

## IT2100F

The IT2100F employs an analogue ASIC for the oscillator and a high order temperature compensation circuit in a 2.0 x 1.6 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 1.8V. The IT2100F'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
- Height less than 0.8 mm
- Power down mode
- Standard temperature stability of  $\pm 0.5$  ppm over wide temperature ranges

### Applications

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

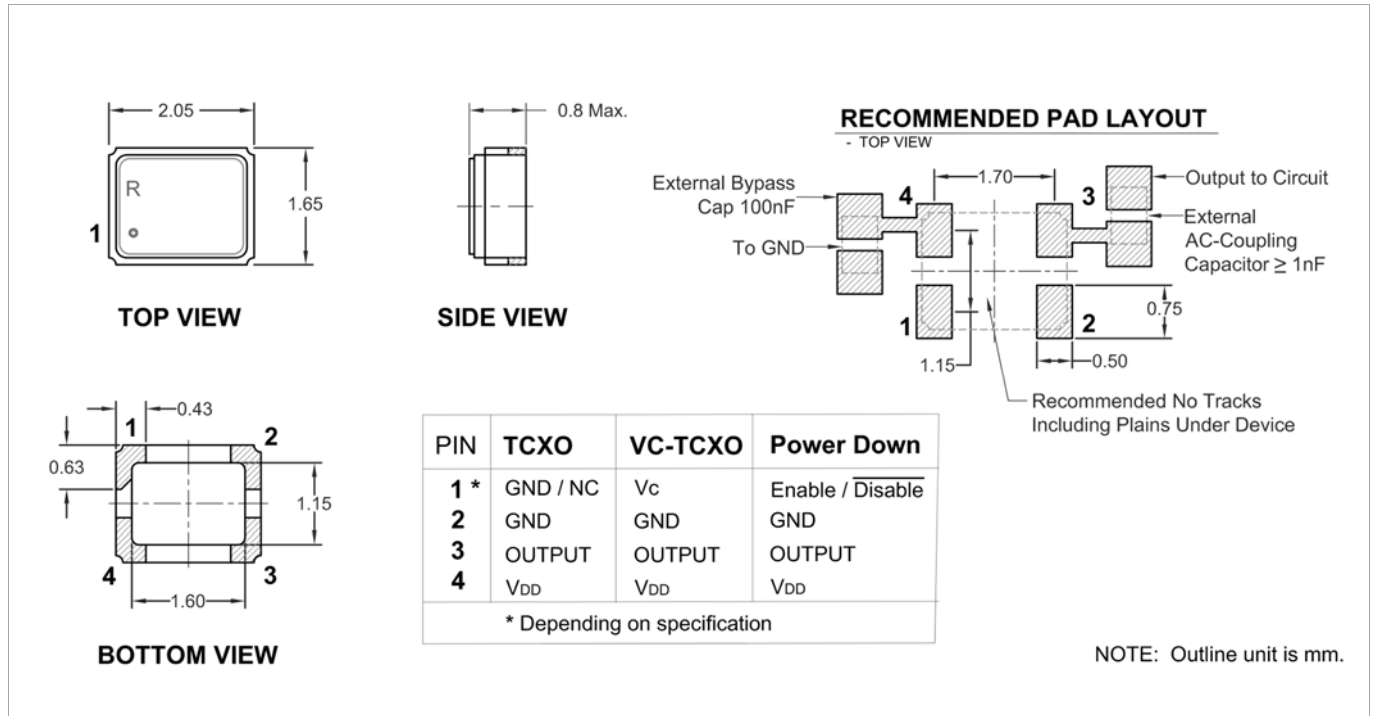
### 2.0 x 1.6 mm



### Standard Specifications

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
Nominal frequency		13 - 52		MHz	
Frequency calibration			$\pm 1$	ppm	Offset from nominal frequency measured at 25°C $\pm 2^\circ\text{C}$
Reflow shift			$\pm 1$	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			$\pm 0.5 - \pm 2$	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
Frequency slope			$\pm 0.05 - \pm 1$	ppm/°C	Minimum of one frequency reading every 2°C over the operating temperature range <sup>1</sup>
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			$\pm 0.1$	ppm	V <sub>DD</sub> varied $\pm 5\%$ at 25°C
Sensitivity to load variations			$\pm 0.2$	ppm	$\pm 10\%$ load change at 25°C
Long term stability			$\pm 1$	ppm	Frequency drift over 1 year at 25°C
Supply voltage (V <sub>DD</sub> )		1.8 - 3.3		V	With a tolerance of $\pm 5\%$
Supply current			2.2	mA	At minimum V <sub>DD</sub>
Control voltage (Vc) range V <sub>DD</sub> $\leq$ 2.3 V	0.3		1.5	V	The nominal Vc value is midway between the minimum and maximum. Voltage control should not exceed the V <sub>DD</sub> +0.2 V or GND
Control voltage (Vc) range V <sub>DD</sub> > 2.3 V	0.4		2.4	V	The nominal Vc value is midway between the minimum and maximum. Voltage control should not exceed the V <sub>DD</sub> +0.2 V or GND
Frequency tuning	$\pm 6 - \pm 30$			ppm	Frequency shift from minimum to maximum Vc
Linearity			10	%	Deviation from straight line curve fit
Control voltage input resistance		500		k $\Omega$	Measured between Vc and GND pin

**Model Outline and Recommended Pad Layout**



**Test Circuit**

