## T:50-05

# **MGXO SERIES**

**ULTRA-STABLE GT OSCILLATORS WITH PEAC** 





#### **III STANDARD FREQUENCIES**

51, SM	(B)	( <del>It l</del> z)	51, SM (MHz)			
1.0 Hz	1.000	1.280	1.792	2.000	2.112	
32.768 kHz	1.048576	1.536	1.800	2.080053	2.40299	
224 kHz	1.200	1.600	1.8432	2.097152	2.4576	
	1.2288		1.920	2.100	2.560	
	1/2, 1/8, 1/32, 1/64, 1/256, 1/2th, 1/2th divided frequency output					

#### **■**NOTES

Special frequencies and custom specifications are available upon request.

The MGXO series oscillators use the miniature GT-cut crystals (MGQ) developed by Seiko Instruments, Inc. The frequencytemperature characteristics of the MGXO are excellent, and a stable frequency is easily obtained over a wide temperature range. The MGXO is available in three packages, ranging from the standard 14-pin DIP, to the unique SM package desian.

#### **#**FEATURES

- Low power consumption.
- Hermetically sealed case.
- Excellent frequency stability over a wide temperature range.
- Aging factor of ±2 ppm per year.
- Frequency can be electrically adjusted (PEAC).
- Divided output for stable low frequency applications.

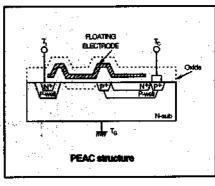
## **■ APPLICATIONS**

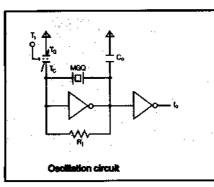
Communications and telecommunications equipment, facsimile, cellular telephones, real-time clocks, pocket pagers, and instrumentation.

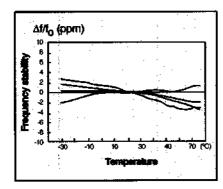
#### Precision Electrical Adjustable Capacitance Element (PEAC)

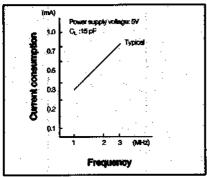
The MGXO series has built-in a precision electrical adjustable capacitance element (PEAC) instead of a trimmer capacitor. The PEAC is a floating gate semiconductor element with an injection terminal (TI), capacitance terminal (TC) and ground terminal (TG). The internal capacitance can be varied by applying (+) or (-) 15 VDC between TI and TG, injecting an electrical charge at the gate. By using the PEAC, frequency is finely adjustable even when the case is hermetically sealed (resistance welded). This improves reliability and makes dippedwashing of the oscillator possible. TI is connected to pin #1 (#3 for the SM) as Fadi (frequency adjustment). When adjustment is not required, connect Fadj. to the plus (+) power supply. For specific PEAC technical notes, contact your local Seiko Instruments sales office.

#### ■ CHARACTERISTICS

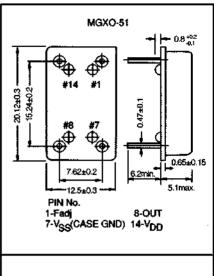


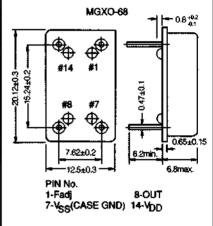


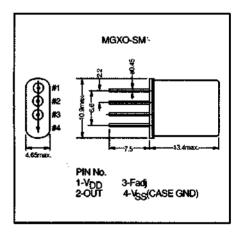




### ■ DIMENSIONS (Unit: mm)







## **MEASURING CIRCUIT**

#### ■ SPECIFICATIONS

#### ■ MGXO-51+ 68 SERIES

Item	AA*	A*	В	С	D	E	
Oscillation frequency	1.0 MHz - 2.56 MHz						
Divided frequency	1/2, 1/8, 1/32, 1/64, 1/256, 1/2 <sup>21</sup> , 1/2 <sup>22</sup> f <sub>osc</sub>						
Frequency tolerance (at +25°C)	±0.5 ppm	±2 ppm	±3 ppm	±5 ppm	±10 ppm	±20 ppm	
Frequency temperature stability (-20° C - +70° C)	±2.5 ppm	±5 ppm	± 10 ppm	±25 ppm	±50 ppm	±100 ppm	
Aging (first year)	±1 ppm ±3 ppm						
Power supply voltage	DC +5.0V ±5%						
Current consumption	1 mA max.						
Output voltage VoH/VoL	4.5 V min./0.5 V max.						
Output waveform and symmetry	Square wave/50% ±10%						
Rise and fall time	100 ns max.						
Operating temperature range	-20° C ~ +70° C						

<sup>\*</sup>Temperature compensated.

#### **■ MGXO-SM SERIES**

ttern	A*	В	С	Ð	E	
Oscillation frequency	1.7 MHz - 2.56 MHz					
Divided frequency	1/2, 1/8, 1/32, 1/64, 1/256, 1/2 <sup>21</sup> , 1/2 <sup>22</sup> t <sub>osc</sub>					
Frequency tolerance (at +25° C)	±2 ppm	±3 ppm	±5 ppm	±10 ppm	±20 ppm	
Frequency temperature stability (-20° C - +70° C)	±5 ppm	±10 ppm	±25 ppm	±50 ppm	±100 ppm	
Aging (first year)	±3 ppm					
Power supply voltage	DC +5.0V ±5%					
Current consumption	1 mA max.					
Output voltage V <sub>OH</sub> / V <sub>OL</sub>	4.5 V min./0.5 V max.					
Output waveform and symmetry	Square wave/50% ±10%					
Rise and fall time	100 ns max.					
Operating temperature range	-20° C ~ +70° C					

<sup>\*</sup>Temperature compensated.

#### ■ ENVIRONMENTAL CAPABILITY & MECHANICAL CONDITION

Temperature cycle	-10° C - +60° C, 20 cycles, 80 hours	±2 ppm
High temperature, high humidity	60° C, 90%-95%, 240 hours	
Shock resistance	Drop from a height of 50 cm onto a hard wooden board three times	±3 ppm
Vibration resistance	Amplitude 1.5 mm. 10-55 Hz vibration applied to the 3 directions for 2 hours each	
Solder — heat resistance	Immerse in the solder bath at 250° C for 10 seconds	±2 ppm
Lead strength	1 kg pulling load for 10 seconds	
Lead bending	Bent 90° C twice	
Hermetically sealed case	Hermetically sealed quartz to be used.  The outer case is to be sealed by resistance welding.	No Defect
Storage temperature range	-40° C to +80° C	

