

Stereo Earphone Amplifier

Short description

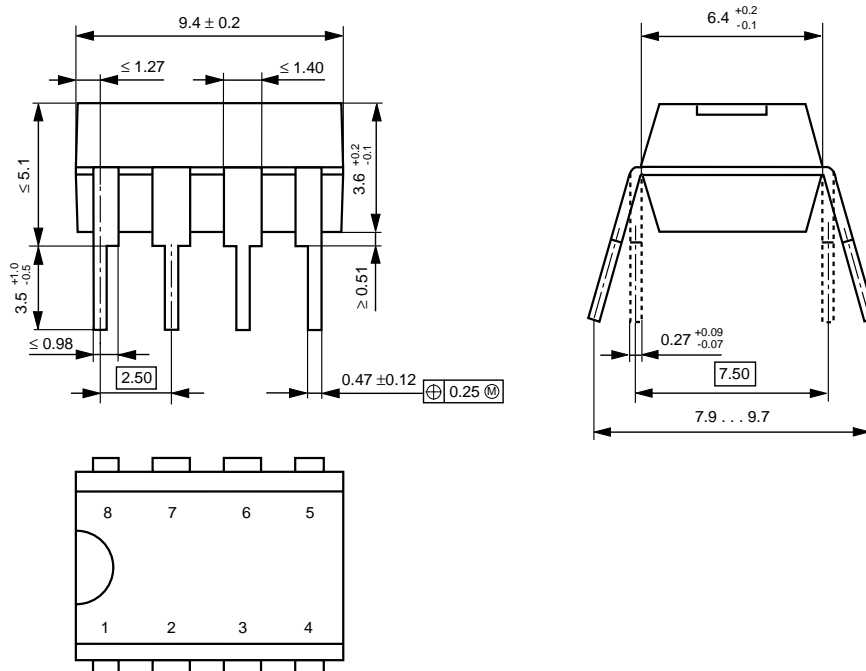
The integrated circuit TDA3006 is a two channel low power amplifier for application in stereo HiFi earphone amplifiers. This IC consists of an internal circuitry that only needs a minimum of external components.

Features

- Wide supply voltage range
- Wide load impedance range
- Thermal shut down
- Overload protection by current limiting
- MUTE and STAND-BY function
- Internal fixed gain typ. 30 dB
- Minimum external components

