

ISSUE 1; May 2016

### Description

- The IQXV-93 VCXO combines very low RMS phase jitter and low supply current in an industry standard 2.5 x 2.0mm SMD package in frequencies from 8MHz to 1.5GHz.
- Features:
  - CMOS, LVPECL or LVDS output options
  - Low power differential outputs
  - Wide frequency range
  - <1ps integrated RMS phase jitter (12kHz to 20MHz)
- Applications:
  - Base Stations
  - Communications
  - Consumer
  - SONET / SDH
  - WiMAX / W-LAN
  - Ethernet (10G/40G)

### Frequency Parameters

- Frequency: 8.0MHz to 1.5GHz
- Frequency Stability:  $\pm 10.00\text{ppm}$  to  $\pm 50.00\text{ppm}$

### Electrical Parameters

- Supply Voltage Options:
  - 3.3V  $\pm 10\%$
  - 2.5V  $\pm 5\%$
- Supply Current:
  - CMOS: 40mA max
  - LVPECL: 65mA max
  - LVDS: 40mA max

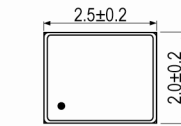
### Frequency Adjustment

- Pulling:  $\pm 35\text{ppm}$  min APR
- Voltage Control:
  - Absolute Pull Range (APR):  $\pm 35\text{ppm}$  min
  - Total Pull Range: (frequency shift from minimum to maximum control voltage): 50 to 200ppm
  - Control Voltage (nominal 1.65V): 0 to 3.3V
  - Linearity (VC=0.3 to 3V): 15% max
  - Slope: Positive
  - Modulation Bandwidth (VC=0.3 to 3V): 10kHz min
  - Input Impedance: 1M $\Omega$  min

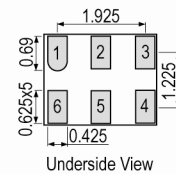
### Operating Temperature Ranges

- 40 to 85°C

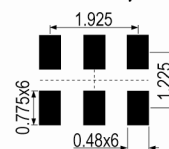
### Outline (mm)



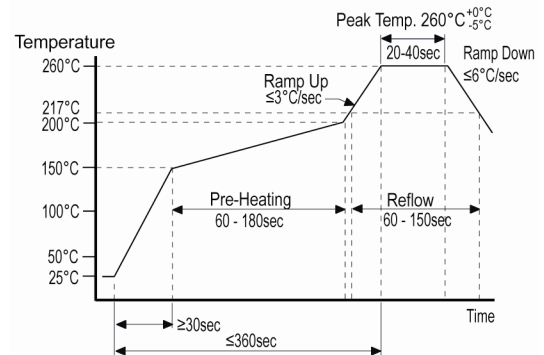
- Pad Connections
- Voltage Control
  - Enable/Disable or NC
  - GND
  - Output
  - Output (LVPECL/LVDS) or E/D or NC
  - +Vs



### Solder Pad Layout



### Pb-Free Reflow



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**Output Details**

- Output Compatibility CMOS/LVPECL/LVDS
- Output Characteristics (CMOS up to 200MHz):  
Load: 15pF  
Output Low (VoL): 10%Vs max  
Output High (VoH): 90%Vs min  
Duty Cycle (@ 50% Vs): 45/55% max  
Rise/Fall Time (@ 90%/10%): 3ns max  
RMS Phase Jitter (12kHz-20MHz): 0.9ps typ
- Output Characteristics (LVPECL):  
Load: 50Ω  
Output Low (VoL): Vs-1.62V max  
Output High (VoH): Vs-1.025V min  
Duty Cycle (@ Vs-1.3V): 45/55% max  
Rise/Fall Time (@ 80%/20%): 0.6ns max  
RMS Phase Jitter (12kHz-20MHz): 0.9ps typ
- Output Characteristics (LVDS):  
Load: 100Ω  
Differential Output Voltage: 350mV  
Duty Cycle (@ 1.25V): 45/55% max  
Rise/Fall Time: 0.6ns max  
RMS Phase Jitter (12kHz-20MHz): 1.5ps typ

**Output Control**

- Enable/Disable:  
Logic '1' (70%Vs min) or no connection enables oscillator output.  
Logic '0' (30%Vs max) or GND connection disables oscillator output.

**Noise Parameters**

- Phase Noise @ 25°C (typ for 77.760MHz, LVPECL):  
-65dBc/Hz @ 10Hz  
-95dBc/Hz @ 100Hz  
-116dBc/Hz @ 1kHz  
-126dBc/Hz @ 10kHz  
-131dBc/Hz @ 100kHz
- Phase Noise @ 25°C (typ for 156.250MHz, LVPECL):  
-77dBc/Hz @ 10Hz  
-101dBc/Hz @ 100Hz  
-110dBc/Hz @ 1kHz  
-118dBc/Hz @ 10kHz  
-124dBc/Hz @ 100kHz

**Environmental Parameters**

- Storage Temperature Range: -55 to 125°C
- Mechanical Shock: MIL-STD-883, Method 2002
- Vibration: MIL-STD-883, Method 2007
- Thermal Shock: MIL-STD-883, Method 1011
- Gross and Fine Leak: MIL-STD-883, Method 1014
- Humidity: After 48hrs @ 85°C ±2°C / 85% RH non-condensing.

**Manufacturing Details**

- Maximum Process Temperature: 260°C (40secs max)

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### Ordering Information

- Frequency\*
- Model\*
- Output Type\*
- Pad 2 or 5 Function\*
- Frequency Stability\*
- Operating Temperature Range\*
- Supply Voltage\*
- (\*minimum required)

### Compliance

- RoHS Status (2011/65/EU)      Compliant
- REACh Status                      Compliant
- MSL Rating (JDEC-STD-033):    Not Applicable

### Packaging Details

- Pack Style: Reel      Tape & reel in accordance with EIA-481-D
- Pack Size: 3,000

### 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	%
8.0MHz	1.5GHz	-40 to 85	±10.0	-	-	-

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