HMC358MS8G / 358MS8GE

v04.0607

MMIC VCO w/ BUFFER AMPLIFIER, 5.8 - 6.8 GHz

Typical Applications

Low noise MMIC VCO w/Buffer Amplifier for C-Band applications such as:

- UNII & Pt. to Pt. Radios
- 802.11a & HiperLAN WLAN
- VSAT Radios

Features

Pout: +11 dBm

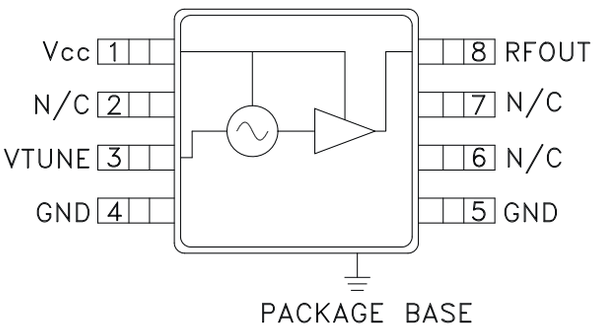
Phase Noise: -110 dBc/Hz @100 KHz

No External Resonator Needed

Single Supply: 3V @ 100 mA

15mm² MSOP8G SMT Package

Functional Diagram



General Description

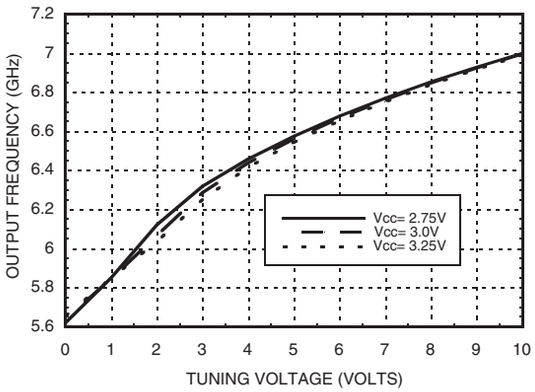
The HMC358MS8G & HMC358MS8GE are GaAs InGaP Heterojunction Bipolar Transistor (HBT) MMIC VCOs. The HMC358MS8G & HMC358MS8GE integrate resonators, negative resistance devices, varactor diodes, and buffer amplifiers. The VCO's phase noise performance is excellent over temperature, shock, and process due to the oscillator's monolithic structure. Power output is 11 dBm typical from a 3V supply voltage. The voltage controlled oscillator is packaged in a low cost, surface mount 8 lead MSOP package with an exposed base for improved RF and thermal performance.

Electrical Specifications, T_A = +25° C, Vcc = +3V

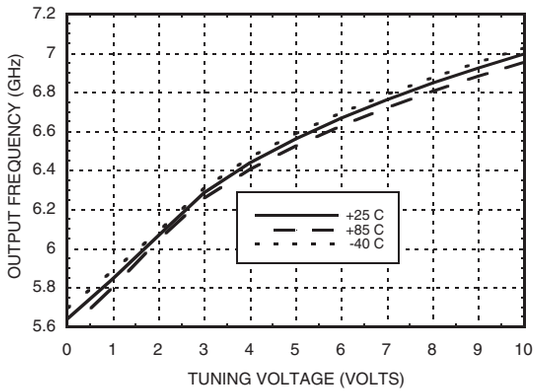
Parameter	Min.	Typ.	Max.	Units
Frequency Range		5.8 - 6.8		GHz
Power Output	8	11		dBm
SSB Phase Noise @ 100 kHz Offset, Vtune= +5V @ RF Output		-110		dBc/Hz
Tune Voltage (Vtune)	0		10	V
Supply Current (Icc)		100		mA
Tune Port Leakage Current (Vtune= 10V)			10	µA
Output Return Loss		9		dB
Harmonics 2nd 3rd		 -10 -20		 dB dB
Pulling (into a 2.0:1 VSWR)		10		MHz pp
Pushing @ Vtune= +3V		150		MHz/V
Frequency Drift Rate		0.8		MHz/°C

