

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

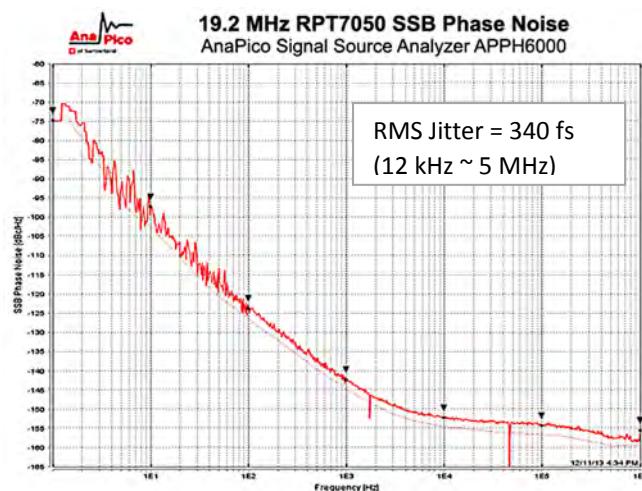
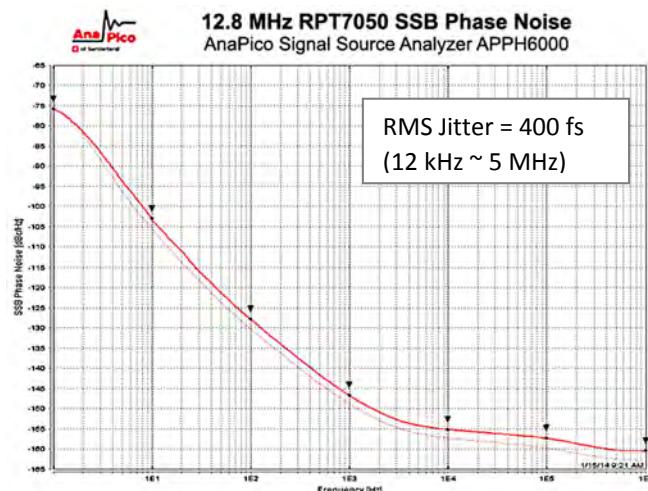
7.0 x 5.0 x 2.0 mm



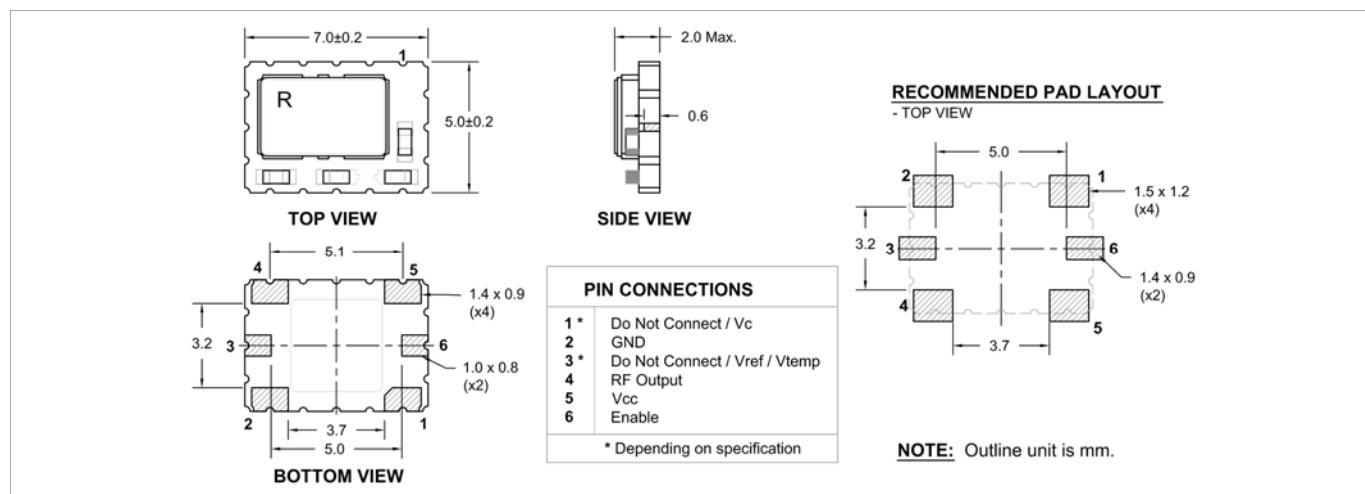
Standard Specifications

| 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 | | | | V | |
| 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

