

1200mW Audio Power Amp with Shutdown

Features

- Operating voltage: 2.2V to 5.5V
- High signal-to-noise ratio
- Low distortion
- Large output voltage swing
- Low power consumption
- Output power 1200mW at 10% THD+N into 8Ω (V_{DD}=5V)
- Wide temperature operating range
- Low power-on and chip enable or disable POP noise.
- Low standby current
- Power off control
- Direct drive speaker
- 8-pin DIP/SOP package

Applications

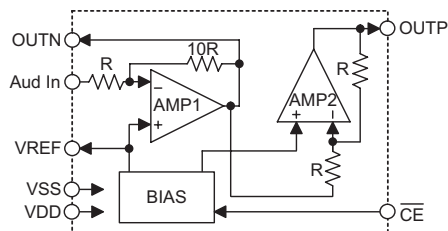
- Applied for HT36 series, HT86 series and other Holtek products

General Description

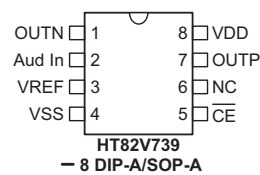
HT82V739 is an integrated class AB mono speaker driver contained in a 8-pin DIP/SOP package. The HT82V739 is capable of delivering 1200mW output power to an 8Ω load with less than 10% (THD+N) from a

5V power supply. The very low standby current in shutdown mode contributes to the reduction of power consumption of battery-powered equipments.

Block Diagram



Pin Assignment



Pin Description

Pin No.	Pin Name	I/O	Description
1	OUTN	O	Negative output
2	Aud In	I	Audio input
3	VREF	O	Speaker non-inverting input voltage reference
4	VSS	—	Negative power supply, ground
5	CE	I	Chip enable, low active
6	NC	—	Not connected
7	OUTP	O	Positive output
8	VDD	—	Positive power supply

Absolute Maximum Ratings

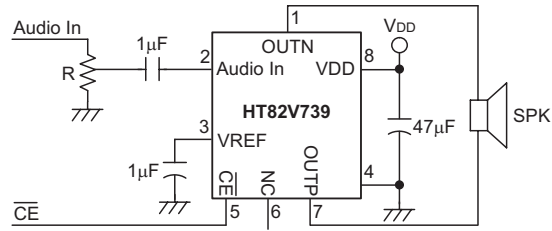
Supply Voltage	$V_{SS}-0.3V$ to $V_{SS}+6.0V$	Storage Temperature	$-50^{\circ}C$ to $125^{\circ}C$
Input Voltage.....	$V_{SS}-0.3V$ to $V_{DD}+0.3V$	Operating Temperature.....	$-40^{\circ}C$ to $85^{\circ}C$

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
 $V_{SS}=0V, T_a=25^{\circ}C$

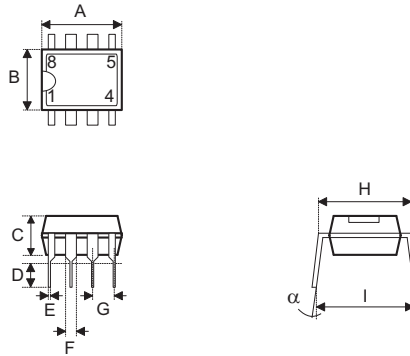
Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit	
		V_{DD}	Conditions					
D.C. Characteristics								
V_{DD}	Supply Voltage	—	—	2.2	5.0	5.5	V	
I_{DD}	Quiescent Power Supply Current	3V	$V_{IN}=0V_{P-P}$, No load	—	2.2	4.0	mA	
		5V		—	3.5	6.0	mA	
I_{SD}	Shutdown Power Supply Current	5V	$V_{IN}=0V_{P-P}$, $CE=V_{DD}$, No load	—	—	1	μA	
V_{IH}	Input High Voltage for \overline{CE}	—	—	$0.7V_{DD}$	—	V_{DD}	V	
V_{IL}	Input Low Voltage for \overline{CE}	—	—	0	—	$0.3V_{DD}$	V	
P_O	Output Power	3V	(THD+N)/S \leq 1%, $V_{IN}=1kHz$ sinewave	$R_L=4\Omega$	—	330	—	mW
				$R_L=8\Omega$	—	300	—	
				$R_L=16\Omega$	—	240	—	
			(THD+N)/S \leq 10%, $V_{IN}=1kHz$ sinewave	$R_L=4\Omega$	—	450	—	
				$R_L=8\Omega$	—	400	—	
				$R_L=16\Omega$	—	280	—	
		5V	(THD+N)/S \leq 1%, $V_{IN}=1kHz$ sinewave	$R_L=4\Omega$	—	1150	—	mW
				$R_L=8\Omega$	—	950	—	
				$R_L=16\Omega$	—	650	—	
			(THD+N)/S \leq 10%, $V_{IN}=1kHz$ sinewave	$R_L=4\Omega$	—	1400	—	
				$R_L=8\Omega$	—	1200	—	
				$R_L=16\Omega$	—	800	—	
A.C. Characteristics								
t_{ON}	Enable Time	3V	$V_{IN}=1kHz$ sinewave, No load	—	145	—	μs	
		5V		—	105	—	μs	
(THD+N)/S	Total Harmonic Distortion Plus Noise-to-signal Ratio	5V	Power Output=500mW, $V_{IN}=1kHz$ sinewave	$R_L=4\Omega$	—	0.3	—	%
				$R_L=8\Omega$	—	0.18	—	%
				$R_L=16\Omega$	—	0.13	—	%
S/N	Signal to Noise Ratio	5V	$V_{IN}=1V_{rms}$ 1kHz sinewave	$R_L=4\Omega$	—	66	—	dB
				$R_L=8\Omega$	—	70	—	dB
				$R_L=16\Omega$	—	72	—	dB

