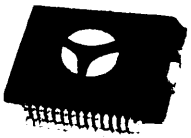
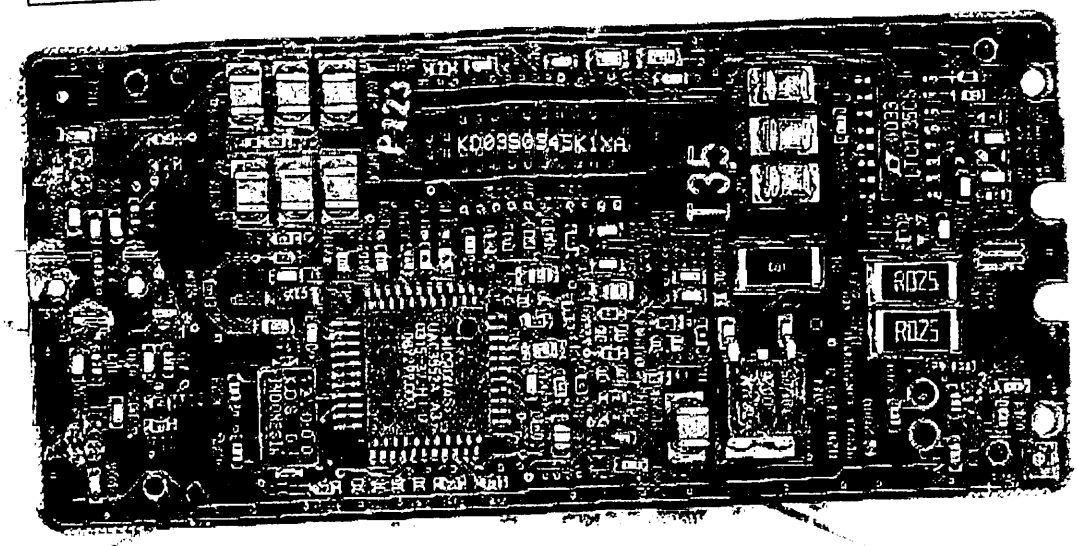
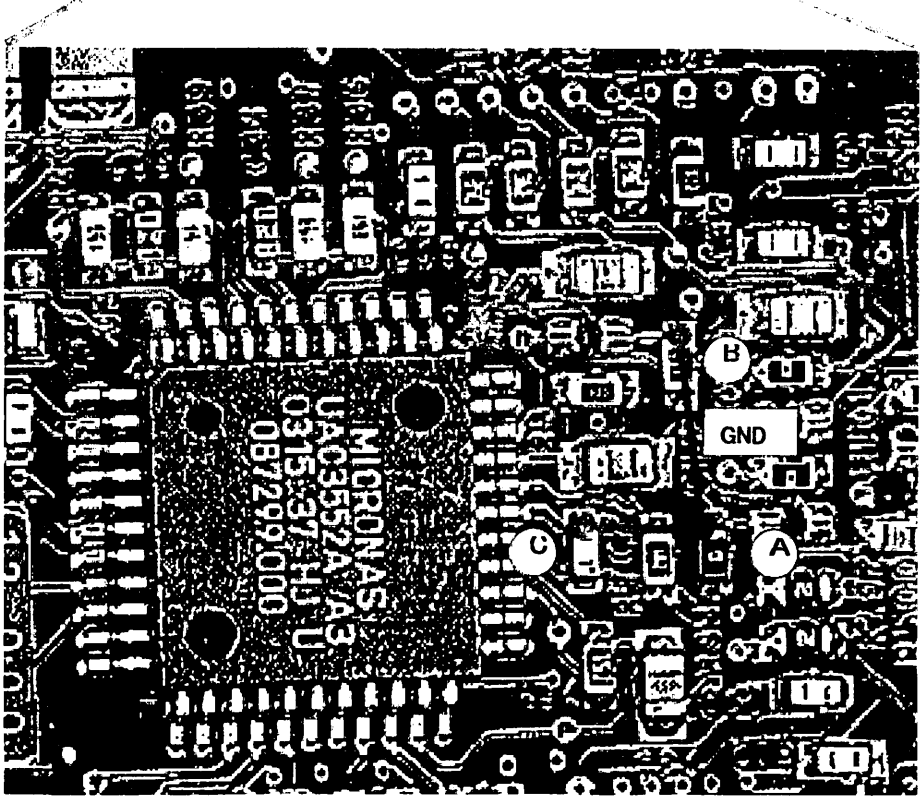
USBオーディオステレオアンプ基板
10Wステレオアンプ TA1101B 内蔵



