Features

- Operating voltage: 2.4V~6.0V
- Very low standby current 0.5μA (Typ.)
- High signal-to-noise ratio
- High slew rate
- Output power 330mW at 10% THD+N into 8Ω
- Excellent power supply ripple rejection
- Low power consumption
- Wide temperature operating range
- Direct drive speaker
- Shutdown function
- 8-pin SOP package

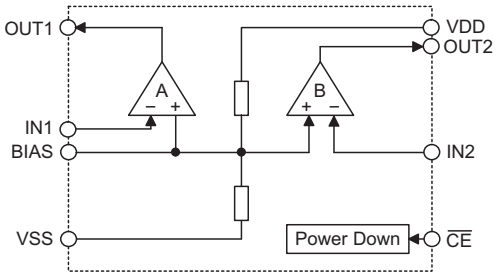
Applications

- CD ROM DVD player
- Notebook/Desktop PC
- Portable Audio Device
- Headphone Amplifier
- Microphone Pre-amplifier
- Discman/MP3

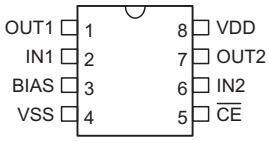
General Description

HT82V735 is a class AB stereo earphone driver designed for portable digital audio application. Pin assignments and application circuits are compatible with LM4880 which is suitable for effective low cost applications. The HT82V735 can deliver a maximum of 330mW Output power to an 8Ω load with less than 10% (THD+N) from a 5V power supply. The very low standby current in shutdown mode contributes to the reduction of power consumption of battery-powered equipments. It provides 8-SOP package.

Block Diagram



Pin Assignment



HT82V735
– 8 SOP-A

Pin Description

Pin No.	Pin Name	I/O	Description
1	OUT1	O	Channel 1 output pin
2	IN1	I	Channel 1 Audio input
3	BIAS	I	Supports a voltage driver for internal bias
4	VSS	—	Negative power supply, ground
5	$\overline{CE}$	I	Power down mode when held high, I (power down) =1μA
6	IN2	I	Channel 2 Audio input
7	OUT2	O	Channel 2 output pin
8	VDD	—	Positive power supply

