TCXO Specification
IQXT-315

ISSUE 1; January 2016

Description

- The IQXT-315 uses ASIC technology to provide enhanced frequency versus temperature stability. It also delivers to the industry the lowest jitter achievable from an ultra-stable TCXO. This allows the oscillator to be compliant with various standards including GR-1244, GR-253, G.812, G.813, G.8262 and G.827x.
- FEATURES:
  RMS phase jitter down to 0.13ps.
  Phase noise <□160dBc/Hz floor.
  Excellent frequency stability.
- APPLICATIONS:
  Stratum 3 / IEEE 1588 / SyncE
  SONET / SDH / WDM / OTN
  Carrier Ethernet / Microwave
  Backhaul / Transport Equipment
- Standard Frequencies: 10.0MHz, 12.80MHz, 16.3840MHz, 19.440MHz, 20.0MHz, 20.480MHz, 24.5760MHz, 25.0MHz, 30.720MHz, 38.880MHz and 40.0MHz.

Frequency Parameters

- Frequency 10.0MHz to 40.0MHz
- Frequency Tolerance (@ constant temperature):
  ±10ppb after 10 days of continuous operation.
  ±40ppb after 48hrs of continuous operation.
- Frequency Stability (over operating temperature range):
  ±100ppb to ±280ppb
- Frequency Stability: Measurement referenced to (Fmax+Fmin)/2).
- Frequency Slope ΔF/ΔT (in still air): ±20ppb/°C to ±100ppb/°C
- Root Allan Variance (@ 25°C, tau=1sec): 5x10□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): ±25ppb typ
- Free-run Accuracy (inclusive of frequency tolerance @ 25°C, operating temperature range, supply voltage variation [±5% change], load variation [±5pF change], reflow soldering and 20yrs ageing): ±4.6ppm max
- Wander Generation – TDEV: Compliant with GR□1244 fig 5□4, G.812 types II & III fig 2, G.813 & G.8262.
- Wander Generation – MTIE: Compliant with GR□1244 fig 5□5, G.812 types II & III fig 1, G.813 & G.8262.

Electrical Parameters

- Supply Voltage 3.3V ±5%

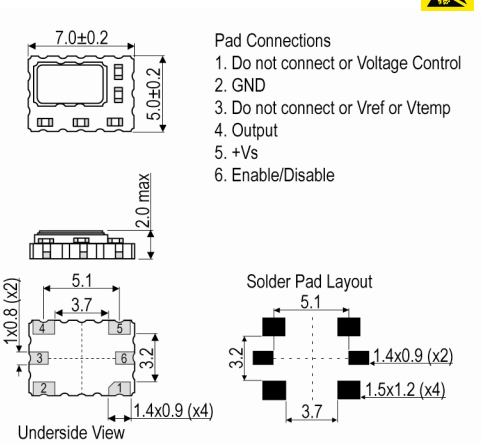
Operating Temperature Ranges

- -40 to 85°C

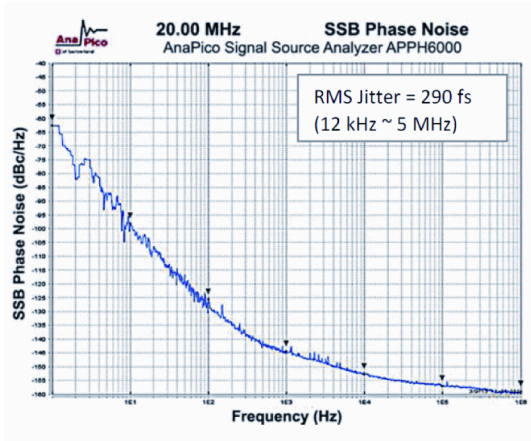
Output Details

- Output Compatability HCMOS
- Drive Capability 30pF max
- Output Voltage Levels:
  Output Low (VoL): 10%Vs max
  Output High (VoH): 90%Vs min
- Start Up Time (amplitude within 90% of specified output level):
  5ms to 15ms

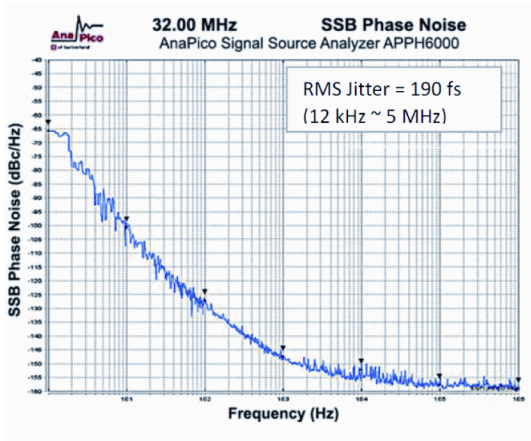
Outline (mm)



Example Phase Noise @ 20.0MHz



Example Phase Noise @ 32.0MHz



Sales Office Contact Details:

UK: +44 (0)1460 270200 France: 0800 901 383 Email: info@iqdfrequencyproducts.com
Germany: 0800 1808 443 USA: +1.760.318.2824 Web: www.iqdfrequencyproducts.com

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

Electrical Specification - maximum limiting values 3.3V ±5%

Frequency Min	Frequency Max	Temperature Range	Stability	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppb	mA	ns	%
10.0MHz	40.0MHz	-40 to 85	-	6	8	45/55%

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Chipset Approval Table

IQD Model	Ref No.	Frequency	Chipset Type	IC Supplier	
IQXT-315-1	E6241LF	12.80MHz	IDT8V97051, 82P337xx, 82P33731	IDT	
IQXT-315-2	E6265LF	25.0MHz	IDT8V97051	IDT	
IQXT-315-3	E6335LF	20.0MHz	82P337xx, 82P33731	IDT	
IQXT-315-4	E6413LF	12.80MHz	-	-	
IQXT-315-5	E6414LF	20.0MHz	-	-	
IQXT-315-6	E6415LF	24.5760MHz	-	-	
IQXT-315-7	E6416LF	25.0MHz	-	-	
IQXT-315-8	E6518LF	12.80MHz	Si5348	SiLabs	
IQXT-315-9	E6588LF	40.0MHz	Si5342, Si5344, Si5345	SiLabs	

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