DEMO MANUAL DC1216

High Speed ADC Clock Source

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 50Ω output impedance, but has provision for other termination resistors if needed.

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.

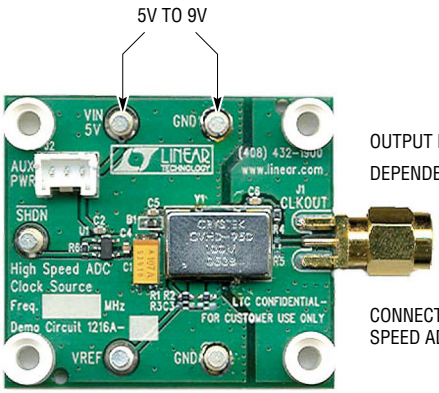
This circuit also is a model for the clock source of ADCs. It shows how to properly implement a VCXO correctly to drive the clock of an ADC. It can be used with a DC1075 to produce lower clock frequencies.

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

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

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

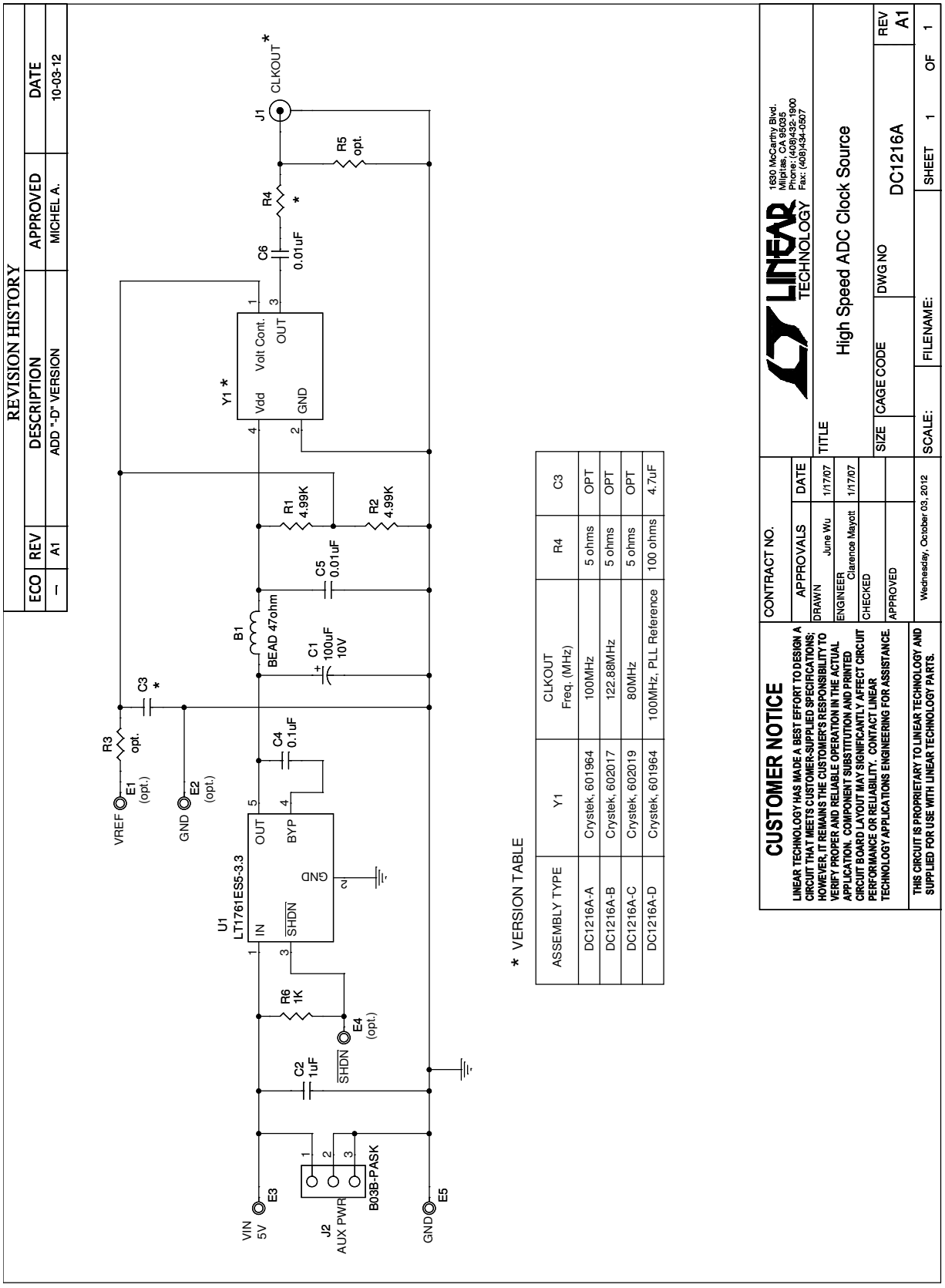
DEMO BOARD 1216-C

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



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