

RPT5032A

The RPT5032A encompasses Rakon's new patented Pluto+ ASIC. Pluto+ advances the world-famous Pluto ASIC technology by delivering exceptional phase noise and jitter performance and enhanced frequency versus temperature stability. The single-chip oscillator, with its analogue compensation circuit, is capable of sub 0.1 ppm frequency stability over an extended temperature range and RMS phase jitter down to 0.13 ps for IEEE1588 and SyncE applications. Its unique tilt control ensures lifetime specification compliance, unlike other TCXOs available.

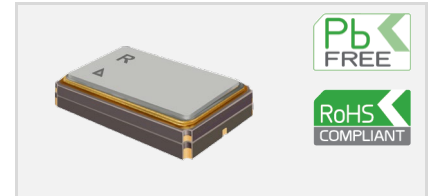
Features

- Best-in-class frequency versus temperature
- RMS phase jitter down to 0.13 ps
- Phase noise < -160dBc/Hz noise floor
- Voltage control and T-sense options available

Applications

- **Time and frequency reference**
 - Positioning
 - Test and Measurement
 - Telecommunications
 - Hi-Rel / Defence

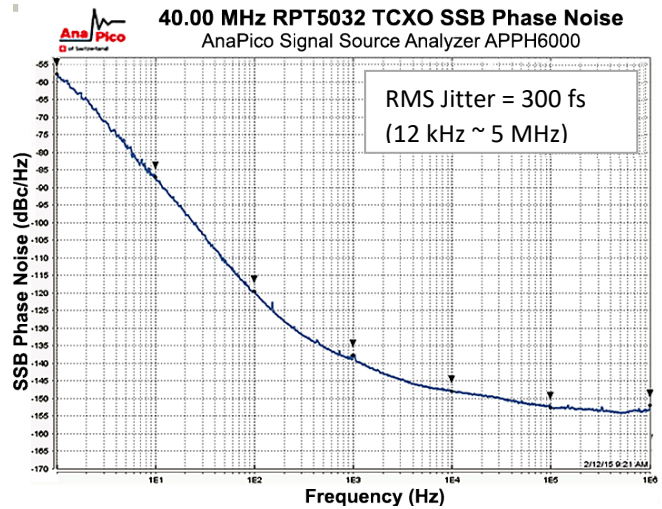
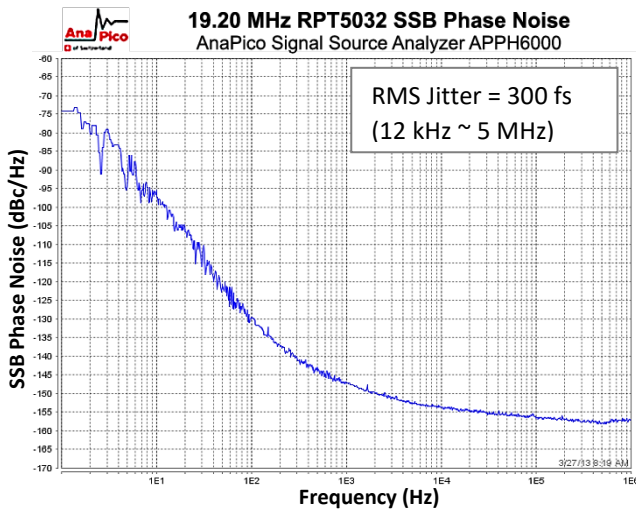
5.0 x 3.2 x 1.75 mm



