

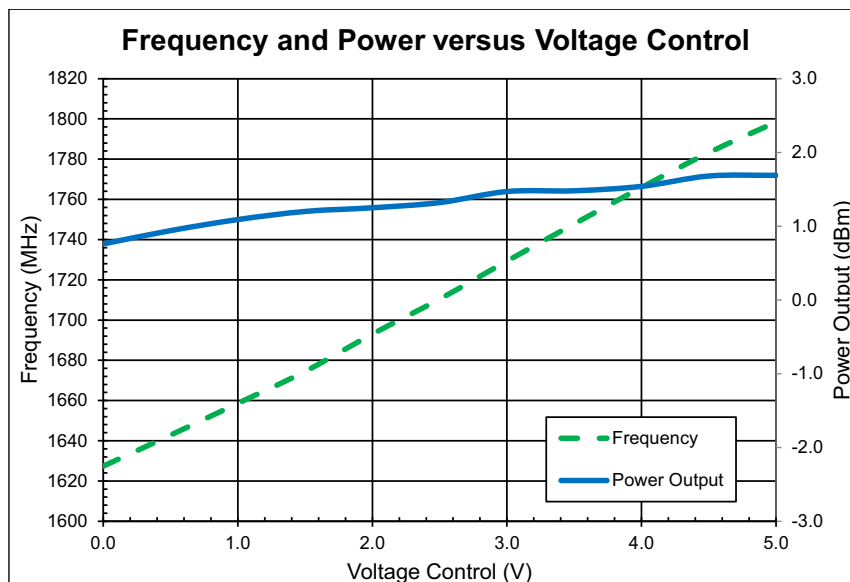


Features

- -125dBc/Hz Typical at 100 kHz Offset
- P_{OUT} 0dBm Typical
- 5V Supply
- 25mA Current Consumption
- Low Profile 6mm x 6mm Package

Applications

- 2G, 3G and 4G (LTE and WIMAX) Cellular Base Stations
- High Performance Transceiver Applications



Product Description

The RFVC9753 is a Voltage Controlled Oscillator (VCO) designed for high performance transceiver applications. It offers phase noise performance that meets or exceeds the requirements of 2G, 3G, and 4G (LTE and WiMAX) cellular base stations. Compared to the current generation of monolithic VCOs, the RFVC9753 provides improved phase noise and lower current consumption thereby lowering energy consumption and improving base station thermal management. The RFVC9753 is also 75% smaller than today's signal source modules, while providing the same low phase noise performance, satisfying the trend toward smaller base station sizes for microcells and remote radio heads.

Ordering Information

RFVC9753SQ	Sample bag with 25 pieces
RFVC9753SR	7" Sample reel with 100 pieces
RFVC9753TR7	7" Reel with 750 pieces
RFVC9753TR13	13" Reel with 2500 pieces
RFVC9753PCBA-410	1680MHz to 1740MHz PCBA with 5-piece sample bag

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 type="checkbox"/> Si BJT	<input type="checkbox"/> LDMOS

Absolute Maximum Ratings

Parameter	Rating	Unit
Supply Voltage (V_{CC})	7	V
Control Voltage	0 to 9	V
DC Voltage on RF Out	20	V
Operating Temperature Range (T_L)	-40 to +85	°C
Storage Temperature	-55 to +125	°C
ESD Rating - Human Body Model (HBM)	Class 3A (4000V)	
Moisture Sensitivity Level	3	



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.