参考資料





☆注意★

1、ご使用になるには、半田付け作業を含む基板の改造が必要です。

2、無音時に、消費電流が500mA近く流れますので、パソコンUSB端子から
電源を供給できません。5Vの外部電源（ACアダプタなど）が必要です。

■基板改造■

1、Aの0Ω抵抗を取り外す

2、取り外したAの0Ω抵抗の上側半田ランド、Bのチップ抵抗の上側電極、Cのチップコンデンサ
の上側電極の3点をビニール線などで、接続半田付けする。

★5V電源を接続し、WINDOWS—XPに接続すると、ヒューマンインターフェイス　デバイスとして、
USBオーディオと認識されます。

Absolute Maximum Ratings (Note 1)

SYMBOL	PARAMETER	Value	UNITS
V_{DD}	Supply Voltage	16	V
T_{STORE}	Storage Temperature Range	-40° to 150°	C
T_A	Operating Free-air Temperature Range	0° to 70°	C
P_{DISS}	Continuous Total Power Dissipation	Note 2	W

Note 1: Absolute Maximum Ratings indicate limits beyond which damage to the device may occur.
Note 2: See Power Dissipation Derating in the Applications Information section.

Operating Conditions (Note 3)

SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNITS
V_{DD}	Supply Voltage	8.5	12	13.2	V
V_{IH}	High-level Input Voltage (MUTE, SLEEP)	3.5			V
V_{IL}	Low-level Input Voltage (MUTE, SLEEP)			1	V

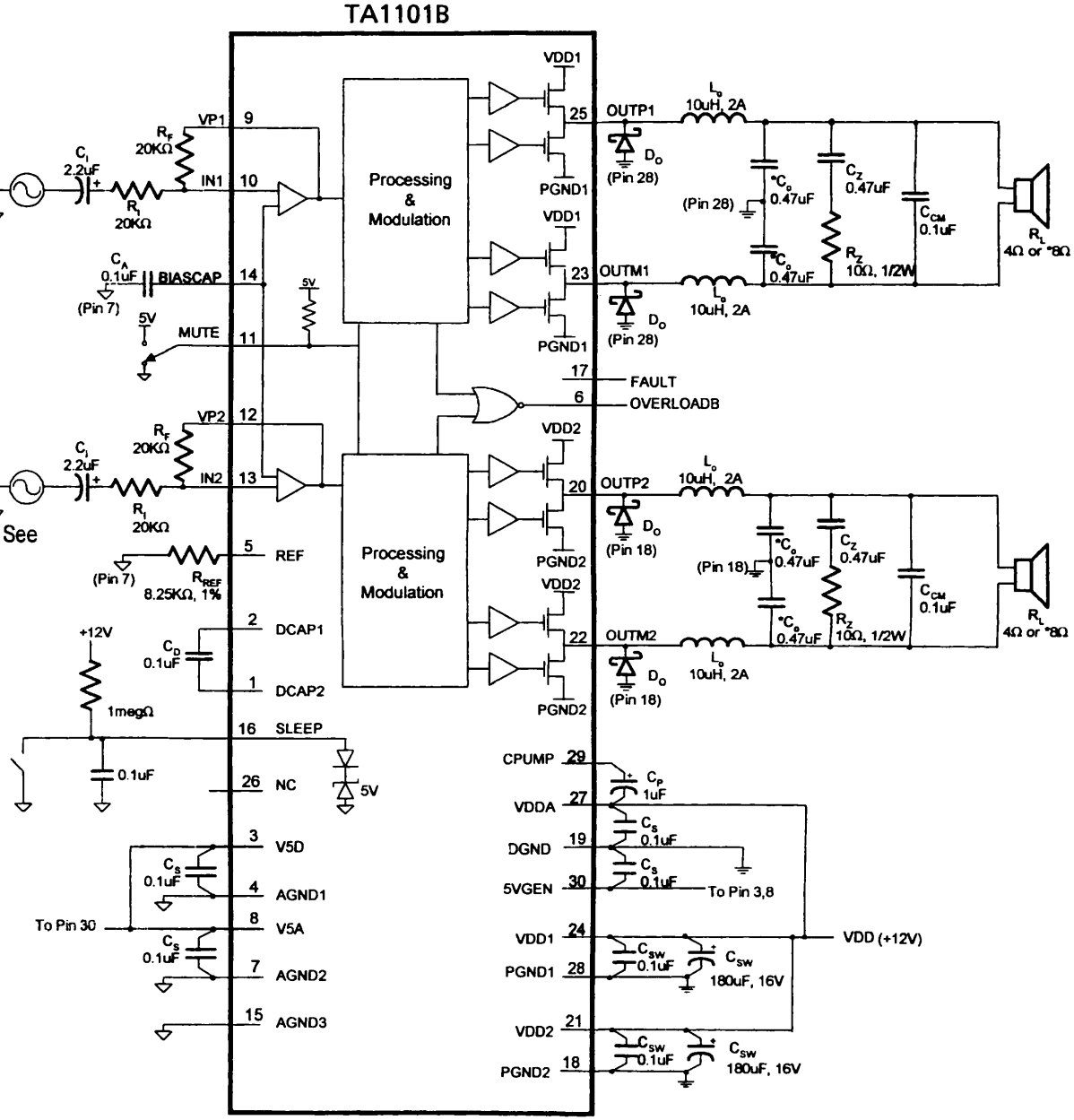
Note 3: Recommended Operating Conditions indicate conditions for which the device is functional. See Electrical Characteristics for guaranteed specific performance limits.