Application Circuits



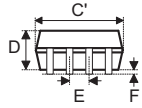
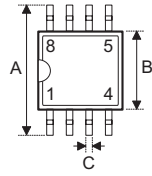
Package Information

8-pin DIP (300mil) Outline Dimensions



Symbol	Dimensions in mil		
	Min.	Nom.	Max.
A	355	—	375
B	240	—	260
C	125	—	135
D	125	—	145
E	16	—	20
F	50	—	70
G	—	100	—
H	295	—	315
I	335	—	375
α	0°	—	15°

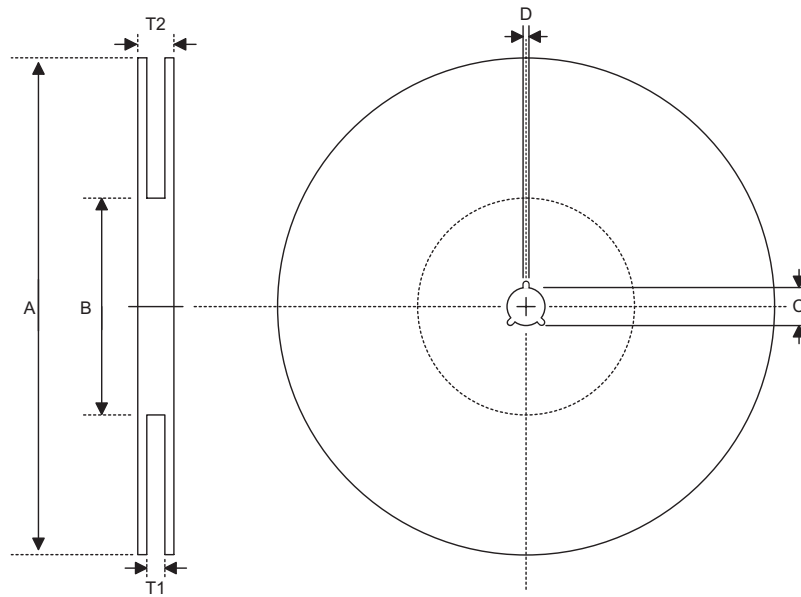
8-pin SOP (150mil) Outline Dimensions



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°

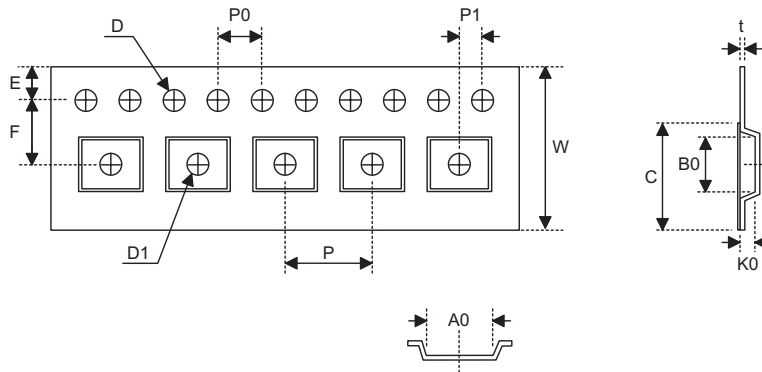
Product Tape and Reel Specifications

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±0.15
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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