RK407

The RK407 platform is a Space OCXO which reduces the gap between TCXO and OCXO performance. Offering very low power consumption, low noise and compactness in a stability class of 10^{-7}. This frequency source is available with a short lead-time, and is designed for scenarios where low consumption is required, but TCXO stability is insufficient.

The RK407 can be screened following the guidance of MIL-PRF-55310 (Class 1, type 4, level S) or to an optimised and shorter flow. This product platform is ideal for telecommunications payload applications such as clocks, signal generation, transponders, GNSS receivers, digital cards, down and up converters and synthesizers.

Features

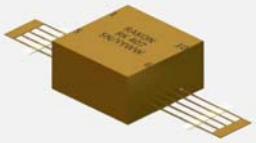
- Wide frequency range from 10 to 130 MHz with standard frequencies 10, 40, 70, 90, 100 and 125 MHz
- Low consumption: 0.65 W
- Supply voltage: +5 or +12 V
- Warm up consumption: 2.1 W
- Overall frequency stability vs. temperature: ± 0.5 ppm under vacuum
- Ageing: ± 1 ppm over 18 years
- Output wave form: sine 50 Ω
- Compatible with flat pack TCXO pin-out
- Component selected as per ECSS-Q-ST-60C
- Materials selected as per ECSS-Q-ST-70
- Manufacturing in accordance with ECSS-Q-ST-70-08C and ECSS-Q-ST-70-38C

Applications

- Transponders
- GNSS receivers
- Navigation
- Converters
- On-board calculators
- Synthesizers
- Frequency generator unit (FGU)

25 x 25 x 17 mm

Flat pack 10 leads



Environmental Conditions

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Operating temperature	TO_P	-40	25	70	°C
Switch-on temperature	TS_O	-40		85	°C
Non-operating temperature	TNO_P	-40		85	°C
Random vibration	Level as per MIL-STD-202 Method 214: ***20 to 100 Hz***: +6dB/oct; ***100 to 1000 Hz***: 2.6 g^2/Hz; ***1000 to 2000 Hz***: -6dB/oct; Overall : 61 grms				
Sine vibration	Level as per MIL-STD-202 Method 204, Condition D (20G)				
Mechanical shock	Level as per MIL-STD-202, Method 213: Half sine with a peak acceleration of 3000 *g* or duration of 0.3 ms				
Radiation	Total Ionizing Dose of 100 kRad, low dose rate (36 to 360 rad/h)				

Electrical Interface

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Power supply	Option 1 (12 V) Option 2 (5 V)	11.40 4.75	12 5	12.60 5.25	V
Load impedance		45	50	55	Ω
Supply voltage (Vc)	Option 1 (12 V) Option 2 (5 V)	5.4 2.85	6 3	6.6 3.15	V
Control voltage (Vs)	Only with frequency adj option 2 (5 V)	0		Vrefnom	V

Phase Noise (Maximum value)

Parameter	10 to 45 MHz	90 to 110 MHz	120 to 130 MHz	Unit
1 Hz offset	-65	-60	-60	dBc
10 Hz offset	-95	-90	-90	dBc
100 Hz offset	-125	-120	-120	dBc
1 kHz offset	-145	-140	-140	dBc
10 kHz offset	-152	-152	-152	dBc

Frequency Characteristics

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Nominal frequency	Standard frequencies: 10, 40, 70, 90, 100 and 125 MHz	10		130	MHz
Steady state supply power	Vacuum, EOL			0.7	W
Warm up supply power	Vacuum, EOL			2	W
Initial frequency accuracy	Vacuum			±0.4	ppm
Frequency adjustment	Supply voltage option 2 (5V, Vc)			±1.2	ppm
Frequency stability over temperature (FvT)	-20°C to 70°C TO_P: -40°C to 70°C			±0.1 ±0.25	ppm
Supply voltage stability (FvT)	Over operating temperature			±0.05	ppm
Load sensitivity (FvT)	Over operating temperature			±0.05	ppm
Pressure (FvT)	Atm to vacuum			±0.2	ppm
Ageing (FvT) over 1 day	Fnom: 10 to 45 MHz Fnom: 90 to 130 MHz			±5 ±10	ppb
Ageing (FvT) over 1 year	Fnom: 10 to 130 MHz			±0.3	ppm
Ageing (FvT) over 18 years	Fnom: 10 to 130 MHz			±1	ppm
Allan variance	tau = 10 ms tau = 100 ms tau = 1s tau = 10s			$1*10^{-10}$ $5*10^{-11}$ $5*10^{-11}$ $5*10^{-11}$	
Frequency warm up	Time needed to reach the initial frequency accuracy (1h ref.)			6	mn
Output waveform	Sine				
Output level	EOL; Vs: Option 1 EOL; Vs: Option 2 (Fnom: 10 to 110 MHz)	4 2.5		7.5 6	dBm
Harmonics level				-25	dBc
Spurious level	100 Hz to 100 kHz 100 kHz to 5 GHz			-100 -85	dBc

Ordering Part Example