Signetics

TDA5703
Analog-to-Digital Converter

Preliminary Specification

Linear Products

DESCRIPTION

The TDA5703 is an 8-bit analog-to-digital converter (ADC) designed for video and professional applications. The TDA5703 converts the analog input signal into 8-bit binary-coded digital words at a sampling rate of up to 25MHz.

FEATURES

- **8-bit binary coded resolution**
- **Digitizing rates up to 25MHz**
- **Internal reference**
- **Only 3 external capacitors required**
- **Two voltage supply connections:**
  - **analog +5V**
  - **digital +5V**
- **1V full-scale analog input (75Ω external resistor tied to V_{CC1})**
- **Full-scale bandwidth; 11MHz at 3dB**
- **Low power consumption; typically 250mW**
- **24-lead plastic DIP**

APPLICATION

- **Video data conversion**

ORDERING INFORMATION

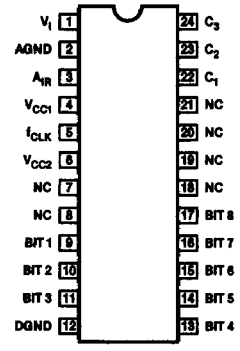
DESCRIPTION	TEMPERATURE RANGE	ORDER CODE
24-Pin Plastic DIP (SOT-101 BE17)	0 to +70°C	TDA5703N

ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNIT
V_{CC1} V_{CC2}	Supply voltages at Pin 4 at Pin 6	 8 8	 V V
V_{IN}	Input voltage at Pins 1 and 5	8	V
I_{OUT} I_O	Output current at Pins 9, 10, 11, 13, 14, 15, 16 and 17	10	mA
T_{STG}	Storage temperature range	−65 to +150	°C
T_J	Junction temperature	+125	°C
T_A	Operating ambient temperature range	0 to +70	°C