Electrical Characteristics

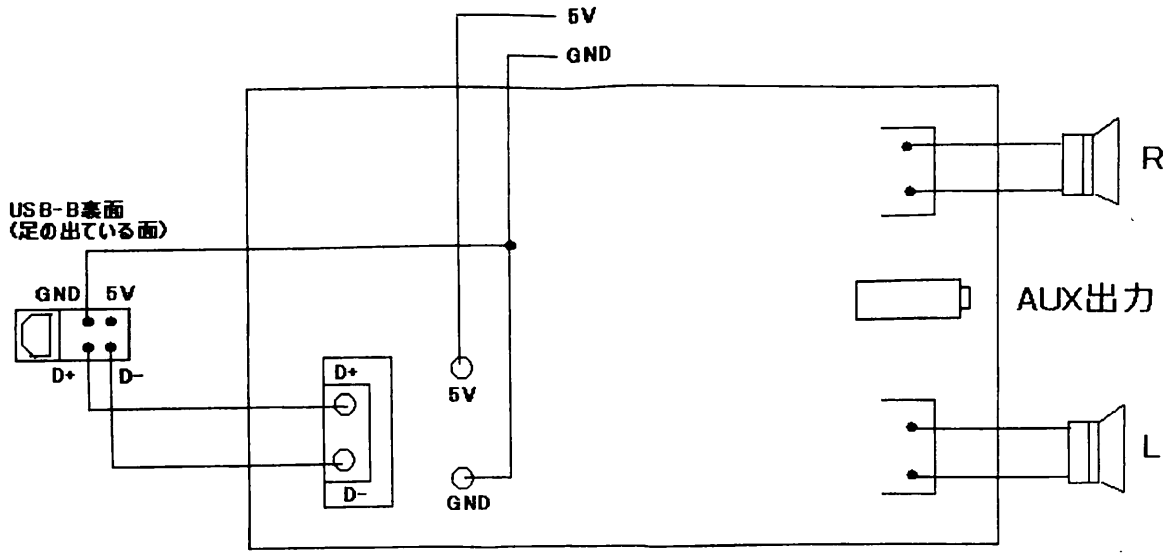
See Test/Application Circuit. Unless otherwise specified, V_{DD} = 12V, f = 1kHz, Measurement Bandwidth = 22kHz, R_L = 4Ω, T_A = 25 °C, Package heat slug soldered to 2.8 square-inch PC pad.