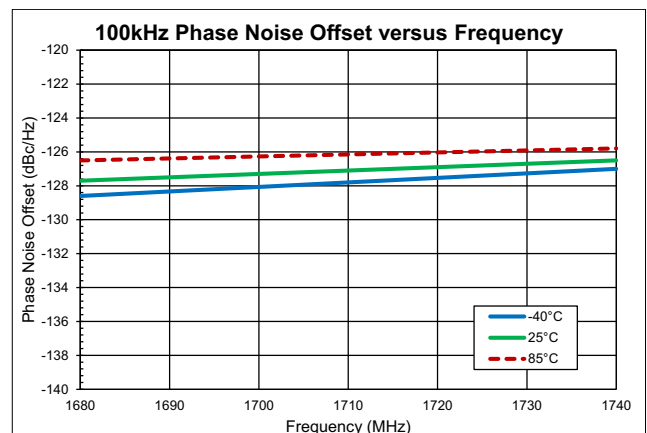
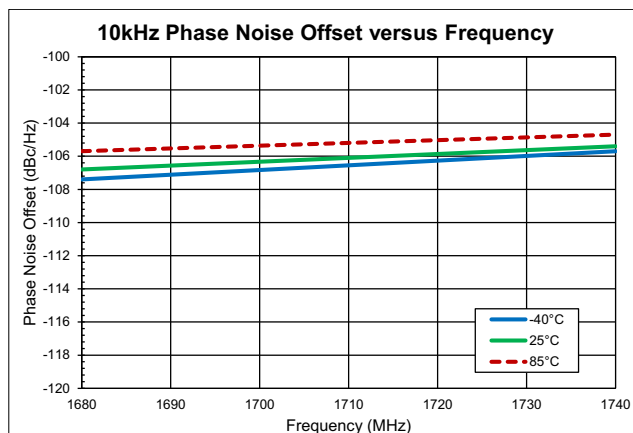
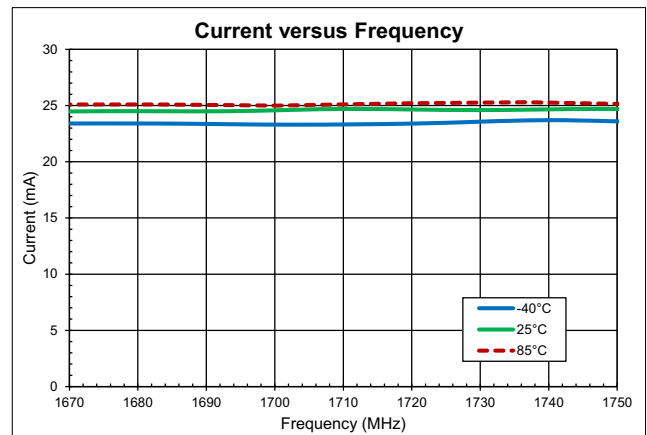
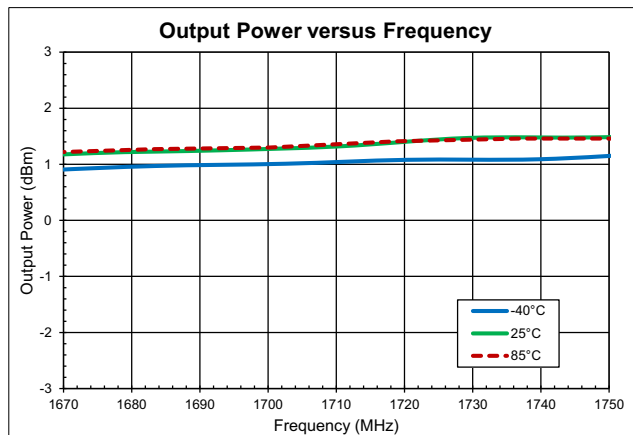
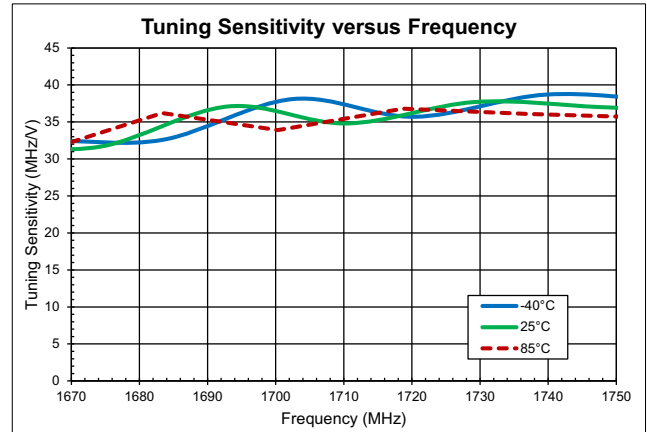
