

RIT2016C

The low power TCXO RIT2016C 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 1.2 V. The high stability, low power consumption, small footprint and powerful compensation method makes RIT2016C a TCXO ideally suited for Smart Meters and Smartphone applications.

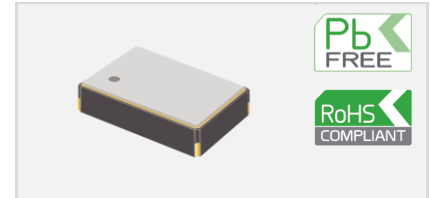
Features

- Low supply voltage 1.2 V
- Low start up drift rate
- Power down mode
- Standard temperature stability of ± 0.5 ppm over wide temperature ranges

Applications

- **Time and frequency reference**
 - Smart meters
 - Smartphone
 - Communications
 - Consumer

2.0 x 1.6 mm



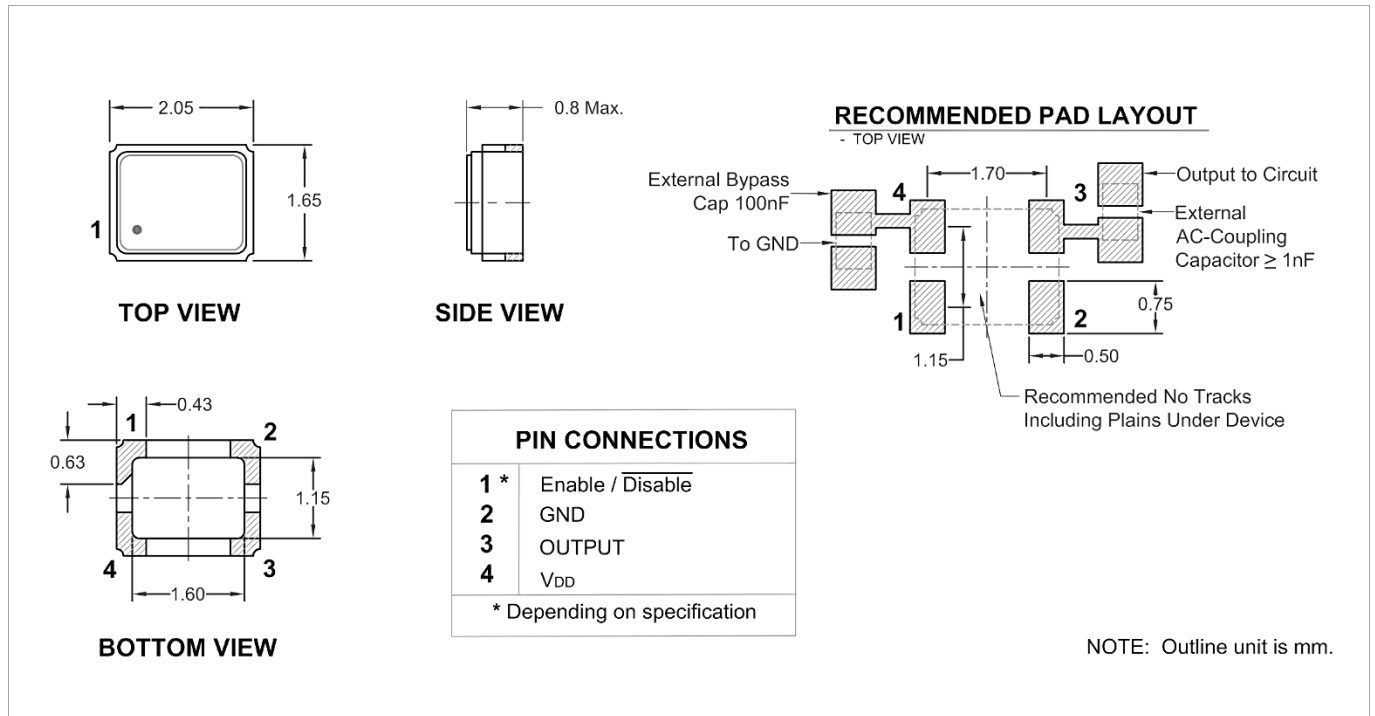
Standard Specifications

Parameter	Min.	Typ.	Max.	Unit	Test Condition / Description
Nominal frequency		19 - 40		MHz	
Frequency calibration			± 2	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 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})		1.2		V	With a tolerance of $\pm 5\%$
Supply current			2	mA	
Output voltage level	0.8			V	At minimum V _{DD,specified} for load stated in oscillator output section at 25°C ²
Output load resistance	9	10	11	kΩ	
Output load capacitance	9	10	11	pF	
Power down			20% V _{DD}	V	RF disabled (Minimum GND)
Normal operating mode	80% V _{DD}			V	RF enabled (Maximum V _{DD})
Stand-by current			3	μA	Typical value <0.01 μA
Start-up time (amplitude)			1	ms	Within 90% of the minimum specified output level
Start-up time (frequency)			2	ms	Within ± 2.5 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 DC coupled clipped sine-wave. External AC-Coupling capacitor required. 1 nF or greater recommended.

Model Outline and Recommended Pad Layout



Test Circuit

