

## RVX2213S

The RVX2213S is a radiation tolerant VCXO in 22 x 13 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.

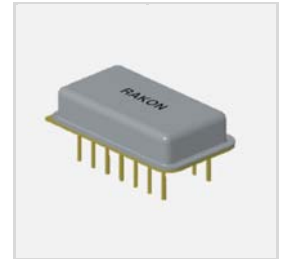
### Features

- TID limit of 100 kRad and latch-up free till 32.4/62 MeV
- Hermetically sealed package
- Frequency range: 0.032 to 30 MHz
- Output option: HCMOS
- High pulling:  $\pm 375$ ppm
- Supply voltage 5.0 V
- Excellent frequency stability:  $\pm 50$  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

### 22 x 13 mm



### Environmental Conditions

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Operating temperature		-30		60	°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			$\pm 25$	ppm
Frequency stability over temperature (FvT)	-30 to 60°C			$\pm 50$	ppm
Supply voltage stability (FvT) <sup>11</sup>				$\pm 0.2$	ppm
Ageing	for first year per year after first year			$\pm 5$ $\pm 2$	ppm
Start-up time				10	ms

### Electrical Interface

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Power supply (Vcc)	$\pm 5\%$ tolerance		5.0		V
Input current <sup>1</sup>	No load		30		mA

### Control Voltage (Vc)

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Pulling range		$\pm 375$			ppm
Control voltage (Vc)		0	2.5	5.0	V
Linearity <sup>1</sup>				10	%
Slope	Positive				
Modulation BW		50			kΩ

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

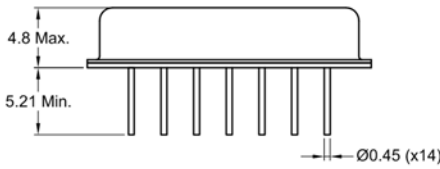
## Output Characteristics -HCMOS

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Nominal frequency	HCMOS output	0.032		40	MHz
Output voltage (Vol)	15 pF load			10% Vcc	V
Output voltage (Voh)	15 pF load	90% Vcc			V
Duty cycle	@50% Vcc	45		55	%
Rise time / fall time	10% to 90% Vcc			15	ns

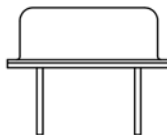
## Screening (100 Percent)

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
Electrical test	
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

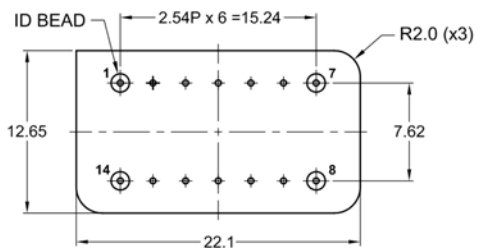
## Model Outline, Pin Connections



**FRONT VIEW**



**SIDE VIEW**



**BOTTOM VIEW**

Pin	Connections
1	Vc (Control voltage)
2,3, 4,5,6	NC
7	GND
8	Fout (Frequency output)
9,10,11,12,13	NC
14	Vcc (Supply voltage)

**NOTE:**

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