

Package: Module, 22.86mmx22.86mmx13.97mm

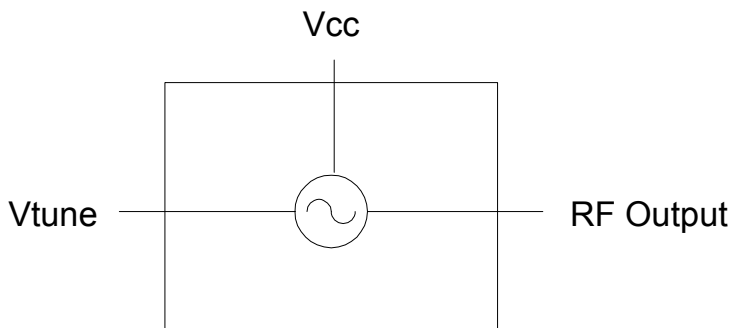


Features

- 300MHz to 600MHz VCO
- 15V Operation
- +13.0dBm Typical Output Power
- -100dBc/Hz at 10kHz
- -122dBc/Hz at 100kHz
- -145dBc/Hz at 1000kHz

Applications

- Instrumentation
- Aerospace
- Test Equipment
- Plug and Play



Functional Block Diagram

Product Description

RFMD's VCO-117S/STC is a hybrid assembled voltage controlled oscillator integrated into a connectorized module. The VCO-117 features an integrated resonator and tuning varactors. The part features excellent performance over temperature.

Ordering Information

VCO-117S/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.

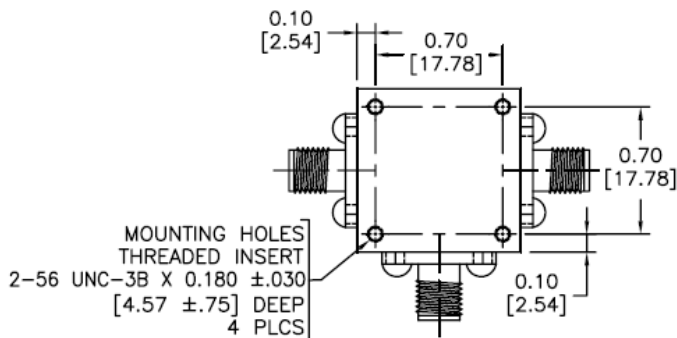
RoHS status based on EUDirective2002/95/EC (at time of this document revision).

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Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Frequency					
Frequency Range	300		600	MHz	100% Production Tested
Tuning Voltage					
300MHz	0	1.4		V_{DC}	100% Production Tested
600MHz		18	20	V_{DC}	100% Production Tested
Tuning Sensitivity					
300MHz	14.9	19.8	24.8	MHz/V	100% Production Tested
375MHz	15.1	20.1	25.1	MHz/V	100% Production Tested
450MHz	18.2	24.2	30.3	MHz/V	100% Production Tested
525MHz	13.8	18.4	23	MHz/V	100% Production Tested
600MHz	7.8	10.1	12.6	MHz/V	100% Production Tested
Output Power	10	13	16	dBm	100% Production Tested
Output Phase Noise					
10kHz		-100	-94	dBc/Hz	100% Production Tested
100kHz		-122	-116	dBc/Hz	100% Production Tested
1000kHz		-145	-139	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
Harmonic Suppression					
2nd Harmonic		-12	-10	dBc	100% Production Tested
3rd Harmonic		-12	-10	dBc	100% Production Tested
Spurious (Non-Harmonic)			-80	dBc	
Frequency Pushing		1	4	MHz p-p	14.75V to 15.25V
Frequency Pulling		10	12	MHz p-p	12dB RL
Output Impedance		50		Ω	
3dB Modulation Bandwidth	5000	10000		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			
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	

