

ISSUE 1; June 2017

**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  
HiRel / 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

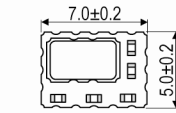
**Electrical Parameters**

- 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

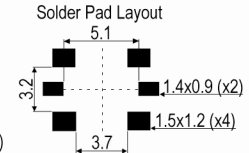
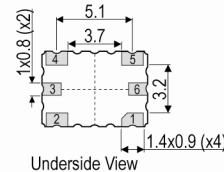
**Frequency Adjustment**

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

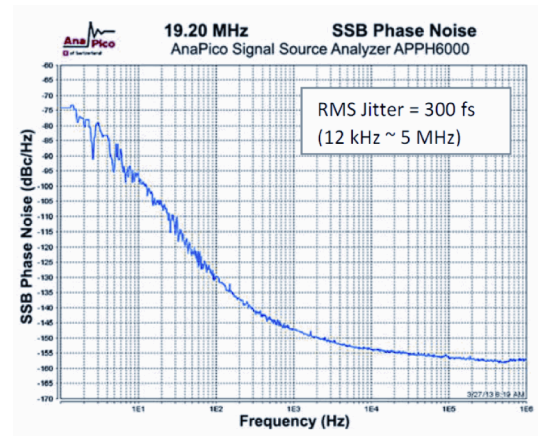
**Outline (mm)**



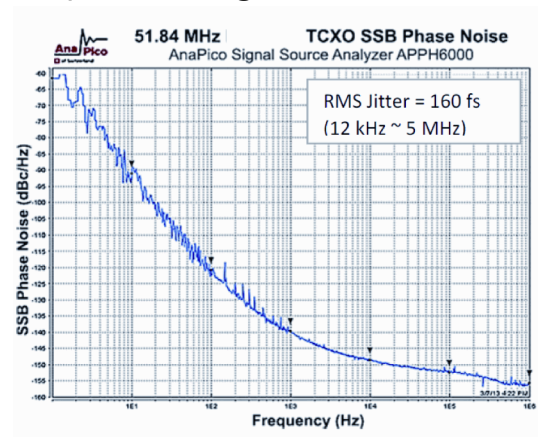
- Pad Connections
1. Do not connect or Voltage Control
  2. GND
  3. Do not connect or Vref or Vtemp
  4. Output
  5. +Vs
  6. Enable/Disable



**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 Compatibility HCMOS/Sine/Clipped Sine
- Output Compatibility: HCMOS, AC MOS, 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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