

RVC1616S

The RVC1616S is series of space-qualified hybrid Voltage Controlled Oscillator (VCO), offering satellite and space craft designers exceptional performance for geosynchronous orbit (GEO) and other deep space applications where the radiation specifications are critical.

This 100 kRad(Si) radiation-hardened VCO is hermetically sealed in a 16 pin flat package, with options of straight or gull-winged formed leads available.

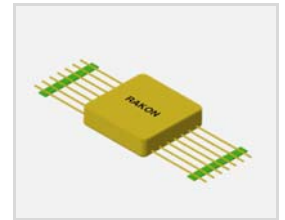
Features

- TID limit of 100 kRad and latch-up free till 62 MeV
- Thickfilm technology
- Excellent phase noise with broad band tuning range
- Hermetically sealed package
- High reliability and qualified as per ISRO-PAS-206
- Can be Manufactured in accordance with: MIL-PRF-55310 Class 2, Level S
- Fixed, narrow and broadband solutions

Applications

- Frequency synthesizers
- Digitally tuned oscillators
- Applications where low noise and fast tuning is a requirement

16 x 16 mm



Environmental Conditions

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Operating temperature		-10		55	°C
Storage temperature range		-55		125	°C
Turn on temperature		-40		65	°C

Frequency Characteristics

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Frequency range		950		1450	MHz
Frequency drift over temperature				60	MHz

Electrical Interface

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Power supply (Vcc)	±5% tolerance		12		V
Supply current	@ 12 V		40		mA

Control Voltage (Vc)

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Frequency pulling				15	MHz
Control voltage (Vc)	Custom Vc available on request	1		11	V
Frequency pushing	@ 25°C			5	MHz/V

Output Characteristics – Sine Wave

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Output power	@ 25°C		5		dBm
Power change over frequency				2	dB
Power change over temperature				2	dB
Capacitance			95		pF
Harmonics level	2 nd harmonic		-15		dBc
Phase noise	@10 kHz offset		-99		dBc/Hz
	@100 kHz offset		-122		

Screening (100%)

Screening Operation	Requirements and Condition
External visual examination	MIL-STD-883, method 2009
Initial electrical test	As per electrical specifications
Thermal storage	MIL-STD-883, method 1008, 125°C, 72 hours
Thermal cycling	MIL-STD-883,1010, +125°C to -55°C 10 cycles 10 min. dwell at each temperature extreme
Constant acceleration Or Mechanical shock	MIL-STD-883,2001, 5000g, Y1 (perpendicular to substrate) MIL-STD-883,2002, 700g half sine, 0.5 ms, 5 pulses
PIND	MIL-STD-883,2020, 20g, 60Hz, 1000g shock
Pre-burn in electrical test	As per electrical specifications
Burn-in	+125°C powered, Class S, 320 hours
Post burn-in electrical test	To be performed within 72 hours of completion of burn-in
Active Thermal Cycling (ATC)	-20°C to +65°C 2 short cycles: 2 hours 1 long cycle: 48 hours, cold 24 hours: hot 2 short cycles: 2 hours
Post ATC electrical test	As per electrical specifications
Seal leak test i) Fine leak ii) Gross leak	MIL-STD-883,2014 Fine leak: $< 5 \times 10^{-8}$ atm cc/sec Gross leak: free from stream of bubbles
External visual examination	MIL-STD-883, method 2009
DPA (Destructive Physical Analysis)	One number, in Case of failure, DPA on another sample & failure analysis on failed sample. Clearance of the batch depends on the failure analysis

Model Outline, Pin Connections

