

## DESCRIPTION

Demonstration circuit 1216 is a low jitter, low noise clock source for demonstrating high speed ADCs. Each assembly includes a LDO regulator and a high precision VCXO.

Functionally, this circuit uses a linear regulator to provide a clean 5V to a VCXO at a fixed frequency. This VCXO is capable of providing a signal which is clean enough to produce data sheet performance from high speed ADCs. It is designed to have 50 $\Omega$  output impedance, but has provision for other termination resistors if needed.

This circuit also is a model for the clock source of ADCs. It shows how to properly implement a VCXO correctly to drive the clock of an ADC. It can be used with a DC1075 to produce lower clock frequencies.

**Design files for this circuit board are available at <http://www.linear.com/demo>**

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**Table 1. DC1216A Variants**

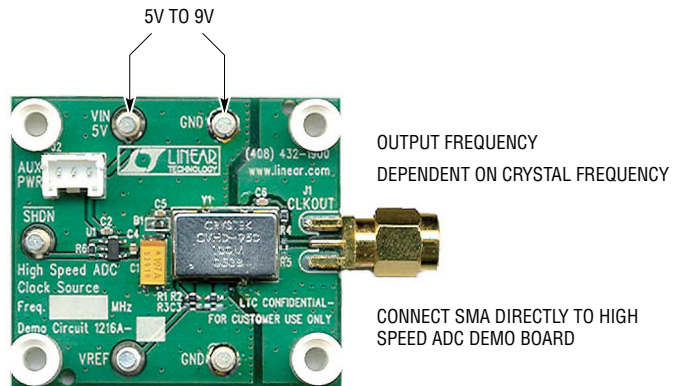
DC1216A VARIANTS	VCXO PART NUMBER	OUTPUT FREQUENCY
DC1216A-A	Crystek 601964	100MHz
DC1216A-B	Crystek 602017	122.88MHz
DC1216A-C	Crystek 602019	80MHz
DC1216A-D	Crystek 601964	100MHz

**Note:** DC1216A-A, DC1216A-B and DC1216A-C are optimized to be used with the data converter demo boards. The DC1216A-D is optimized to drive the synthesizer demo boards.

## QUICK START PROCEDURE

### SETUP

The DC1216 requires an external voltage of 5V. This voltage can be as high as 9V. The SMA connector should be connected to the ADC directly, or through a clock divider circuit such as the DC1075A. No external filter is required.



## PARTS LIST

### DEMO BOARD 1216A

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
1	1	B1	BEAD, 47Ω IMPEDANCE 0603	MURATA, BLM18BB470SN1D
2	1	C1	CAP, TANT, 100μF, 10V, 20% 6032	AVX, TPSC107M010R0200
3	1	C2	CAP, X5R, 1μF, 10V, 10% 0603	AVX, 0603ZD105KAT2A
4	1	C4	CAP, X7R, 0.1μF, 25V, 10% 0603	AVX, 06033C104KAT2A
5	2	C6, C5	CAP, X7R, 0.01μF, 50V, 10% 0603	AVX, 06035C103KAT2A
6	2	E3, E5	TESTPOINT, TURRET, 0.094"	MILL-MAX, 2501-2-00-80-00-00-07-0
7	0	E1, E2, E4 (OPT)	TESTPOINT, TURRET, 0.094"	
8	1	J1	CON, SMA-EDGE, 50Ω, PLUG	AMPHENOL, 901-9895-RFX
9	1	J2	AUX POWER CONNECTOR, B03B-PASK	JST, B03B-PASK (LF)(SN)
10	2	R1, R2	RES, CHIP, 4.99k, 1/10W, 1% 0603	VISHAY, CRCW06034K99FKEA
11	0	R3, R5 (OPT)	RES, 0603	
12	1	R6	RES, CHIP, 1k, 1/10W, 5% 0603	VISHAY, CRCW06031K00JNEA
13	1	U1	IC LT1761ES5-3.3, SOT23-S5	LINEAR TECHNOLOGY, LT1761ES5-3.3#PBF
14	4	(STAND-OFF)	STAND-OFF, NYLON 0.25"	KEYSTONE, 8831(SNAP ON)
15	1		STENCIL	STENCIL 1216A

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## PARTS LIST

### DEMO BOARD 1216-A

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
1	1	DC1216A	DC1216A GENERAL BOM	GENERAL BOM
2	1	Y1	CRYSTAL 601964	CRYSTEK, 601964
3	1	R4	RES, CHIP, 5.1Ω, 1/10W, 5% 0603	VISHAY, CRCW06035R10JNEA
4	0	C3	OPT	
5	1		FAB, PRINTED CIRCUIT BOARD	DEMO CIRCUIT 1216A

### DEMO BOARD 1216-B

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
1	1	DC1216A	DC1216A GENERAL BOM	GENERAL BOM
2	1	Y1	CRYSTAL 602017	CRYSTEK, 602017
3	1	R4	RES, CHIP, 5.1Ω, 1/10W, 5% 0603	VISHAY, CRCW06035R10JNEA
4	0	C3	OPT	
5	1		FAB, PRINTED CIRCUIT BOARD	DEMO CIRCUIT 1216A

### DEMO BOARD 1216-C

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
1	1	DC1216A	DC1216A GENERAL BOM	GENERAL BOM
2	1	Y1	CRYSTAL, 602019	CRYSTEK, 602019
3	1	R4	RES, CHIP, 5.1Ω, 1/10W, 5% 0603	VISHAY, CRCW06035R10JNEA
4	0	C3	OPT	
5	1		FAB, PRINTED CIRCUIT BOARD	DEMO CIRCUIT 1216A

### DEMO BOARD 1216-D

ITEM	QTY	REFERENCE	PART DESCRIPTION	MANUFACTURER/PART NUMBER
1	1	DC1216A	DC1216A GENERAL BOM	GENERAL BOM
2	1	C3	CAP, X5R, 4.7μF, 10V, 10% 0603	TDK, C1608X5R1A475K
3	1	R4	RES, CHIP, 100Ω, 1/10W, 5% 0603	VISHAY, CRCW0603100RJNEA
4	1	Y1	CRYSTAL, 601964	CRYSTEK, 601964
5	1		FAB, PRINTED CIRCUIT BOARD	DEMO CIRCUIT 1216A

**SCHEMATIC DIAGRAM**

REVISION HISTORY			
ECO	REV	DESCRIPTION	DATE
-	A1	ADD "D"-VERSION	10-03-12
		APPROVED MICHEL A.	

ASSEMBLY TYPE	Y1	CLKOUT Freq. (MHz)	R4	C3
DC1216A-A	Crystek, 601964	100MHz	5 ohms	OPT
DC1216A-B	Crystek, 602017	122.88MHz	5 ohms	OPT
DC1216A-C	Crystek, 602019	80MHz	5 ohms	OPT
DC1216A-D	Crystek, 601964	100MHz, PLL Reference	100 ohms	4.7µF

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THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.		FILENAME: DC1216A DWG NO: DC1216A SCALE: 1 OF 1	

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