

## 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.

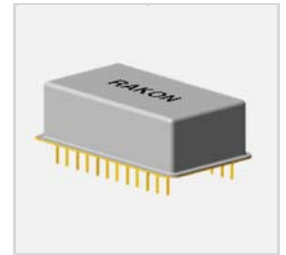
### Features

- 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:  $\pm 15$  ppm over -30 to 60°C
- Manufactured in accordance with: MIL-PRL-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 <sub>0</sub>	-40		125	°C
Non-operating temperature	TNOp	-55		125	°C

### Frequency Characteristics

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Initial frequency accuracy	@ 25°C			$\pm 10$	ppm
Frequency stability over temperature (FvT)	-30 to 60°C -40 to 85°C			$\pm 15$ $\pm 35$	ppm
Supply voltage stability (FvT) <sup>1</sup>				$\pm 0.2$	ppm
Ageing	per year			$\pm 1$	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 <sup>1</sup>	No load		25		mA

### Control Voltage (Vc)

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

<sup>1</sup> Over operating temperature.

<sup>2</sup> Pulling range of min  $\pm 375$  ppm available on request.

## Output Characteristics<sup>3</sup>

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit	
HCMOS <sup>4</sup>	Nominal frequency	HCMOS output	0.032		40	MHz
	Output voltage (V <sub>OL</sub> ) <sup>1</sup>	15 pF load			10% V <sub>CC</sub>	V
	Output voltage (V <sub>OH</sub> ) <sup>1</sup>	15 pF load	90% V <sub>CC</sub>			V
	Duty cycle <sup>1</sup>	@50% V <sub>CC</sub>	45		55	%
	Rise time / fall time <sup>1</sup>	10% to 90% V <sub>CC</sub>			5	ns
Sinewave	Nominal frequency	Sinewave output	15		40	MHz
	Output level <sup>1</sup>	50 Ω nominal load		7		dBm
	Harmonics & subharmonics <sup>1</sup>			-30		dBc
	Spurious <sup>1</sup>			-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. <b>Fine leak:</b> Test condition A1, A2, or B <b>Gross leak</b> 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 pitch is 0.45 mm (x24).

**SIDE VIEW**: Shows the profile of the package with a height of 10 mm.

**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). Pin numbers 1, 2, 3, 4, 5\*, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24 are indicated.

Pin	Connections
1	V <sub>c</sub> (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 <sub>out</sub> (Frequency output)
14, 15, 16, 17, 18, 19, 20, 21, 22, 23	GND
24	V <sub>CC</sub> (Supply voltage)

**NOTE:**

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

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