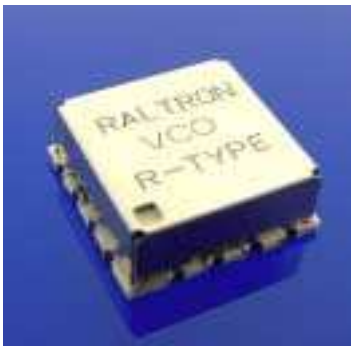
Voltage Controlled Oscillator - VCO
RQR-Series

Features

- Frequency up to 4 GHz
- Low Profile available: 3.6 mm
- Low Phase Noise
- Custom options available

Applications

- Telecommunications
- High Performance Radio
- Base Stations
- Instrumentation

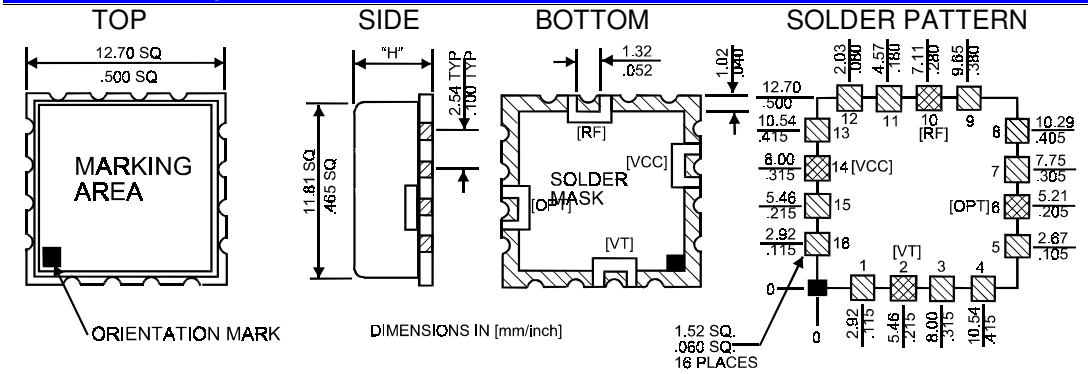


Description

The RQR-type is a VCO designed to meet the requirements for a variety of applications. Stationary or battery-operated, the unit is available in many different versions from LowNoise, HighPower, LinearTuning, LowProfile or WideBand. Components are selected for high-Q and tight tolerances.

Raltron's RQR-series is developed and manufactured in its ISO9000 certified facility in Miami. RF-simulation (CAE), automated test-equipment (Agilent VCO/PLL-Analyzer) and statistical process control (SPC) are integral part of R&D and manufacturing – which ensures minimal process variances and a high degree of repeatability.

Mechanical Specification



Pad / Functions:
[2] Tuning Voltage
[6] Optional
[10] RF-Output
[14] Supply Voltage
other pads: Ground

Height "H" (max):
Standard: 5.50/.216
LowProfile: 3.60/.140

Outline Tolerances:
±0.20mm / .008"

Electrical Specification

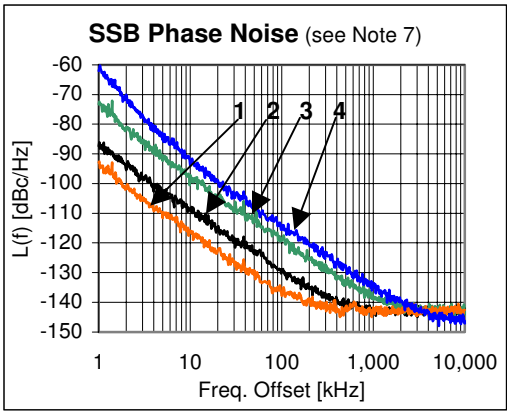
PARAMETER	COMMENTS, EXAMPLES	SYMBOL	MIN	TYP	MAX	UNIT
Max Frequency	Currently available in RQR-package	fo			4000	MHz
Tuning Ratio	Ratio of upper-to-lower freq (2 = "Octave-VCO")	f-up : f-low		1.1	2.0	-
Tuning Voltage	Battery operated 2V, Stationary: 5V or higher	Vt	0~2	0~5	0~25	V
Supply Voltage	Battery operated 3.3V to 5V, Stationary up to 12V	Vcc	3.3	5	12	V
Supply Current	Dependent on Frequency and Output Power	Icc	10	20	30	mA
Output Power	Output Power Tolerance is typ. ±3dB (min. ±1dB)	Pout	-3	+3	+10	dBm
Harmonic Suppression	Dependent on Tuning Range and Freq	a(2fo)		-15		dBc
Pushing	Dependent on Freq, Tuning R., typ 0.1%~0.5% fo	df/dVcc		5		MHz/V
Pulling	Dependent on Freq, Output Power and Circuit.	df/dZL		5		MHz

General Specification

1. Load Impedance is 50 Ohms.
2. Operating temperature range is typically –40°C…+85°C.
3. The package is non-hermetic. Substrate is glass-reinforced laminate, the cover is folded nickel-silver.
4. Bypass-capacitors (ceramic) from Vcc to Ground are recommended: 1nF||100pF.
5. Customized specifications may deviate from this General Specification.
6. Phase-noise performance depends on the individual specification. Phase Noise is strongly dependent on (a) frequency (b) supply voltage and (c) tuning range.
7. The phase noise graph (to right) shows the characteristic of 4 typical RQR-VCOs. All samples are measured at 5V supply and have 3dBm output power. Variables are frequency and tuning range. Example: [4] = VCO from 720MHz to 1680MHz.

[1] = LowNoise-VCO 800 MHz ±1% **[2] = Standard-VCO 700 MHz ±4%**
[3] = Standard-VCO 3000 MHz ±5% **[4] = WideBand-VCO 1200 MHz ± 40%**

Phase Noise



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