MAS1173

IC FOR 10.00 – 20.00 MHz CRYSTAL OSCILLATOR

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

Preliminary

- **Low cost**
- **Low Power**
- **Wide Supply Voltage Range**
- **True Sine Wave Output**
- **High level of integration**
- **Electrically Trimmable**
- **Easy Handling**
- **Small Feature Size**

DESCRIPTION

The MAS1173 is an integrated oscillator circuit with dual true sine wave output buffers, well suited for mobile communications applications. Only one external component, the crystal, is used. Offset calibration is achieved by a serial interface, which could also be used to track temperature drift of the crystal by the same serial interface.

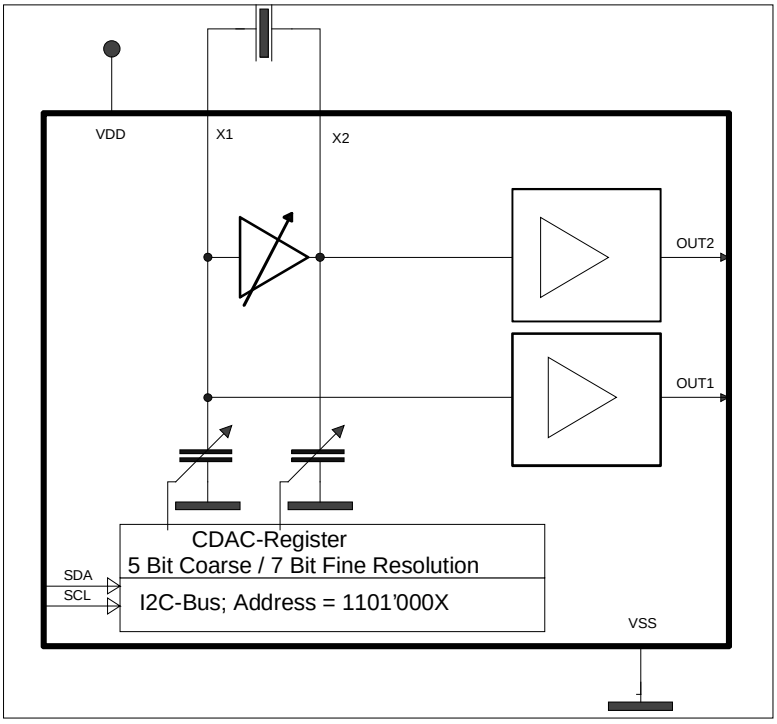
FEATURES

- Small size
- Minimum current draw
- Wide operating temperature range

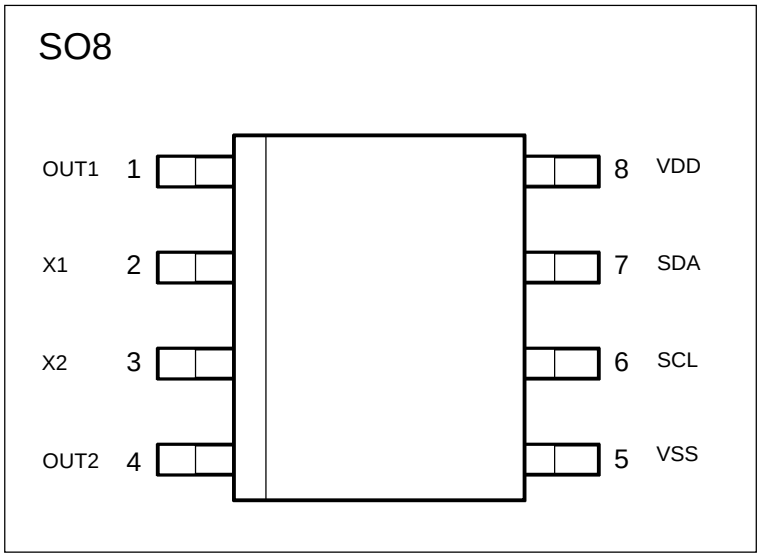
APPLICATIONS

- DCXO to mobile phones
- DCXO to other telecommunications systems

BLOCK DIAGRAM



PIN CONFIGURATION



PIN DESCRIPTION

Pin Description	Symbol
Power Supply Voltage	VDD
Serial Bus Clock Input	SCL
Serial Bus Data Input	SDA
Crystal Oscillator Output	X1
Crystal/Varactor Oscillator Input	X2
Power Supply Ground	VSS
Buffer Output 1	OUT1
Buffer Output 2	OUT2

