

IOCG

1GHz / 500MHz CLOCK GENERATOR FOR DDS

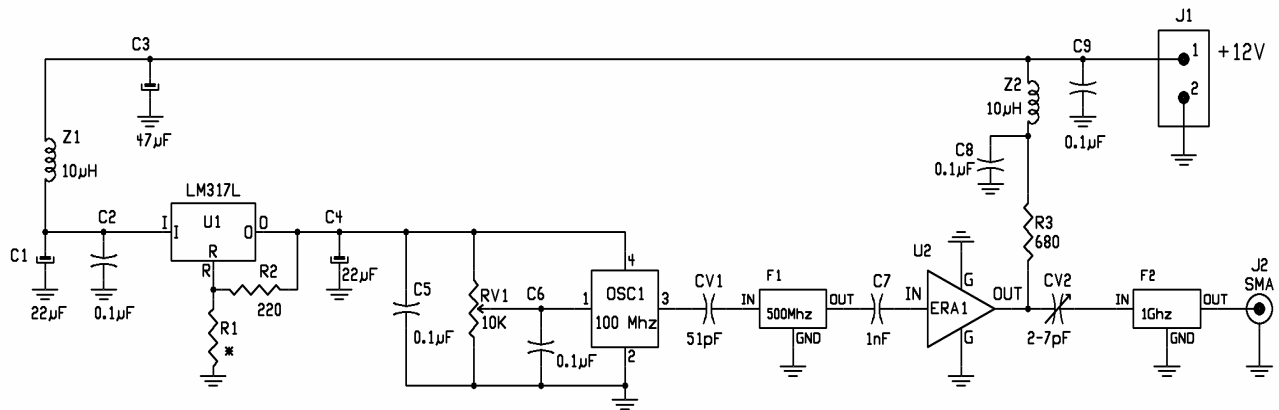
with Analog Devices
AD9912 & AD9910
or **AD9951** (500 MHz version)

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10CG - 1 GHz Clock Generator for DDS with AD9912 or AD9910
For the 500 MHz version see below changes

