

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

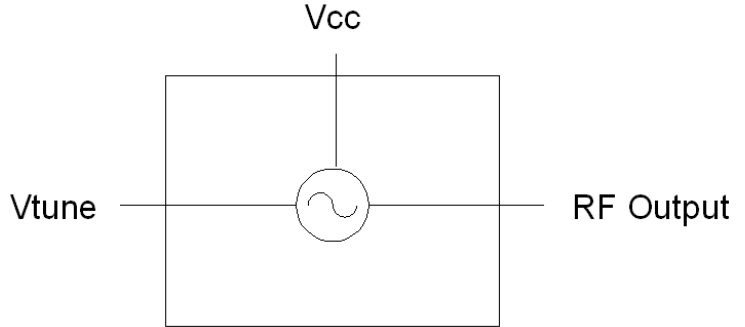


Features

- 900 MHz to 1800 MHz VCO
- 15V Operation
- +12.5 dBm Typical Output Power
- -90 dBc/Hz at 10 kHz
- -112 dBc/Hz at 100 kHz
- -135 dBc/Hz at 1000 kHz

Applications

- Instrumentation
- Aerospace
- Test Equipment
- Plug and Play



Functional Block Diagram

Product Description

RFMD's VCO-109S/STC is a hybrid assembled voltage controlled oscillator integrated into a connectorized module. The VCO-109 features an integrated resonator and tuning varactors. The part features excellent performance over temperature.

Ordering Information

VCO-109S/STC High Reliability Military and Space VCO

Optimum Technology Matching® Applied

- | | | | |
|--------------------------------------|--------------------------------------|--|------------------------------------|
| <input type="checkbox"/> GaAs HBT | <input type="checkbox"/> SiGe BiCMOS | <input type="checkbox"/> GaAs pHEMT | <input type="checkbox"/> GaN HEMT |
| <input type="checkbox"/> GaAs MESFET | <input type="checkbox"/> Si BiCMOS | <input type="checkbox"/> Si CMOS | <input type="checkbox"/> BIFET HBT |
| <input type="checkbox"/> InGaP HBT | <input type="checkbox"/> SiGe HBT | <input checked="" type="checkbox"/> Si BJT | <input type="checkbox"/> 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.

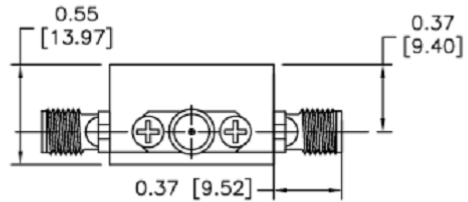
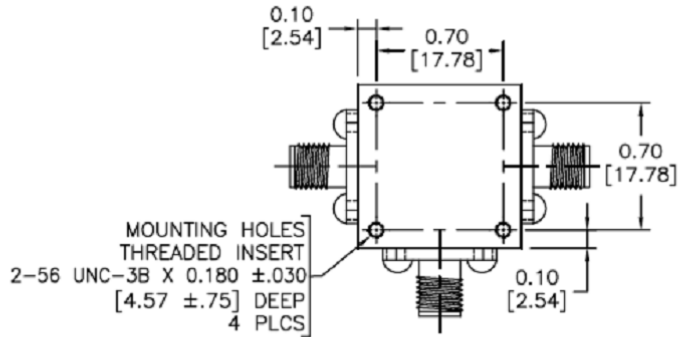
RoHS status based on EU Directive 2002/95/EC (at time of this document revision).

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Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Frequency					
Frequency Range	900		1800	MHz	100% Production Tested
Tuning Voltage					
900MHz	0	1.2		V_{DC}	100% Production Tested
1800MHz		18.5	20	V_{DC}	100% Production Tested
Tuning Sensitivity					
900MHz	61.2	81.6	102	MHz/V	100% Production Tested
1125MHz	44.3	59.1	73.9	MHz/V	100% Production Tested
1350MHz	49.1	65.5	81.9	MHz/V	100% Production Tested
1575MHz	41.8	55.6	69.6	MHz/V	100% Production Tested
1800MHz	17.6	23.5	29.4	MHz/V	100% Production Tested
Output Power	10	12.5	16	dBm	100% Production Tested
Output Phase Noise					
10kHz		-90	-84	dBc/Hz	100% Production Tested
100kHz		-112	-106	dBc/Hz	100% Production Tested
1000kHz		-135	-129	dBc/Hz	100% Production Tested
Power Supply	14.75	15	15.25	V	100% Production Tested
Supply Current		15.0	18.0	mA	100% Production Tested
Harmonic Suppression					
2nd Harmonic		-15	-10	dBc	100% Production Tested
3rd Harmonic		-15	-10	dBc	100% Production Tested
Spurious (Non-Harmonic)			-80	dBc	
Frequency Pushing		4	6	MHz p-p	14.75V to 15.25V
Frequency Pulling		20	25	MHz p-p	20dB RL
Output Impedance		50		Ω	
3dB Modulation Bandwidth	15000	20000		kHz	$Z_G = 50\Omega$
Tune Port Impedance (DC)		50		k Ω	

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

Pin Out and Package Drawing



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

