Overview of the MV360M Oscillator

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7/12/2019

Setting Up Oscillator for Use with Oscilloscope

1. Take Evaluation Board Y32.769.052-01 and connect it to a power source that can push 12 V.
2. Attach an SMA male cable to the SMA female port on the board. See manual below on page 4 for reference. This is the output for the reference frequency.
3. Attach the other end of the SMA cable to a BNC male converter and connect that to the oscilloscope.
4. Remove the black protective foam from the MV360M oscillator and insert the pins on the oscillator into the tubes on the board. The row with 6 pins fits on the row with 3 tubes.
5. Turn on the power source at 12V.
6. You should see a sine wave on the oscilloscope. The frequency of the wave should be ~ 10.0 MHz, and the peak to peak amplitude should be ~ 1.70 V. The current drawn by the oscillator at 12 V is ~ .2 A.

Using Voltage Control

The BNC female port on the Evaluation Board is the input for the control voltage which has a range of 0 - 5 V (see data sheet on page 6). Increasing the input voltage will decrease the output voltage, as described below.

1. Go through steps 1-6 above.
2. Attach a BNC male to Binding Post adapter to the BNC female port on the board.
3. Attach power cables from binding post to power supply that can push 5V and is adjustable.
4. Make sure the switch is in the CENTER position before turning on the power supply.
5. Increasing the voltage input from the power supply from 0 - 5 V will decrease the amplitude of the oscillator from ~1.72 V to ~ 1.66 V.
6. Putting the switch in the UP position returns the amplitude to ~ 1.72 V and reduces the input voltage from the power supply to 0 V. This occurs regardless of what the voltage is in the CENTER position.

7. Putting the switch in the DOWN position moves the amplitude to the lowest value ~ 1.66 V and increases input voltage from the power supply to 5 V. This occurs regardless of what the voltage is in the CENTER position.

MORION, INC.

EVALUATION BOARD Y32.769.052-01 DESCRIPTION

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Evaluation board Y32.769.052-01

