

RPT7050N

The RPT7050N encompasses Rakon’s Pluto+ ASIC technology and is specifically designed to meet the short and medium term stability requirements of packet networks synchronisation for Small Cells. This ‘best-in-class’ oscillator has low jitter to meet network interfaces (e.g. 10GE) and low phase noise to meet the radio interface requirements of LTE (TS 36.104) and WCDMA (TS 25.104) transceivers – enabling a single device to be used for both functions. Its superb frequency versus temperature and slope performance, together with low power consumption makes Pluto+ the ideal choice for Small Cell synchronisation.

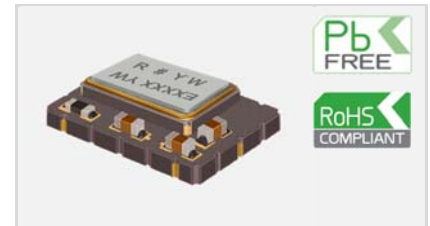
Features

- Patented ‘varactor linearisation’ removes the effects of tilt when using voltage control
- Clipped sine wave and HCMOS output options available
- LTE phase noise compliant
- Temperature sensor option

Applications

- **Small Cells**
 - WCDMA
 - LTE

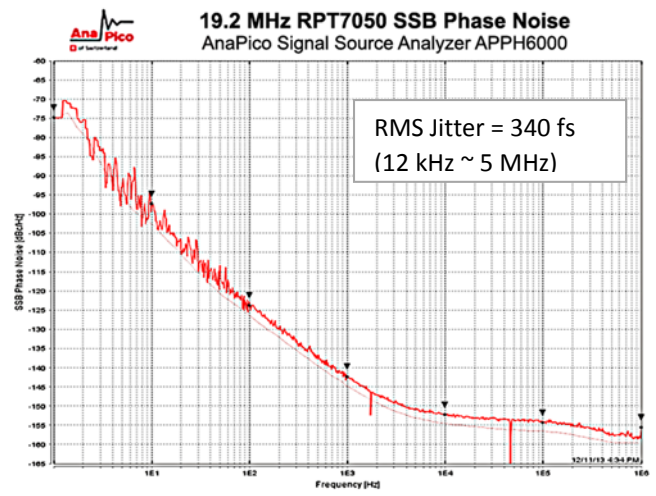
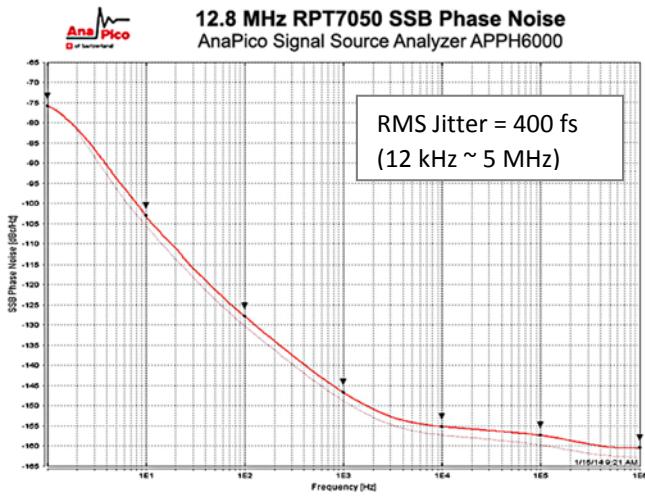
7.0 x 5.0 x 2.0 mm



