

ROD5242T1

The ROD5242T1 is a high-end PPS Disciplined OCXO for applications requiring long holdover and precise frequency stability. The device performs to an extreme accuracy of 50 ppt frequency stability over a -40 to 85°C temperature range. It provides a 48-hour (1.5 µs) holdover across 5°C temperature windows. The ROD5242T1 offers nominal frequencies of 10 MHz and 20 MHz.

With proprietary smart compensation techniques, unique circuitry design, and double oven double-oven package construction, the ROD5242T1 experiences minimal temperature and airflow change impacts, pushing its frequency stability down to an unprecedented 50 ppt. The device accepts a primary reference traceable 1PPS clock and, using advanced compensation algorithms, dynamically compensates for ageing-related frequency variations. The premium resonator has limited random and hysteresis effects. Addressing all key parameters influencing holdover, ROD5242T1 provides atomic clock-like performances for telecom, test and instrumentation applications.

Features

- 48-hour holdover (1.5 µs, 5°C temperature windows)
- 24-hour holdover (1.5 µs, 20°C temperature windows)
- Frequency stability (FvT): <50 ppt pk-pk over -40 to 85°C
- low ageing: <0.1 ppb/day
- Compensated ageing: <0.0075 ppb/day

Applications

- Edge grand masters
- DU/CU/servers
- Cell-site routers
- Front-haul switches
- NIC time cards
- Test equipment
- GNSS modules

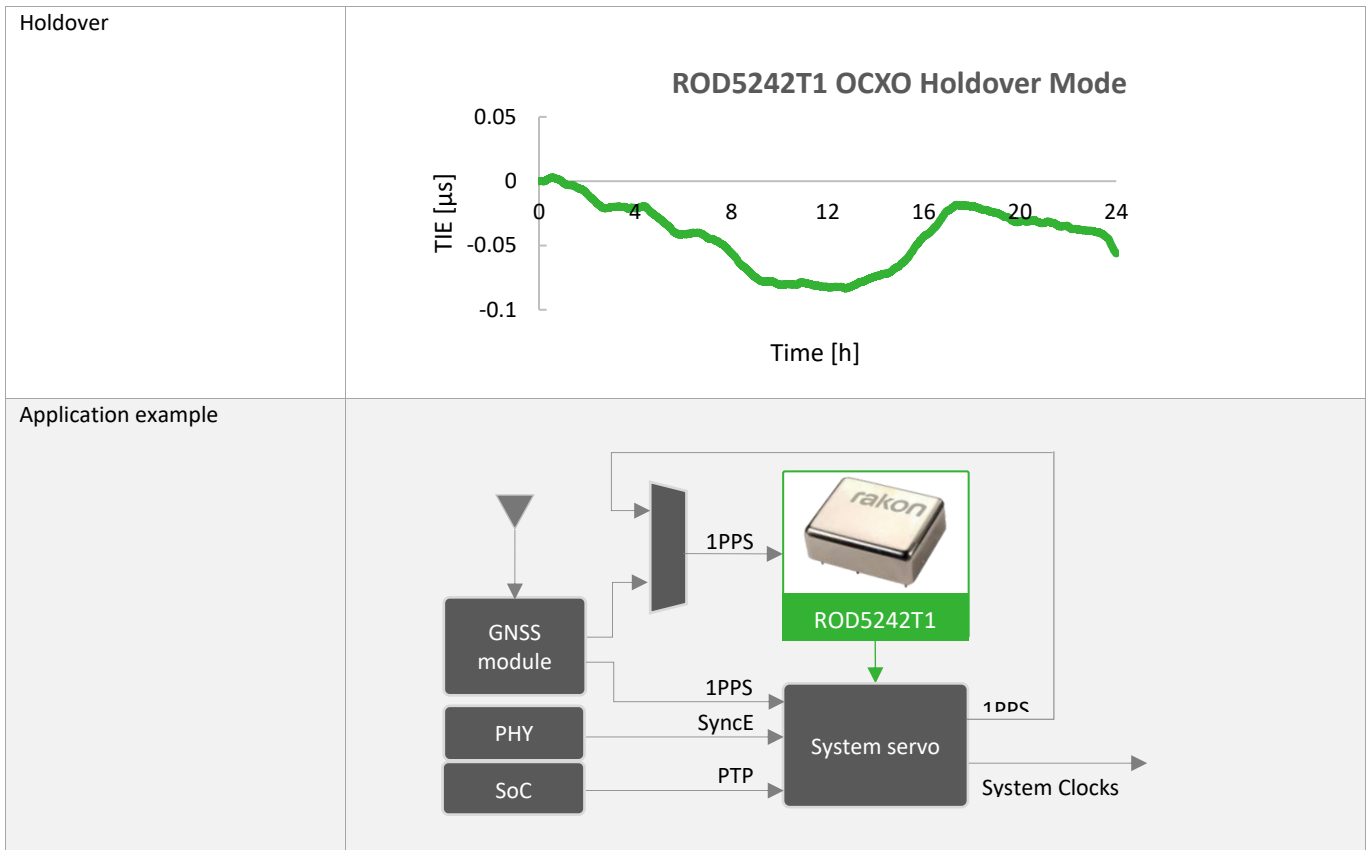
52 x 42 x 14 mm



Standard Specifications

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
Nominal frequency		10 - 20		MHz	Standard frequencies: 10 and 20 MHz
Operating temperature range	-40		85	°C	
Frequency stability over temperature		0.05	0.1	ppb	Peak to peak
Free-run accuracy (20 years)		±1		ppm	
Supply voltage stability		±0.5		ppb	±5% at 25°C
48-hour holdover performance		±1.5		µs	After 3 days of continuous power on, constant temperature and calm air
Hysteresis		0.3		ppb	Over -40 to +85°C, gradient 10°C / hour
Long term stability (Ageing)		±0.1 ±10 ±50		ppb/day ppb/month ppb/year	After 1 week of operation
Compensated ageing		±0.0075		ppb/day	
Short term 1s to 10s integration time		±0.005		ppb	
Retrace at 25°C		±1		ppb	After 24 hours off and 1 hour on
Supply voltage (V _{CC})		3.3		V	±5%. Standard options 5.0 V
Power consumption			7.5 3.0	W W	During warm-up Steady state at 25°C calm air
Warm-up time			±5	mn	Within 10 ppb of prior steady state output frequency at the time of power-off. 24 hours on min. + 24 hours off max.
Oscillator output – Compatible CMOS Output voltage level high (V _{OH}) Output voltage level low (V _{OL}) Rise & fall time	2.4		0.4 5	V V ns	Sine wave option: +7dBm – 50Ω
Environmental Vibration Shock (3 directions) Storage temperature			10 50 90	g g °C	Qualification – not operational IEC 68-2-06 test Fc-Severity 500/10 IEC 68-2-27 test Ea severity 50A

Holdover Chart and Block Diagram



Model Outline

