TCXO Specification
IQXT-314

ISSUE 1; January 2016

Description

- An ultra stable, surface-mount Temperature Compensated Crystal Oscillator (TCXO) delivering exceptional phase noise and jitter performance and enhanced frequency versus temperature stability.
- FEATURES:
  RMS phase jitter down to 0.13ps.
  Phase noise < □160dBc/Hz noise floor.
  Voltage Control and T□sense options available.
- APPLICATIONS:
  Positioning
  Test & Measurement
  Telecommunications
  Hi□Rel / Defence
- Standard Frequencies: 10.0MHz, 12.80MHz, 16.3840MHz, 19.20MHz, 19.440MHz, 20.0MHz, 25.0MHz, 26.0MHz, 30.720MHz, 38.880MHz and 40.0MHz.

Frequency Parameters

- Frequency 1.25MHz to 52.0MHz
- Frequency Tolerance ±1.00ppm
- Tolerance Condition @ 25°C ±1°C
- Frequency Stability ±0.05ppm to ±2.50ppm
- Frequency Stability: Measurement referenced to (Fmax+Fmin)/2.
  Note: The best available stability depends on the nominal frequency and selected operating temperature range.
- Ageing:
  F≤26.0MHz: ±1ppm max/yr, ±3ppm max over 10yrs
  F>26.0MHz: ±2ppm max/yr, ±5ppm max over 10yrs
- Root Allan Variance (F=20.0MHz @ 25°C, tau=1sec): 5xE-11 typ
- Acceleration Sensitivity (gamma vector of all 3 axes from 30 to 1500Hz): Typically 2ppb/G max
- Supply Voltage Variation (±5% change @ 25°C ref to frequency @ nominal Vs): ±25ppb typ
- Load Variation:
  HCMOS & ACMOS (±5pF change @ 25°C ref to frequency @ nominal load): ±50ppb typ
  Sine & Clipped Sine (±10% change @ 25°C ref to frequency @ nominal load): ±50ppb typ
- Reflow Variation (after 1hr recovery @ 25°C): ±0.5ppm max

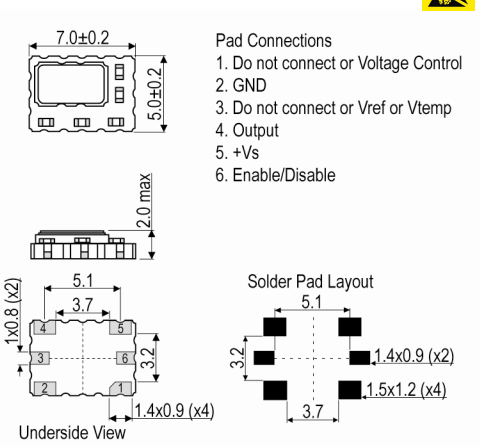
Electrical Parameters

- Supply Voltage Range: 2.5V to 5.7V
  (Standard Voltages are 3.0, 3.3 & 5.0V)
- Supply Current:
  HCMOS: 4mA typ
  ACMOS: 8mA typ
  Sine: 8mA typ
  Clipped Sine: 2mA typ

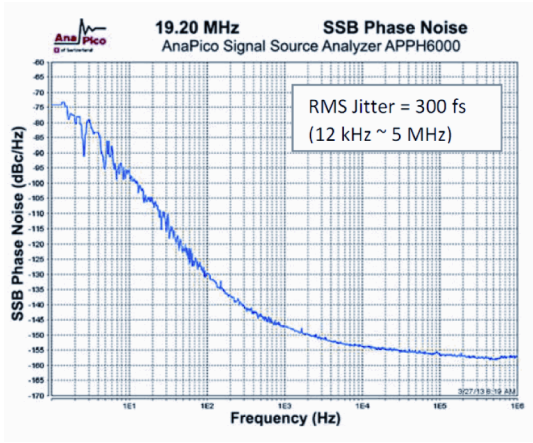
Frequency Adjustment

- Control Voltage 1.5V ±1V
- Pulling:
  F≤26.0MHz: ±5ppm min
  F>26.0MHz: ±7ppm min

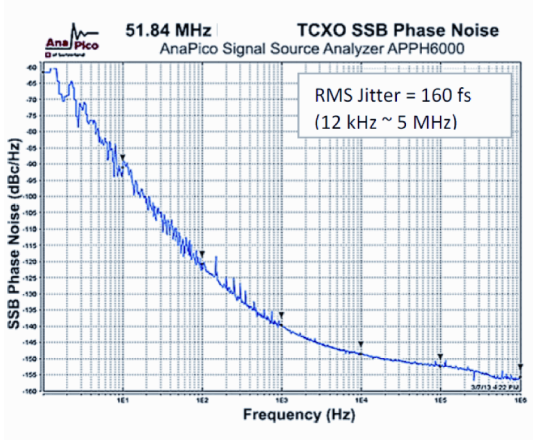
Outline (mm)



Example Phase Noise @ 19.20MHz



Example Phase Noise @ 51.84MHz



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Operating Temperature Ranges

- -20 to 70°C
- -55 to 105°C

Output Details

- Output Compatability HCMOS/Sine/Clipped Sine
- Output Compatibility: HCMOS, ACMOS, Sine or Clipped Sine.
- Start Up Time (amplitude within 90% of specified output level): 5ms to 15ms

Output Control

- Tri-State Mode:
  Logic '0' (20%Vs max) to pad 6 disables the oscillator output, the output goes to a high impedance state.
  Logic '1' (60%Vs min) or no connection to pad 6 enables the oscillator output.

Compliance

- RoHS Status (2011/65/EU) Compliant
- REACh Status Compliant
- MSL Rating (JDEC-STD-033): 1

Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
  Pack Size: 1,000
- Pack Style: Bulk Bulk pack
  Pack Size: 100

Electrical Specification - maximum limiting values

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
1.25MHz	52.0MHz	-20 to 70	±0.05	-	-	-
		-55 to 105	±2.5	-	-	-

This document was correct at the time of printing; please contact your local sales office for the latest version.
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Chipset Approval Table

IQD Model	Ref No.	Frequency	Chipset Type	IC Supplier	
IQXT-314-1	E6127LF	12.80MHz	Si5348	SiLabs	
IQXT-314-2	E6213LF	40.0MHz	Si5328, AppNote 776	SiLabs	
IQXT-314-3	E6240LF	10.0MHz	82P33910 and multiple other 82P339xx	IDT	

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