For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

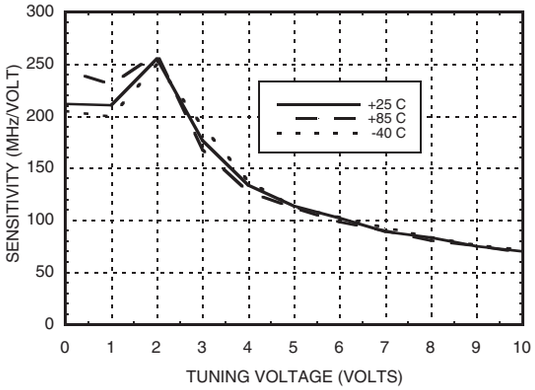
Frequency vs. Tuning Voltage, T= 25°C



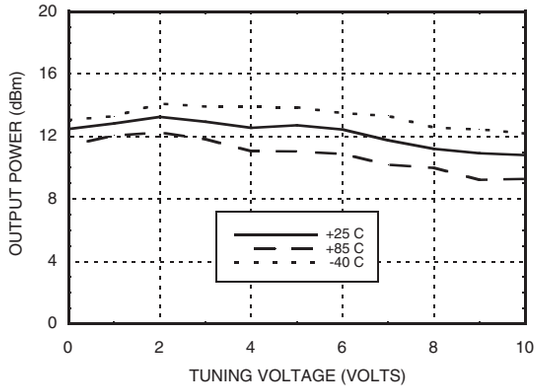
Frequency vs. Tuning Voltage, Vcc= +3V



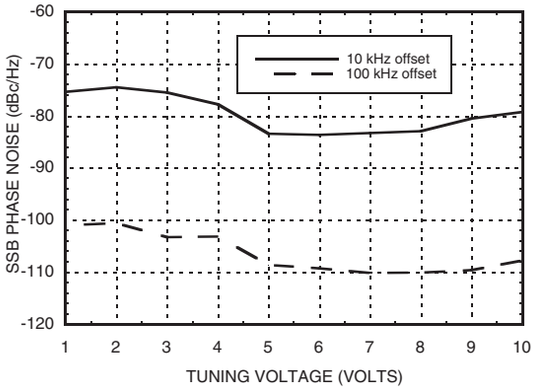
Sensitivity vs. Tuning Voltage, Vcc= +3V



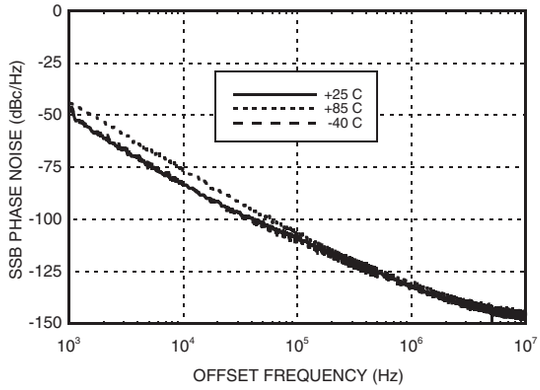
Output Power vs. Tuning Voltage, Vcc= +3V



Phase Noise vs. Tuning Voltage



Typical SSB Phase Noise @ Vtune= +5V



For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

Absolute Maximum Ratings

Vcc	3.5 Vdc
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
Vtune	0 to 11V
ESD Sensitivity (HBM)	Class 1A

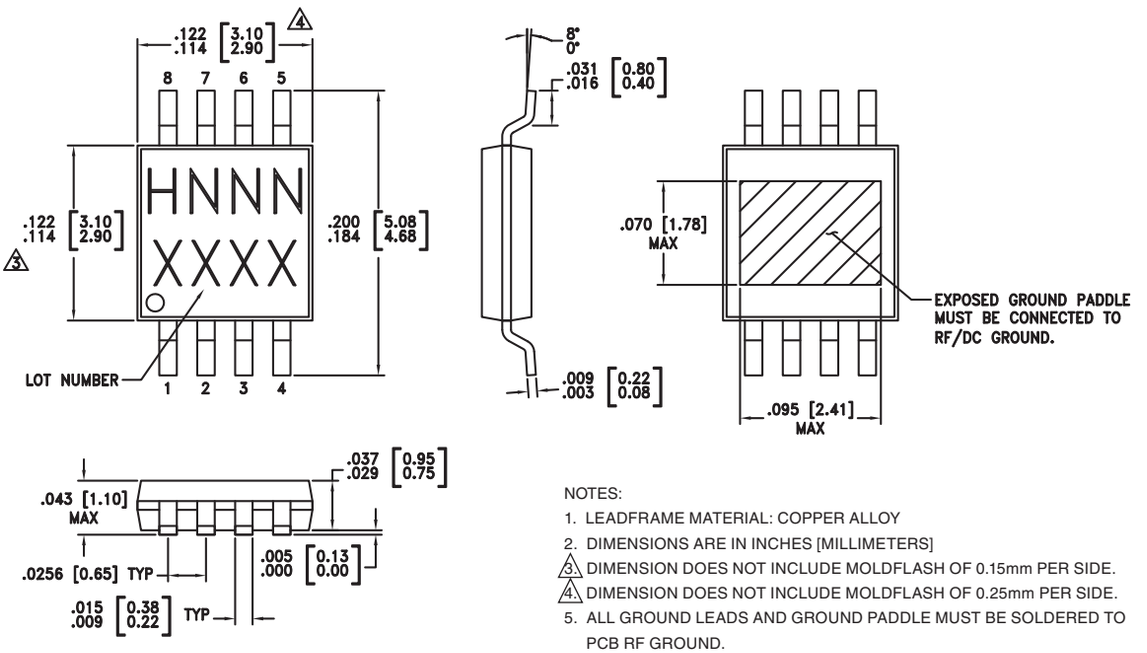
ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Typical Supply Current vs. Vcc

Vcc (V)	Icc (mA)
2.75	80
3.0	100
3.25	115

Note: VCO will operate over full voltage range shown above.