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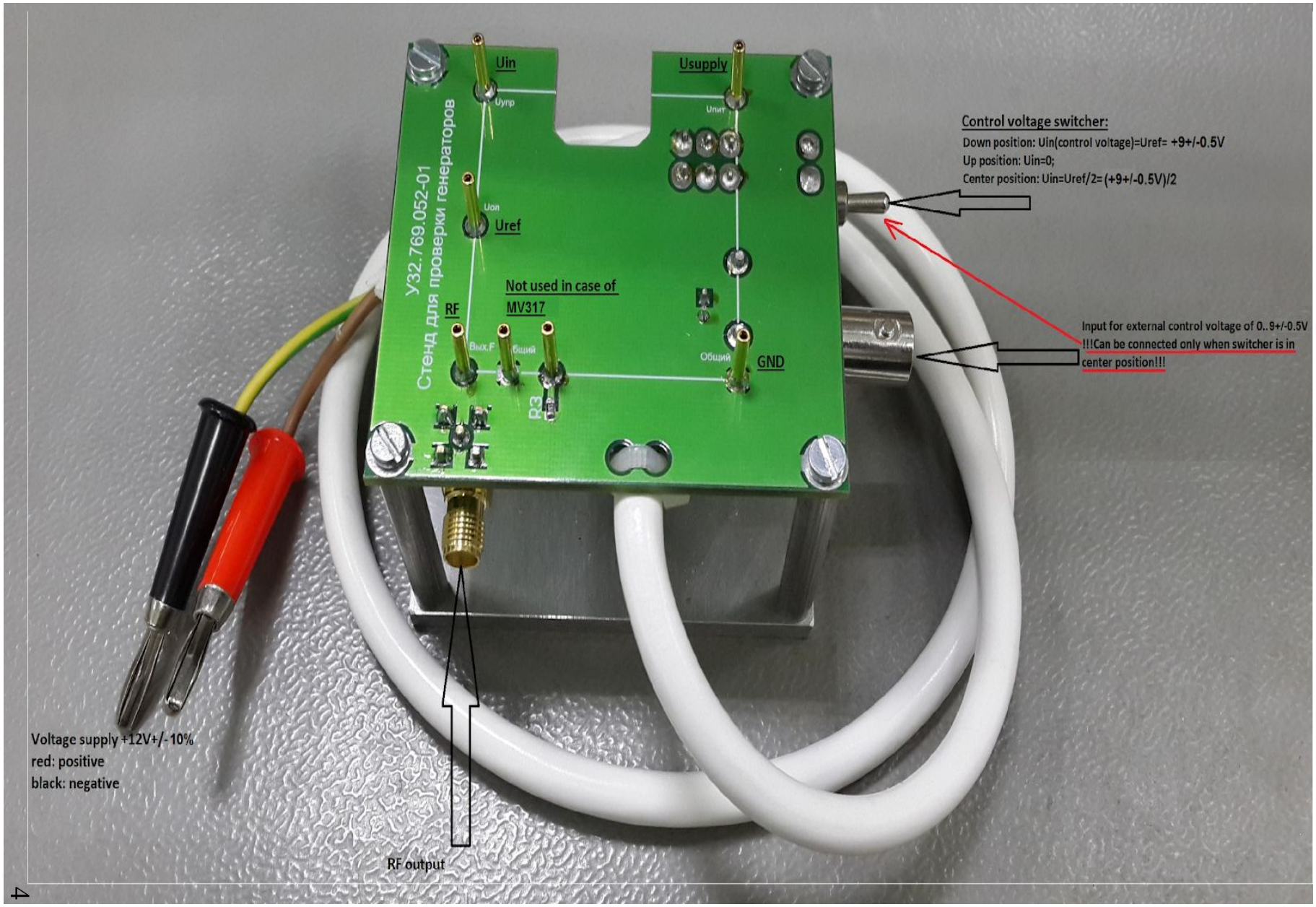
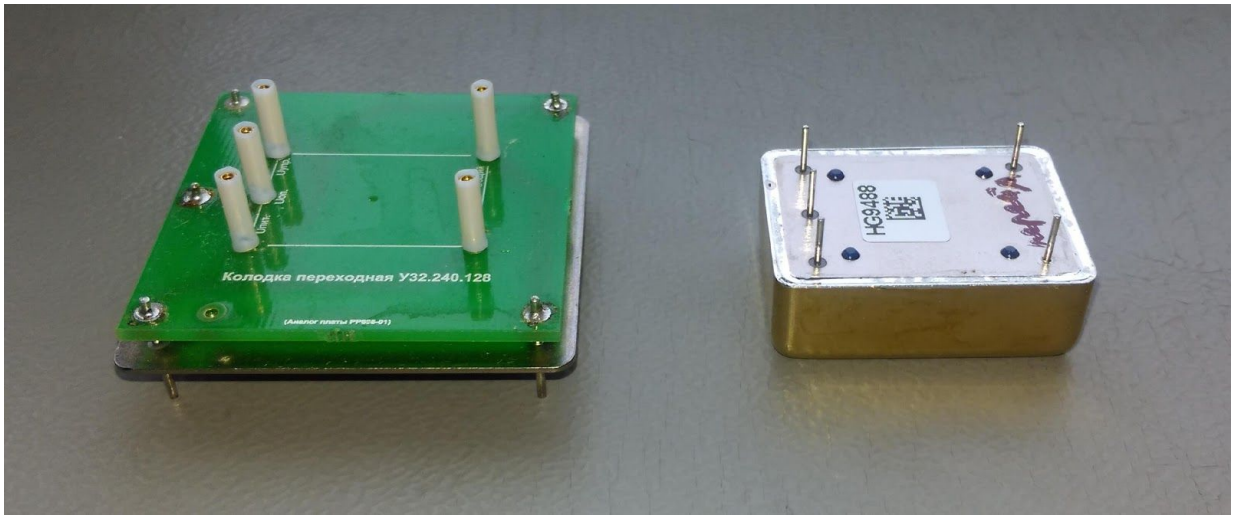

Uin
Usupply
Uref
Not used in case of
MV317
RF
GND
У32.769.052-01
Стенд для проверки генераторов
Control voltage switcher:
Down position: Uin(control voltage)=Uref= +9+/-0.5V
Up position: Uin=0;
Center position: Uin=Uref/2= (+9+/-0.5V)/2
Input for external control voltage of 0..9+/-0.5V
!!!Can be connected only when switcher is in center position!!!
Voltage supply +12V+/- 10%
red: positive
black: negative
RF output