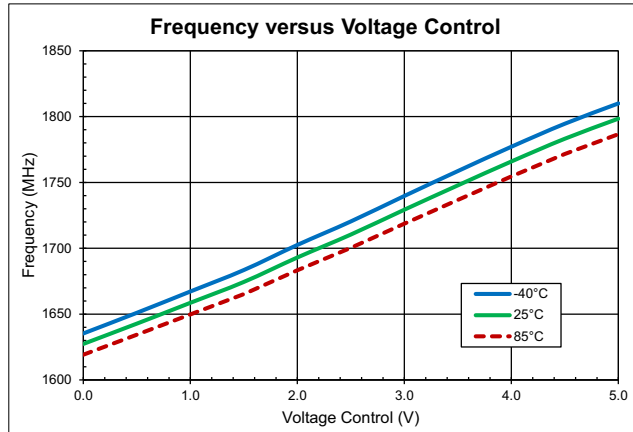
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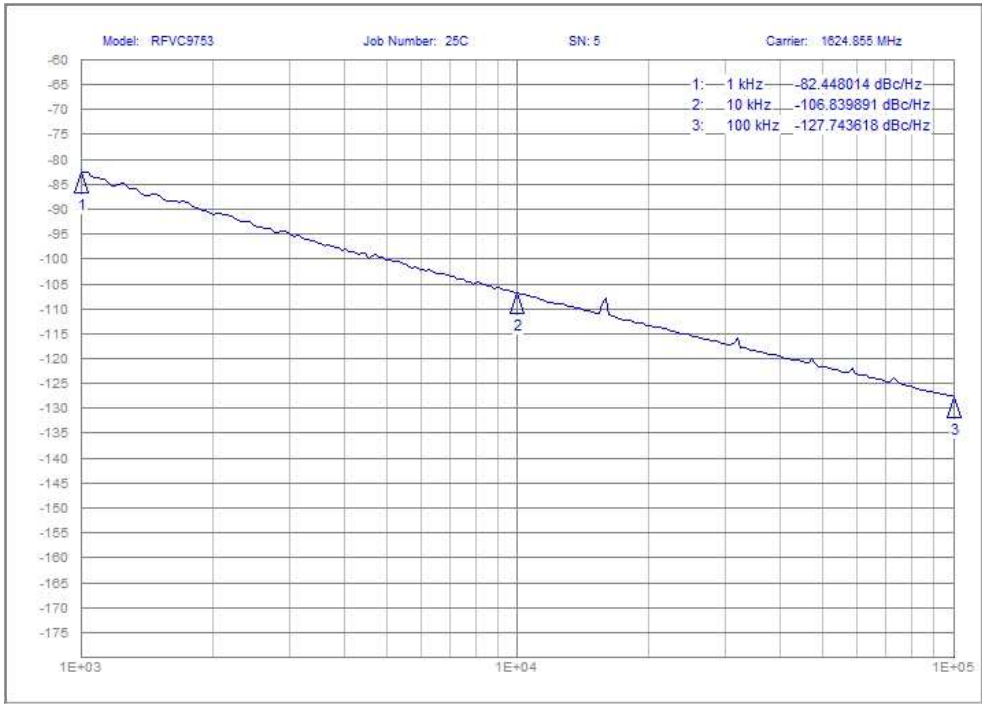
RoHS (Restriction of Hazardous Substances): Compliant per EU Directive 2002/95/EC.

