

dT2120

Low-Power, Low-Voltage Audio Analog-to-Digital Converter

DESCRIPTION

The dT2120 is designed featuring low-voltage and low-power mono ADC (Analog-to -Digital Converter) for audio applications. The ADC architecture is using 4th-order 1bit sigma-delta modulator with 64-times oversampling. The dT2120's input accepts differential signals. The digital output signal is a pulse density modulation (PDM) bit stream. The dT2120 does not require decoupling capacitors for integrated reference voltage generator.

FEATURES

- Power-Supply Voltage :
1.65V to 3.6V
- Low Power Dissipation :
540uW
- SNR :
88dB
- Sampling Frequency (fs) :
20KHz to 64KHz
- System Clock :
1.0MHz to 3.2MHz
- Operation Temperature Range :
-25°C to +85°C
- Core Size :
0.35mm²

PIN DESCRIPTION

TERMINAL	I/O	DESCRIPTION
VCC	P	Power supply, +1.8V nominal
GND	P	Ground
AINP	AI	Analog noninverting input signal
AINN	AI	Analog inverting input signal
VCOM	AO	Common-mode voltage, 0.6v
CLK	DI	System clock input, 64fs
PDB	DI	Power down control "0"=power down, "1"=operation
DOUT	DO	PDM digital output

NOTE : I/O name P=Power, AI=Analog Input, AO=Analog output,
DI=Digital Input, DO=Digital Output

ELECTRICAL CHARACTERISTICS

All specifications are at $T_J=25^{\circ}\text{C}$, $V_{CC}=1.8\text{V}$, $f_s=48\text{KHz}$, $\text{CLK}=2.4\text{MHz}$, unless otherwise noted

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNIT
Sampling Frequency	f_s	20	48	64	KHz
System Clock Frequency	CLK	1.0	2.4	3.2	MHz
Signal-to-noise ratio	A-weighted		88		dB
THD	-3dBFS		0.6	3.0	%
Full-scale Analog input voltage	0dBFS		1.6		V_{ppd}
Common-mode voltage	VCOM		0.6		V
Modulation Factor			70		%
Power Supply range	VCC	1.65	1.8	3.6	V
Power Supply Current	PDB=1, 0dBFS input		300	350	μA
	PDB=0, All inputs are held static.			1	μA
Operation temperature	T_J	-25		+85	$^{\circ}\text{C}$

NOTE : V_{ppd} = Peak-to-Peak Differential Voltage