Package

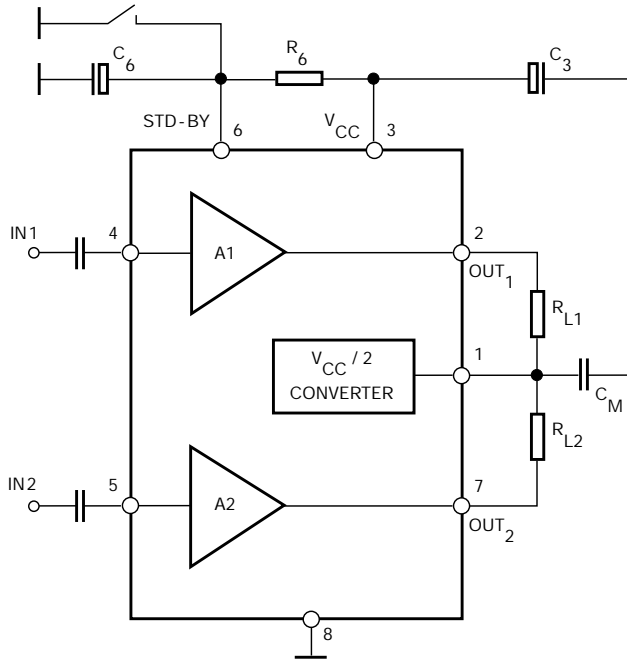
- DIP 8



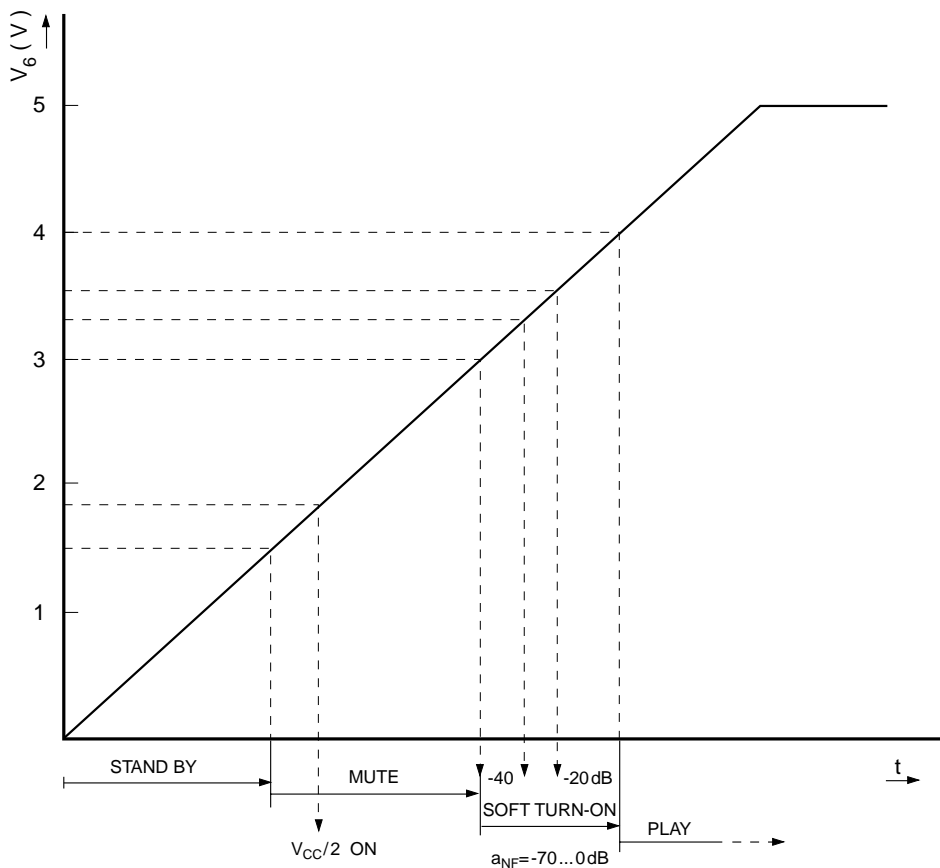
Pinning

- | | |
|----------------------------|-------------------------------------|
| 1 - V_{CC} / 2 Converter | 5 - Input 2 |
| 2 - Output 1 | 6 - Mute / Stand-by switching input |
| 3 - Supply voltage | 7 - Output 2 |
| 4 - Input 1 | 8 - Ground |

Block Diagram and Typical Application Circuit



Functional Description



Below 0.5 V the IC is in STAND-BY status. Increasing of V_6 over 2 V activates the amplifiers and they follow up in MUTE mode. After V_6 reaches approximately 3 V the AF-level softly increases to its maximum value at $V_6 \approx 4.5$ V. If $V_6 \geq 4.5$ V the IC works in PLAY mode at internal fixed gain of 30 dB.

Absolute Maximum Ratings

Open load supply voltage	V_{CC}	16.5	V
Supply voltage	V_{CC}	15	V
Switching voltage	V_6	V_{CC}	V
Output-peak current *) ($f \geq 10$ Hz)	I_{OM}	0.15	A
Total power consumption ($T_{amb} \leq 70$ °C)	P_{tot}	570	mW
Junction temperature	T_j	150	°C
Ambient temperature range	T_{amb}	0 ... 70	°C
Storage temperature range	T_{stg}	-40 ... 150	°C
Thermal resistance	R_{thja}	140	K/W