PIN CONFIGURATION

N Package



TOP VIEW

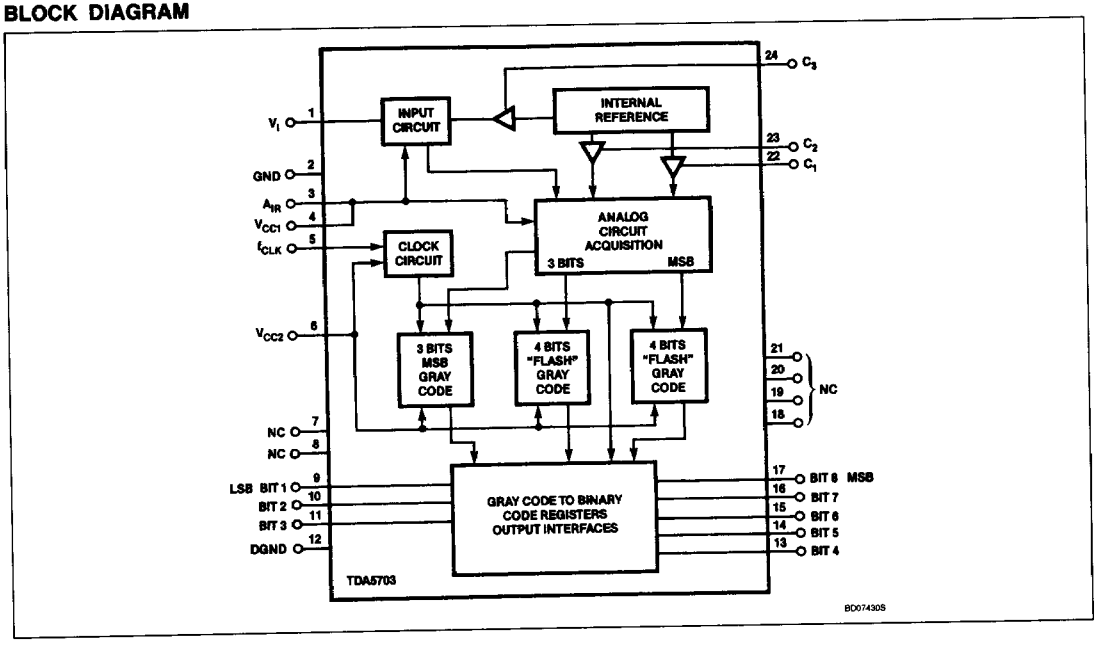
CD10850S

PIN NO.	SYMBOL	DESCRIPTION
1	V_I	Analog voltage input
2	AGND	Analog ground
3	A_{IR}	Analog input reference
4	V_{CC1}	Analog supply voltage
5	f_{CLK}	Clock input
6	V_{CC2}	Digital supply voltage
7	NC	Not connected
8	NC	Not connected
9	Bit 1	Least significant bit (LSB)
10	Bit 2	
11	Bit 3	
12	DGND	Digital ground
13	Bit 4	
14	Bit 5	
15	Bit 6	
16	Bit 7	
17	Bit 8	Most significant bit (MSB)
18	NC	Not connected
19	NC	Not connected
20	NC	Not connected
21	NC	Not connected
22	C_1	Decoupling for internal reference
23	C_2	
24	C_3	

Analog-to-Digital Converter

TDA5703

BLOCK DIAGRAM



DC ELECTRICAL CHARACTERISTICS $V_{CC1} = V_{CC2} = 4.75$ to 5.25V; $T_A = 25°C$, unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
			Min	Typ	Max	
Supply						
V_{CC1}	Analog supply voltage	Pin 4	4.75	5.0	5.25	V
V_{CC2}	Digital supply voltage	Pin 6	4.75	5.0	5.25	V
I_{CC1}	Analog supply current	Pin 4	55	80	105	mA
I_{CC2}	Digital supply current	Pin 6	55	80	105	mA
Res	Resolution			8		bits
Digital input levels[1]						
V_{IH}	Input voltage HIGH		2.2		V_{CC2}	V
V_{IL}	Input voltage LOW		−0.3		0.8	V
I_{IH}	Input current HIGH				10	μA
I_{IL}	Input current LOW		−7	350		μA
	Analog input levels		V_{CC1}[−1]		V_{CC1}	V
	Absolute linearity	V_1	−1.5	.585?	+1.5	LSB
	Differential linearity	V_1	−1.5		+1	LSB
BW	Bandwidth	1dB 3dB	 6.0	6.0 10		MHz MHz
	Differential phase Differential gain	F_0 = 25MHz, measured with TDA5702		1 2.3		deg. %
	Offset error			40		mV
R_{IN}	Input resistance			80		kΩ
C_{IN}	Input capacitance			5		pF
Digital output levels (I_O = 10mA)						
V_{OH}	Output voltage HIGH		2.4			V
V_{OL}	Output voltage LOW				0.40	V
C_O	External capacitance	C_1, C_2, C_3		100		nF
Temperature						
T_A	Operating ambient temperature range		0		+70	°C

AC ELECTRICAL CHARACTERISTICS $V_{CC1} = V_{CC2} = 4.75$ to 5.25V; $T_A = 25°C$, unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNIT
			Min	Typ	Max	
Timing						
f_C	Maximum conversion rate		25	40 per 8		MHz
t_{DELAY}	Aperture delay[1]			19		ns
t_D	Digital output delay[1]			28		ns
t_{PWH}	Pulse width conversion HIGH[1]		20			ns
t_{PWL}	Pulse width conversion LOW[1]		20			ns

NOTE:
1. See Timing Diagram, Figure 1

WWW.ALLDATASHEET.COM

Copyright © Each Manufacturing Company.

All Datasheets cannot be modified without permission.

This datasheet has been download from :

www.AllDataSheet.com

100% Free DataSheet Search Site.

Free Download.

No Register.

Fast Search System.

www.AllDataSheet.com