

## IQMS-900, -902 SERIES MEMS OSCILLATORS

ISSUE 3; 1 NOVEMBER 2010 - RoHS 2002/95/EC

### Description

- MEMS alternative to the IQXO-690
- LVPECL output low jitter MEMS oscillator in a plastic package
- Factory programmable for a fast lead time

### Frequency Ranges

- 1 to 220MHz
- 220 to 800MHz (contact IQD sales offices)

### Output Compatibility & Load

- LVPECL
- Output load 50Ω terminated to  $V_S - 2.0V$
- Output Level 0.8V pk-pk typical

### Supply Voltages

- 3.3V IQMS-900
- 2.5V IQMS-902

### Frequency Stabilities

- $\pm 10ppm$ ,  $\pm 15ppm$   $\pm 20ppm$ ,  $\pm 25ppm$ ,  $\pm 50ppm$  over the operating temperature range (inclusive of tolerance, supply voltage variation, load variation)  
Note:  $\pm 10ppm$  only available over 0 to 70°C

### Operating Temperature Ranges

- 0 to 70°C
- 20 to 70°C
- 40 to 85°C

### Storage Temperature Range

- 65 to 150°C

### Tri-state Operation (TS option)

- Logic '1' to pad 1 ( $\geq 70\%V_S$ ) enables oscillator output
- Logic '0' to pad 1 ( $\leq 30\%V_S$ ) disables oscillator output; when disabled the oscillator output goes to the high impedance state
- No connection to pad 1 enables oscillator output

### Standby (ST option)

- Logic '1' to pad 1 ( $\geq 70\%V_S$ ) enables oscillator output
- Logic '0' to pad 1 ( $\leq 30\%V_S$ ) disables oscillator output; when disabled the oscillator output goes to the high impedance state, oscillation stops
- No connection to pad 1 enables oscillator output
- Standby Current: 25 $\mu A$  typical @3.3V  
15 $\mu A$  typical @2.5V

### RMS Period Jitter @ 200MHz

- 1.3ps typical

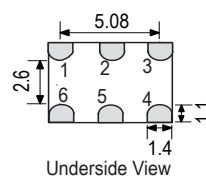
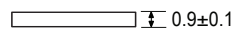
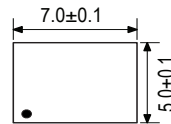
### RMS Phase Jitter @ 200MHz, BW 1MHz to 20MHz

- 0.7ps typical

### Ageing

- $\pm 1ppm$  typ in 1st year at 25°C

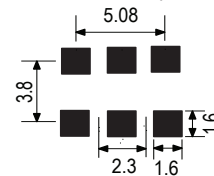
### Outline (mm)



### Pad Connections

- TS / ST
- N/C
- GND
- Output +
- Output -
- + $V_S$

### Solder Pad Layout



### Environmental

- Shock: MIL-STD-883F, Method 2002
- Vibration: MIL-STD-883F, Method 2007
- Temperature Cycle: MIL-STD-883F, Method 1010
- Solderability: MIL-STD-883F, Method 2003
- MSL level 1

### Packaging

- Loose in bulk pack, 100pcs per bag
- Tape and reel in accordance with EIA-481-D, 1kpcs per reel (please see pages 372 & 373)

### Ordering Information (\*minimum required)

- Frequency\*
- Model\*
- Output Compatibility
- Frequency Stability (over operating temperature range)\*
- Operating Temperature Range\*
- Supply Voltage
- TS/ST Option\*

### Example

- 40.00MHz IQMS-900  
LVPECL  $\pm 25ppm$  -40 to 85C 3.3V ST

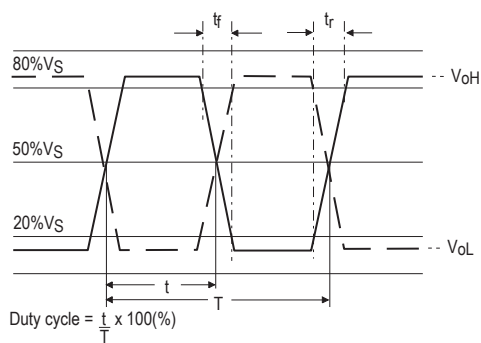


**Electrical Specifications - maximum limiting values**

Frequency Range	Frequency Stability	Supply Voltage	Supply Current (no load)	Rise Time (tr) (20-80%)	Fall Time (tf) (80-20%)	Duty Cycle	Model Number
1.0 to 220.0MHz	±10ppm ±15ppm ±20ppm ±25ppm ±50ppm	3.3V±10%	74mA	300ps	300ps	45/55%	IQMS-900
		2.5V±10%	71mA				IQMS-902

Note: For other frequency/specification combinations, please contact our sales offices

**Output Waveform**



**Test Circuit**