*) internal limited

Recommended Operational Conditions

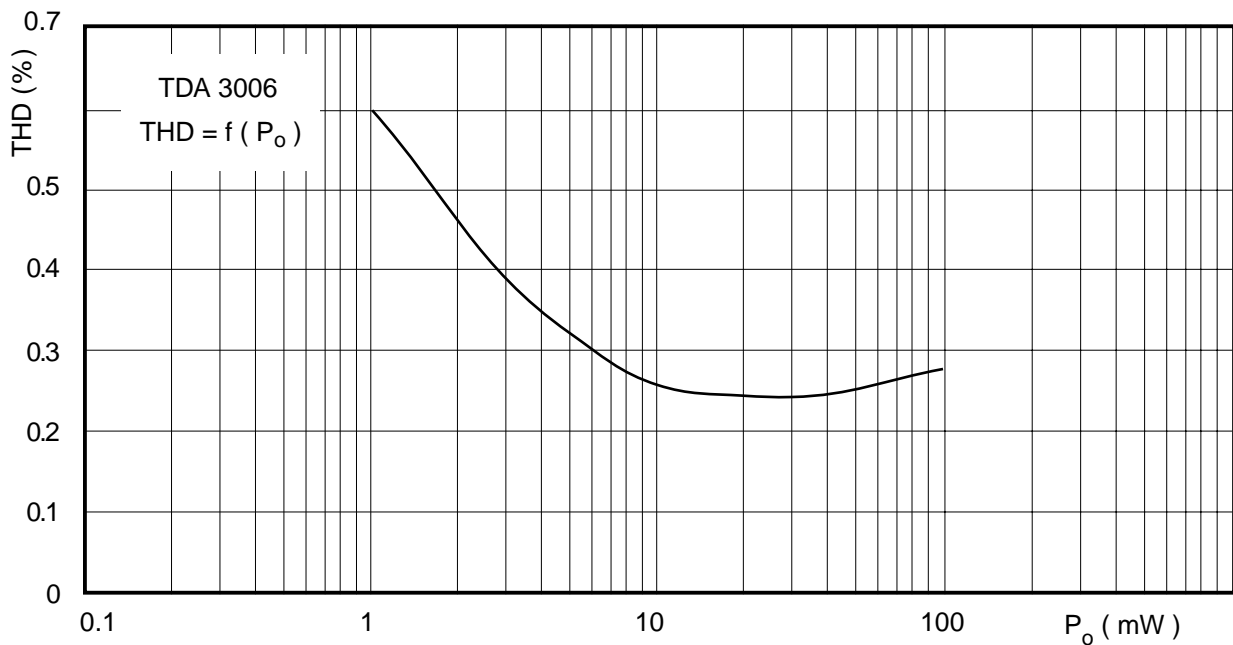
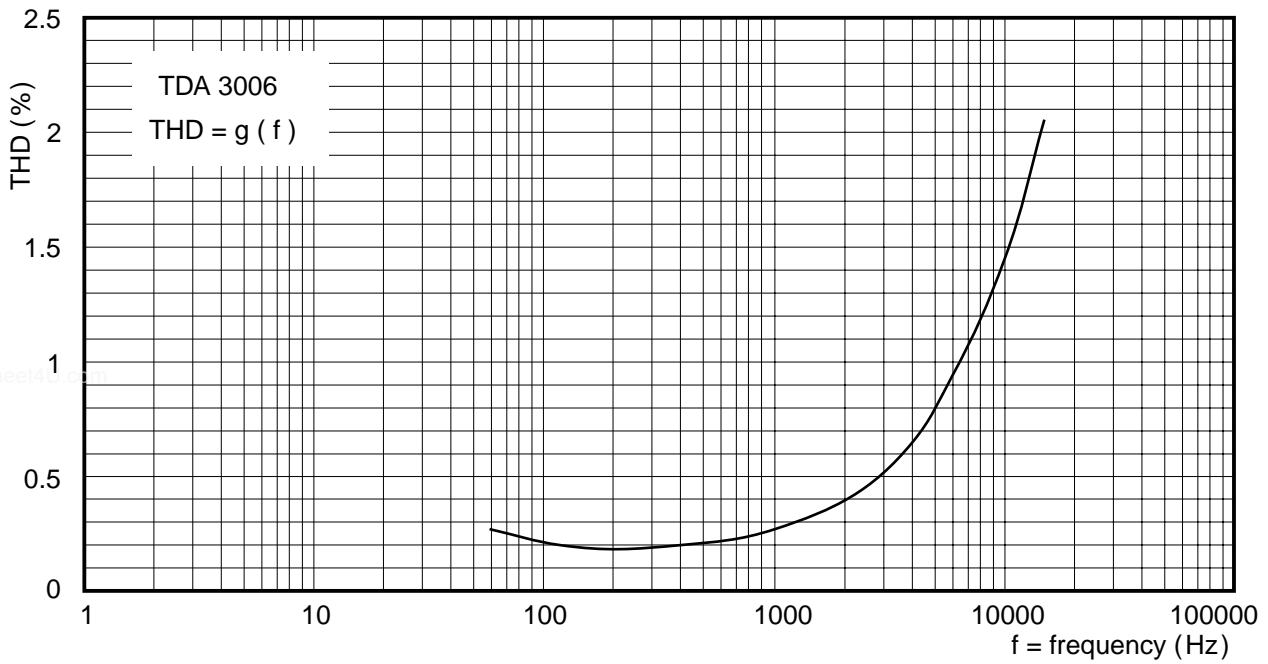
Parameter	Symbol	min.	typ.	max.	unit
Supply voltage range	ΔV_{CC}	5		15	V
Load impedance range	ΔR_L	16	32	600	Ω
Stand by - mode	V_{6STBY}			0.5	V
Mute - mode	V_{6MUTE}			2.5	V
Play - mode	V_{6PLAY}	4.5			V

