

ISSUE 1; May 2016

### Description

- The IQXV-86 is an Ultra Low Noise VCXO in 5.0 x 3.2mm surface mount package.
- FEATURES:  
Excellent close-in phase noise performance.  
Ultra low jitter, 0.05 to 0.3ps integrated 12kHz to 20MHz.  
CMOS, LVPECL or LVDS output options.  
Wide frequency range.
- APPLICATIONS:  
Communications  
Base stations  
DSL/ADSL  
SONET/SDH  
WiMAX/W-LAN  
Ethernet  
Wi-Fi

### Frequency Parameters

- Frequency 1.0MHz to 800.0MHz
- Frequency Stability  $\pm 10.00\text{ppm}$  to  $\pm 20.00\text{ppm}$
- Frequency Stability: Includes Frequency Tolerance @ 25°C, operating temperature range, supply voltage variation, load variation and 15yrs ageing @ 25°C.

### Electrical Parameters

- Supply Voltage 3.3V  $\pm 5\%$
- Supply Current:  
CMOS 1mA to 40mA  
LVPECL 40mA to 120mA  
LVDS 30mA to 80mA

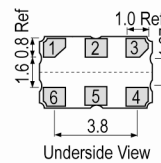
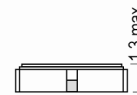
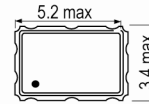
### Frequency Adjustment

- Pulling  $\pm 50\text{ppm}$  min APR
- Voltage Control:  
Absolute Pull Range (APR):  $\pm 50\text{ppm}$  min  
Total Pull Range (frequency shift from minimum to maximum control voltage): 100ppm to 250ppm  
Control Voltage (nominal 1.65V): 0 to 3.3V  
Linearity (Control Voltage 0.3 to 3V): 10% max  
Slope: Positive  
Modulation Bandwidth (Control Voltage 0.3 to 3V): 15kHz min  
Input Impedance: 0.1 to 10M $\Omega$  min

### Operating Temperature Ranges

- -40 to 85°C

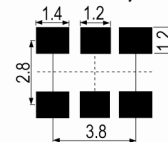
### Outline (mm) 1.3mm package height



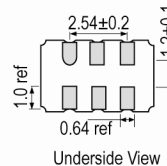
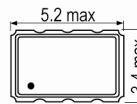
#### Pad Connections

1. Voltage Control
2. Enable/Disable or NC
3. GND
4. Output (CMOS)
5. Output (LVPECL/LVDS) or E/D or NC
6. +Vs

#### Solder Pad Layout



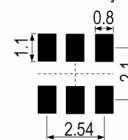
### Outline (mm) 1.2mm package height



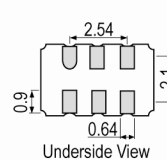
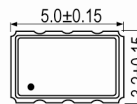
#### Pad Connections

1. Voltage Control
2. Enable/Disable or N/C
3. GND
4. Output (CMOS)
5. Output (LVPECL/LVDS) or E/D or NC
6. +Vs

#### Solder Pad Layout



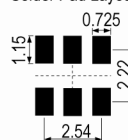
### Outline (mm) = 1.2±0.15mm package height



#### Pad Connections

1. Voltage Control
2. Enable/Disable or N/C
3. GND
4. Output (CMOS)
5. Output (LVPECL/LVDS) or E/D or N/C
6. +Vs

#### Solder Pad Layout



### Sales Office Contact Details:

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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  
R/F Time (@ 90%/10%): 3ns max  
Phase Jitter (12kHz-20MHz): 0.05 to 0.3ps rms max
- Output Characteristics (LVPECL):  
Load: 50Ω  
Output Low (VoL): Vs-1.6V max  
Output High (VoH): Vs-1.03V min  
Duty Cycle (@ Vs-1.3V): 45/55% max  
R/F Time (@ 80%/20%): 0.6ns max  
Phase Jitter (12kHz-20MHz): 0.05 to 0.3ps rms max
- Output Characteristics (LVDS):  
Load: 100Ω  
Differential Output Voltage: 350mV  
Duty Cycle (@ 1.25V): 45/55% max  
R/F Time: 0.6ns max  
Phase Jitter (12kHz-20MHz): 0.05 to 0.3ps rms max

### Output Control

- Power Down Mode:  
Logic '0' (30%Vs max) or GND to E/D pad disables oscillator output.  
Logic '1' (70%Vs min) or no connection (internal pull-up resistor) to E/D pad enables oscillator output.

### Noise Parameters

- Phase Noise @ 25°C (F=77.76MHz, typ):  
-73dBc/Hz @ 10Hz  
-100dBc/Hz @ 100Hz  
-128dBc/Hz @ 1kHz  
-137dBc/Hz @ 10kHz  
-148dBc/Hz @ 100kHz
- Phase Noise @ 25°C (F=122.88MHz, typ):  
-67dBc/Hz @ 10Hz  
-98dBc/Hz @ 100Hz  
-127dBc/Hz @ 1kHz  
-147dBc/Hz @ 10kHz  
-150dBc/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.
- Humidity: After 48hrs @ 85°C ±2°C, 85% RH non-condensing.

### Manufacturing Details

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

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**Ordering Information**

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

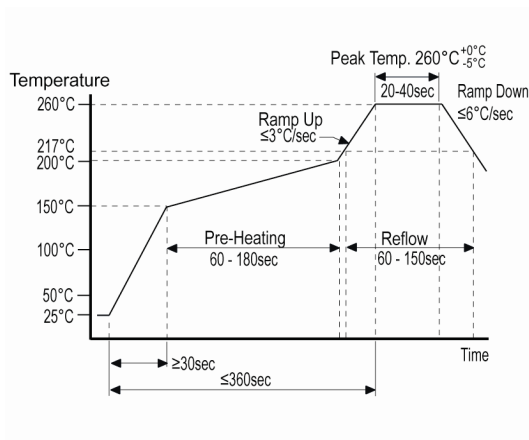
**Compliance**

- RoHS Status (2015/863/EU)      Compliant
- REACH Status                      Compliant
- MSL Rating (JDEC-STD-033):    Not Applicable

**Packaging Details**

- Pack Style: Bulk      Loose in bulk pack  
  Pack Size: 1
- Pack Style: Reel      Tape & reel in accordance with EIA-481-D  
  Pack Size: 4,000

**Pb-Free Reflow**



**Electrical Specification - maximum limiting values 3.3V ±5%**

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
1.0MHz	800.0MHz	-40 to 85	-	-	-	-

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