

## RXO2213S

The RXO2213S is a radiation tolerant XO in 22 x 13 mm hermetically sealed package. This XO is specifically designed to meet the space missions where it is resistant to demanding environment, short lead-time and radiation tolerance requirements are important.

### Features

- TID limit of 100 kRad and latch-up free till 32.4/62 MeV
- Hermetically sealed package
- Frequency range: 0.250 to 52.5 MHz
- Low current: 20 mA
- Supply voltage: 3.3 or 5.0 V
- ±50 ppm over -55 to 125°C
- Manufactured in accordance with: MIL-PRL-55310 Class 2, level S

### Applications

- Space applications such as Clocks
- Gyroscopes and Frequency Generation Units (FGU)

### 22 x 13 mm



### Environmental Conditions

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Operating temperature		-25		85	°C
		-55		125	°C
Switch-on Temperature	TSo	-55		125	°C
Non-operating temperature	TNOp	-55		125	°C

### Frequency Characteristics

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Initial frequency tolerance	@ 25°C			±15	ppm
Frequency stability over temperature (FvT)	-25 to 85°C			±25	ppm
	-55 to 125°C			±50	ppm
Supply voltage stability (FvT) <sup>1</sup>	±5% tolerance			±2	ppm
Ageing	Per year @ 70°C			±3	ppm
Start-up time				10	ms

### Electrical Interface

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Power supply (Vcc)	±5% tolerance		3.3, 5.0		V
Input current <sup>1</sup>	No load		20		mA

### Output Characteristics HCMOS<sup>2</sup>

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Nominal frequency	HCMOS output	0.256		52.5	MHz
Output voltage (VoL) <sup>1</sup>	15 pF load			10% Vcc	V
Output voltage (VoH) <sup>1</sup>	15 pF load	90% Vcc			V
Duty cycle <sup>1</sup>	@50% Vcc	40		60	%
Rise time / Fall time <sup>1</sup>	10 % to 90% Vcc			10	ns

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

<sup>2</sup> Transistor Transistor Logic (TTL) output option available on request.

## 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 and Recommended Pad Layout

