

RPT7050D

The RPT7050D features Rakon's proprietary Pluto+™ ASIC and a patented dual crystal resonator design, delivering exceptional frequency stability across a wide temperature range. With an acceleration sensitivity better than 0.2 ppb/g, this low g-sensitivity TCXO is engineered for operation in harsh environments, maintaining performance in extended temperatures from -40°C to +105°C.

Features

- g-sensitivity typically ≤ 0.2 ppb/g
- Excellent frequency stability over temperature performance
- Extended operating temperature up to -55/105°C
- Variants tailored to specific customer requirements

Applications

- Defence
- Guidance
- Avionics
- Precision GNSS/Positioning
- 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 ± 2 °C, at time of shipment reference to 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 $(F_{MAX} + F_{MIN})/2$
Operating temperature range ¹	-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		± 0.1		ppm	$\pm 5\%$ variation
Load sensitivity		± 0.1		ppm	$\pm 5\%$ variation
Long term stability (≤ 26 MHz)			± 1 ± 3	ppm ppm	1 year 10 years
Long term stability (> 26 MHz)			± 2 ± 5	ppm ppm	1 year 10 years
Acceleration sensitivity		0.2	0.5	ppb/g	Gamma vector over operating temperature range
Supply voltage, V _{CC} Current (C/Sine) Current (HCMOS)	2.5	2.5 4	6	V mA mA	$\pm 5\%$, standard values are 3.0, 3.3 and 5.0 V
Output voltage – C/Sine Load resistance Load capacitance	0.8	10 10		V k Ω pF	Peak to peak voltage
Output voltage (HCMOS) Voltage level low (V _{OL}) Voltage level high (V _{OH}) Rise and fall time Duty cycle Load	0.9	15	0.1 8 55	V _s V _s ns % pF	Measured with V _{CC} = 3.3 V Measured at 50% level
Control voltage range	0.5		2.5	V	V _c
Slope		+7		ppm/V	
Frequency tuning	> 26 MHz ≤ 26 MHz	± 5 ± 7		ppm	

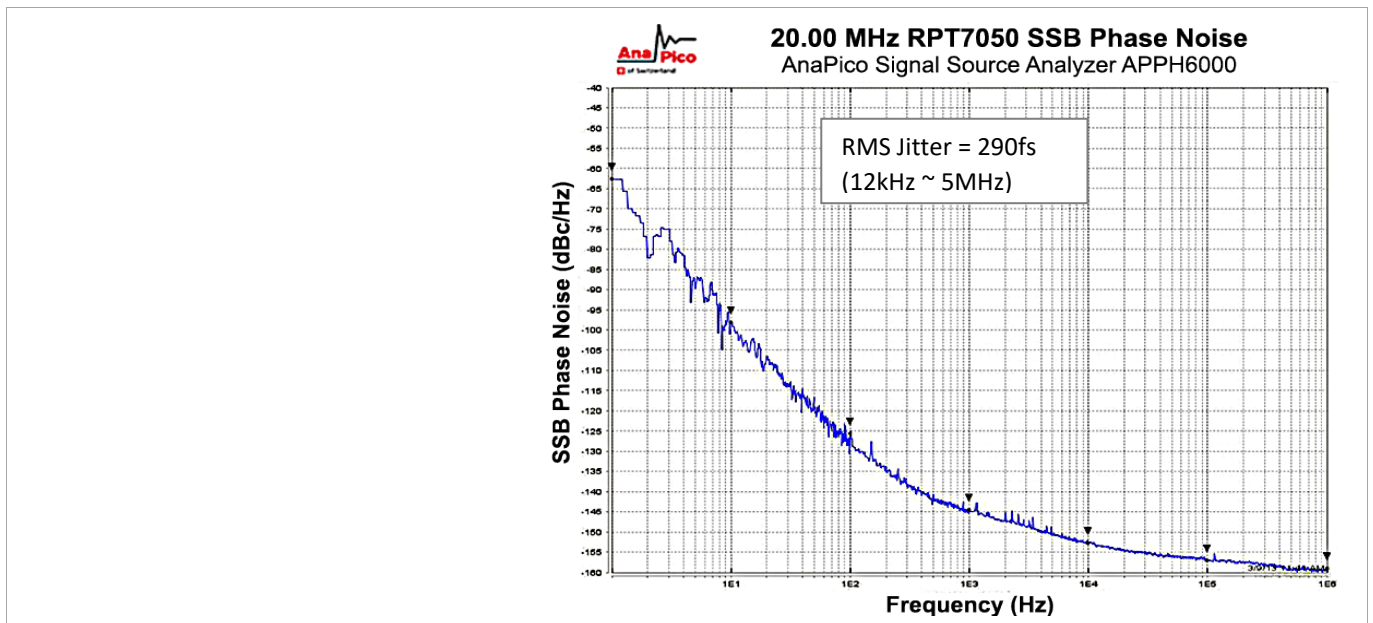
¹ Wider temperature ranges are available at certain frequencies.

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
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

