Features

- Wide supply voltage range: 2.4V~5.5V
- Low power consumption
- 16-bit dynamic range
- Low total harmonic distortion
- Stereo audio outputs
- Data in 2′s complement format, TTL
- Minimum number of external components is required
- Low clock jitter sensitivity
- Built-in highly efficient earphone driver
- 16-pin NSOP package

Applications

- MP3 player
- CD/VCD ROM and player
- Satellite/cable STB
- Digital portable audio/video equipment

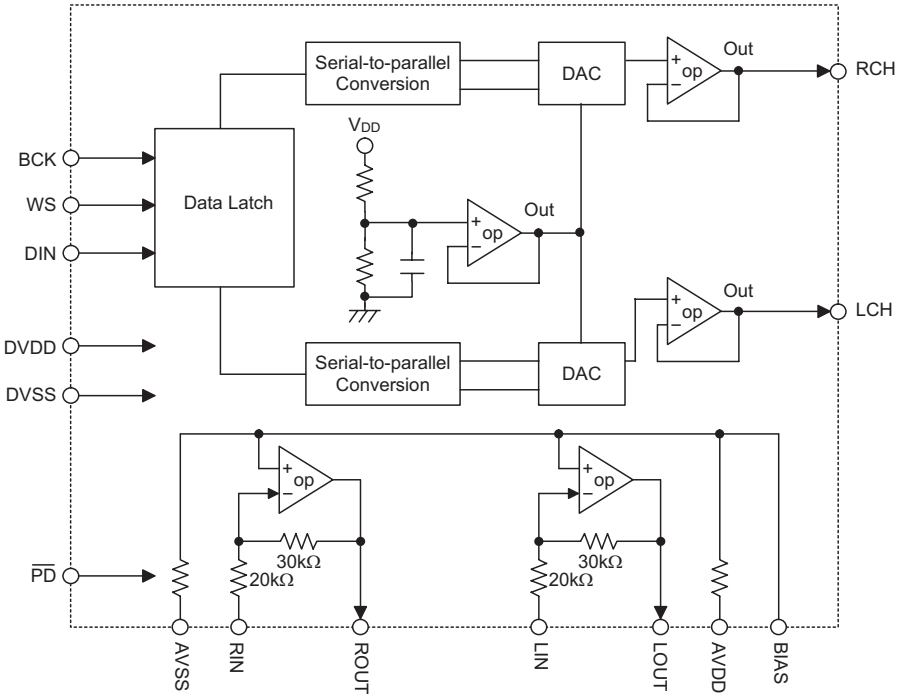
General Description

HT82V737 is a low power consumption stereo DAC with an integrated earphone driver. The device utilizes CMOS technology specially for portable MP3 players, VCD and CD machines.

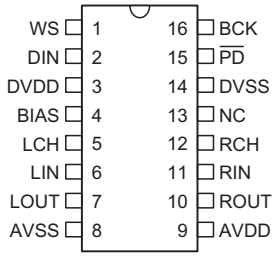
It converts the 16 bits serial data into an analog output voltage by high precision D/A converter. It can be used with the Japanese input format: time multiplexed, two′s complement, MSB first TTL level serial input. With its excellent frequency response characteristics, the HT82V737 provides users a low cost means of implementing high quality audio voltage outputs. It also builds in a class AB stereo driver and some application circuits, thus, requires minimal external components.

The HT82V737 can support low voltage operation at 2.4V so it is very suitable for portable battery powered audio device. A low supply in power down mode current reduces power consumption. It is available in small 16-pin NSOP package.

Block Diagram



Pin Assignment



HT82V737
– 16 NSOP-A

Pin Description

Pin No.	Pin Name	I/O	Description
1	WS	I	Word select input
2	DIN	I	Data input
3	DVDD	—	Digital positive power supply
4	BIAS	—	Connect a capacitor to ground to increase half-supply stability
5	LCH	O	Left DAC analog output
6	LIN	I	Left inverting output
7	LOUT	O	Left earphone driver analog output
8	AVSS	—	Analog negative power supply, ground
9	AVDD	—	Analog positive power supply
10	ROUT	O	Right earphone driver analog output
11	RIN	I	Right inverting input
12	RCH	O	Right DAC analog output
13	NC	—	No connection
14	DVSS	—	Digital negative power supply, ground
15	$\overline{PD}$	I	When low, the HT82V737 is powered down
16	BCK	I	Bit serial clock input