Parameter	Specification			Unit	Condition
	Min.	Typ.	Max.		
Frequency	1680		1740	MHz	
Tuning Voltage	0.5		4.5	V	
Tuning Sensitivity	29	34	39	MHz/V	
Output Power	-2.5	0.0	2.5	dBm	
2nd Harmonic			-12	dBc	
SSB Phase Noise @ 10kHz Offset		-105	-100	dBc/Hz	
SSB Phase Noise @ 100kHz Offset		-125	-120	dBc/Hz	
SSB Phase Noise @ 800kHz Offset		-146	-141	dBc/Hz	
SSB Phase Noise @ 6MHz Offset		-155	-150	dBc/Hz	
Power Supply	4.9	5.0	5.1	V	
Supply Current		23	30	mA	
Frequency Pushing		0.2	0.5	MHz/V	
Frequency Pulling (2:1 VSWR)		0.2	0.5	MHz, p-p	

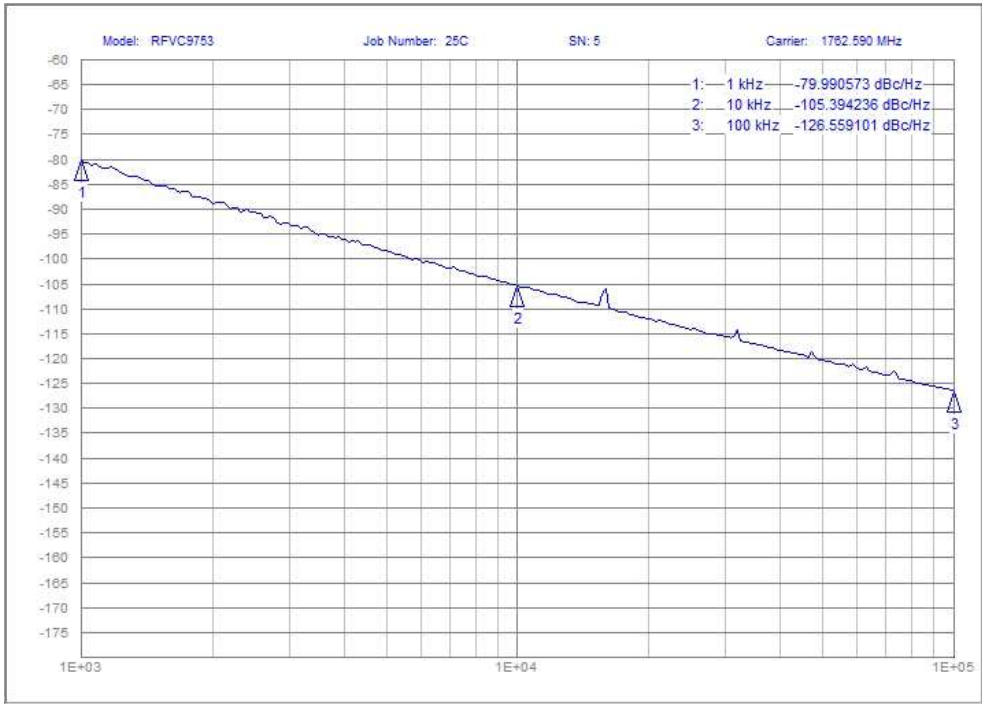
Typical Evaluation Board Performance ($V_{CC} = 5V$)



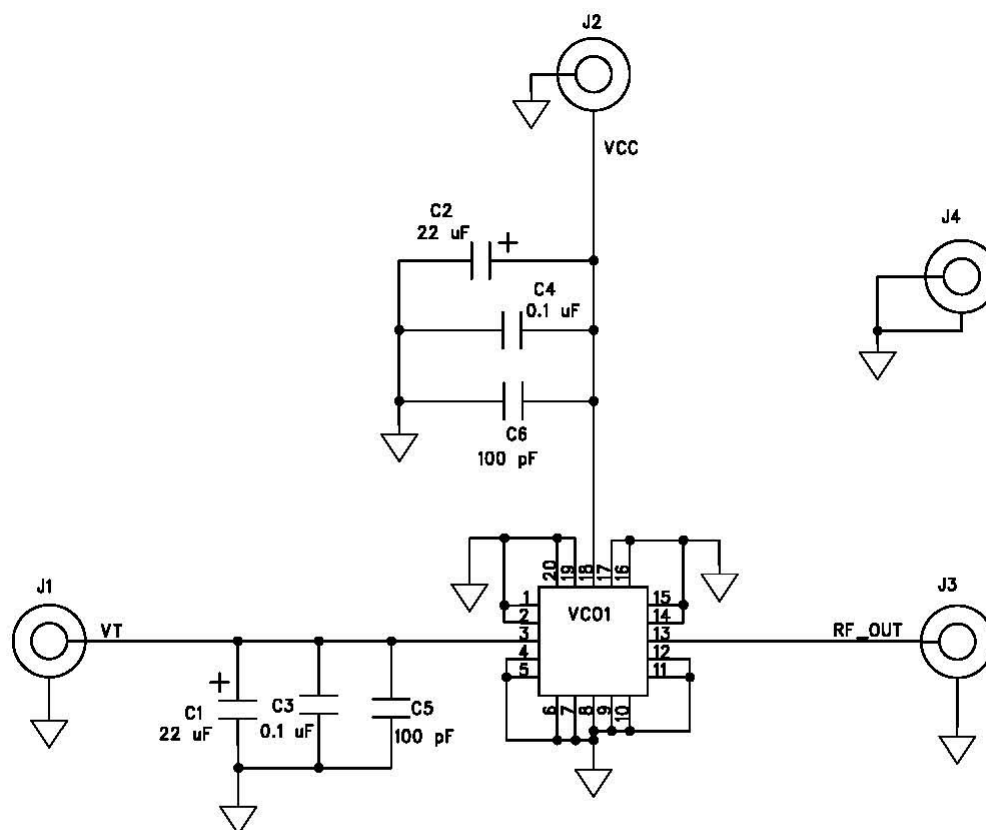
Typical Evaluation Board Performance ($V_{CC} = 5V, 25^{\circ}C$)
1680MHz



