



TCXO Overview

Rakon has a wide range of high stability Temperature Compensated Crystal Oscillator (TCXO) solutions, from highly stable products for mass volume consumer applications through to industry leading ultra-stable products for more demanding applications. Rakon's commitment to quality and high performance has meant it has become the default standard for consumer GPS, emergency beacons, telecommunications infrastructure and many other performance critical applications.

► **TCXO** : High Reliability Space | Defense | Power Management | g-Performance | Emergency Locator Beacons | Ultra Stable | High Stability Special | High Stability Standard |

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High Reliability Space TCXO

- **PROFILE:** The high reliability Space TCXO is manufactured in accordance with MIL-PRF-55310 (Class 1, type 3 and type 5, level S). The high performance flat pack TCXO provides a combination of overall stability down to $\pm 1.5\text{ppm}$ over temperature range of -40 to $+85^{\circ}\text{C}$, with low power consumption of 0.1W and excellent phase noise.
- **APPLICATIONS:** Transponders, GPS Receivers, Digital Cards, Down and Up Converters, Board Calculators, Synthesizers and FGU.

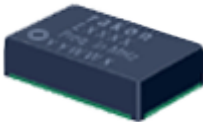
MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	AGING	OUTPUT
TE300		20 x 20 x 13 mm	10 - 100 MHz	±0.5 ppm (0 to 50 °C) ±1 ppm (-20 to 70 °C) ±5 ppm (-40 to 85 °C)	±5 ppm / 15 years	Sinewave 50 Ω
TE310		25 x 25 x 13 mm	10 - 100 MHz	±0.5 ppm (0 to 50 °C) ±1 ppm (-20 to 70 °C) ±5 ppm (-40 to 85 °C)	±5 ppm / 15 years	AHCMOS



Defense TCXO

► **APPLICATIONS:** Defense, Guidance, Avionics, Satellite communications.

MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
RPT7050D		7.0 x 5.0 mm	16 - 40 MHz	$\pm 0.2 - 2$ ppm. (-40 to 85 °C)	HCMOS Clipped sinewave	g-sensitivity typically ≤ 0.2 ppb/g

MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
RFPT700		14.7 x 9.2 x 4.35 mm	10 - 30 MHz	±0.2 - 5.0 ppm. (-55 to 105 °C)	HCMOS Clipped sinewave	g-sensitivity typically ≤0.2ppb/g



Power Management TCXO

► APPLICATIONS: Defense.

MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	FREQUENCY STABILITY	FEATURES	APPLICATIONS
RFPT200		7.0 x 5.0 x 2.8 mm	3 - 40 MHz	± 0.2 - 2 ppm. (-20 to 70°C)	SPI controlled TCXO with embedded timer and alarm function	Defense



g-Performance TCXO

► **APPLICATIONS:** Precision Positioning, Satellite communications, Avionics.

MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
RPT7050G		7.0 x 5.0 mm	16 - 40 MHz	$\pm 0.2 - 2$ ppm. (-40 to 85 °C)	HCMOS Clipped sinewave	g-sensitivity typically ≤ 0.2 ppb/g



Emergency Locator Beacons TCXO

► **APPLICATIONS:** Emergency Locator Beacons. COSPAS SARSAT compliant.

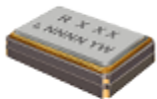
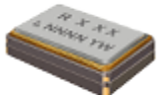
MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
RFPT100		7.0 x 5.0 x 2.25 mm	10 - 20 MHz	± 0.2 ppm max. (-40 to 55 °C)	HCMOS Clipped sinewave	Low power consumption, COSPAS SARSAT compliant



Ultra Stable TCXO

► **APPLICATIONS:** Precision Positioning, Test and Measurement, Telecommunications, High Reliability Defense, Stratum 3, IEEE 1588, SyncE, SONET, SDH, WDM, OTN, Carrier Networking, Carrier Ethernet, Microwave, Backhaul, Transport Equipment, Small Cells (WCDMA, LTE, LTE-A), Enterprise Networking.

