

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

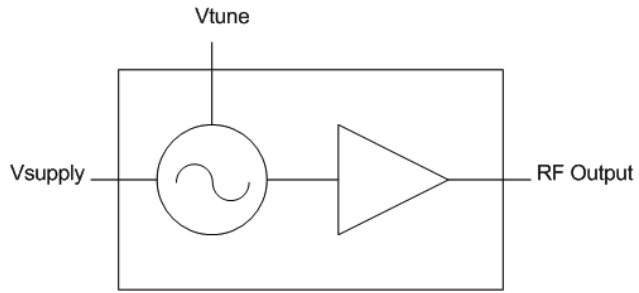


## Features

- 6GHz to 9GHz VCO
- 5V Operation, 53 mA
- +3.5dBm Typical Output Power
- -73dBc/Hz @ 10kHz
- -97dBc/Hz @ 100kHz

## Applications

- Military – Radar, Communications, ECM/IED
- Satcomm – Communication Modems
- Test Instrumentation
- Industrial/Medical Equipment



Functional Block Diagram

## Product Description

RFMD's RFVC1803C wideband Voltage Controlled Oscillator is an InGaP HBT MMIC with integrated VCO core and RF output buffer. The part operates from a single +5V supply for circuit bias and 0V to +15V  $V_{TUNE}$  for frequency control. The RFVC1803C offers low phase noise and low power consumption.

## Ordering Information

RFVC1803C      Connectorized 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 checked="" type="checkbox"/> InGaP HBT | <input type="checkbox"/> SiGe HBT    | <input type="checkbox"/> Si BJT     | <input type="checkbox"/> LDMOS     |

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## Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage ( $V_{CC}$ )	5.5	V
$V_{TUNE}$	0 to +20	V
Storage Temperature	-55 to +125	°C
Operating Temperature	-40 to +85	°C
ESD Rating – Human Body Model (HBM)	Class0	



**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.

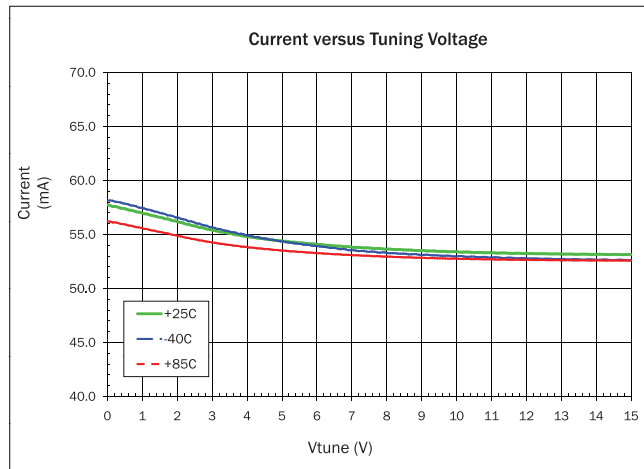
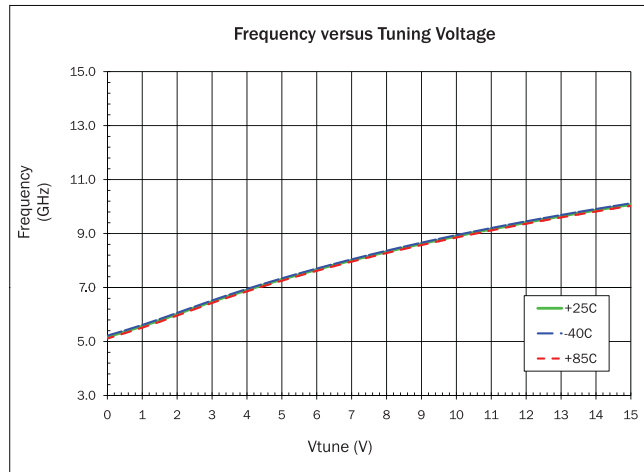
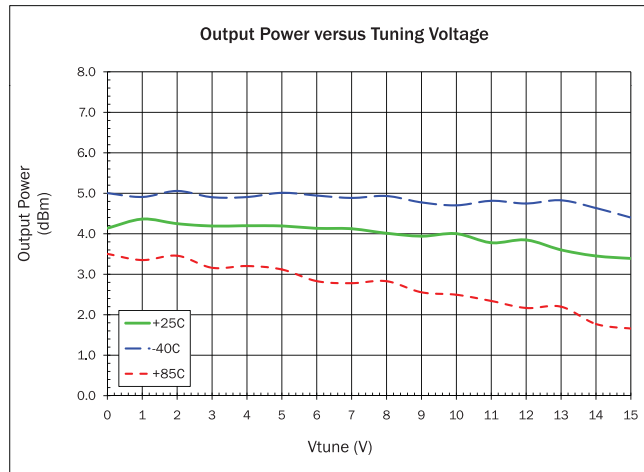
RoHS status based on EUDirective2002/95/EC (at time of this document revision).

