

RPT7050LG

The RPT7050LG is one of our most advanced ≤ 0.1 ppb/g *g*-sensitivity Ultra Stable TCXOs (US-TCXOs) in a small low profile size of 7.0 x 5.0 x 1.5 mm. Frequencies are available from 10 to 52 MHz. This TCXO/TC-VCXO features the following Rakon proprietary technologies: Pluto+2™ ASIC, XMEMS® crystal, blank mounting and assembly. These advanced solutions guarantee the ± 0.2 ppm frequency stability (FvT) over extended operating temperatures -55 to 105°C – the best FvT performance TCXO with the widest operating temperature range.

The US-TCXO is engineered for applications that withstand high vibration levels and harsh temperatures, such as defence, positioning and navigation, precision GNSS, avionics, telecommunications, and Real-Time Kinematic (RTK).

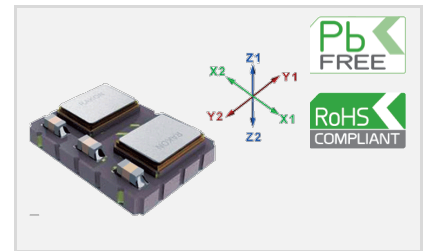
Features

- Low *g*-sensitivity typically ≤ 0.1 ppb/g
- Pluto+2™ and XMEMS® technologies
- Custom SC-cut high-Q crystal
- ± 0.2 ppm frequency stability over -55 to 105°C
- Fast start-up 5 ns (HCMOS)
- Customised design available on request

Applications

- Defence
- Positioning and navigation
- Precision GNSS
- Real-Time Kinematic (RTK)
- Avionics
- Communications

7.0 x 5.0 x 1.5 mm



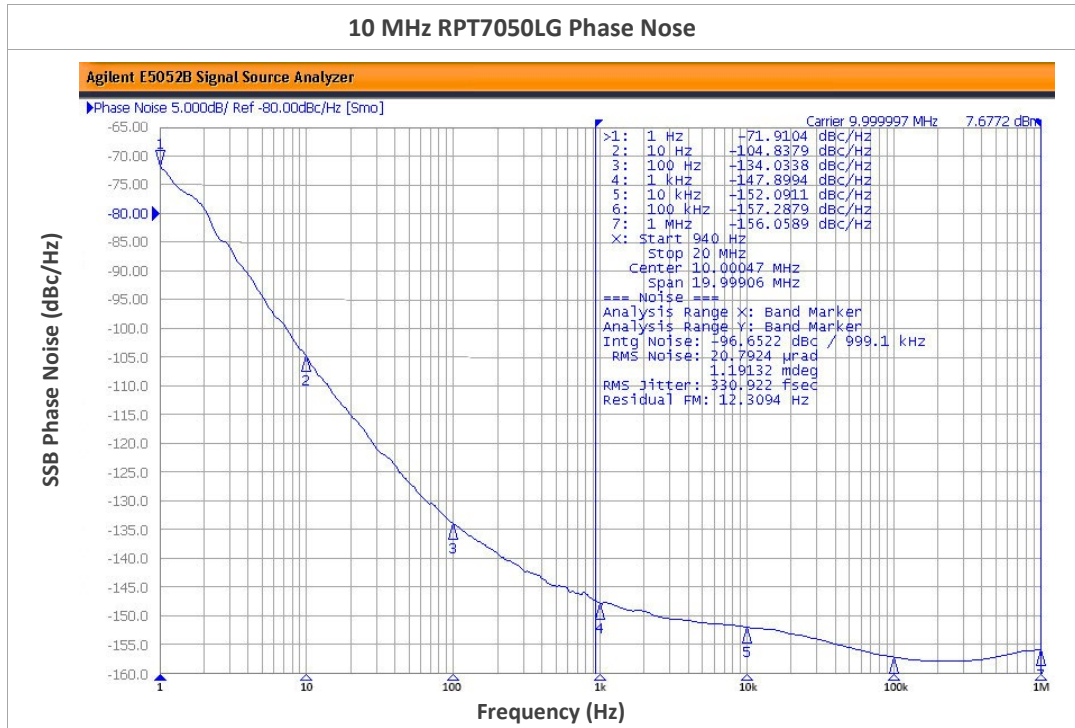
Standard Specifications

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
Nominal frequency (Fn)	10		52	MHz	
Frequency calibration			± 1	ppm	At 25°C, $\pm 2^\circ\text{C}$, at time of shipment reference to the nominal frequency
Reflow shift			± 1	ppm	After 1 hour recovery at 25°C
Frequency stability over temperature			$\pm 0.2 - 0.5$	ppm	Reference to $(F_{\text{MAX}} + F_{\text{MIN}})/2$
Operating temperature range	-55		105	°C	Operating temperature range over which temperature stability is measured
Slope over temperature ($\Delta F/\Delta T$)	20		100	ppb/°C	Temperature ramp 1°C/minute
Supply voltage stability		± 25	± 50	ppb	$\pm 5\%$ variation
Load sensitivity		± 25	± 50	ppb	$\pm 5\%$ variation
Long term stability			$\pm 1 / \pm 2$ $\pm 3 / \pm 5$	ppm	$\leq 26\text{MHz} / >26\text{MHz}$
Acceleration sensitivity		0.1	0.2	ppb/g	Gamma vector over operating temperature range
Supply voltage (V _{CC})		3.3		V	$\pm 5\%$
Supply current		5	11	mA	The current value depends on Fn
Output voltage – DC coupled C/Sine	0.8	1.1		V	Peak to peak voltage
Load resistance		10		kΩ	
Load capacitance		10		pF	
Output voltage (HCMOS)					
Voltage level low (V _{OL})			0.1	V _s	
Voltage level high (V _{OH})	0.9			V _s	
Rise and fall time			5	ns	Measured with V _{CC} = 3.3V
Duty cycle	45		55	%	Measured at 50% level
Load		15		pF	
Control voltage (V _c) range	0.5		2.5	V	
Frequency tuning	$\leq 26\text{MHz}$ $> 26\text{MHz}$	± 5 ± 7		ppm	
Slope		+7		ppm/V	
Input resistance	100			kΩ	
Modulation bandwidth	1			Hz	

Environmental Specifications

Parameter	Description
Vibration	JESD22-B103 (section 4.2.2)/MIL-STD-202, M204, 20g, 10 to 2000Hz
Mechanical shock	JESD22-B104 (service condition B), 5 shocks in 6 axes (30 shocks total), 1500g peak value, 0.5ms duration, half-sine waveform

SSB Phase Noise (Typical value at 25°C)



Model Outline and Recommended Pad Layout

