

Utmost OCXO Solutions



Magic Xtal Ltd.

www.magicxtal.com www.mxtal.ru

Since 2001 Magic Xtal Ltd. develops and produces extraordinary OCXO products combining high frequency stability and low phase-noise level with miniature sizes and extremely low power consumption.

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Quality of Magic's OCXO products is insured by own unique technologies, reliable manufacturing processes with every-step test procedures and long operation run before shipment as well as by effective QC system operating in compliance with ISO 9001 and IPC-A-610 standards.

Ultra-high stability OCXOs



27x36x16 mm

Ultimate frequency
stability
MXODE

8–100 MHz

to $5E-11$ in $(-30+70)^{\circ}C$
to $1E-10$ /day aging
to $5E-13$ /1s Allan variance



20x20x12.6 mm

Ultra-high stability
small size
MXODR

to $2E-10$ in $(-30+70)^{\circ}C$
to $1E-10$ /day aging
to $2E-12$ /1s Allan variance
to 35 s warm-up time



20x20x12.6 mm

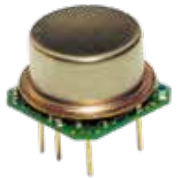
Ultra-high stability
small size low power
MX037/R

<180 mW consumption
to $5E-10$ in $(-40+80)^{\circ}C$
to $1E-10$ /day aging
to $2E-12$ /1s Allan variance

Low power miniature high stability OCXOs

DIP8 & DIP14 compatible

MX037/8 **MX037/14**



15x15x9.5 mm



15x21,5x9.5 mm

8–300 MHz

to 130 mW consumption
to 2 ppb in (-40 +85)°C
to 0.1 ppb/day aging
to 35 s warm-up time
to 0.3 ppb/g g-sensitivity



15x21,5x7.9 mm

Low profile (7.9 mm)

M037/14L

Phase-noise at 10 MHz

1 Hz	-105 dBc/Hz
10 Hz	-135 dBc/Hz
100 Hz	-155 dBc/Hz
1 KHz	-160 dBc/Hz
10 kHz	-170 dBc/Hz
100 kHz	-173 dBc/Hz



20x20x12.6 mm

Hermetically sealed

MX037/R

Fast warm-up low power miniature OCXOs



15x15x9.5 mm

DIP8 compatible
MX037/8F

8–100 MHz

<30 s warm-up time
<170 mW consumption
<20 ppb in (-40 +85)°C
0.3 ppb/day aging



15x21.5x9.5 mm

DIP14 compatible
MX037/14F

Phase-noise at 10 MHz

1 Hz	-100 dBc/Hz
10 Hz	-135 dBc/Hz
100 Hz	-155 dBc/Hz
1 KHz	-160 dBc/Hz
10 kHz	-170 dBc/Hz

High durable low power OCXOs



15x15x10.5 mm

DIP8 compatible
MX037/8D



15x21.5x10.5 mm

DIP14 compatible
MX037/14D

8–100 MHz

1000 g, 1 ms shocks
0–2000 Hz, 30 g vibration
<200 mW consumption
10 ppb in (-40 +85)°C
0.3 ppb/day aging
45 s warm-up time

Phase-noise at 10 MHz

1 Hz	-100 dBc/Hz
10 Hz	-130 dBc/Hz
100 Hz	-150 dBc/Hz
10 KHz	-170 dBc/Hz
100 kHz	-173 dBc/Hz

Low phase-noise OCXOs

Standard packaging

MXOC



5–150 MHz
1 ppb (-40 +85)°C

to 0.1 ppb/day
to 5E-13/1s AV

Phase-noise at 10 MHz

1 Hz	-110 dBc/Hz
10 Hz	-140 dBc/Hz
100 Hz	-155 dBc/Hz
1 KHz	-165 dBc/Hz
10 kHz	-170 dBc/Hz

Low power low g-sensitivity

MX037



8–150 MHz
<170 mW consumption
to 5 ppb in (-40 +85)°C

to 0.2 ppb/g sensitivity
to 0.3 ppb/day

Phase-noise at 100 MHz

1 Hz	-105 dBc/Hz
10 Hz	-135 dBc/Hz
100 Hz	-160 dBc/Hz
1 KHz	-170 dBc/Hz
10 kHz	-175 dBc/Hz

Random vibration induced phase noise

$$L(f_g) = 20 \cdot \text{Log} \left(\frac{\text{Sens} \cdot \sqrt{2 \cdot A}}{2 \cdot f_g} \cdot F_0 \right) [\text{dBc/Hz}]$$

Sens [1/G] – sensitivity; A [G²/Hz] – acceleration PSD;
f_g [Hz] – vibration frequency; F₀ [Hz] – carrier frequency.

Extra-high temperature OCXOs



20x20x12.6 mm



25x25x12.6 mm



27x36x12.6 mm

MXOC-H

up to 130°C operation temperature

10 ppb, (-40 +130)°C

0.3 ppb/day aging

500 g mechanical shocks

0–2000 Hz, 30 g vibration

8–13 MHz operation range