

## RK407

The RK407 is a Space OCXO dedicated to Telecom payloads as it is in the 10<sup>-7</sup> stability class over the temperature range with an overall frequency drift less than 2 ppm over 18 years and available with a short lead time. It is designed for clocks, signal generation applications, transponders, GNSS receivers, digital cards, board calculators, down and up converters, and synthesizers.

This frequency source is a good trade-off between overall frequency stability and power consumption. It can be screened following the guidance of the MIL-PRF-55310 (Class 1, type 4, level 5) or to a more optimised and shorter flow. It is available in a flat pack package 25 x 25 x 17 mm.

### Features

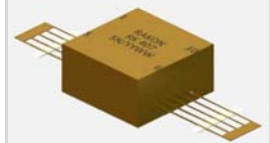
- Wide frequency range from 10 to 130 MHz with standard frequencies 10, 40, 70, 90, 100 and 125 MHz
- Low consumption: 0.65 W
- Supply voltage: +5 or +12 V
- Warm up consumption: 2.1 W
- Overall frequency stability vs. temperature: ± 0.5 ppm under vacuum
- Ageing: ± 1 ppm over 18 years
- Output wave 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 <sub>p</sub>	-40	25	70	°C
Switch-on temperature	TS <sub>o</sub>	-40		85	°C
Non-operating temperature	TNO <sub>p</sub>	-40		85	°C
Random vibration	Level as per MIL-STD-202 Method 214: <b>20 to 100 Hz:</b> +6dB/oct; <b>100 to 1000 Hz:</b> 2.6 g <sup>2</sup> /Hz; <b>1000 to 2000 Hz:</b> -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)	11.40	12	12.60	V
	Option 2 (5 V)	4.75	5	5.25	
Load impedance		45	50	55	Ω
Supply voltage (Vc)	Option 1 (12 V)	5.4	6	6.6	V
	Option 2 (5 V)	2.85	3	3.15	
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 <sub>p</sub> : -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	F <sub>nom</sub> : 10 to 45 MHz F <sub>nom</sub> : 90 to 130 MHz			±5 ±10	ppb
Ageing (FvT) over 1 year	F <sub>nom</sub> : 10 to 130 MHz			±0.3	ppm
Ageing (FvT) over 18 years	F <sub>nom</sub> : 10 to 130 MHz			±1	ppm
Allan variance	tau = 10 ms tau = 100 ms tau = 1s tau = 10s			1*10 <sup>-10</sup> 5*10 <sup>-11</sup> 5*10 <sup>-11</sup> 5*10 <sup>-11</sup>	
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 (F <sub>nom</sub> : 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