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	
Power Dissipation	P_{MAX}		100	mW	
Operating Temperature	T_{OP}	-35	85	^{o}C	
Storage Temperature	T_{ST}	-40	120	^{o}C	

RECOMMENDED OPERATION CONDITIONS

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply Voltage	V_{DD}		2.6	2.8	5.5	V
Supply Current	I_{CC}	Vcc = 2.8 Volt		1.0	2.0	mA
Frequency Range	f_o		10		20	MHz
Operating Temperature	T_C		-30		+85	^{o}C

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit	Note
Output Voltage (10kΩ // 10 pF)	V_{out1}		1.0		Vpp	
Output Voltage (10kΩ // 10 pF)	V_{out2}		1.0		Vpp	
Coarse CDAC (5 Bit)	C_{CSTEP}		135		fF	
Fine CDAC (7 Bit)	C_{FSTEP}		12		fF	
Startup Time	T_{START}			10	ms	

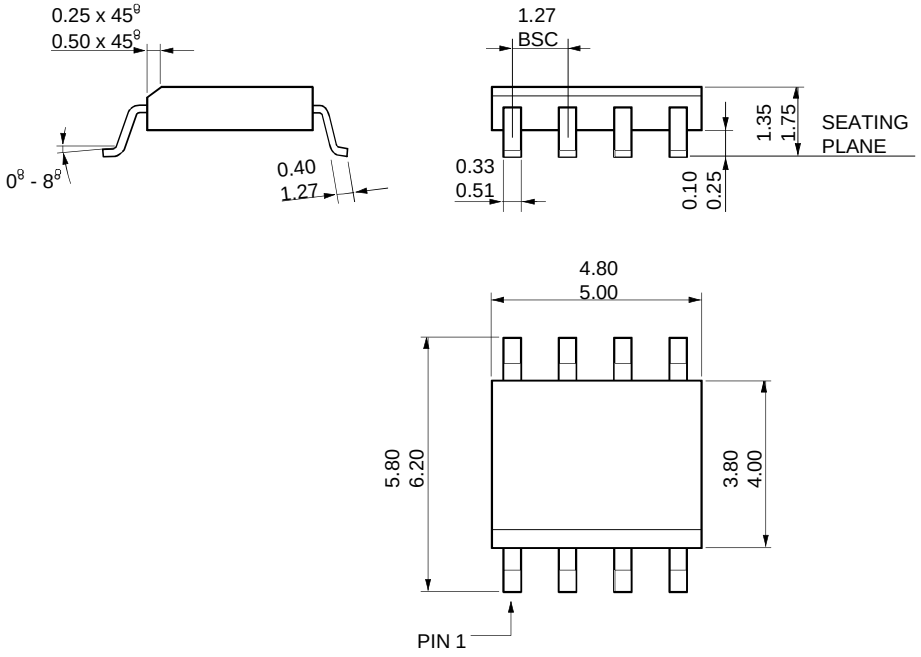
OFFSET ADJUSTMENT

The offset adjustment is achieved with two steps, first the coarse register is adjusted while the fine tuning register is set to middle position. After that the fine tuning register is used for the final adjustment.

The I2C bus is organized so that only one address is used for the coarse and fine tuning. After the address the seven bit fine tuning is written followed by the five bit coarse register. Always eight bits are written according to I2C standard. The seven and five bits are filled with zeros in front (the MSB place).

PACKAGE OUTLINES

8 LEAD SO OUTLINE



ALL MEASUREMENTS IN mm

ORDERING INFORMATION

Product Code	Product	Package	Comments
MAS1173ATAA	IC FOR DCXO	Tested wafers	Die size 1,392 x 1.386mm^2
MAS1173ASAA	IC FOR DCXO	SO-8	
MAS1173ASAA-T	IC FOR DCXO	SO-8	Taped and Reeled

LOCAL DISTRIBUTOR

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