Absolute Maximum Ratings

Supply Voltage .....V_{SS}–0.3V to V_{SS}+6V

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

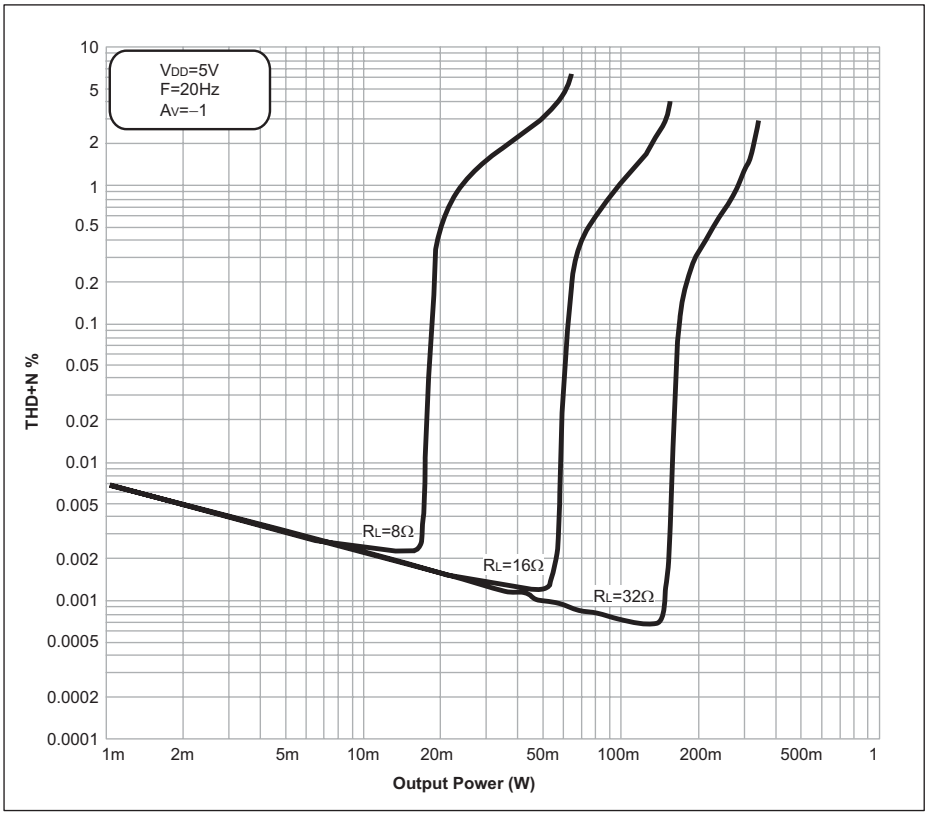
V_{SS}=0V; f_i=1kHz; R_L=32Ω; Ta=25°C

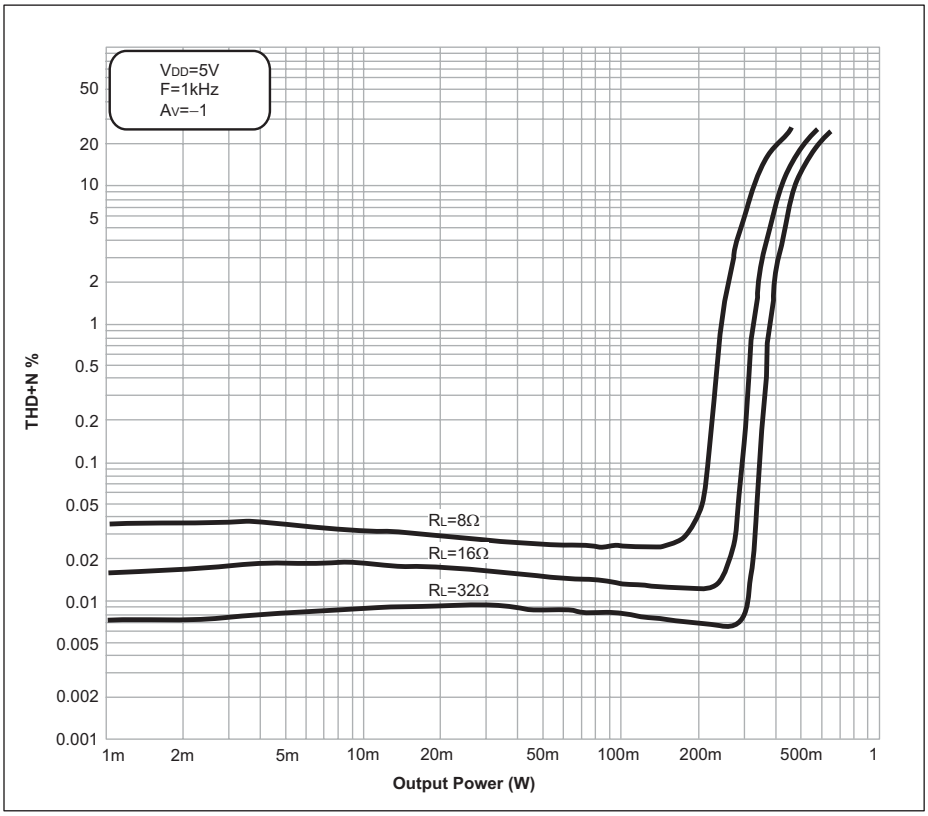
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{DD}	Conditions				
Supplies							
V_{DD}	Supply Voltage	—	—	2.4	—	6	V
I_{DD}	Supply Current	5V	No load	—	10	—	mA
I_{PD}	Power-down Current	5V	—	—	1	—	μA
D.C. Characteristics							
$V_{I(OS)}$	Input Offset Voltage	5V	—	—	10	—	mV
I_O	Maximum Output Current	5V	(THD+N)/S<0.1%	—	62	—	mA
R_O	Output Resistance	5V	—	—	230	—	mΩ
V_O	Output Voltage Swing	5V	R_L=8Ω	0.66	—	3	V
			R_L=16Ω	0.38	—	3.15	V
			R_L=32Ω	0.18	—	3.29	V
PSRR	Power Supply Rejection Ratio	5V	C_S=2.2μF, V_{RIPPLE}=200V_{RMS}, f=120Hz	—	66	—	dB
X_{TALK}	Channel Separation	5V	P_O=200mW, R_L=8Ω, C_B=2.2μF	—	85	—	dB
A.C. Characteristics							
(THD+N)/S	Total Harmonic Distortion Plus Noise to Signal Ratio	5V	P_O=200mW, R_L=8Ω, f=1kHz	—	0.03	—	%
			P_O=120mW, R_L=16Ω, f=1kHz	—	0.01	—	
			P_O=75mW, R_L=32Ω, f=1kHz	—	0.01	—	
		3.3V	P_O=30mW, R_L=32Ω, f=1kHz	—	0.01	—	
P_O	Output Power	5V	(THD+N)/S=0.1%, f=1kHz	—	—	—	mW
			R_L=8Ω	—	240	—	
			R_L=16Ω	—	160	—	
			R_L=32Ω	—	90	—	
			(THD+N)/S=0.1%, f=1kHz	—	—	—	
			R_L=8Ω	—	330	—	
			R_L=16Ω	—	200	—	
			R_L=32Ω	—	110	—	