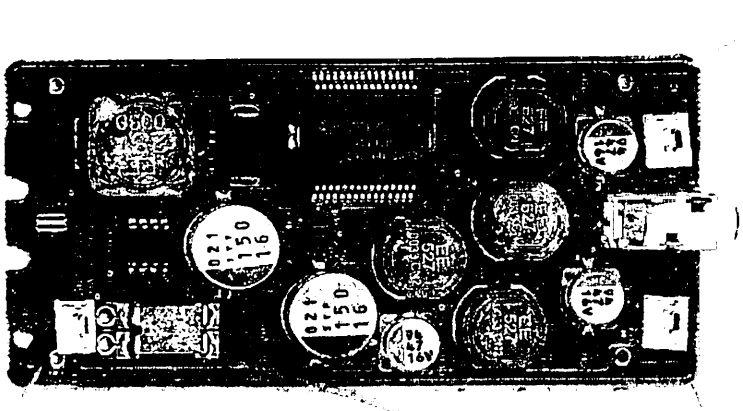
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNITS
P_O	Output Power (Continuous Average/Channel)	THD+N = 0.1% R_L = 4Ω	9	11		W
		R_L = 8Ω	5.5	6		W
		THD+N = 10% R_L = 4Ω	12	16		W
		R_L = 8Ω	8	10		W
$I_{DD,MUTE}$	Mute Supply Current	MUTE = V_{IH}		5.5	7	mA
$I_{DD,SLEEP}$	Sleep Supply Current	SLEEP = V_{IH}		0.25	2	mA
I_q	Quiescent Current	V_{IN} = 0 V		61	75	mA
THD + N	Total Harmonic Distortion Plus Noise	P_O = 9W/Channel		0.04		%
IHF-IM	IHF Intermodulation Distortion	19kHz, 20kHz, 1:1 (IHF)		0.18	0.5	%
SNR	Signal-to-Noise Ratio	A-Weighted, P_{OUT} = 1W, R_L = 8Ω		89		dB
CS	Channel Separation	30kHz Bandwidth	50	55		dB
PSRR	Power Supply Rejection Ratio	Vripple = 100mV.	60	80		dB
η	Power Efficiency	P_{OUT} = 10W/Channel, R_L = 8Ω		88		%
V_{OFFSET}	Output Offset Voltage	No Load, MUTE = Logic Low		50	150	mV
V_{OH}	High-level output voltage (FAULT & OVERLOAD)		3.5			V
V_{OL}	Low-level output voltage (FAULT & OVERLOAD)				1	V
e_{OUT}	Output Noise Voltage	A-Weighted, input AC grounded		100		μV

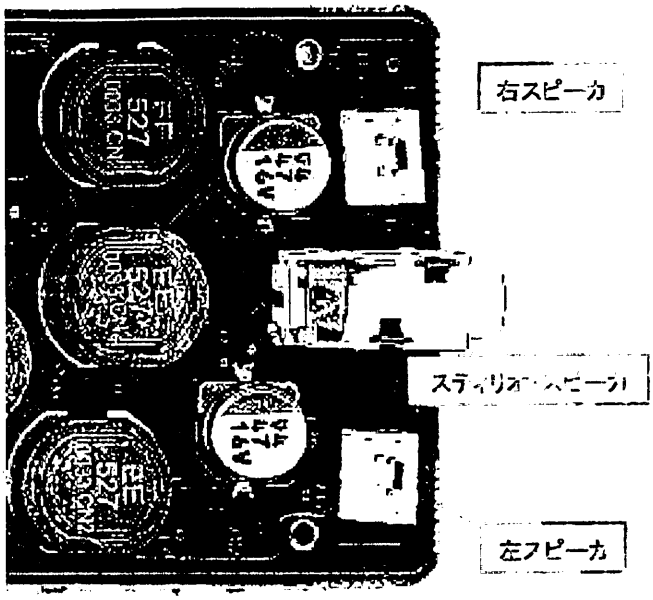
Note: Minimum and maximum limits are guaranteed but may not be 100% tested.

