

ISSUE 1; October 2018

Description

- The IQXV-83 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
- Applications:
 - Ethernet (10G/40G/100G)
 - Communications
 - Base stations
 - SONET/SDH
 - Consumer
 - WiMAX / W-LAN
- Features:
 - CMOS, LVPECL, or LVDS output options
 - 0.5ps integrated RMS phase jitter (12kHz to 20MHz)
 - Low power differential outputs
 - Wide frequency range

Frequency Parameters

- Frequency: 8.0MHz to 1.5GHz
- Frequency Stability: $\pm 10.00\text{ppm}$ to $\pm 20.00\text{ppm}$
- Frequency Stability (including tolerance, temperature range, supply voltage variation, load variation and 15 years ageing at 25°C)

Electrical Parameters

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

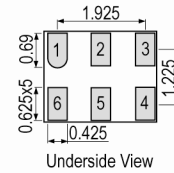
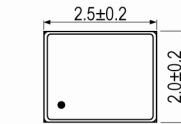
Frequency Adjustment

- 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 max
 - Control Voltage (Nominal 1.65V): 0 to 3.3V
 - Linearity (Control voltage 0.3 to 3V): 15% max
 - Slope: Positive only
 - Modulation BW (Control voltage 0.3 to 3V): 10kHz min
 - Input Impedance: 1M Ω min

Operating Temperature Ranges

- -40 to 85°C

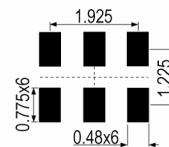
Outline (mm)



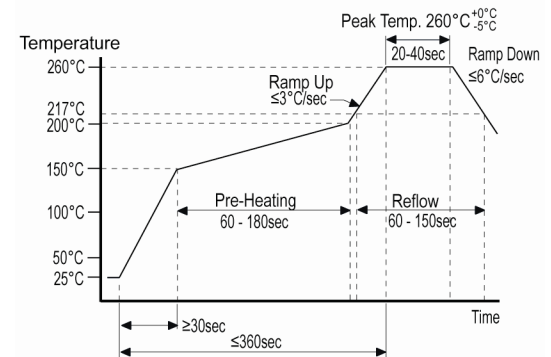
Pad Connections

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



Pb-Free Reflow



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Output Details

- Output Compatibility CMOS/LVPECL/LVDS
- Output Characteristics (CMOS up to 200MHz):
Load: 10pF
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): 0.5ps rms max
- Output Characteristics (LVPECL):
Load: 50Ω
Output Low (Vol): Vs-1.62V max
Output High (Voh): Vs-1.025V 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): 0.5ps 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): 0.5ps rms max

Output Control

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

Noise Parameters

- Phase Noise (typ at 77.76MHz):
-65dBc/Hz @ 10Hz
-95dBc/Hz @ 100Hz
-116dBc/Hz @ 1kHz
-126dBc/Hz @ 10kHz
-131dBc/Hz @ 100kHz
- Phase Noise (typ at 156.25MHz):
-77dBc/Hz @ 10Hz
-101dBc/Hz @ 100Hz
-110dBc/Hz @ 1kHz
-118dBc/Hz @ 10kHz
-124dBc/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

Ordering Information

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

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Compliance

- RoHS Status (2015/863/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
- Pack Style: Cutt In tape, cut from a reel
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	%
8.0MHz	1.5GHz	-40 to 85	-	-	-	-

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