

# PRECISION OCXO IN SMD PACKAGE MV115

## Features:

- High frequency stability vs. temperature - up to  $\pm 5.0 \times 10^{-9}$
- Standard 25x22 mm SMD package
- 5 V or 3.3 V supply voltage
- HCMOS or SIN output
- Frequency range: 10.0 – 40.0 MHz
- Available as RoHS

Power Supply	Output type
5 V	HCMOS
3.3 V	SIN

## ORDERING GUIDE: MV115-B 20 F-5V-HCMOS-10.0 MHz-2

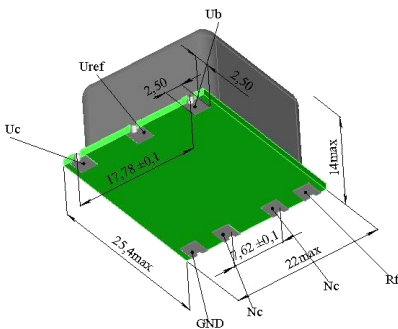
Availability of certain stability vs. operating temperature range		$\pm 5 \times 10^{-8}$	$\pm 2 \times 10^{-8}$	$\pm 1 \times 10^{-8}$	$\pm 5 \times 10^{-9}$
		50	20	10	5
A	0...+55 °C	A	A	A	A
B	-10...+60 °C	A	A	A	C
C	-20...+70 °C	A	A	A	C
D*	-40...+70 °C	A	A	C	NA
EX*	-40...+85 °C	A	C	NA	NA

\* for 5 V power supply only.

Availability of certain aging values for certain frequencies		Standard frequencies				
		10.0 MHz	12.8 MHz	13.0 MHz	16.384 MHz	20.0 MHz
		Multiplied frequencies				
		20.0 MHz	25.6 MHz	26.0 MHz	32.768 MHz	40.0 MHz
H	$\pm 2 \times 10^{-7}$ /year	A	A	A	A	A
G	$\pm 1 \times 10^{-7}$ /year	A	A	A	A	C
F	$\pm 5 \times 10^{-8}$ /year	A	A	A	C	NA
E	$\pm 3 \times 10^{-8}$ /year	A	C	C	NA	NA

A – available, NA – not available, C – consult factory

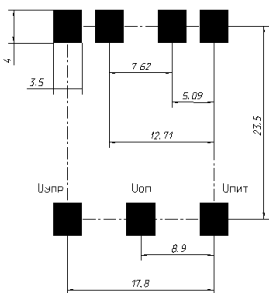
## Package drawing:



	Phase noise, typical, dBc/Hz (for 10 MHz)					
	5 V			3.3 V		
	-	2*	1*	-	2*	1*
1 Hz	-	<-90	<-100	-	<-85	<-95
10 Hz	<-120	<-120	<-130	<-115	<-115	<-125
100 Hz	<-135	<-140	<-145	<-130	<-135	<-140
1000 Hz	<-145	<-150	<-150	<-140	<-145	<-145
10000 Hz	<-150	<-155	<-155	<-145	<-150	<-150

\* for SIN output only.  
Please consult factory for availability of options 1 and 2.

## Recommended PCB layout:



### Outputs designations

1. Ub - Power supply
2. Uref - Reference voltage output
3. Uc - Control voltage input
4. GND - Ground
5. NC - Not connected
6. NC - Not connected
7. Rf - Rf output

Vibrations: Frequency range	10-500 Hz
Acceleration	10g
Shock: Acceleration Duration	100 g 3±1 ms
Storage temperature range	-55...+85 °C

### Additional notes:

- Please consult factory for daily aging values.  
Normally typical correspondence of daily aging per day to aging per year is as following:  $\pm 2 \times 10^{-7}$ /year -  $\pm 2 \times 10^{-9}$ /day;  $\pm 1 \times 10^{-7}$ /year -  $\pm 1 \times 10^{-9}$ /day;  $\pm 5 \times 10^{-8}$ /year -  $\pm 5 \times 10^{-10}$ /day.
- 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

Short term stability (Allan deviation) per 1 sec, for 10 MHz	$< 2 \times 10^{-11}$	
Frequency stability vs. load changes	$< \pm 3 \times 10^{-9}$	
Frequency stability vs. power supply changes	$< \pm 3 \times 10^{-9}$	
Power supply (Ub)	5V±5%	3.3V±5%
Current consumption at steady state @ 25°C	< 200mA	< 300mA
Peak current consumption during warm-up	< 600mA	< 750mA
Warm-up time within $< \pm 1 \times 10^{-7}$ @ 25 °C	< 3 min	
Frequency pulling range	$> \pm 5 \times 10^{-7}$	
with external voltage range (Uc)	0...+4.5 V	0...+3.0 V
or with external potentiometer	20 kOhm	
reference voltage output (Uref)	+ 4.5 V	+3.0 V
Pulling slope	Positive	
Output	HCMOS	SIN
Level	For 5 V: 4.5/0.5V	For 3.3 V: 3/0.3 V
Load	$> 225 \text{ mV (0 dBm)}$ 50 Ohm	