

18-BIT AUDIO DAC

ADVANCED INFORMATION

FEATURES

- On-Chip Analog Switch for Analog PCM Output
- On-Chip Clock Generator (With External X-tal)
- 8 Times Oversampling (Digital Filter - Passband Ripple: 0.000075 dB Stopband Attenuation: < -108 dB)
- 16/18-Bit 2s Complement Serial Data Input (MSB First)
- Digital Attenuation Control
- Master Clock Rate: 384 or 512 Times Compatible
- Adjustable System Sampling Rates Including 32 kHz, 44.1 kHz, and 48 kHz
- Single 5 V Supply

APPLICATIONS

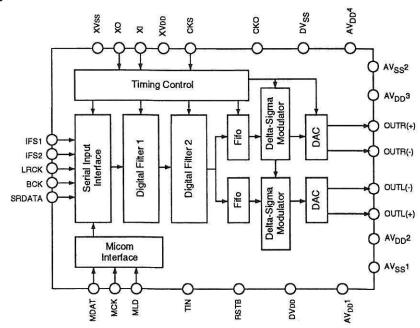
- Compact Disk Players
- DAT Recorders and Players
- Synthesizer Keyboards
- Digital Mixing Consoles
- LDP, DCC and MD
 High Quality Digital Audio Systems

GENERAL DESCRIPTION

The SPT5300 is a CMOS 16/18-bit two-channel digital-toanalog converter for digital audio systems. It is a delta-sigma D/A converter which, in addition to the conventional D/A function, includes an 8X digital interpolation filter followed by a 128X oversampling delta-sigma modulator. The modulator output is the PCM signal generated by the internal control signal. The total D/A system provides a linear phase response. The delta-sigma D/A converter also includes an extremely flexible serial port utilizing two select pins to support four different interface modes.

The master clock can be either 384 or 512 times the input word rate, supporting various audio environments. The SPT5300 is offered in a 28L small outline package (SOIC) over the commercial temperature range of 0 to +70 °C.

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (Beyond which damage may occur)

ELECTRICAL SPECIFICATIONS

TA = 25 °C, VDD=5 V, VSS= 0 V, Clock Rate = 384 times, Input Word Rate=44.1 kHz, Input Data=18 Bits, unless otherwise specified.

PARAMETERS	TEST CONDITIONS	TEST LEVEL	MIN	TYP	MAX	UNITS
Dynamic Range	1 kHz (0 dB)		****	102		dB
THD	1 kHz (0 dB)	0.0025			%	
Signal-to-Noise	1 kHz (0 dB)	108			dB	
Crosstalk	1 kHz (0 dB)	100			dB	
Power Dissipation				320	440	mW

PIN ASSIGNMENTS

0 28 XI xv_{ss} XV_{DD} DVSS $AV_{DD}4$ OUTR(+) CKO TIN AV_{SS}2 IFS1 OUTR(-) AV_{DD}3 IFS₂ AV_{DD}^2 LRCK OUTL(-) BCK AV_{SS}1 SRDATA OUTL(+) **MDAT** AV_{DD}1 MCK

ORDERING INFORMATION

MLD

RSTB

PART	TEMPERATURE	•	
NUMBER	RANGE	PACKAGE	
SPT5300SCS	0 to +70 °C	32-Lead SOIC	

PIN FUNCTIONS

NAME	FUNCTION	
XO	X-tal Output	
XV _{SS}	Digital Ground (X-tal Oscillator Part)	
DV _{SS}	Digital Ground	
СКО	384 fs/256 fs Output	
TIN	Test Input (This pin must be "L" for	
	normal operation.)	
IFS1	Input Format Select 1	
IFS2	Input Format Select 2	
LRCK	Left/Right Clock Input	
BCK	Serial Bit Clock Input	
SRDATA	Serial Digital Data Input	
MDAT	Micom Command Data Input	
MCK	Micom Command Clock Input	
MLD	Micom Command Load Input	
RSTB	Reset (When Low: Reset)	
CKS	Master Clock Select Input	
	(When CKS is low: 512 fs	
	When CKS is high: 384 fs)	
DV_{DD}	Digital Supply Voltage	
AV _{DD} 1	Analog Supply Voltage 1	
OUTL(+)	L-Channel Positive Output	
AV _{SS} 1	Analog Ground 1	
OUTL(-)	L-Channel Negative Output	
AV _{DD} 2	Analog Supply Voltage 2	
AV _{DD} 3	Analog Supply Voltage 3	
OUTR(-)	R-Channel Negative Output	
AV _{SS} 2	Analog Ground 2	
OUTR(+)	R-Channel Positive Output	
AV _{DD} 4	Analog Supply Voltage 4	
XV_{DD}	Digital Supply Voltage (X-tal Oscillator Part)	
XI	X-tal Input	

For additional information regarding our products, please visit CADEKA at: cadeka.com

CADEKA Headquarters Loveland, Colorado

T: 970.663.5452

T: 877.663.5452 (toll free)

CADEKA, the CADEKA logo design, COMLINEAR and the COMLINEAR logo design are trademarks or registered trademarks of CADEKA Microcircuits LLC. All other brand and product names may be trademarks of their respective companies.

 DV_{DD}

CKS

CADEKA reserves the right to make changes to any products and services herein at any time without notice. CADEKA does not assume any responsibility or liability arising out of the application or use of any product or service described herein, except as expressly agreed to in writing by CADEKA; nor does the purchase, lease, or use of a product or service from CADEKA convey a license under any patent rights, copyrights, trademark rights, or any other of the intellectual property rights of CADEKA or of third parties.

Copyright ©2007-2010 by CADEKA Microcircuits LLC. All rights reserved.