Absolute Maximum Ratings

Supply Voltage .....V_{SS}–0.3V to V_{SS}+5.5V

Input Voltage .....V_{SS}–0.3V to V_{DD}+0.3V

Storage Temperature .....–50°C to 125°C

Operating Temperature .....–20°C to 70°C

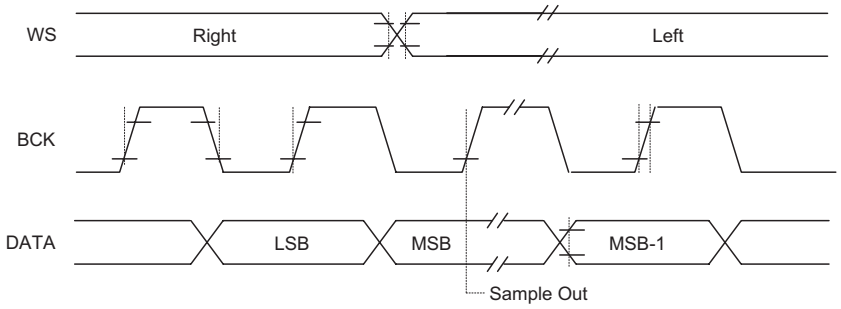
Note: These are stress ratings only. Stresses exceeding the range specified under "Absolute Maximum Ratings" may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Electrical Characteristics

V_{SS}=0V; f_i=1kHz; R_L=32Ω; Ta=25°C

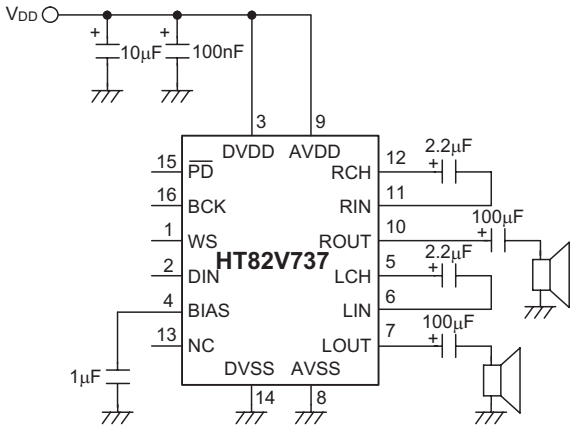
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{DD}	Conditions				
Supplies							
DV_{DD}	Digital Supply Voltage	—	—	2.4	—	5.5	V
AV_{DD}	Analog Supply Voltage	—	—	2.4	—	5.5	V
I_{DD}	Supply Current	3.3V	No load	—	5	7	mA
I_{PD}	Power-down Current	3.3V	Power-down; $\overline{PD}$=0V	—	1	—	μA
P_{tot}	Total Power dissipation	3.3V	No load	—	17	—	mW
D.C. Characteristics							
I_O	Maximum Output Current	3.3V	(THD+N)/S<0.1%	—	20	—	mA
V_O	Output Voltage Swing	3.3V	R_L=32Ω	0.35	—	3	V
			R_L=16Ω	0.17	—	3.15	V
			R_L=5kΩ	0.5	—	3.29	V
X_{TALK}	Channel Separation	3.3V	P_O=200mW, R_L=8Ω, 32Ω	—	85	—	V
A.C. Characteristics							
(THD+N)/S	Total Harmonic Distortion	3.3V	P_O=30mW, 32Ω, 1kHz, 0dB	—	0.1	—	%
S/N	Signal to Noise Ratio	3.3V	Weighed at code =0000H	—	95	—	dB
ATT	Power-down Attenuation	3.3V	1kHz, 0dB	—	110	—	dB

