

**A NEW ULTRA PRECISE DOCXO DESIGNED FOR SERIAL PRODUCTION**

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Recently the significant increase of demand for Ultra Stable Quartz Oscillators has been evidenced. Such oscillators are used for many applications including CDMA, GPS/GLONASS, etc. The following major requirements are usually applied for these oscillators: frequency stability vs. temperature changes of  $\pm(1\ldots2)\times 10^{-10}$ ; long-term stability of  $\pm(1\ldots2)\times 10^{-8}$ /year; short-term stability of  $<5\times 10^{-12}$  for time intervals of 1 through 100 seconds. These parameters may be achieved

in Double Oven quartz oscillators (DOCXO). However, development, production and measurement of such DOCXOs is a quite technically complicated task.

In the R&D laboratory of the Morion, Inc. the design of DOCXO was made with parameters satisfying the above mentioned requirements. Also the process of serial production of such DOCXOs has been worked out.

## The major parameters of MV89 type DOCXO:

Nominal frequency:	5.0; 10.0 MHz
Frequency stability in operating temperature range of -20...+70 oC:	$\pm 1.0\times 10^{-10}$ ; $\pm 1.5\times 10^{-10}$ ; $\pm 2.0\times 10^{-10}$ ; $\pm 1.0\times 10^{-10}$ ;
Aging per day:	
Short-term stability for 1...100 s:	$<5.0\times 10^{-12}$ ;
Output level:	$>0$ dBm into 50 Ohms load;
Power consumption:	$<3.5$ W (steady state @ 25 oC);
Dimensions	2"x2"x1.5" (50.8x50.8x38mm)