Electrical Characteristics

at $V_{CC} = 12\text{ V}$, $V_6 = V_{CC}$, $R_L = 32\ \Omega$, $T_a = 25\ ^\circ\text{C}$, unless otherwise specified

Parameter	Symbol	min.	typ.	max.	unit
Output power (per channel) $f = 1\text{ kHz}$; $k = 10\ \%$	P_o	40			mW
Total harmonic distortion $f = 1\text{ kHz}$; $P_o = 25\text{ mW}$ • $V_{CC} = 12\text{ V}$ • $V_{CC} = 5\text{ V}$	THD THD			0.7 0.7	% %
Voltage gain internal fixed	g_v		30		dB
Input impedance $f = 1\text{ kHz}$	R_i		10		$k\Omega$
Quiescent current • $V_{CC} = 15\text{ V}$ • $V_{CC} = 5\text{ V}$	I_{CCQ} I_{CCQ}			10 7	mA mA
Stand by - current consumption $V_6 \leq 0.5\text{ V}$	I_{CCQST}			100	μA
Mute - attenuation $V_6 = 2.5\text{ V}$	a_M	-60			dB
Input current	I_6			500	μA
Signal-to-noise ratio $P_o = 25\text{ mW}$	S/N		60		dB
Cross talk $C_M = 100\text{ nF}$, $P_o = 40\text{ mW}$ $f = 1\text{ kHz}$	a_{CT}		40		dB

Dependences



Copying is generally permitted, indicating the source. However, our consent must be obtained in all cases. MEGAXESS reserves the right to make changes in specifications at any time and without notice. The information and suggestions are given without obligation and cannot give rise to any liability, they do not indicate the availability of the components mentioned. The information included herein is believed to be accurate and reliable. However, MEGAXESS assumes no responsibility for its use; nor for any infringements of patents or of other rights of third parties which may result from its use.

Megaxess GmbH Deutschland • POB 1370 • 15203 Frankfurt(Oder) • Germany
 Phone +49 335 546 2005 • FAX +49 335 546 3251 • Internet <http://www.megaxess.de>