RXO2213S

The RXO2213S is a radiation tolerant XO housed in a 22 x 13 mm low profile, hermetically sealed package. This XO offers precise frequency stability of ±15 ppm. Engineered for range for space missions requiring exceptional resistance to demanding environments, the RXO2213S ensures robust performance under challenging conditions. The oscillator is available with a short lead time, providing a reliable solution for time-sensitive applications.

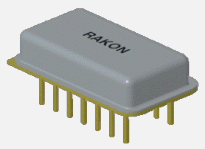
Features

- TID limit of 100 krad and SEL free up to LET 62 MeV.cm²/mg
- Hermetically sealed package
- Frequency range: 0.256Hz to 72 MHz
- Supply voltage: 2.5, 3.3, 5.0 V
- FvT: ±50 ppm over -55 to 125°C
- Manufactured in accordance with MIL-PRF-55310 Class 2, level S

Applications

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

22 x 13 mm



Environmental Conditions

Parameter	Test Conditions/Description	Min.	Typ.	Max.	Unit
Operating temperature (To)	Option A Option B	-25 -55		85 125	°C
Storage temperature (Ts)		-55		125	°C

Frequency Characteristics

Parameter	Test Conditions/Description	Min.	Typ.	Max.	Unit
Initial frequency accuracy	@ 25°C			±15	ppm
Frequency stability over temperature (FvT)	Option A: -25 to 85°C Option B: -55 to 125°C			±25 ±50	ppm
Supply voltage stability	±5% tolerance			±2	ppm
Ageing	Per year @ 70°C			±3	ppm
				10	ms

Electrical Interface

Parameter	Test Conditions/Description	Min.	Typ.	Max.	Unit
Power supply (V_{CC})	±5% tolerance		2.5, 3.3, 5.0		V
Input current[1]	No load		35		mA

Output Characteristics HCMOS[2]

Parameter	Test Conditions/Description	Min.	Typ.	Max.	Unit
Nominal frequency (Fn)	HCMOS output option A HCMOS output option B	0.256 0.00005		52.5 72	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}	40		60	%
Rise time / Fall time[1]	10 % to 90% Vcc			10	ns

[1] Over temperature range.

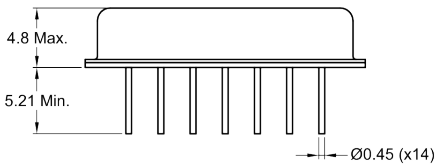
[2] Transistor Transistor Logic (TTL) output option available on request.

Environmental Specifications

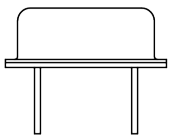
Screening Operation	Requirements and Condition		
Non-destructive bond pull	MIL-STD-883, method 2023		
Internal visual	MIL-STD-883, method 2017 and method 2032		
Stabilisation bake (prior to seal)	MIL-STD-883, method 1008, condition C (+150°C), 48 hours minimum		
Thermal shock	MIL-STD-883, method 1011, 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	*Fine leak* Test condition B2 or B3
Particle impact noise detection (PIND)	MIL-STD-883, method 2020, condition A		
Electrical test	Nominal and extreme supply voltages, specified load, 23°C and temperature extremes, record all test parameters by serial number		
Burn-in (load)	115°C, nominal supply voltage and burn-in load, 440 hours minimum		
Radiographic	MIL-STD-883, method 2012		
External Visual	MIL-STD-883, method 2009		

Model Outline and Pin Connections

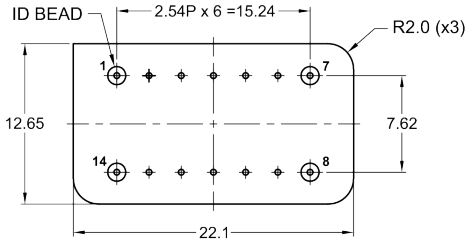
Parameter	Requirements / Condition
Package size	L x W: 22 x 12.65 mm nom. H = 4.8 mm max.
Net weight	15 g typ.



FRONT VIEW



SIDE VIEW



BOTTOM VIEW

Pin	Connections
1, 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.