IT2200J

The IT2200J 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 IT2200J's high stability, low power consumption, small footprint and powerful compensation method makes it a TCXO ideally suited for demanding GNSS mobile applications.

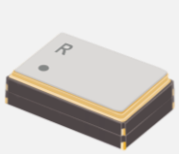
Features

- 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



Pb FREE

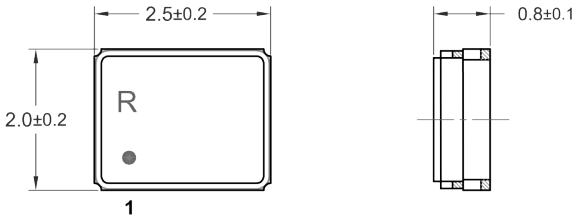
RoHS COMPLIANT

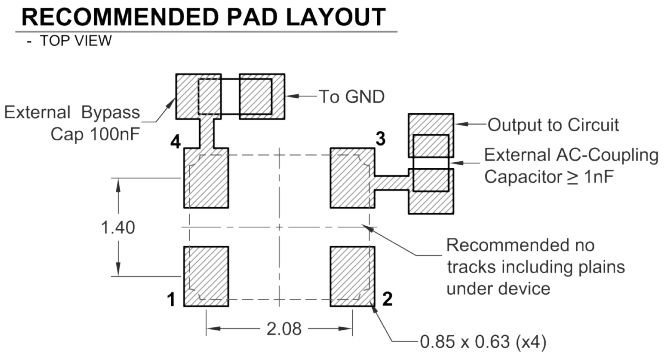
Standard Specifications

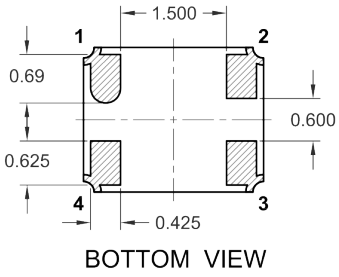
Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
Nominal frequency		10 - 52		MHz	
Frequency calibration			±1	ppm	Offset from nominal frequency measured at 25°C ±2°C
Reflow shift			±1	ppm	Two consecutive reflows as per attached profile after 2 hours relaxation at 25°C
Operating temperature range	-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 Vc
Frequency slope			±0.05 – ±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 ±5% at 25°C
Sensitivity to load variations			±0.2	ppm	±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 ±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 ±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



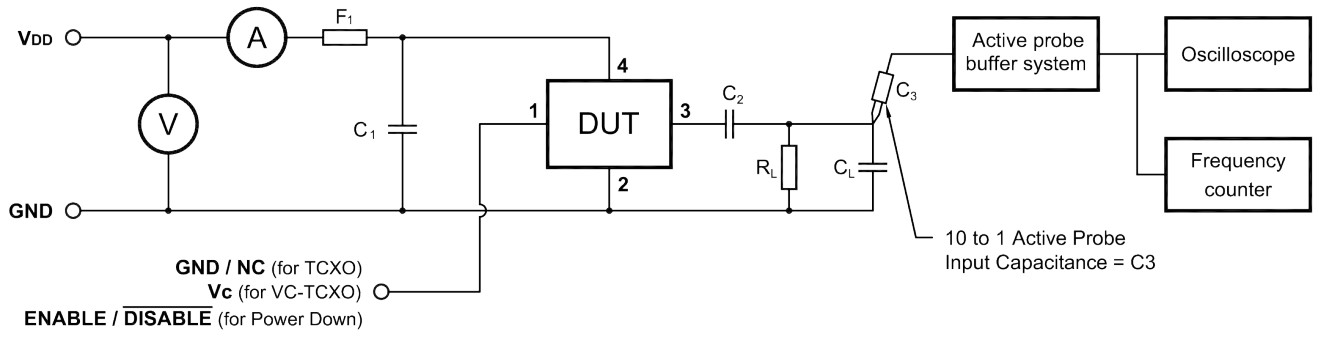




PIN	TCXO	VC-TCXO	Power Down
1	GND / NC	Vc	Enable / $\overline{\text{Disable}}$
2	GND	GND	GND
3	OUTPUT	OUTPUT	OUTPUT
4	V_{DD}	V_{DD}	V_{DD}

NOTE: Outline unit is mm.

Test Circuit



C_1: 100nF C_2: ≥1nF R_L: 10K	$C_T = C_L + C_3$ (C_3 - Oscilloscope probe capacitance) C_T as stated in OSCILLATOR OUTPUT section F_1: A ferrite bead or a resistor between 22Ω ~ 47Ω recommended.