1740MHz



Evaluation Board Schematic

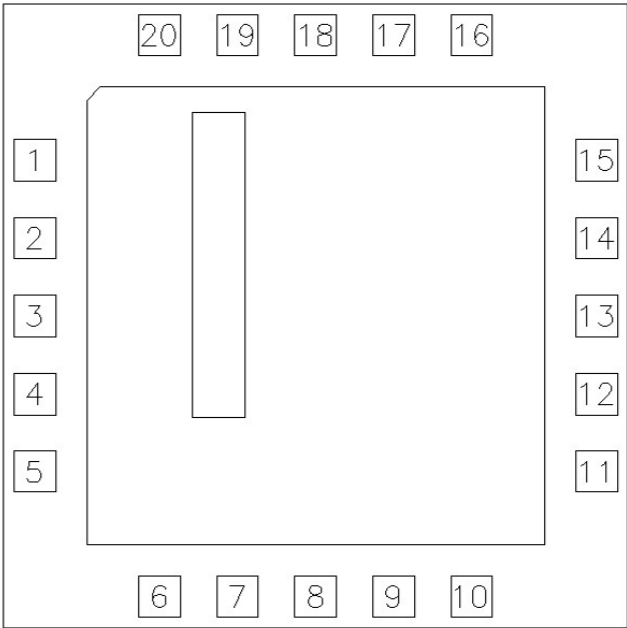


C1, C2 CASE D TANTALUM
C3 - C6 0402

Evaluation Board Bill of Materials (BOM)

Description	Reference Designator	Manufacturer	Manufacturer's P/N
Evaluation Board		RFMD	225242(A)
CONN, SMA, END LNCH, MINI, FLT, 0.042"	J1-J4	Emerson Network Power	142-0741-821
CAP, 0.1 μ F, 10%, 16V, X7R, 0402	C3-C6	Murata Electronics	GRM155R71C104KA88D
CAP, 22 μ F, 20%, 35V, TANT-D	C1-C2	AVX Corporation	TAJD226M035RNJ
RFVC9752	U1	RFMD	RFVC9752

