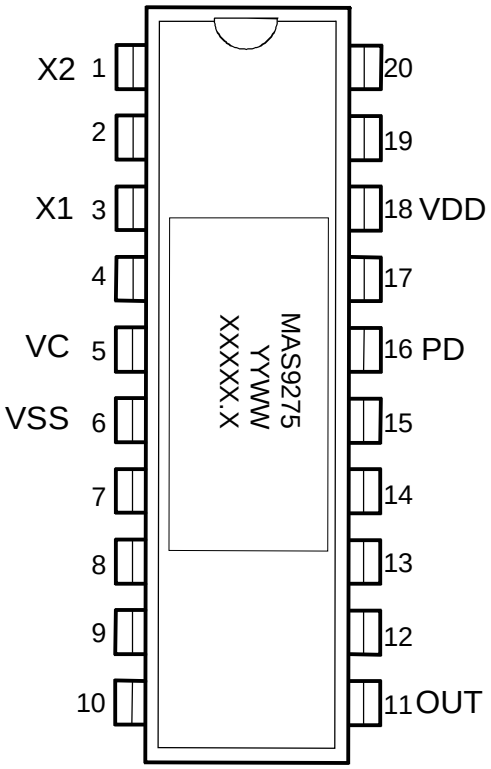
Note 1: VC sensitivity value depends on the crystal used.

IC OUTLINES



Note 1: MAS9275 pads are round with 80 µm diameter at opening.
Note 2: Die map reference is the actual left bottom corner of the sawn chip.

SAMPLES IN SB20 DIL PACKAGE



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

ORDERING INFORMATION

Product Code	Product	Package	Comments
MAS9275ATC1	IC FOR VCXO	EWS tested wafers 400 µm	Die size 1252 x 1290 µm
MAS9275ATG1	IC FOR VCXO	EWS tested wafers 215 µm	Die size 1252 x 1290 µm
MAS9275	IC FOR VCXO	SMD Package T.B.D.	

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

LOCAL DISTRIBUTOR

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