Standard Specifications

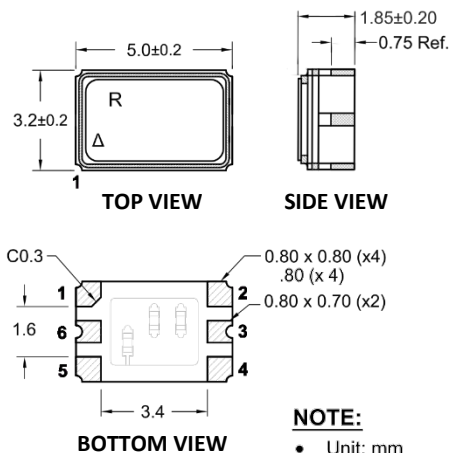
Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
Nominal frequency (Fn)		1.25 – 52		MHz	Standard frequencies: 10.0, 12.8, 16.384, 19.2, 19.44, 20.0, 25.0, 26.0, 30.72, 38.88 and 40MHz
Frequency calibration			±1	ppm	Initial accuracy at 25 ± 1°C
Reflow shift			±0.5	ppm	Pre to post reflow ΔF (measured ≥ 60 minutes after reflow)
Operating temperature range	-55		105	°C	
Frequency stability over temperature			±0.05 – ±2.5	ppm	Reference to (Fmax + Fmin)/2. The best available stability depends on the nominal frequency and selected operating temperature range
Supply voltage stability		±0.025		ppm	±5% variation Reference to frequency at nominal V _{CC}
Load sensitivity		±0.05		ppm	<ul style="list-style-type: none"> • HCMOS, ACMOS: ±5pF variation, • Clipped sine wave / Sine wave: ±10% variation reference to frequency at nominal load
Long-term stability (ageing)					
≤26MHz			±1	ppm/year	±3ppm/10 years
>26MHz			±2	ppm/year	±5ppm/10 years
Acceleration Stability		<2		ppb/g	Gamma vector, 3-axes, 30-1500Hz
Start-up time			5 – 15	ms	90% amplitude
Supply voltage, V _{CC}	2.5		5.7	V	±5%, standard values are 3.0, 3.3 and 5.0V
Current (C/Sine)		2		mA	
Current (Sine)		8		mA	
Current (HCMOS)		4		mA	
Current (ACMOS)		8		mA	
Control voltage, V _c	0.5		2.5	V	
Frequency tuning					
≤26MHz	±5			ppm	
>26MHz	±7			ppm	
Root Allan Variance (20MHz)		5		10 ⁻¹¹	tau = 1.0s
Oscillator output options					Clipped sine wave, sine wave, HCMOS (LVCMOS & LVTTTL compatible as per JESD8C) and ACMOS
Tri-State Control					
Input level low (pin 6)			0.2V _{CC}	V	Device disabled, output in high impedance state
Input level high (pin 6)	0.6V _{CC}			V	Device enabled, operating

SSB Phase Noise (Typical value at 25°C)

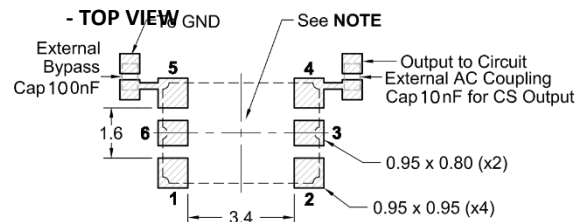


Model Outline and Recommended Pad Layout

RPT5032A 6-pad 3D model



RECOMMENDED PAD LAYOUT



PIN CONNECTIONS

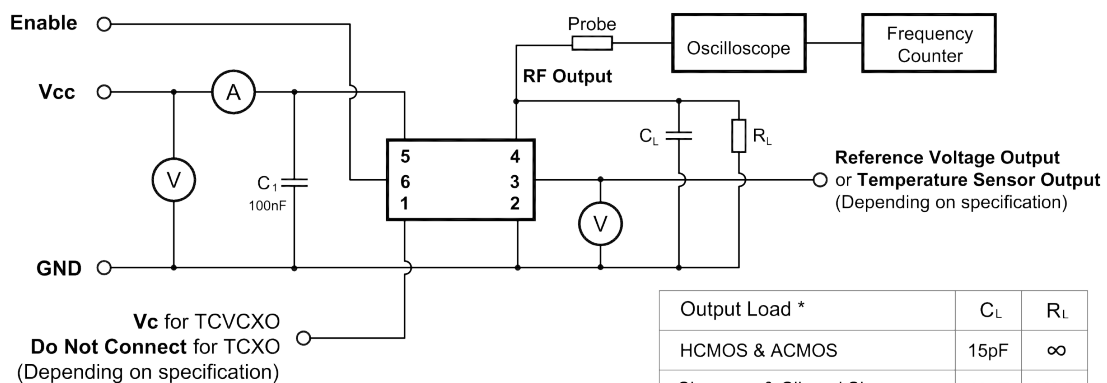
1 * Do Not Connect / Vc	4 RF Output
2 GND	5 Vcc
3 * Do Not Connect / Vref / Vtemp	6 Enable

* Depending on specification

NOTE:

- Unit: mm
- The area between the pads is a keep-out area, no tracks or ground plane allowed on any layer

Test Circuit



Output Load *	C _L	R _L
HCMOS & ACMOS	15pF	∞
Sinewave & Clipped Sinewave	10pF	10kΩ
* Inclusive of probe impedance		