

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 Ω 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

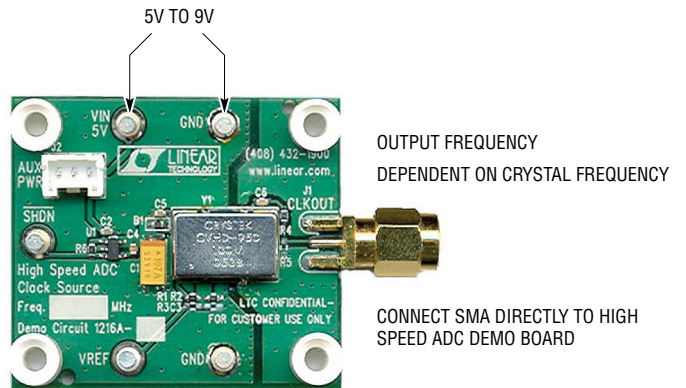
DC1216A VARIANTS	VCXO PART NUMBER	OUTPUT FREQUENCY
DC1216A-A	Crystek 601964	100MHz
DC1216A-B	Crystek 602017	122.88MHz
DC1216A-C	Crystek 602019	80MHz
DC1216A-D	Crystek 601964	100MHz

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

DEMO MANUAL DC1216

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.	

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

CUSTOMER NOTICE	CONTRACT NO. _____ APPROVALS DRAWN June Wu 1/17/07 ENGINEER Clarence Mayott 1/17/07 CHECKED _____ APPROVED _____ Wednesday, October 03, 2012
LINEAR TECHNOLOGY HAS MADE A BEST EFFORT TO DESIGN A CIRCUIT THAT MEETS CUSTOMER-SUPPLIED SPECIFICATIONS; HOWEVER, IT REMAINS THE CUSTOMER'S RESPONSIBILITY TO VERIFY PROPER AND RELIABLE OPERATION IN THE ACTUAL APPLICATION. COMPONENT SUBSTITUTION AND PRINTED CIRCUIT BOARD LAYOUT MAY SIGNIFICANTLY AFFECT CIRCUIT PERFORMANCE OR RELIABILITY. CONTACT LINEAR TECHNOLOGY APPLICATIONS ENGINEERING FOR ASSISTANCE.	1680 McCarthy Blvd. Milpitas, CA 95035 Phone: (408)943-8000 Fax: (408)943-0877
THIS CIRCUIT IS PROPRIETARY TO LINEAR TECHNOLOGY AND SUPPLIED FOR USE WITH LINEAR TECHNOLOGY PARTS.	TITLE High Speed ADC Clock Source SIZE (CASE CODE) DWG NO DC1216A SCALE: FILENAME: SHEET 1 OF 1