RVC1414D

The RVC1414D is a Voltage Controlled Oscillator (VCO) designed for military and high reliability communication applications. This VCO delivers low phase noise and fast tuning. It is available in a hermetically sealed TO-8 metal-can with gold plated pins and with an internal wire-bonded circuit construction. The VCO's unique features and design enhance system signal integrity and support clock signals for field-programmable gate arrays (FPGAs).

The VCO's hybrid technology and hermetically sealed package protect the device from moisture, contaminants and other environmental impacts. Compliant with MIL-STD-883, the RVC1414D is an ideal solution for extreme environment applications where resistance to radiation, shock and vibration is required.

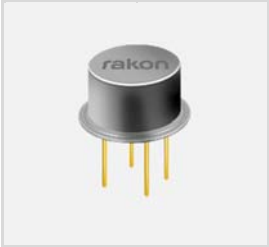
Features

- Thick film technology
- Hermetically sealed in a hybrid TO-8 package
- Wide temperature range: -40 to 100°C
- Supply voltage: 12 V
- Tuning voltage: 0 to 10 V
- Power level: 12 dBm min
- Phase noise: -90 dBc/Hz, @ 50 kHz

Applications

- Digitally tuned oscillators
- Frequency synthesizers
- Applications where low phase noise and fast tuning is required
- Identification, friend or foe (IFF) radar receivers

Ø14 x 5 mm



Environmental Conditions

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Operating temperature		-40		100	°C
Storage temperature range		-55		125	°C
Hermitic sealing			5.10^{-7}		bar.cm3/s
Temperature cycling	MIL-STD-883, 1010,100 cycles	-55		125	°C
Damp heat	MIL-STD-202, 103		56		days
Salt spray	MIL-STD-883, 1009		48		hours
Sinus vibration	MIL-STD-883, 2007, 20 g	20		2000	Hz
Random vibration	MIL-STD-883, 2026, 0.5 g^2/Hz	20		2000	Hz
Shock	MIL-STD-883, 2002, 100 g, half sine			6	ms
Acceleration	MIL-STD-883, 2001			10 000	g
Barometric pressure	MIL-STD-883, 1001			0.315	Inch.Hg
Reference temperature			25		°C

Frequency Characteristics

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Frequency range	Vc > 2.1 to 2.7 V @ 1030 MHz Vc < 8.5 V @ 1215 MHz	980		1215	MHz
Frequency drift over temperature				60	MHz

Electrical Interface

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Power supply (Vcc)	±5% tolerance		12.0		V
Supply current	@ 12 V		60		mA

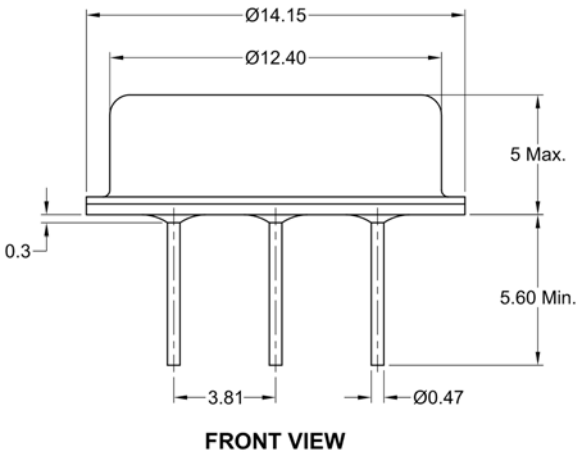
Control Voltage (Vc)

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Frequency pulling	VSWR 1.7 / 1			25	MHz
Control voltage (Vc)	Custom Vc available on request	0		10	V
Frequency pushing	At 25°C			12	MHz/V

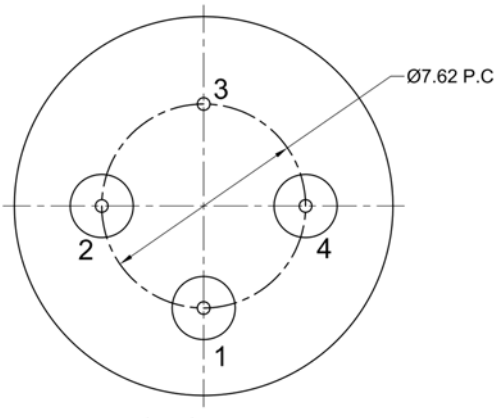
Output Characteristics – Sine Wave

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Output power	@ 25°C	12.5			dBm
Power change over frequency				2	dB
Power change over temperature				2	dB
Capacitance			95		pF
Harmonics level	2nd harmonic		-17		dBc
Static phase noise	Frequency offset = 50 kHz			-90	dBc/Hz

Model Outline, Pin Connections



FRONT VIEW



BOTTOM VIEW

Pin	Connections
1	Supply voltage (Vcc)
2	Control voltage (Vc)
3	Ground, case,
4	Frequency output

NOTE:

- Dimensions are in millimetres.
- Tolerance is ±0.2 mm if it has not been indicated.

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