VCO-107S/STC

HIGH RELIABILITY MILITARY AND SPACE VCO

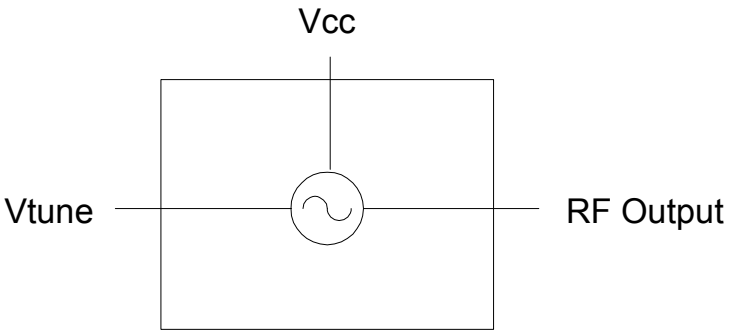
Package: Module, 22.86mm x 22.86mm x 13.97mm

Features

- 500MHz to 1000MHz VCO
- 15V Operation
- +13.5dBm Typical Output Power
- -92dBc/Hz at 10kHz
- -117dBc/Hz at 100kHz
- -140dBc/Hz at 1000kHz

Applications

- Instrumentation
- Aerospace
- Test Equipment
- Plug and Play



Functional Block Diagram

Product Description

RFMD's VCO-107S/STC is a hybrid assembled voltage controlled oscillator integrated into a connectorized module. The VCO-107 features an integrated resonator and tuning varactors. The part features excellent performance over temperature.

Ordering Information

VCO-107S/STC	High Reliability Military and Space VCO

Optimum Technology Matching® Applied

☐ GaAs HBT	☐ SiGe BiCMOS	☐ GaAs pHEMT	☐ GaN HEMT
☐ GaAs MESFET	☐ Si BiCMOS	☐ Si CMOS	☐ BiFET HBT
☐ InGaP HBT	☐ SiGe HBT	☑ Si BJT	☐ LDMOS

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Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage (V_{CC})	17	V
V_{TUNE}	0 to 22	V
Storage Temperature	-65 to 150	°C
Operating Temperature	-55 to 100	°C
ESD JESD22 - A114 Human Body Model (HBM)		V

Caution! ESD sensitive device.

Exceeding any one or a combination of the Absolute Maximum Rating conditions may cause permanent damage to the device. Extended application of Absolute Maximum Rating conditions to the device may reduce device reliability. Specified typical performance or functional operation of the device under Absolute Maximum Rating conditions is not implied.

RoHS status based on EUDirective2002/95/EC (at time of this document revision).

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Frequency					
Frequency Range	500		1000	MHz	100% Production Tested
Tuning Voltage					
500MHz	0	1.8		V_{DC}	100% Production Tested
1000MHz		17.1	20	V_{DC}	100% Production Tested
Tuning Sensitivity					
500MHz	24	31.3	39	MHz/V	100% Production Tested
625MHz	23	30.6	38	MHz/V	100% Production Tested
750MHz	34	45.6	57	MHz/V	100% Production Tested
875MHz	28	37.2	47	MHz/V	100% Production Tested
1000MHz	13	17.8	22	MHz/V	100% Production Tested
Output Power	10	13.5	16	dBm	100% Production Tested
Output Phase Noise					
10kHz		-92	-86	dBc/Hz	100% Production Tested
100kHz		-117	-111	dBc/Hz	100% Production Tested
1000kHz		-140	-134	dBc/Hz	100% Production Tested
Power Supply	14.75	15	15.25	V	100% Production Tested
Supply Current		15.4	18	mA	100% Production Tested
Harmonic Suppression					
2nd Harmonic		-13	-10	dBc	100% Production Tested
3rd Harmonic		-13	-10	dBc	100% Production Tested
Spurious (Non-Harmonic)			-80	dBc	
Frequency Pushing		10	14	MHz p-p	14.75V to 15.25V
Frequency Pulling		12	20	MHz p-p	20dB RL
Output Impedance		50		Ω	
3dB Modulation Bandwidth	15000	20000		kHz	Z_G=50Ω
Tune Port Impedance (DC)		50		kΩ	

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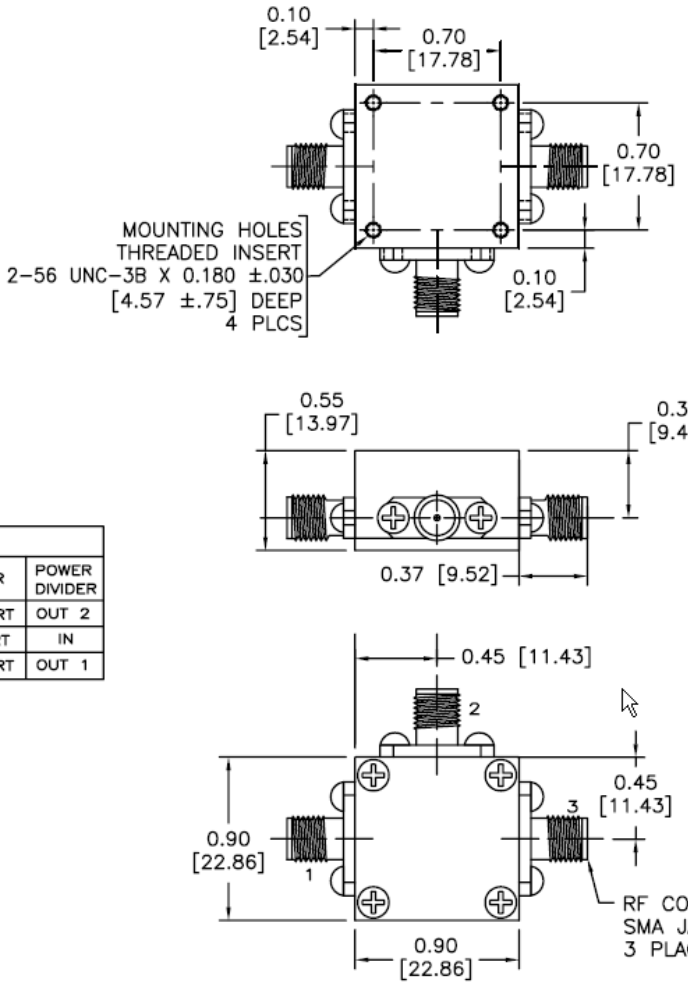
Pin	Function	Description
1	VTUNE	Tuning voltage.
2	VCC	Supply voltage.
3	RF Output	VCO RF output.

Pin Out and Package Drawing



PINOUT	FUNCTION		
PIN	VCO	MIXER	POWER DIVIDER
1	TUNING VOLTAGE	RF PORT	OUT 2
2	SUPPLY VOLTAGE	X PORT	IN
3	RF OUTPUT	LO PORT	OUT 1

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