Timing Diagrams



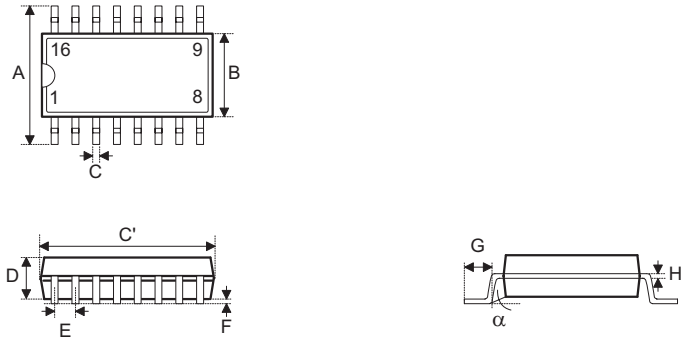
Timing and Input Signals

Application Circuits



Package Information

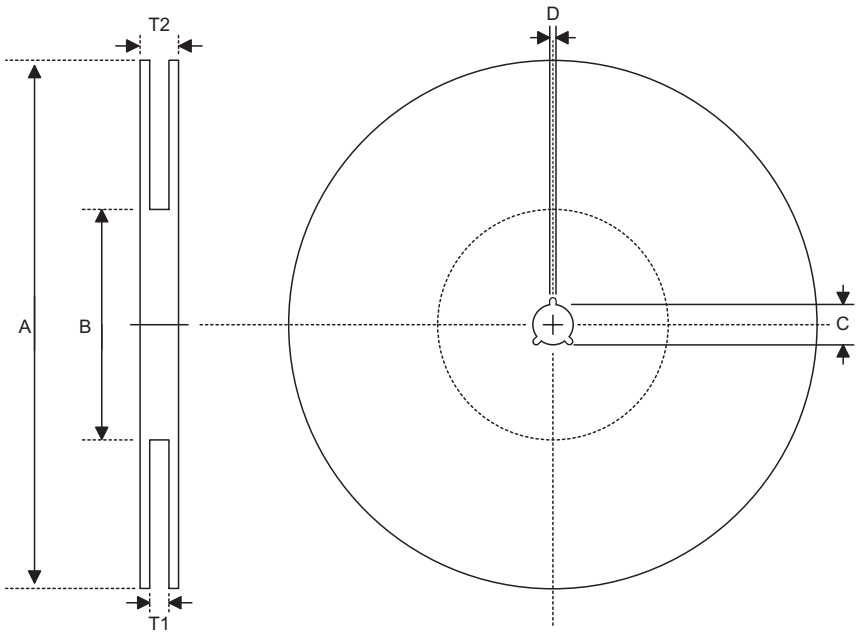
16-pin NSOP (150mil) Outline Dimensions



Symbol	Dimensions in mil		
	Min.	Nom.	Max.
A	228	—	244
B	149	—	157
C	14	—	20
C′	386	—	394
D	53	—	69
E	—	50	—
F	4	—	10
G	22	—	28
H	4	—	12
α	0°	—	10°

Product Tape and Reel Specifications

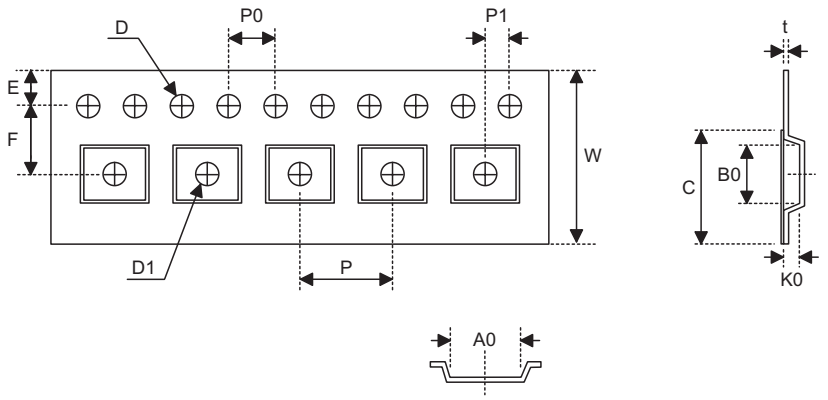
Reel Dimensions



SOP 16N (150mil)

Symbol	Description	Dimensions in mm
A	Reel Outer Diameter	330±1.0
B	Reel Inner Diameter	62±1.5
C	Spindle Hole Diameter	13.0+0.5 −0.2
D	Key Slit Width	2.0±0.5
T1	Space Between Flange	16.8+0.3 −0.2
T2	Reel Thickness	22.2±0.2

Carrier Tape Dimensions



SOP 16N (150mil)

Symbol	Description	Dimensions in mm
W	Carrier Tape Width	16.0±0.3
P	Cavity Pitch	8.0±0.1
E	Perforation Position	1.75±0.1
F	Cavity to Perforation (Width Direction)	7.5±0.1
D	Perforation Diameter	1.55+0.1
D1	Cavity Hole Diameter	1.5+0.25
P0	Perforation Pitch	4.0±0.1
P1	Cavity to Perforation (Length Direction)	2.0±0.1
A0	Cavity Length	6.5±0.1
B0	Cavity Width	10.3±0.1
K0	Cavity Depth	2.1±0.1
t	Carrier Tape Thickness	0.3±0.05
C	Cover Tape Width	13.3

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