

RVX3520S

The RVX3520S is a radiation tolerant VCXO in 35 x 20 mm hermetically sealed package. This VCXO is specifically designed for missions where resistance to demanding environment, short lead-time and radiation tolerance are required. The high reliability VCXO delivers excellent frequency stability.

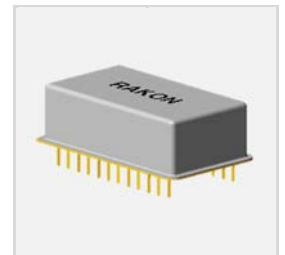
Features

- TID limit of 100 kRad and latch-up free till 32.4/62 MeV
- Hermetically sealed package
- Frequency range: 0.032 to 40 MHz
- Output option: HCMOS and Sinewave
- Low current: 25 mA
- Supply voltage 5.0, 9.0 or 15.0 V
- Excellent frequency stability: ± 15 ppm over -30 to 60°C
- Manufactured in accordance with: MIL-PRF-55310 Class 2, level S

Applications

- Space Synthesizers and Transponders
- GPS receivers
- Down and up converters and on-board calculators.

35 x 20 mm



Environmental Conditions

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Operating temperature		-40		85	°C
Switch-on temperature	TS ₀	-40		125	°C
Non-operating temperature	TNOp	-55		125	°C

Frequency Characteristics

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Initial frequency accuracy	@ 25°C			± 10	ppm
Frequency stability over temperature (FvT)	-30 to 60°C -40 to 85°C			± 15 ± 35	ppm
Supply voltage stability (FvT) ¹				± 0.2	ppm
Ageing	per year			± 1	ppm
Start-up time				10	ms

Electrical Interface

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Power supply (Vcc)	$\pm 5\%$ tolerance		5.0, 9.0, 15.0		V
Input current ¹	No load		25		mA

Control Voltage (Vc)

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Pulling range ²		± 50 ± 100			ppm
Control voltage (Vc)	Custom Vc available on request	-3.0 0.0	0 2.5	3.0 5.0	V
Linearity ¹				10	%
Slope	Positive or negative				
Modulation BW		50			kΩ
Frequency adjustment with external 10 kΩ potentiometer		± 5			ppm

¹ Over operating temperature.

² Pulling range of min ± 375 ppm available on request.

Output Characteristics³

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit	
HCMOS ⁴	Nominal frequency	HCMOS output	0.032		40	MHz
	Output voltage (V _{OL}) ¹	15 pF load			10% V _{CC}	V
	Output voltage (V _{OH}) ¹	15 pF load	90% V _{CC}			V
	Duty cycle ¹	@50% V _{CC}	45		55	%
	Rise time / fall time ¹	10% to 90% V _{CC}			5	ns
Sinewave	Nominal frequency	Sinewave output	15		40	MHz
	Output level ¹	50 Ω nominal load		7		dBm
	Harmonics & subharmonics ¹			-30		dBc
	Spurious ¹			-70		dBc
	Phase noise for Sinewave	1 kHz offset @ 38 MHz		-130		dBc/Hz

Screening (100%)

Screening Operation	Requirements and Condition
Non-destructive bond pull	MIL-STD-883, method 2023
Internal visual	MIL-STD-883, method 2017 and method 2032
Stabilization bake (prior to seal)	MIL-STD-883, method 1008, condition C (+150°C), 48 hours minimum
Thermal shock	MIL-STD-883, method 1011, condition A
Temperature cycling	MIL-STD-883, method 1010, condition C
Constant acceleration	MIL-STD-883, method 2001, condition A, Y1 only (5000 g's)
Seal (fine and gross leak)	MIL-STD-883, method 1014. Fine leak: Test condition A1, A2, or B Gross leak Test condition B2 or B3
Particle impact noise detection (PIND)	MIL-STD-883, method 2020, condition A
Burn-in (load)	125°C, nominal supply voltage and burn-in load, 240 hours minimum
Electrical test	Nominal and extreme supply voltages, specified load, 23°C and temperature extremes, record all test parameters by serial number
Radiographic	MIL-STD-883, method 2012
External visual	MIL-STD-883, method 2009

Model Outline, Pin Connections

FRONT VIEW: Shows a package with a height of 10 Max. and a minimum height of 5 Min. The pin diameter is Ø0.45 (x24).

SIDE VIEW: Shows the profile of the package with a flat top and a base.

BOTTOM VIEW: Shows the pin layout with dimensions: 20.19 mm height, 34.8 mm width, and 15.24 mm distance from the bottom edge to the center of the pins. The top edge has an ID BEAD and a length of 2.54P x 11 = 27.94 mm. The bottom edge has a radius of R2.0 (x3). Pins are numbered 1 through 24.

Pin	Connections
1	V _c (Control voltage)
2, 3, 4	GND
5*	Frequency adjustment option (10 kΩ POT to be connected from pin 5 to GND)
6, 7, 8, 9, 10, 11, 12	GND
13	F _{out} (Frequency output)
14, 15, 16, 17, 18, 19, 20, 21, 22, 23	GND
24	V _{CC} (Supply voltage)

NOTE:

- Dimensions are in millimetres.
- Tolerance is ±0.25 mm if it has not been indicated.

³ LVDS output option is available on request. | ⁴ The HCMOS option is available for 5.0 V.