

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.

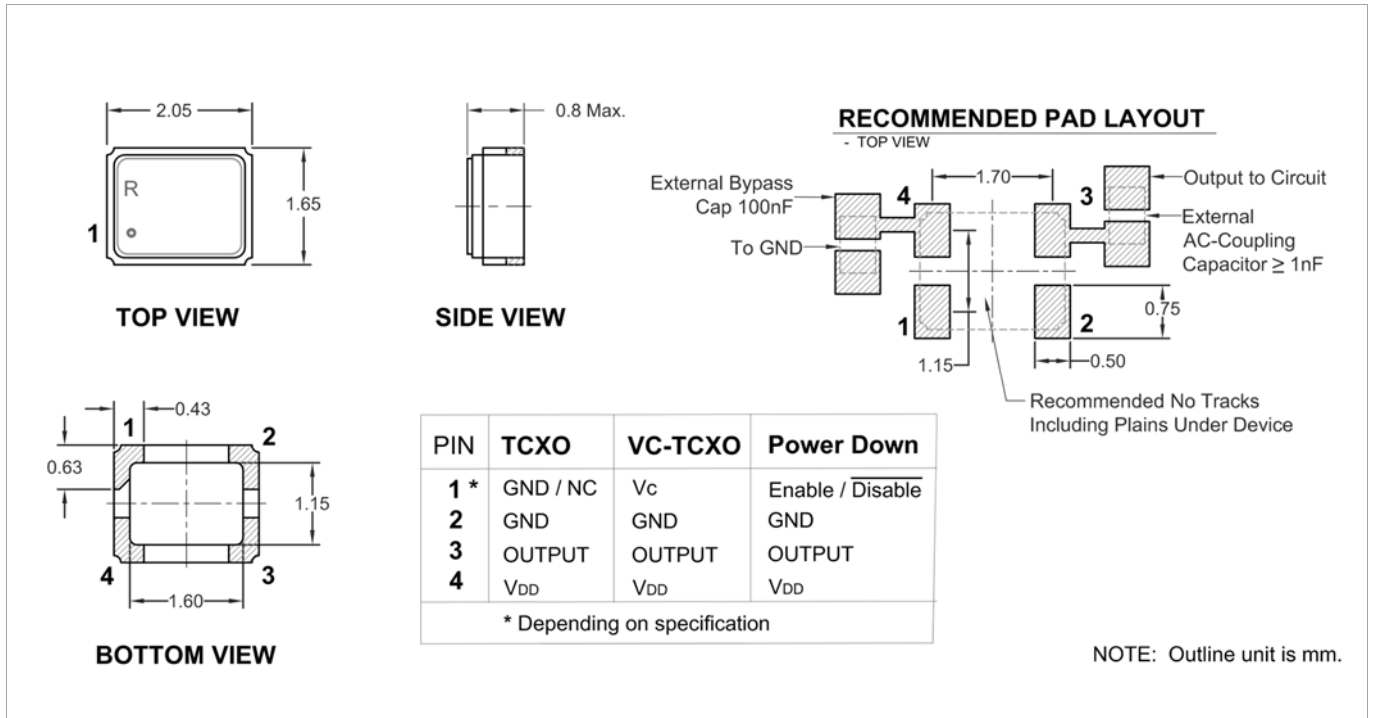
- Excellent phase noise performance
 - Low start up drift rate
 - Height less than 0.8 mm
 - Power down mode
 - Standard temperature stability of ± 0.5 ppm over wide temperature ranges
- **Time and frequency reference**
 - GNSS
 - Smartphone
 - Communications
 - Consumer



Standard Specifications

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
Nominal frequency		13 - 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			$\pm 0.5 - \pm 2$	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			$\pm 0.05 - \pm 1$	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}
Control voltage (Vc) range V _{DD} \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 _{DD} +0.2 V or GND
Control voltage (Vc) range V _{DD} > 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 _{DD} +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 Ω	Measured between Vc and GND pin

Model Outline and Recommended Pad Layout



Test Circuit

