

## RST2016AL

The low-power TCXO RST2016AL features an analogue ASIC-based oscillator and a high-order temperature compensation circuit within a compact 2.0 x 1.6 mm package. The device offers enable/disable functionality, optimises power efficiency during standard operation, and can operate at a supply voltage as low as 1.2 V.

The RST2016AL TCXO provides  $\pm 0.5$  ppm frequency stability over a temperature range of  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ . With its low power consumption, compact footprint, and advanced compensation technology, it is ideally suited for time and frequency reference applications across wireless modules, GNSS positioning, consumer devices and IoT.

### Features

- Low supply voltage 1.2 V
- Power down mode
- High temperature stability of  $\pm 0.5$  ppm over wide temperature ranges

### Applications

- Wireless modules
- Communications
- GNSS
- IoT and consumer devices

2.0 x 1.6 x 0.7 mm



### Standard Specifications

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
Nominal frequency (Fn)		13 – 52		MHz	
Frequency calibration			$\pm 1$	ppm	Offset from nominal frequency measured at $25^{\circ}\text{C}$ $\pm 2^{\circ}\text{C}$
Reflow shift ( $\Delta F$ )			$\pm 1$	ppm	Two consecutive reflows as per attached profile after 2 hours relaxation at $25^{\circ}\text{C}$
Operating temperature range	-40		85	$^{\circ}\text{C}$	The operating temperature range over which the frequency stability is measured
Frequency stability over temperature (FvT)			$\pm 0.5$	ppm	Referenced to the midpoint between minimum and maximum frequency value over the specified temperature range <sup>1</sup> . Control voltage set to midpoint of Vc
Sensitivity to supply voltage variations			$\pm 0.1$	ppm	V <sub>DD</sub> varied $\pm 5\%$ at $25^{\circ}\text{C}$
Sensitivity to load variations			$\pm 0.2$	ppm	$\pm 10\%$ load change at $25^{\circ}\text{C}$
Long term stability			$\pm 1$ $\pm 5$	ppm	Over 1 year at $25 \pm 5^{\circ}\text{C}$ Over 10 years at $25 \pm 5^{\circ}\text{C}$
Supply voltage (V <sub>DD</sub> )		1.2 – 1.8		V	With a tolerance of $\pm 5\%$
Supply current					
~26 MHz			1.5	mA	At maximum V <sub>DD</sub> . Specified for load stated in oscillator output section at $25^{\circ}\text{C}$ .
~32 MHz			2.0		
$\leq 52$ MHz			2.5		
Output voltage level	0.8		1.2	V <sub>pk-pk</sub>	
Output load resistance	9	10	11	k $\Omega$	
Output load capacitance	9	10	11	pF	
Start-up time (amplitude)			0.5	ms	Within 90% of the minimum specified output level
Start-up time (frequency)			2	ms	Within $\pm 0.5$ ppm of steady-state frequency

<sup>1</sup> Parts should be shielded from drafts that cause unexpected thermal gradients. Temperature changes due to ambient air currents on the oscillator can lead to short-term frequency drift.