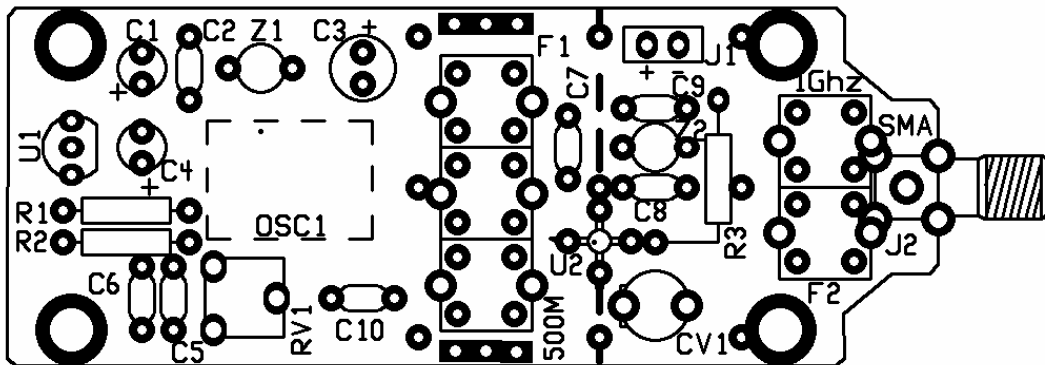


* FOR 5V OSCILLATOR R1=680 Ω RV1=CCW
 FOR 3.3V OSCILLATOR R1=390 Ω RV1= 100Mhz ADJUST

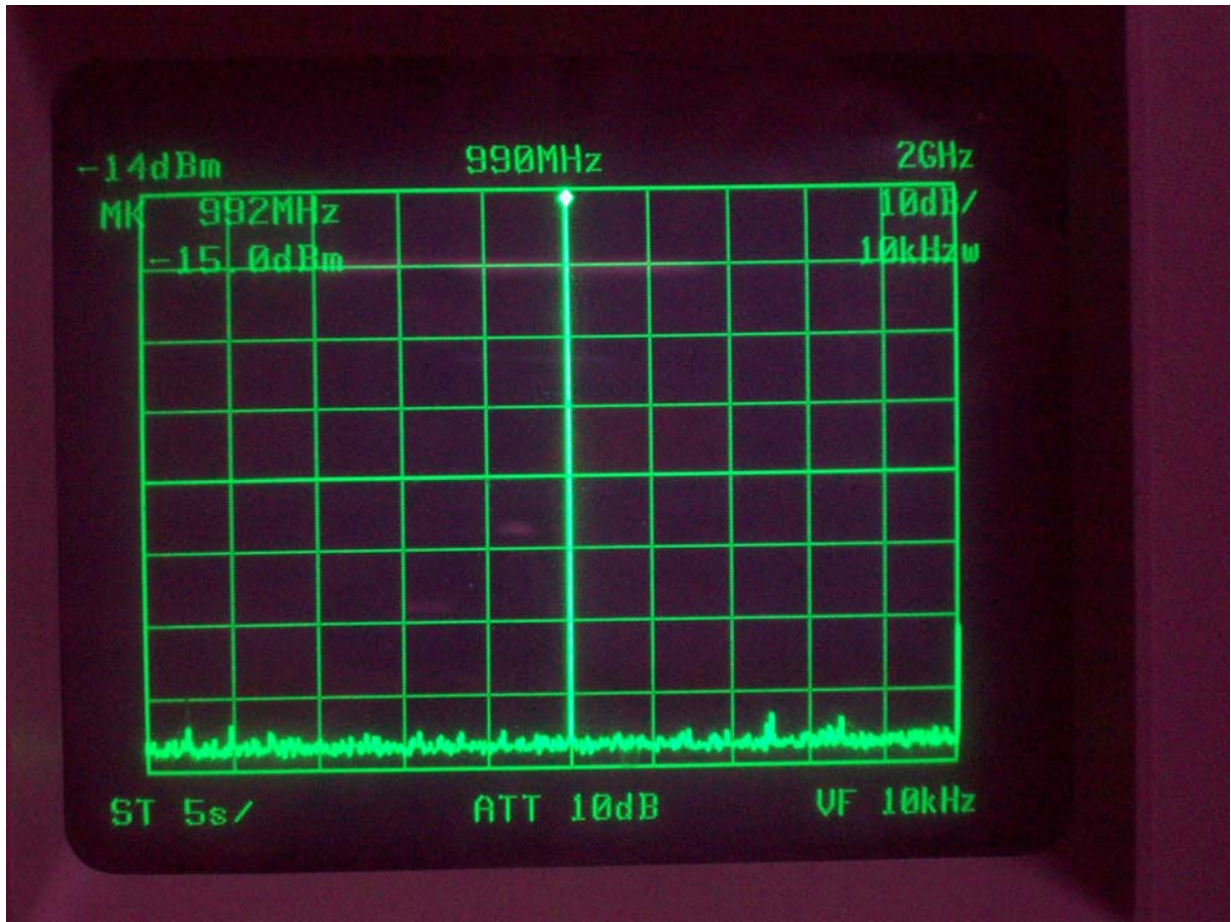
For the 500 MHz version some modifications are necessary:

- 1) Remove C7 and install a wire jumper
- 2) Remove Era1 and install a wire Jumper (within input and output)
- 3) remove R3
- 4) remove C8
- 5) remove Z2
- 6) Helical filter F2 is tuned at 500 MHz

1GHz Clock Generator Circuit Diagram



1GHz Clock Generator PCB layout



Span 2GHz : 1 GHz out, SFDR > 75dBc
 (this is the clock performance when PCB assembly is fitted inside box)



IOCG 1 GHz Clock Generator PCB assembly is fitted inside box

BILL OF MATERIALS

OSC-1Ghz.sch

12/12/07

TYPE/VALUE	MODIFIER	PATTERN	QTY	COMPONENT	REFERENCE	IDENTIFICATION
1nF		C	1	C7		
0.1µF		C	5	C2	C5	C6 C8 C9
22µF		CELV	2	C1	C4	
47µF		CELV	1	C3		
2-7pF		CVAR	1	CV2		
51pF		C	1	CV1		
1GHz Helical filter		FILTER	1	F2(500 MHz H.fil. for 500MHz ver.)		
500MHz Helical filter		FILTER	1	F1		
SIP header	2-pin	SIP2	1	J1		
SMA		COAX	1	J2		
100 MHz		OSCILL	1	OSC1		
*		R	1	R1		
220		R	1	R2		
680		R	1	R3		
10K	Pot	VR	1	RV1		
ERA1		ERA1	1	U2		
LM317L		LM317	1	U1		
10µH		L	2	Z1	Z2	

NAME	ROTATE	X POS	Y POS	PATTERN	VALUE	MODIFIER
C1	0	1.675	4.000	CELV	22μF	
C2	0	2.025	3.950	C	0.1μF	
C3	0	2.300	4.900	CELV	47μF	
C4	0	3.425	4.000	CELV	22μF	
C5	0	3.825	3.700	C	0.1μF	
C6	0	4.625	3.500	C	0.1μF	
C7	90	6.625	3.700	C	1nF	
C8	0	7.300	4.450	C	0.1μF	
C9	0	7.850	4.850	C	0.1μF	
CV1	90	5.625	3.700	C	51pF	
CV2	0	7.700	3.700	CVAR	2-7pF	
F1	0	5.825	3.700	HELICAL	500Mhz	
F2	0	8.050	3.700	HELICAL	1Ghz	
J1	0	8.450	4.900	SIP2	SIP header	2-pin
J2	0	8.900	3.700	COAX	SMA	
OSC1	0	4.825	3.700	OSCILL	100 MHz	
R1	0	2.675	3.550	R	*	
R2	90	2.925	3.800	R	220	
R3	0	7.525	4.100	R	680	
RV1	0	4.225	3.700	VR	10K	Pot
U1	0	2.675	4.100	LM317	LM317L	
U2	0	6.825	3.700	MAR8	ERA1	
Z1	0	1.775	4.575	L	10μH	
Z2	0	7.625	4.875	L	10μH	