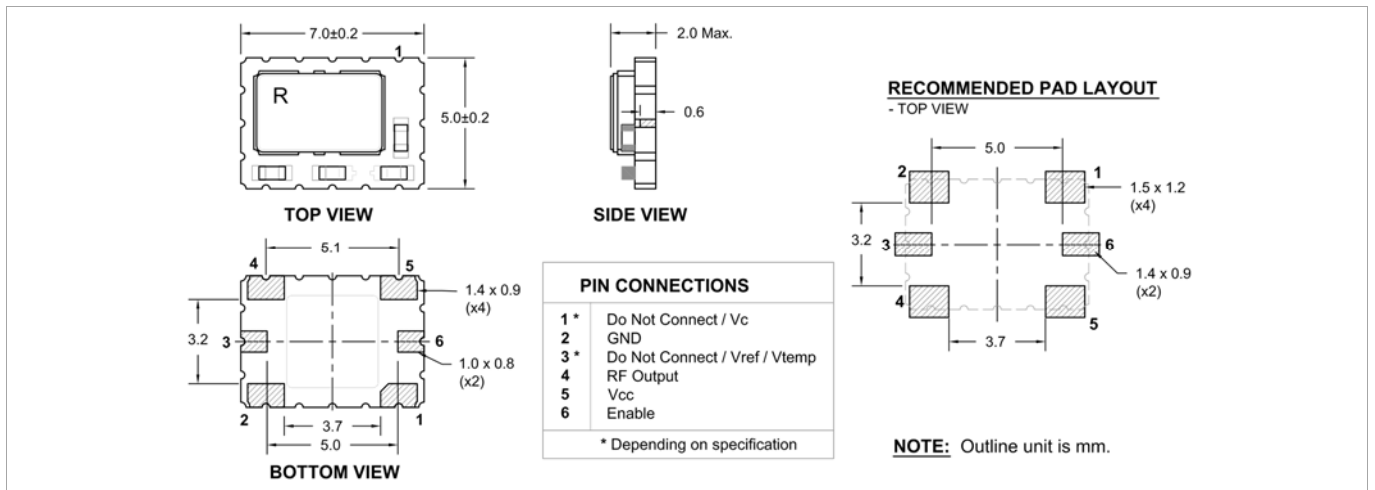
Standard Specifications

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
Nominal frequency		12.8 – 26.0		MHz	Standard frequencies: 12.8, 19.2, 25.0 and 26.0MHz
Frequency calibration			±1.0	ppm	Initial accuracy at 25°C ±1°C
Reflow shift			±0.5	ppm	Pre to post reflow ΔF (measured ≥ 60 minutes after reflow)
Operating temperature range	-40		85	°C	
Temperature rate of change			1	°C/min	Maximum rate of change of temperature condition for guaranteed stability specifications
In-service short term frequency stability			±50 ±100	ppb	-0 to 70 °C, All effects for 24 hours -40 to 85 °C, All effects for 24 hours
Slope over temperature (ΔF/ΔT)			±15 - ±50	ppb/°C	
Supply voltage stability		±10		ppb	±2% variation Reference to frequency at nominal supply voltage
Load sensitivity		±10		ppb	• HCMOS: ±1pF variation, • Clipped sine wave: ±2% variation Reference to frequency at nominal load
Long term stability (ageing)			±20 ±200	ppb/day ppb/month	±1ppm/year ±3ppm/10 years
Acceleration sensitivity		<2		ppb/g	Gamma vector, 3-axes, 30 – 1500Hz
Start-up time			10	ms	90% amplitude
Supply voltage, V _{CC}	2.5		5.7	V	Standard values 3.0 and 3.3, other values available upon request
Current C/Sine		2		mA	
Current HCMOS		4		mA	
Oscillator output – C/Sine	0.8			V _{pp}	Load 10pF//10kΩ
Oscillator output – HCMOS					
Output voltage level high (V _{OH})	0.9V _{CC}			V	
Output voltage level low (V _{OL})			0.1V _{CC}	V	
Duty cycle	45		55	%	At 50% level
Rise & fall time			8	ns	Between 10% and 90%
Control voltage	0.5		2.5	V	
Tuning range	±5		±12	ppm	
Input resistance	100			kΩ	

SSB Phase Noise (Typical value at 25°C)



Model Outline and Recommended Pad Layout



Test Circuit

