

ISSUE 1; May 2016

### Description

- The IQXV-90 selectable VCXO combines low RMS phase jitter and low power with the ability to select the output frequency from up to four factory-configured frequencies by controlling two Frequency Select (FS) pins (e.g. 122.88 or 153.6MHz). This enables reductions in part count and built-in upgrade paths to increase design flexibility and reduce costs.
- Applications:
  - Base stations
  - Consumer Communications
  - DSL/ADSL
  - Ethernet
  - Wi-Fi
  - WiMAX/W-LAN
- Features:
  - Selectable output frequencies (Up to 4)
  - Low power differential outputs
  - <1ps integrated RMS phase jitter (12kHz to 20MHz)
  - Wide frequency range
  - CMOS, LVPECL, LVDS output options

### Frequency Parameters

- Frequency: 8.0MHz to 1.5GHz
- Frequency Stability:  $\pm 10.00\text{ppm}$  to  $\pm 20.00\text{ppm}$
- Frequency Control Selection Function:
  - Frequency 1: FS1=0, FS2=0
  - Frequency 2: FS1=1, FS2=0
  - Frequency 3: FS1=0, FS2=1
  - Frequency 4: FS1=1, FS2=1
- Frequency Stability (including tolerance, temperature range, supply voltage variation, load variation and 10 years ageing at 25°C)

### Electrical Parameters

- Supply Voltage Options:
  - 2.5V  $\pm 5\%$
  - 3.3V  $\pm 10\%$
- Supply Current:
  - CMOS 30mA max
  - LVPECL 65mA max
  - LVDS 40mA max

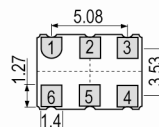
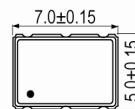
### Frequency Adjustment

- 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): 50 to 250ppm max
  - Control Voltage (Nominal 1.65V): 0 to 3.3V
  - Linearity (Control voltage 0.3 to 3V): 10% max
  - Slope: Positive only
  - Modulation BW (Control voltage 0.3 to 3V): 10kHz min
  - Input Impedance: 1M $\Omega$  min

### Operating Temperature Ranges

- -40 to 85°C

### Outline (mm) 1.6mm package height

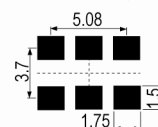


Underside View

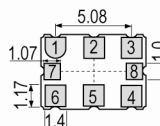
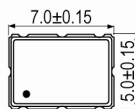
#### Pad Connections

1. Voltage Control
2. FS1 or 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) 1.6mm package height

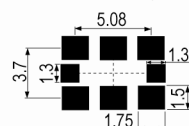


Underside View

#### Pad Connections

1. Voltage Control
2. FS1 or Enable/Disable or NC
3. GND
4. Output (CMOS)
5. Output (LVPECL/LVDS), E/D or NC
6. +Vs
7. FS1 or NC
8. FS2 or NC

#### Solder Pad Layout



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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: 48/52% max  
R/F Time (@ 90%/10%): 3ns max  
Phase Jitter (12kHz-20MHz): 0.4 to 1ps 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): 48/52% max (45/55% over 600MHz)  
R/F Time (@ 80%/20%): 0.6ns max  
Phase Jitter (12kHz-20MHz): 0.4 to 1ps rms max
- Output Characteristics (LVDS):  
Load: 100Ω  
Differential Output Voltage: 350mV  
Duty Cycle (@ 1.25V): 48/52% (45/55% over 150MHz)  
R/F Time: 0.6ns max  
Phase Jitter (12kHz-20MHz): 0.4 to 1ps rms max

**Output Control**

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

**Noise Parameters**

- Phase Noise (typ at 77.76MHz):  
-68dBc/Hz @ 10Hz  
-95dBc/Hz @ 100Hz  
-120dBc/Hz @ 1kHz  
-125dBc/Hz @ 10kHz  
-128dBc/Hz @ 100kHz
- Phase Noise (typ at 155.52MHz):  
-62dBc/Hz @ 10Hz  
-90dBc/Hz @ 100Hz  
-112dBc/Hz @ 1kHz  
-118dBc/Hz @ 10kHz  
-120dBc/Hz @ 100kHz
- Phase Noise (typ at 622.08MHz):  
-48dBc/Hz @ 10Hz  
-78dBc/Hz @ 100Hz  
-101dBc/Hz @ 1kHz  
-107dBc/Hz @ 10kHz  
-108dBc/Hz @ 100kHz

**Environmental Parameters**

- Shock: MIL-STD-883, Method 2002
- Storage Temperature Range: -55 to 125°C
- Humidity: after 48 hours at 85 °C ±2 °C 85 % relative humidity non-condensing
- Thermal Shock: MIL-STD-883, Method 1011
- Vibration: MIL-STD-883, Method 2007

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**Ordering Information**

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

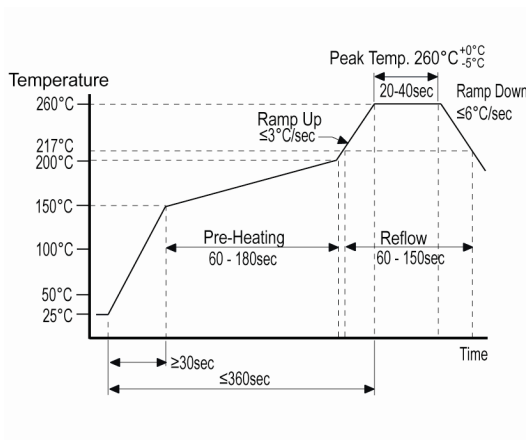
**Compliance**

- 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: 2,000
- Pack Style: Bulk      Loose in bulk pack  
Pack Size: 1

**Pb-Free Reflow**



**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	-	-	-	-

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