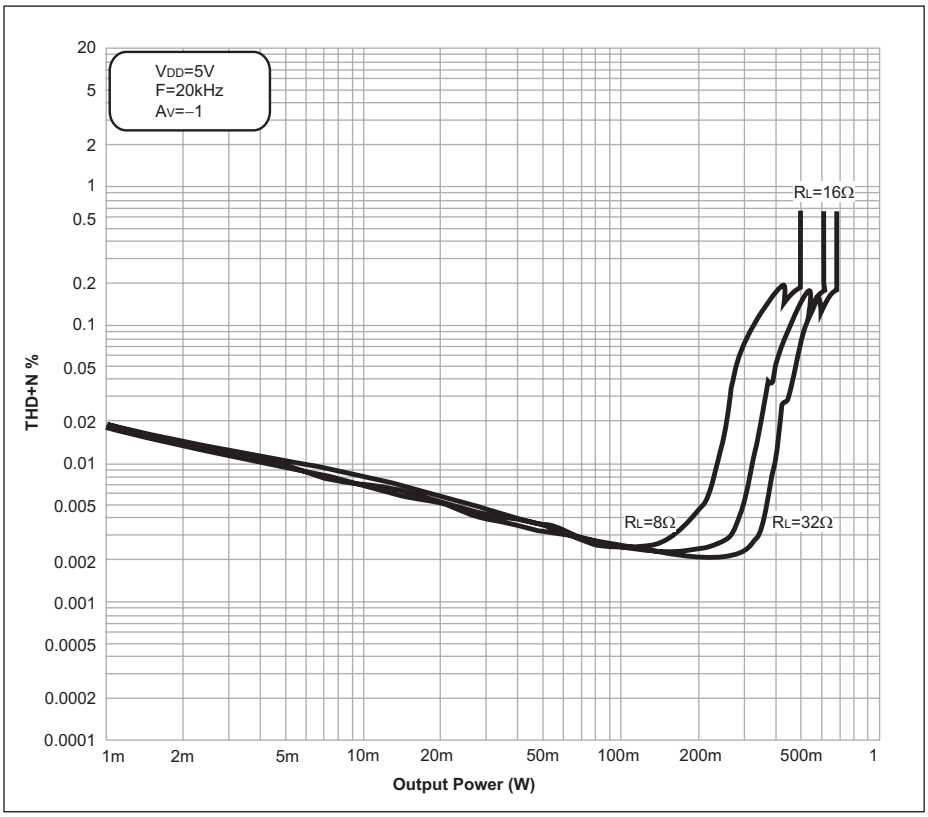
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
		V_{DD}	Conditions				
S/N	Signal to Noise Ratio	5V	V_{IN}=1V_{RMS}, R_L=8Ω	—	92	—	dB
SR	Slew Rate	5V	—	—	3	—	V/μs
ATT	Power-down Attenuation	5V	1kHz, 0dB	—	70	—	dB

Typical Performance Characteristics

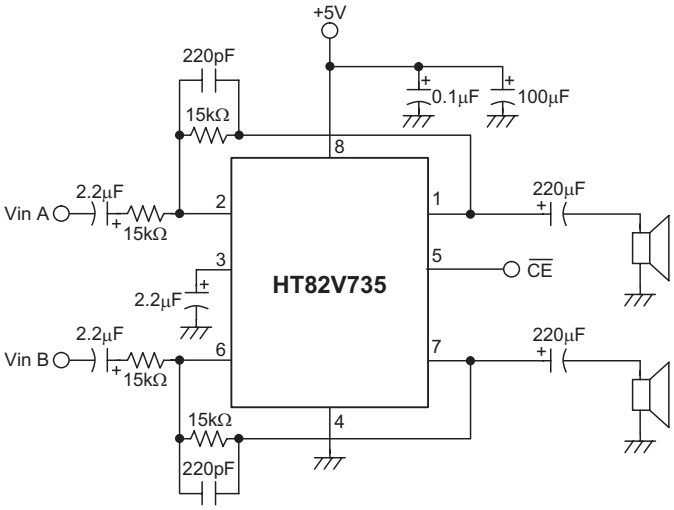
THD+N vs. Output Power




VDD=5V
F=1kHz
AV=−1
50
20
10
5
2
1
0.5
0.2
0.1
0.05
0.02
0.01
0.005
0.002
0.001
THD+N %
RL=8Ω
RL=16Ω
RL=32Ω
1m
2m
5m
10m
20m
50m
100m
200m
500m
1
Output Power (W)