Evaluation board Y32.769.052-01 is designed for 2”x2” OCXO. Cross-board Y32.240.128 is required to fit 36mm x 27mm MV197 OCXO for pin-layout of 2”x2” OCXO



Cross-board Y32.240.128 and MV197 OCXO

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DOUBLE OVEN ULTRA PRECISION OCXO MV360M

Features:

- *Ensures TIE of <400 nSec for 24 hours*
- *High stability vs. temperature: up to $\pm 3x10^{-11}$*
- *Standard frequency: 10.0 MHz*
- *Standard package: 50.8x50.8x19 mm*
- *High long-term stability: up to $\pm 1x10^{-8}$/year*
- *Power supply: 5 V and 12 V*
- *Analog or Digital frequency control*

ORDERING GUIDE: MV360M – C 003 D – 12V - 10.0M - D

Availability of certain stability vs. operating temperature range		$\pm 1x10^{-10}$	$\pm 5x10^{-11}$	$\pm 3x10^{-11}$
		01	005	003
A	0…+55°C	A	A	A
B	-10…+60°C	A	A	A
C	-20…+70°C	A	A	A
D	-40…+70°C	A	A	A
EU	-40…+75°C	A	A	A
EX*	-40…+85°C	A	A	A

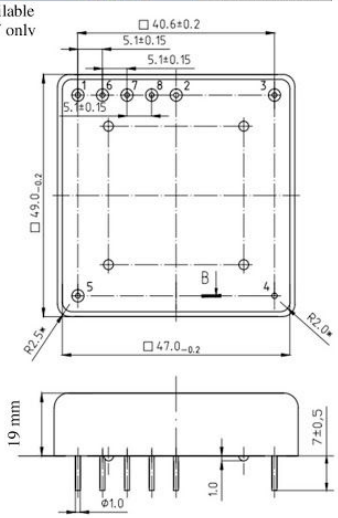
A – available
* for 5V only

Availability of certain aging values for		10 MHz
F	$\pm 5x10^{-8}$/year	A
E	$\pm 3x10^{-8}$/year	A
D	$\pm 2x10^{-8}$/year	A
C	$\pm 1x10^{-8}$/year	A

Type of frequency control	
-	Analog frequency control
D	Digital frequency control

Phase noise, at offset, dBc/Hz	10 MHz
1 Hz	<-100
10 Hz	<-130
100 Hz	<-150
1000 Hz	<-150
10000 Hz	<-155

Supply voltage
5 V
12 V



Pin	Analog	Digital
1	Control voltage Input	SDA
2	Reference voltage Output	SCL
3	RF output	RF output
4	Ground (case)	Ground (case)
5	Power supply	Power supply
6	Ground for control voltage Input	Not used
7	Not used	Not used
8	Not used	Not used

Short term stability (Allan deviation) per 1 sec	<$2x10^{-12}$	
Frequency stability vs. load changes (±5%)	<$\pm 1x10^{-11}$	
Frequency stability vs. power supply changes (±5%)	<$\pm 1x10^{-11}$	
Warm-up time within accuracy of <$\pm 5x10^{-8}$@ 25°C	<15 min.	
Power supply (Us)	5V±5%	12V±5%
Digital frequency control by I2C protocol		
Frequency pulling range	≥$\pm 2{,}5x10^{-7}$	
DAC type	LTC2606-1	
Chip address	0010000	
Analog frequency control		
Frequency pulling range	≥$\pm 2{,}5x10^{-7}$	
with external control voltage range	0…4,1	0…5
Reference voltage output	+4,1 V	+5 V

Steady state current consumption @ +25°C	<800 mA	<300 mA
Peak current consumption during warm-up	<2 A	<1 A

Output	SIN
Level	>300 mV RMS
Load	50 Ohm±5%
Harmonic suppression	>30 dBc

Vibrations:	
Frequency range	10-200 Hz
Acceleration	5 g
Shock:	75 g/ 3±1 ms
Humidity @ 25 °C	98%
Storage temperature range	-55…+85°C

Additional notes:

For non-standard operating temperature ranges please use the following two letters designations (first letter for the lower limit, second letter for the upper limit), °C:

A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	W	X
-60	-55	-50	-45	-40	-30	-20	-10	0	+10	+30	+40	+45	+50	+55	+60	+65	+70	+75	+80	+85

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Revision 3. November 2018