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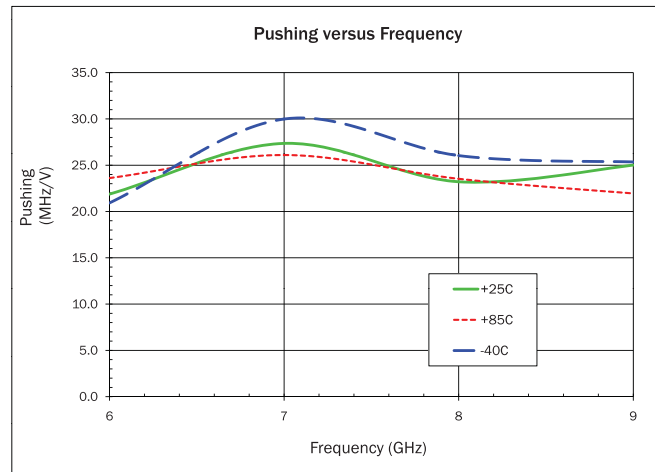
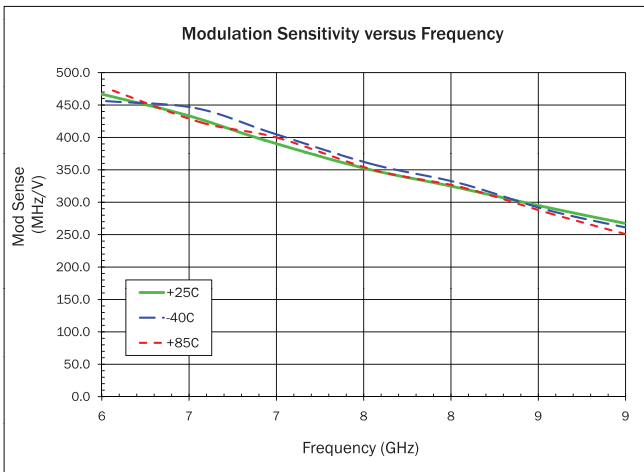
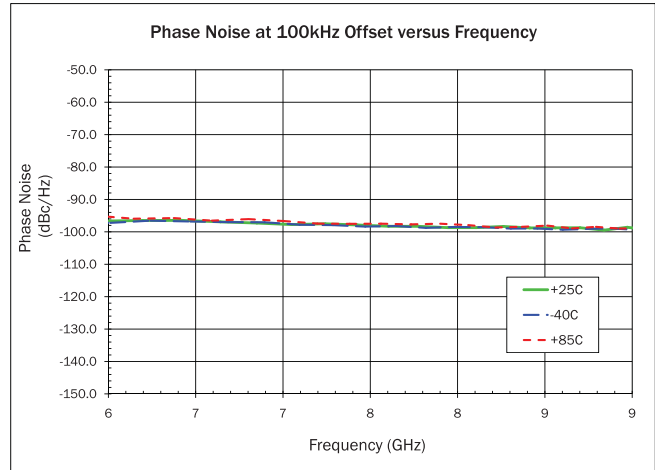
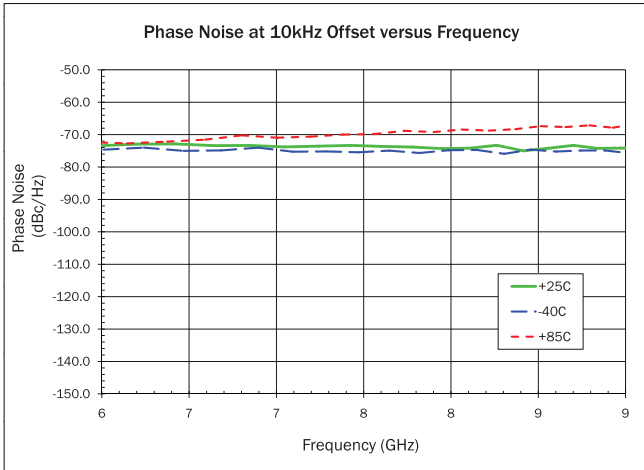
Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
<b>Frequency</b>					
Frequency Range	6.0		9.0	GHz	
Supply Voltage ( $V_S$ )	4.75	5.00	5.25	V	Recommended operating range.
Supply Current	40	53	70	mA	
Tuning Voltage ( $V_{TUNE}$ )	0		15	V	
Tuning Sensitivity		380		MHz/V	
Output Power		3.5		dBm	
Output Phase Noise at 10kHz		-73		dBc/Hz	
Output Phase Noise at 100kHz		-97		dBc/Hz	
2nd Harmonic		-20		dBc	
Frequency Pushing		24		MHz/V	
Frequency Pulling (2:1 VSWR)		2.5		MHz pp	
RF Output Return Loss		-10		dB	
Frequency Drift Rate		-0.8		MHz/°C	
$V_{TUNE}$ port input capacitance		7		pF	