Pin Out
Top View

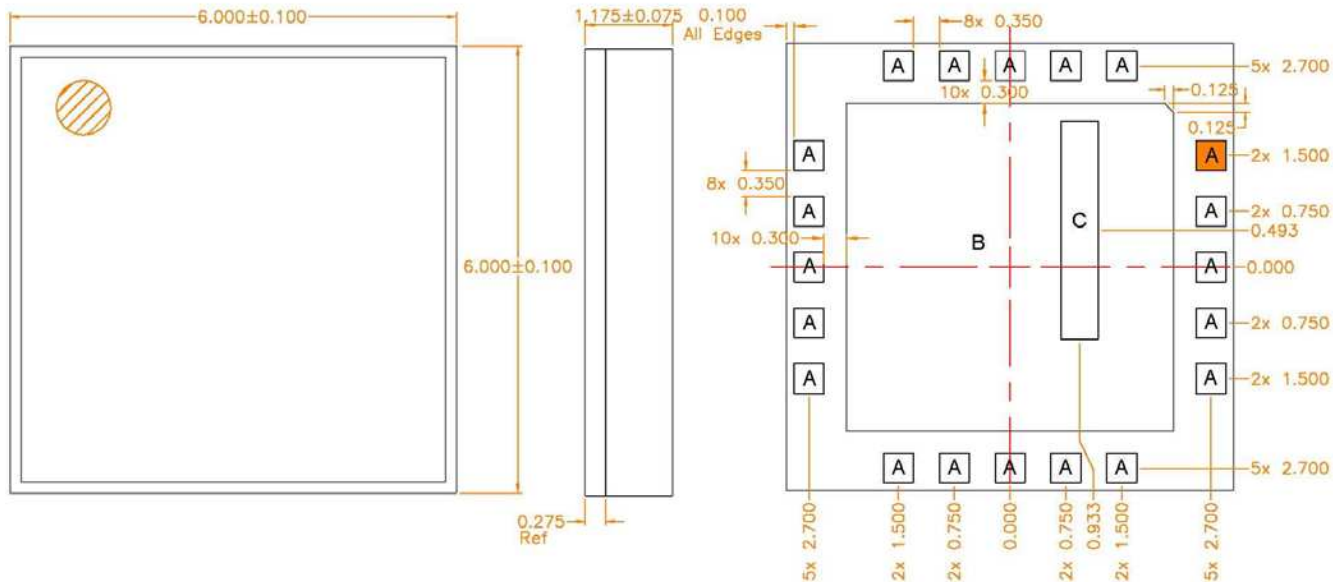


Pin Names and Descriptions

Pin	Name	Description
1	GND	Ground
2	GND	Ground
3	VT	Control Voltage
4	GND	Ground
5	GND	Ground
6	GND	Ground
7	GND	Ground
8	GND	Ground
9	GND	Ground
10	GND	Ground
11	GND	Ground
12	GND	Ground
13	RF OUT	VCO RF Output
14	GND	Ground
15	GND	Ground
16	GND	Ground
17	GND	Ground
18	VCC	Supply Voltage
19	GND	Ground
20	GND	Ground

