RFMD
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VCO-102S/TCS

HIGH RELIABILITY MILITARY AND SPACE VCO

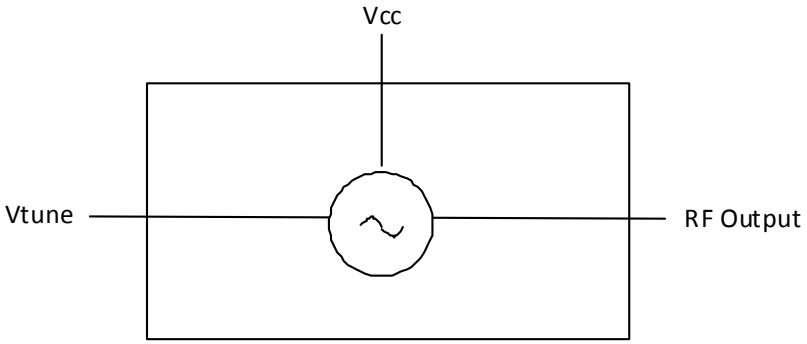
Module: 3 Connectors, 22.86mm x 22.86mm x 13.97mm

Features

- 25MHz to 50MHz VCO
- 15V Operation
- +12.5dBm Typical Output Power
- -115dBc/Hz @ 10kHz
- -135dBc/Hz @ 100kHz
- -160dBc/Hz @ 1000kHz

Applications

- Instrumentation
- Aerospace
- Test Equipment
- Plug and Play



Functional Block Diagram

Product Description

RFMD's VCO-102S/TCS is a hybrid assembled voltage controlled oscillator integrated into a connectorized module. The VCO-102 features an integrated resonator and tuning varactors. The performance over temperature is excellent.

Ordering Information

VCO-102S/TCS	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	25		50	MHz	100% Production Tested
Tuning Voltage					
25MHz	0	1.2		V_{DC}	100% Production Tested
50MHz		17	20	V_{DC}	100% Production Tested
Tuning Sensitivity					
25MHz	1.0	1.3	1.7	MHz/V	100% Production Tested
31.25MHz	1.6	2.1	2.7	MHz/V	100% Production Tested
37.5MHz	1.8	2.4	2.9	MHz/V	100% Production Tested
43.75MHz	1.2	1.6	2.0	MHz/V	100% Production Tested
50MHz	0.6	0.8	1.0	MHz/V	100% Production Tested
Output Power	10.0	12.5	16.0	dBm	100% Production Tested
Output Phase Noise					
10kHz		-115	-109	dBc/Hz	100% Production Tested
100kHz		-135	-129	dBc/Hz	100% Production Tested
1000kHz		-160	-154	dBc/Hz	100% Production Tested
Power Supply	14.75	15.00	15.25	V	100% Production Tested
Supply Current		12.5	15.0	mA	100% Production Tested
Harmonic Suppression					
2nd Harmonic		-15	-10	dBc	100% Production Tested
3rd Harmonic		-12	-10	dBc	100% Production Tested
Spurious (Non-Harmonic)			-80	dBc	
Frequency Pushing		0.05	0.10	MHz $_{P-P}$	14.75V to 15.25V
Frequency Pulling 12dB RL		0.50	1.25	MHz $_{P-P}$	
Output Impedance		50		Ω	
3dB Modulation Bandwidth	80	125		kHz	Z_G=50Ω
Tune Port Impedance (DC)		50		kΩ	

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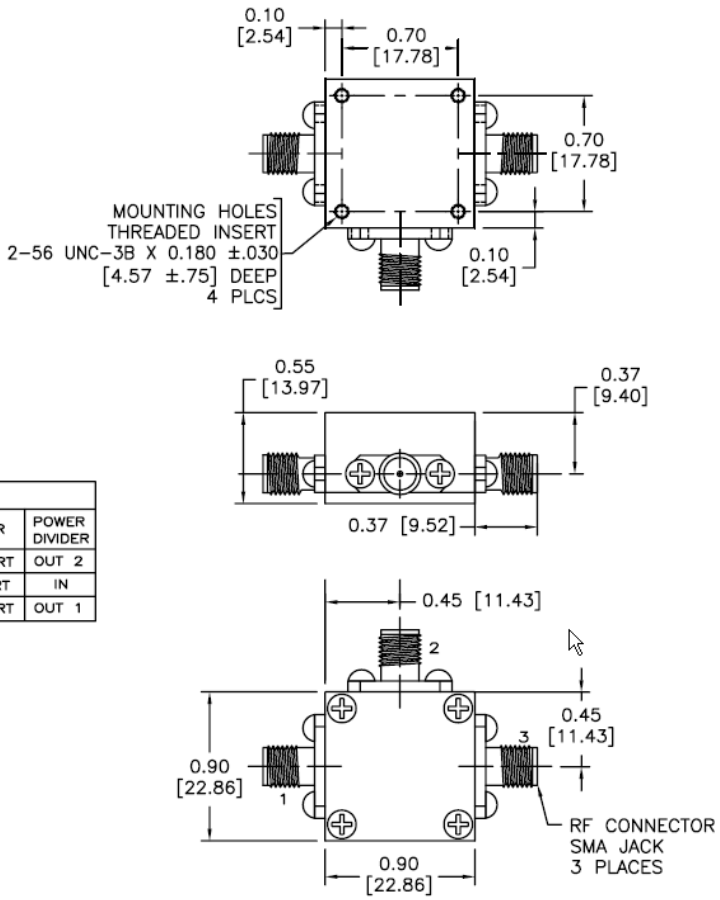
Pin	Function	Description
1	VTUNE	Tuning Voltage.
2	VCC	Supply Voltage.
3	RF OUTPUT	VCO RF Output.

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