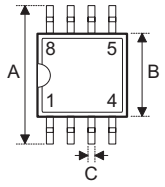

VDD=5V
F=20kHz
AV=−1
20
5
2
1
0.5
0.2
0.1
0.05
0.02
0.01
0.005
0.002
0.001
0.0005
0.0002
0.0001
THD+N %
RL=16Ω
RL=8Ω
RL=32Ω
1m
2m
5m
10m
20m
50m
100m
200m
500m
1
Output Power (W)

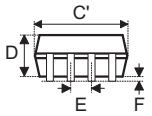
Application Circuits

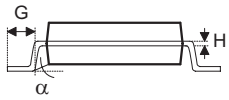


Package Information

8-pin SOP (150mil) Outline Dimensions



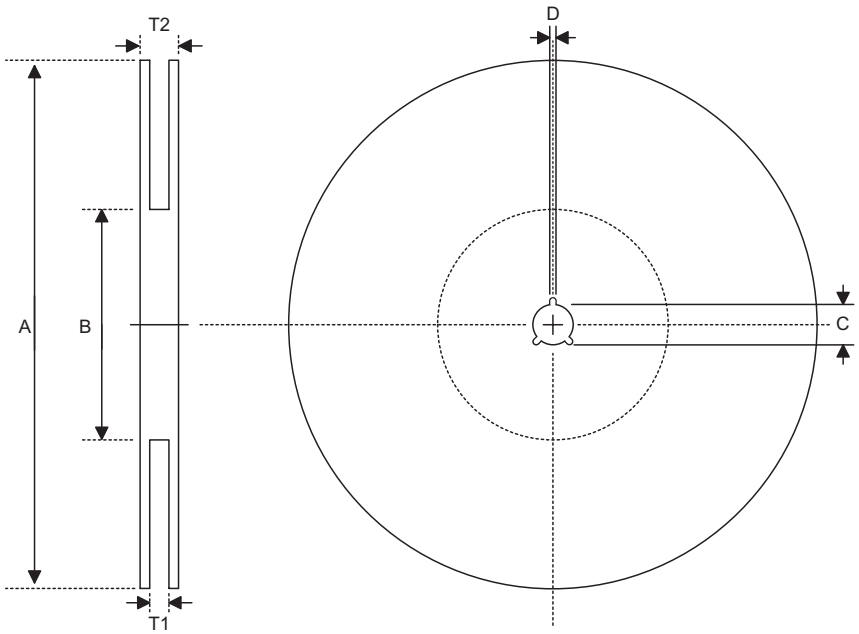




Symbol	Dimensions in mil		
	Min.	Nom.	Max.
A	228	—	244
B	149	—	157
C	14	—	20
C′	189	—	197
D	53	—	69
E	—	50	—
F	4	—	10
G	22	—	28
H	4	—	12
α	0°	—	10°

Product Tape and Reel Specifications

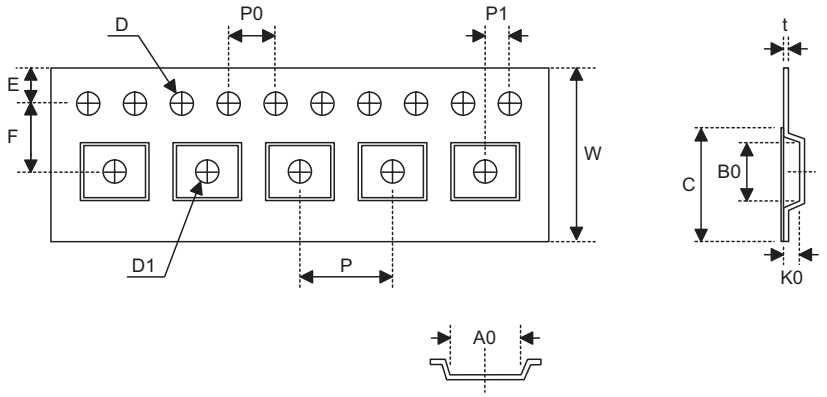
Reel Dimensions



SOP 8N

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	12.8+0.3 −0.2
T2	Reel Thickness	18.2±0.2

Carrier Tape Dimensions



SOP 8N

Symbol	Description	Dimensions in mm
W	Carrier Tape Width	12.0+0.3 −0.1
P	Cavity Pitch	8.0±0.1
E	Perforation Position	1.75±0.1
F	Cavity to Perforation (Width Direction)	5.5±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	6.4±0.1
B0	Cavity Width	5.20±0.1
K0	Cavity Depth	2.1±0.1
t	Carrier Tape Thickness	0.3±0.05
C	Cover Tape Width	9.3

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