

**Customer Part:**

**Description**

- Oven controlled crystal oscillator (OCXO) on a FR4 base.
- Model IQOV-162-30
- Model Issue number 1

**Frequency Parameters**

- Frequency 20.0MHz
- Frequency Tolerance  $\pm 500.00\text{ppb}$
- Frequency Stability  $\pm 20.00\text{ppb}$
- Operating Temperature Range  $-40.00$  to  $85.00^\circ\text{C}$
- Ageing  $\pm 5\text{ppb}$  max per day,  $\pm 500\text{ppb}$  max per year
- Frequency Tolerance: Measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.65\text{V}$  and after 15 minutes of operation, within 30 days after ex-works.
- Frequency Stability:  $T_A$  varied over operating temperature range, measurement referenced to frequency observed with  $f_{\text{ref}}=(f_{\text{max}}+f_{\text{min}})/2$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.65\text{V}$ ,  $\text{load}=15\text{pF}$  and temperature variable speed less than  $2^\circ\text{C}$  per minute.
- Ageing:  $V_s$ ,  $T_A$  constant, measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.65\text{V}$  and after 30 days of operation.
- Supply Voltage Variation (measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s$  varied from  $3.13\text{V}$  to  $3.47\text{V}$ ,  $V_C=1.65\text{V}$  and  $\text{load}=15\text{pF}$ ):  $\pm 10\text{ppb}$  max
- Load Variation (measurement referenced to frequency observed with  $T_A=25^\circ\text{C}$ ,  $V_s=3.3\text{V}$ ,  $V_C=1.65\text{V}$  and load change= $15\text{pF} \pm 5\%$ ):  $\pm 10\text{ppb}$  max
- Short Term Stability - Allan Variance (temperature stable, no EMI/EMC or other interference) test after power for 1hr ref. to  $25^\circ\text{C}$ ; 1s):  $1\text{E}-11$  max

**Electrical Parameters**

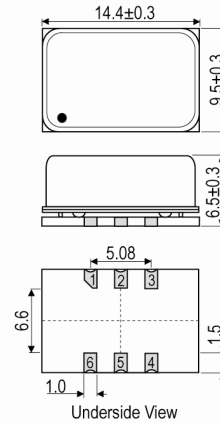
- Supply Voltage  $3.3\text{V} \pm 5\%$
- Current Draw:  
Warm Up:  $560\text{mA}$  max  
Steady State (@  $25^\circ\text{C}$ ):  $250\text{mA}$  max
- Warm Up Time (@  $25^\circ\text{C}$ ,  $F \leq \pm 100\text{ppb}$  of final frequency with reference after 1hr on):  $5\text{mins}$  max

**Frequency Adjustment**

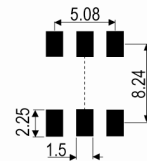
- Pulling  $\pm 3\text{ppm}$  min to  $\pm 8\text{ppm}$  max
- Control Voltage  $1.65\text{V} \pm 1.65\text{V}$
- Input Impedance  $100\text{k}\Omega$  min
- Linearity:  $10\%$  max
- Slope: Positive

**Output Details**

- Output Compatibility HCMOS
- Drive Capability  $15\text{pF}$
- Rise and Fall Time  $8.0\text{ns}$  max
- Duty Cycle  $45/55\%$
- Output Levels (@  $V_s=3.3\text{V}$ ,  $\text{load}=15\text{pF}$ ):  
VoL:  $0.4\text{V}$  max  
VoH:  $2.4\text{V}$  min

**Outline (mm)**

**Pad Connections**

1. Voltage Control
2. NC
3. GND
4. Output
5. NC
6. +Vs

**Solder Pad Layout**

**Sales Office Contact Details:**

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**Customer Part:****Noise Parameters**

- Phase Noise (typ @ 25°C):
  - 100dBc/Hz @ 10Hz
  - 130dBc/Hz @ 100Hz
  - 150dBc/Hz @ 1kHz
  - 150dBc/Hz @ 10kHz
  - 150dBc/Hz @ 100kHz
  - 155dBc/Hz @ 1MHz

**Environmental Parameters**

- Storage Temperature Range: -55 to 105°C
- ESD Levels: JEDEC JS-001-2010:
  - HBM, Class 2: 2000V to 4000V
  - Machine Model, Class B: 200V to 400V
- Vibration: IEC 60068-2-06, Test Fc: 10Hz-500Hz, 0.75mm displacement, 10g acceleration, one cycle per 30mins, 3 times in each of 3 mutually perpendicular planes, test 2hrs.
- Shock: IEC 60068-2-27, Test Ea, Severity 50A: 50g, 11ms duration, 1/2 sine wave, 3 times in each of 3 mutually perpendicular planes.

**Manufacturing Details**

- Maximum Reflow Temperature: 260°C (30secs max)

**Compliance**

- RoHS Status (2015/863/EU)      Compliant
- REACH Status                      Compliant
- MSL Rating (JDEC-STD-033):    2

**Packaging Details**

- Pack Style: Bulk      Loose in bulk pack  
Pack Size: 1
- Alternative packing option available*

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