Test Conditions:  $V_S=5V$ , Freq=6GHz to 9GHz, T=25 °C unless noted otherwise

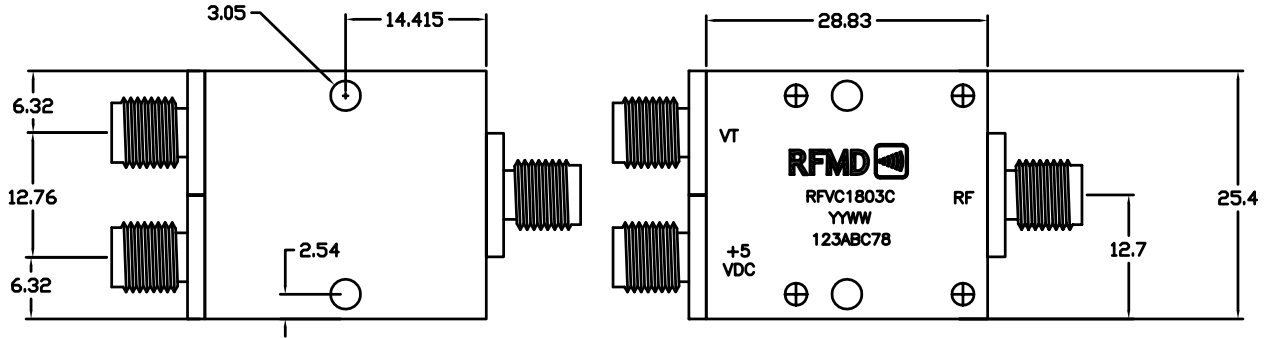
RFVC1803C Thermal Performance versus Tuning Voltage



## RFVC1803C Thermal Performance versus Frequency

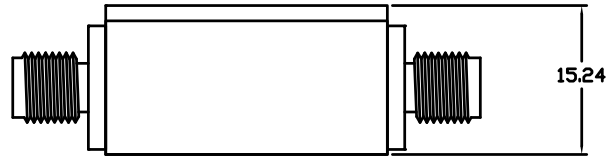


**Pin Out and Package Drawing (mm)**



Bottom View

Top View



Side View

**Date Code - YYWW (Year and Week)**

**Trace Code - 123ABC78**