Outline Drawing



NOTES:

1. LEADFRAME MATERIAL: COPPER ALLOY
2. DIMENSIONS ARE IN INCHES [MILLIMETERS]
3. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.15mm PER SIDE.
4. DIMENSION DOES NOT INCLUDE MOLDFLASH OF 0.25mm PER SIDE.
5. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.

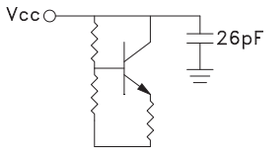
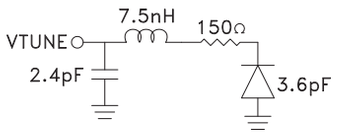
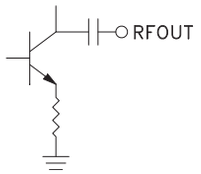
Package Information

Part Number	Package Body Material	Lead Finish	MSL Rating	Package Marking [3]
HMC358MS8G	Low Stress Injection Molded Plastic	Sn/Pb Solder	MSL1 [1]	H358 XXXX
HMC358MS8GE	RoHS-compliant Low Stress Injection Molded Plastic	100% matte Sn	MSL1 [2]	H358 XXXX

[1] Max peak reflow temperature of 235 °C
[2] Max peak reflow temperature of 260 °C
[3] 4-Digit lot number XXXX

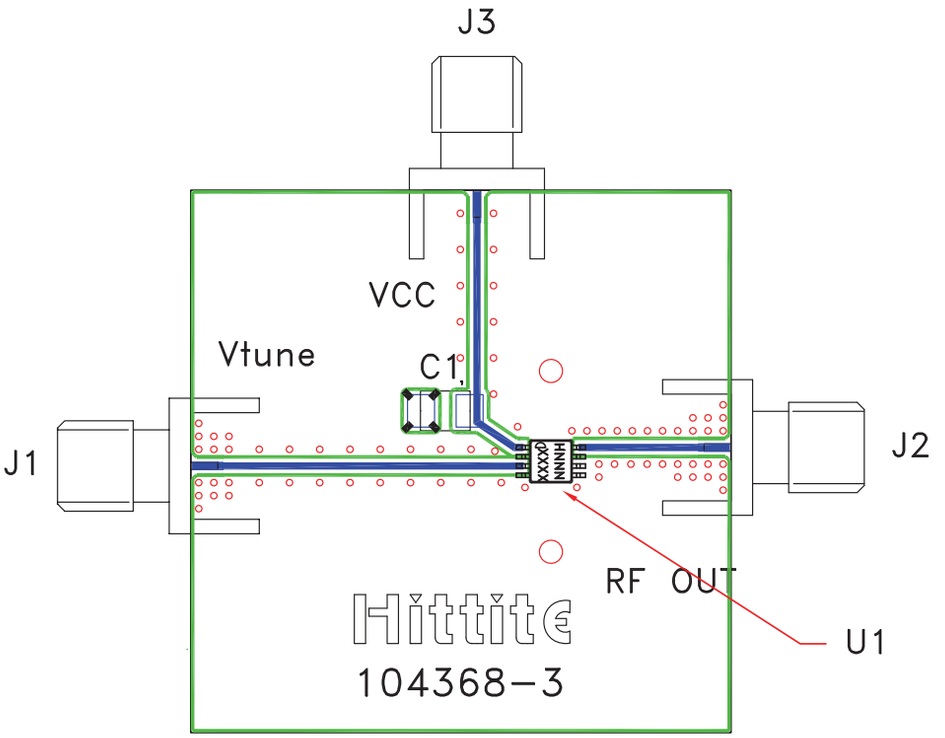
For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

Pin Descriptions

Pin Number	Function	Description	Interface Schematic
1	Vcc	Supply Voltage Vcc= 3V	
2, 6, 7	N/C	No Connection	
3	VTUNE	Control Voltage Input. Modulation port bandwidth dependent on drive source impedance.	
4, 5	GND	Package bottom has an exposed metal paddle that must be RF & DC grounded.	
8	RFOUT	RF output (AC coupled).	

For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

Evaluation PCB



List of Materials for Evaluation PCB 104713 [1]

Item	Description
J1 - J3	PCB Mount SMA RF Connector
C1	10 µF Tantalum Capacitor
U1	HMC358MS8G / HMC358MS8GE VCO
PCB [2]	104368 Eval Board

[1] Reference this number when ordering complete evaluation PCB

[2] Circuit Board Material: Rogers 4350

The circuit board used in the final application should use RF circuit design techniques. Signal lines should have 50 ohm impedance while the package ground leads and backside ground slug should be connected directly to the ground plane similar to that shown. A sufficient number of via holes should be used to connect the top and bottom ground planes. The evaluation circuit board shown is available from Hittite upon request.

For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

Notes:

For price, delivery, and to place orders: Analog Devices, Inc., One Technology Way, P.O. Box 9106, Norwood, MA 02062-9106
Phone: 781-329-4700 • Order online at www.analog.com
Application Support: Phone: 1-800-ANALOG-D

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9