

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

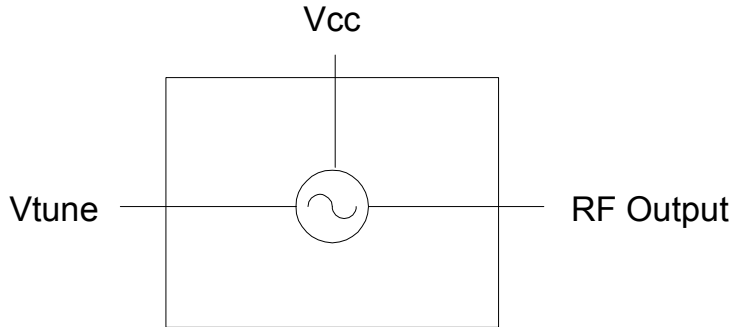


**Features**

- 250 MHz to 500 MHz VCO
- 15V Operation
- +13.0dBm Typical Output Power
- -100dBc/Hz at 10kHz
- -123dBc/Hz at 100kHz
- -148dBc/Hz at 1000kHz

**Applications**

- Instrumentation
- Aerospace
- Test Equipment
- Plug and Play



Functional Block Diagram

**Product Description**

RFMD's VCO-118S/STC is a hybrid assembled voltage controlled oscillator integrated into a connectorized module. The VCO-118 features an integrated resonator and tuning varactors. The part features excellent performance over temperature.

**Ordering Information**

VCO-118S/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.

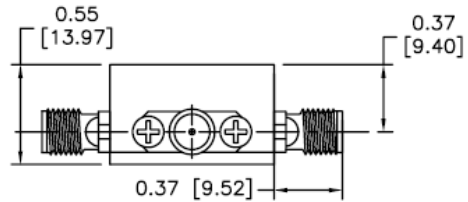
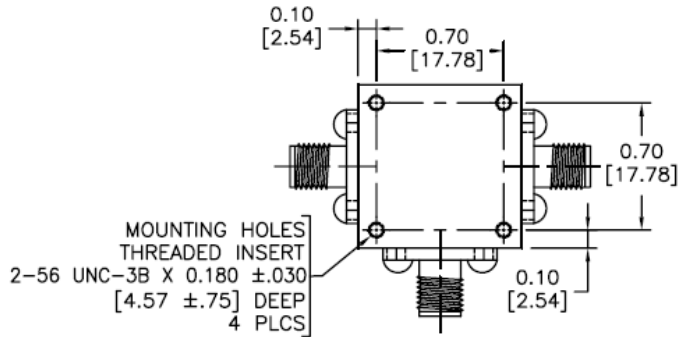
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Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
<b>Frequency</b>					
Frequency Range	250		500	MHz	100% Production Tested
<b>Tuning Voltage</b>					
250MHz	0	1.3		$V_{DC}$	100% Production Tested
500MHz		17.6	20	$V_{DC}$	100% Production Tested
<b>Tuning Sensitivity</b>					
250MHz	11.9	15.8	19.8	MHz/V	100% Production Tested
312.5MHz	12.6	16.8	21	MHz/V	100% Production Tested
375MHz	14.9	19.8	24.8	MHz/V	100% Production Tested
437.5MHz	13.1	17.4	21.8	MHz/V	100% Production Tested
500MHz	6.2	8.3	10.8	MHz/V	100% Production Tested
Output Power	10	13	16	dBm	100% Production Tested
<b>Output Phase Noise</b>					
10kHz		-100	-94	dBc/Hz	100% Production Tested
100kHz		-123	-117	dBc/Hz	100% Production Tested
1000kHz		-148	-142	dBc/Hz	100% Production Tested
Power Supply	14.75	15	15.25	V	100% Production Tested
Supply Current		14.5	16	mA	100% Production Tested
<b>Harmonic Suppression</b>					
2nd Harmonic		-12	-10	dBc	100% Production Tested
3rd Harmonic		-12	-10	dBc	100% Production Tested
Spurious (Non-Harmonic)			-80	dBc	
Frequency Pushing		1	3	MHz p-p	14.75V to 15.25V
Frequency Pulling		10	13	MHz p-p	12dB RL
Output Impedance		50		$\Omega$	
3dB Modulation Bandwidth	5000	10000		kHz	$Z_G = 50\Omega$
Tune Port Impedance (DC)		50		k $\Omega$	

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