Package Drawing

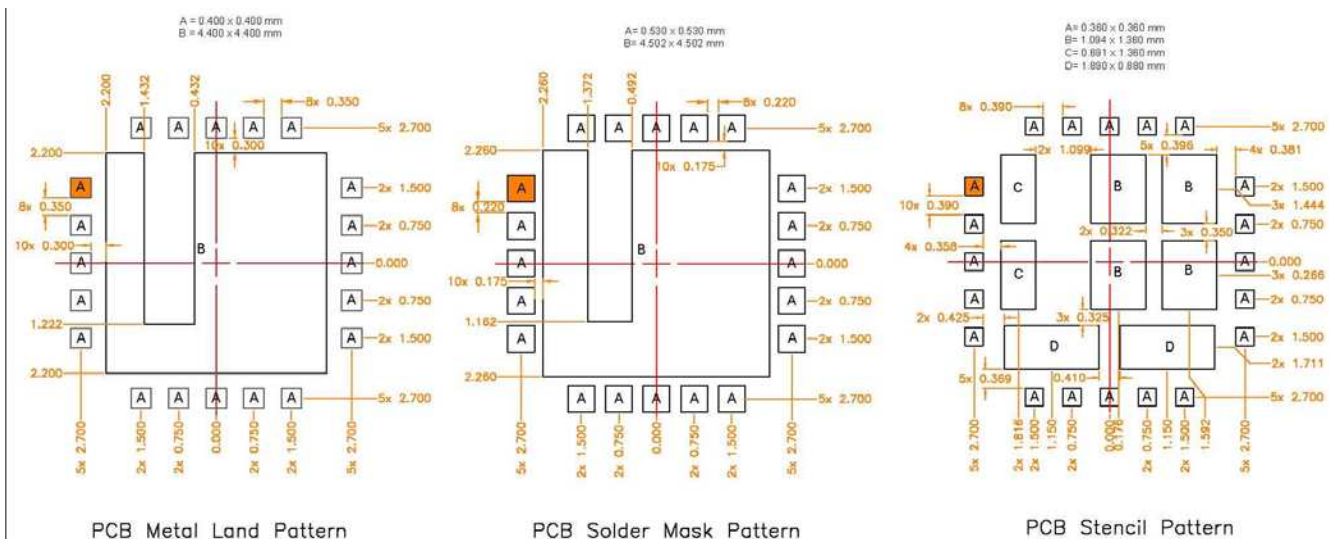
Dimensions in millimeters



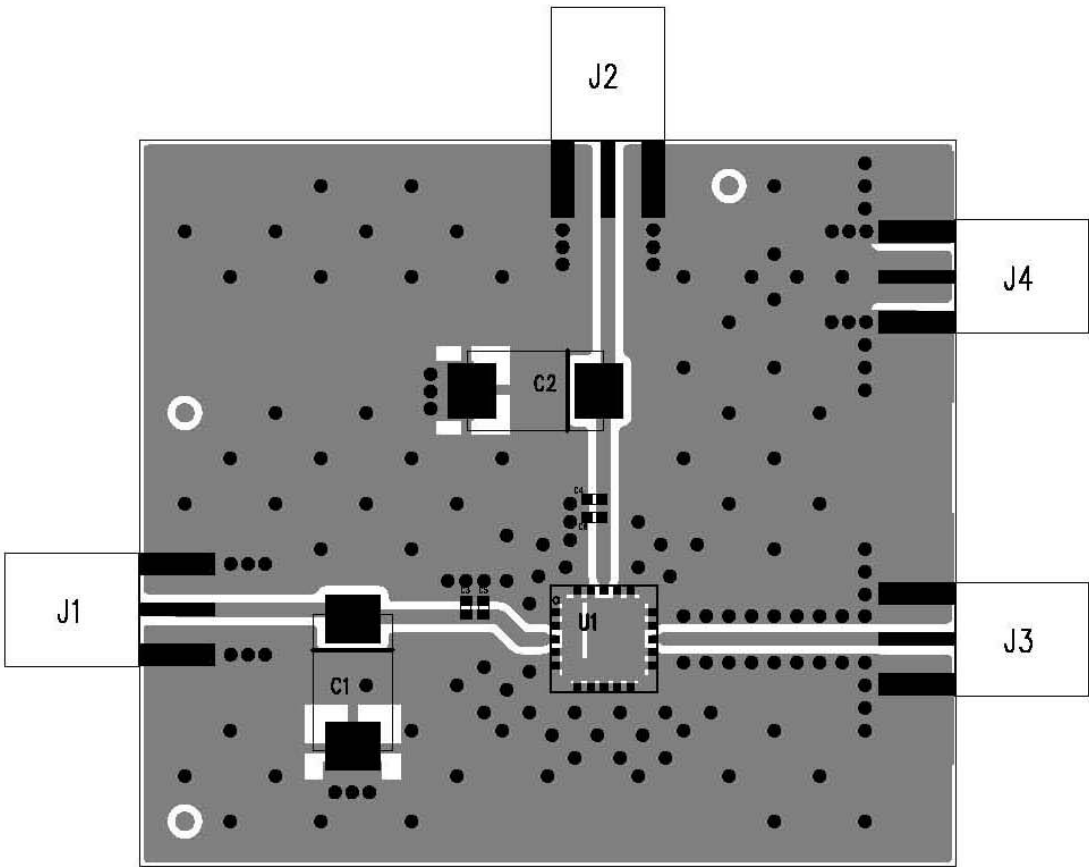
A = 0.400×0.400 mm
B = 4.400×4.400 mm
C = 0.500×2.930 mm (opening in metal)

Evaluation Board Pattern

Dimensions in millimeters



Evaluation Board Assembly Drawing



Connector	Function	Description
J1	V_T	Control Voltage
J2	V_{CC}	Supply Voltage
J3	RF OUT	RF Output
J4	GND	Ground