IQMS-510, -511, -512, -513 SERIES MEMS OSCILLATORS

ISSUE 2; 1 NOVEMBER 2010 - RoHS 2002/95/EC

Description

- MEMS alternative to the CFPS-9 and CFPS-37
- Low jitter MEMS oscillator with CMOS output in a plastic package
- Factory programmable for a fast lead time

Frequency Range

- 1 to 110MHz

Output Compatibility & Load

- Tri-state / Standby CMOS
- Drive Capability 15pF max

Supply Voltages

- 3.3V IQMS-510
- 2.8V IQMS-511
- 2.5V IQMS-512
- 1.8V IQMS-513

Frequency Stabilities

- ±20ppm, ±25ppm, ±30ppm, ±50ppm, ±100ppm over the operating temperature range (inclusive of supply voltage variation, load variation, ageing, shock and vibration)
  Note: ±20ppm not avaible over –40 to 85°C

Operating Temperature Ranges

- –20 to 70°C
- –40 to 85°C

Storage Temperature Range

- –65 to 125°C

Tri-State Operation (TS option)

- Logic '1' (≥70%V_S) to pad 1 enables oscillator output
- Logic '0' (≤30%V_S) to pad 1 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' (≥70%V_S) to pad 1 enables oscillator output
- Logic '0' (≤30%V_S) to pad 1 oscillator output is low level; oscillation stops (output weakly pulled down)
- No connection to pad 1 enables oscillator output
- Standby Current: 10µA max

RMS Period Jitter @ 75MHz

- 6ps max (IQMS-513)
- 4ps max (IQMS-510, 511, 512)

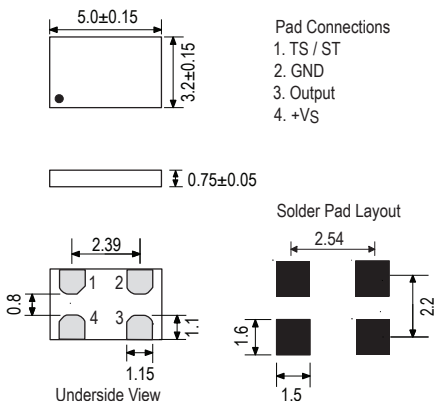
Start-Up Time

- 10ms max

Ageing

- ±1ppm typ in 1st year @ 25°C

Outline (mm)



Environmental

- Shock: MIL-STD-883F, Method 2002
- Vibration: MIL-STD-883F, Method 2007
- Temperature Cycle: JESD22, Method A104
- 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 Compatiblity
- Frequency Stability (over operating temperature range)*
- Operating Temperature Range*
- Supply Voltage
- TS/ST Option*

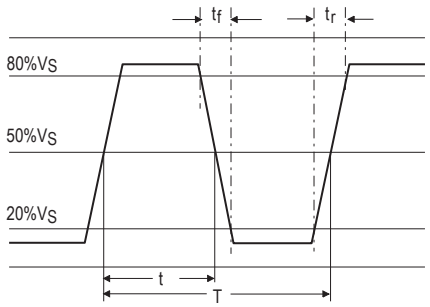
Example

- 40.00MHz IQMS-510
  CMOS ±50ppm –20 to 70C 3.3V TS

Electrical Specification - maximum limiting values

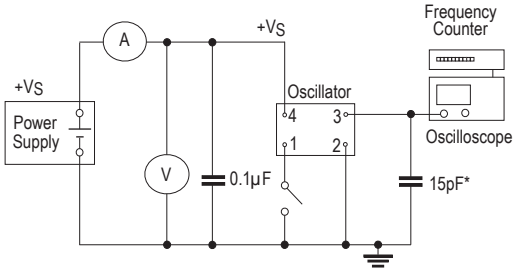
Frequency Range	Frequency Stability	Supply Voltage	Supply Current (no load @ 20MHz)	Rise Time (t_r) (20-80%)	Fall Time (t_f) (80-20%)	Duty Cycle	Model Number
1.0 to 70.0MHz	±20ppm ±25ppm ±30ppm ±50ppm ±100ppm	3.3V±10%	7.5mA	2ns	2ns	45/55%	IQMS-510
>70.0 to 110.0MHz						40/60%	
1.0 to 70.0MHz		2.8V±10%				45/55%	IQMS-511
>70.0 to 110.0MHz						40/60%	
1.0 to 70.0MHz		2.5V±10%				45/55%	IQMS-512
>70.0 to 110.0MHz						40/60%	
1.0 to 70.0MHz		1.8V±5%	6.7mA	2.5ns	2.5ns	45/55%	IQMS-513
>70.0 to 110.0MHz						40/60%	
Note: For other frequency/specification combinations, please contact our sales offices							

Output Waveform



Duty cycle = $\frac{t}{T}$ x 100(%)

Test Circuit



*Inclusive of jigging and equipment capacitance