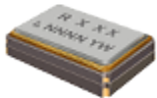
MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
RPT7050A		7.0 x 5.0 mm	1.25 – 52 MHz	±0.05 – 2.5 ppm (-55°C to 105°C)	Clipped sinewave Sinewave HCMOS ACMOS	6 pin, 2.5 – 5.7 V Positioning Test and Measurement Hi-rel / Defense

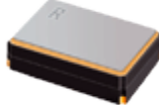
MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
RPT5032A		5.0 x 3.2 mm	1.25 – 52 MHz	±0.05 – 2.5 ppm (-55°C to 105°C)	Clipped sinewave Sinewave HCMOS ACMOS	6 or 10 pin, 2.5 – 5.7 V Positioning Test and Measurement Hi-rel / Defense
RPT7050J		7.0 x 5.0 mm	10 – 40 MHz	±0.1 – 0.28 ppm (Holdover stability, -40°C to 85°C)	HCMOS	6 pin, 3.3 V Networking
RPT5032J		5.0 x 3.2 mm	10 – 40 MHz	±0.1 – 0.28 ppm (Holdover stability,	HCMOS	6 pin, 3.3 V Networking

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MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
				-40°C to 85°C)		
RPT7050P		7.0 x 5.0 mm	19.2 – 40 MHz	±0.05 – 0.25 ppm (-40°C to 85°C)	Clipped sinewave HCMOS	6 pin, 2.5 – 5.7 V Small Cells
RPT5032P		5.0 x 3.2 mm	19.2 – 40 MHz	±0.05 – 0.25 ppm (-40°C to 85°C)	Clipped sinewave HCMOS	6 pin, 2.5 – 5.7 V Small Cells
RPT7050N		7.0 x 5.0 mm	12.8 – 26 MHz	±0.05 – 0.1 ppm (-40°C to 85°C)	Clipped sinewave HCMOS	6 pin, 2.5 – 5.7 V Small Cells

MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
RPT5032N		5.0 x 3.2 mm	12.8 – 26 MHz	±0.05 – 0.1 ppm (-40°C to 85°C)	Clipped sinewave HCMOS	4 or 6 pin, 2.5 – 5.7 V Small Cells
RFPT400		5.0 x 3.2 mm	10 - 30 MHz	±0.08 - 0.25 ppm (0 to 70°C)	Clipped sinewave	Femtocell
RFPT500		7.0 x 5.0 mm	10 - 30 MHz	±0.14 - 0.28 ppm (-40 to 85°C)	HCMOS	Stratum 3
CFPT9300		5.0 x 3.2 mm	1.25 - 52 MHz	±0.2 - 2.0 ppm (-40 to 85 °C)	HCMOS Clipped sinewave	Communications

MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
CFPT9000		7.0 x 5.0 mm	10 - 40 MHz	$\pm 0.2 - 2.5$ ppm (-40 to 85°C)	Sinewave Clipped sinewave HCMOS	Communications Acceleration sensitivity
CFPT9050		14.7 x 9.2 mm	1 - 80 MHz	$\pm 0.3 - 2.5$ ppm (-55 to 105°C)	Sinewave Clipped sinewave HCMOS	High frequency TCXO Communications

Application

Note

Application notes for 7050 series USTCXO Network Timing

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High Stability Specialty TCXO

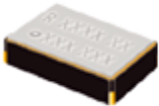
► **APPLICATIONS:** Smart Wireless Devices, Communications, Consumer Products, LBS Handset, PCMCIA CDPD cards, PDA, PND, WiMAX/WLAN, Wi-Fi and GPS applications.

MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
IT2100H		2.0 x 1.6 mm	13 - 52 MHz	$\pm 0.5 - 2$ ppm (-40 to 85 °C)	Clipped sinewave	6 pin Enable / Disable Temperature sensor output



High Stability Standard TCXO

► **APPLICATIONS:** Smart Wireless Devices, Communications, Consumer Products, LBS Handset, PCMCIA CDPD cards, PDA, PND, WiMAX/WLAN, Wi-Fi and GPS applications.

MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
IT2100F		2.0 x 1.6 mm	13 - 52 MHz	±0.5 - 2 ppm (-40 to 85 °C)	Clipped sinewave	4 pin 3.3 - 1.8 V

MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
IT2200K		2.5 x 2.0 mm	10 - 52 MHz	$\pm 0.5 - 2.5$ ppm (-40 to 85 °C)	Clipped sinewave	6 pin 3.3 - 1.8 V
IT2200J		2.5 x 2.0 mm	10 - 52 MHz	$\pm 0.5 - 2.5$ ppm (-40 to 85 °C)	Clipped sinewave	4 pin 3.3 - 1.8 V
IT3200C		3.2 x 2.5 mm	10 - 40 MHz	$\pm 0.5 - 5$ ppm (-40 to 85 °C)	Clipped sinewave	6 pin 3.7 - 2.4 V

MODEL	IMAGE	PACKAGE	FREQUENCY RANGE	STABILITY (FVST)	OUTPUT	FEATURES
IT3200F		3.2 x 2.5 mm	10 - 40 MHz	$\pm 1 - 5$ ppm (-30 to 85 °C)	Clipped sinewave	6 pin 3.0 - 1.8 V