

IT2200K

The IT2200K employs an analogue ASIC for the oscillator and a high order temperature compensation circuit in a 2.5 x 2.0 mm size package. The device can be placed in power down mode through a single input pin. During standard operation, power consumption is minimised by operating down to a supply voltage of 1.8 to 3.3V.

The IT2200K's high stability, low power consumption, small footprint and powerful compensation method makes it a TCXO ideally suited for demanding GNSS mobile applications.

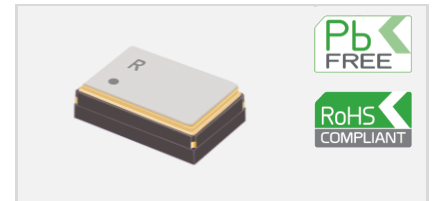
Features

- Excellent phase noise performance
- Low start up drift rate
- Power down mode
- Standard temperature stability of ± 0.5 ppm over wide temperature ranges

Applications

- **Time and frequency reference**
 - GNSS
 - Smartphone
 - Communications
 - Consumer

2.5 x 2.0 mm



Standard Specifications

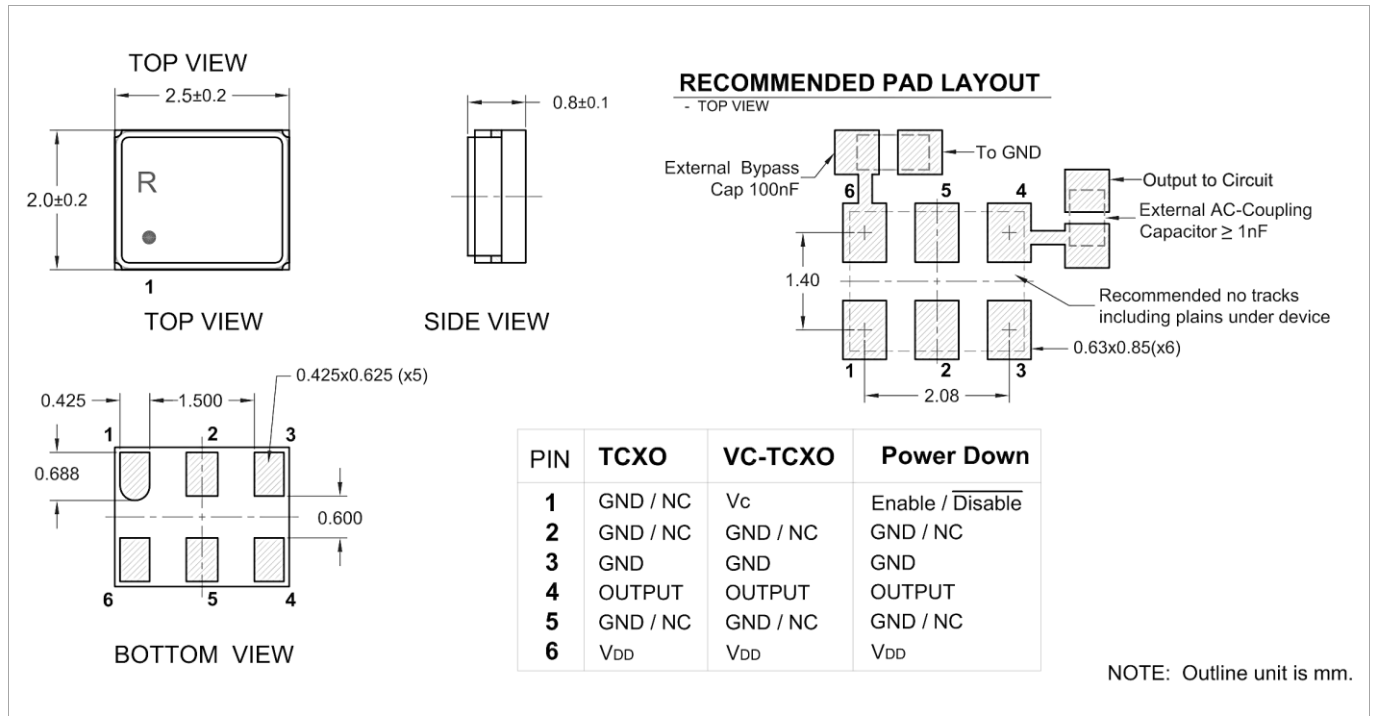
Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
Nominal frequency		10 - 52		MHz	
Frequency calibration			± 1	ppm	Offset from nominal frequency measured at 25°C $\pm 2^\circ\text{C}$
Reflow shift			± 1	ppm	Two consecutive reflows as per attached profile after 2 hours relaxation at 25°C
Operating temperature range	-40		85	°C	The operating temperature range over which the frequency stability is measured
Frequency stability over temperature			± 0.5	ppm	Referenced to the midpoint between minimum and maximum frequency value over the specified temperature range ¹ . Control voltage set to midpoint of V _c
Frequency slope			$\pm 0.05 - \pm 1$	ppm/°C	Minimum of one frequency reading every 2°C over the operating temperature range ¹
Static temperature hysteresis			0.6	ppm	Frequency change after reciprocal temperature ramped over the operating range. Frequency measured before and after at 25°C
Sensitivity to supply voltage variations			± 0.1	ppm	V _{DD} varied $\pm 5\%$ at 25°C
Sensitivity to load variations			± 0.2	ppm	$\pm 10\%$ load change at 25°C
Long term stability			± 1	ppm	Frequency drift over 1 year at 25°C
Supply voltage (V _{DD})		1.8 - 3.3		V	With a tolerance of $\pm 5\%$
Supply current			2.2	mA	At minimum V _{DD} ²
Output waveform					DC coupled clipped sine wave ³
Output voltage level	0.8			V	At minimum supply voltage ²
Output load		10		kΩ/pF	10 kΩ // 10 pF $\pm 10\%$
Start-up time (amplitude)			0.5	ms	Within 90% of the minimum specified output level
Start-up time (frequency)			2	ms	Within ± 0.5 ppm of steady state frequency

¹ Parts should be shielded from drafts causing unexpected thermal gradients. Temperature changes due to ambient air currents on the oscillator can lead to short term frequency drift.

² Specified for load stated in oscillator output section at 25°C.

³ External AC-Coupling capacitor required. 1 cp nF or greater recommended.

Model Outline and Recommended Pad Layout



Test Circuit