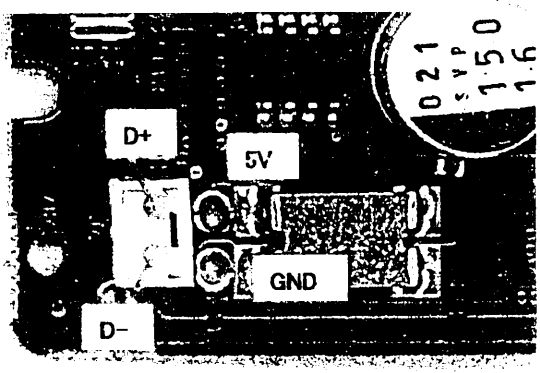


参考資料

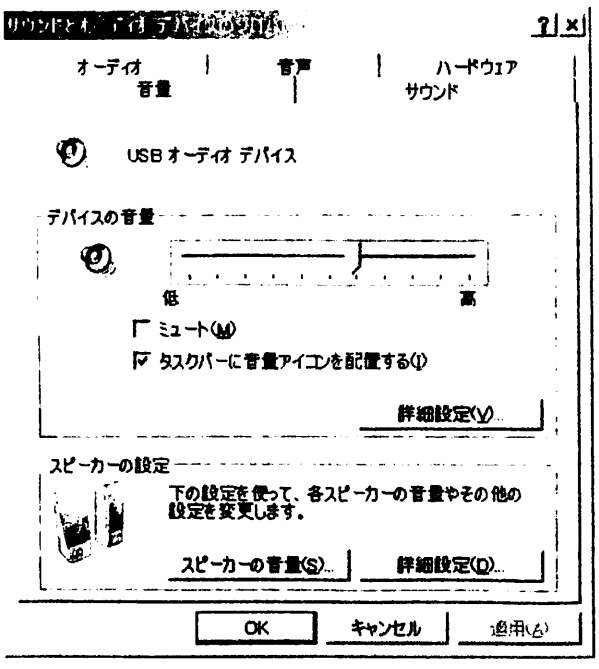

5V
GND
R
USB-B裏面
(足の出ている面)
GND
5V
D+
D-
D+
5V
D-
GND
AUX出力
L

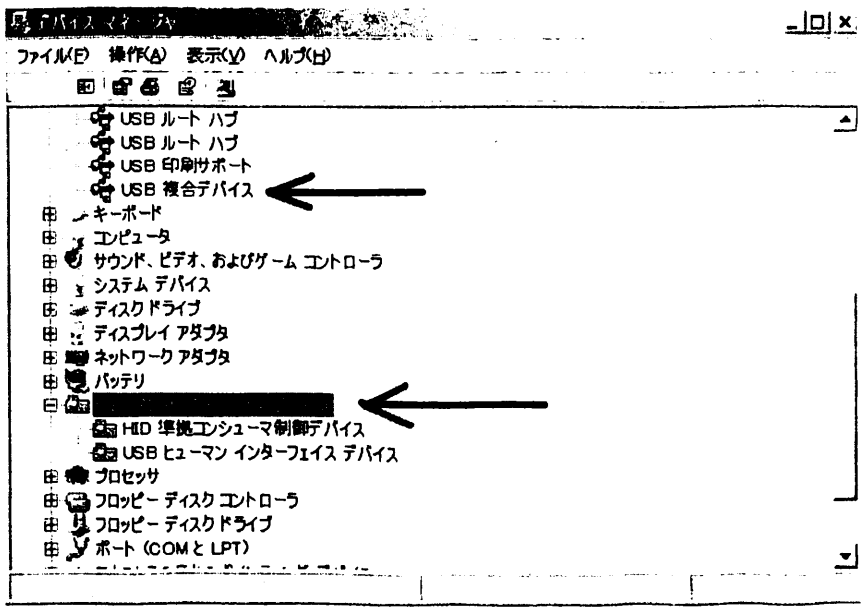



右スピーカ
左スピーカ


D+
5V
GND
D-

参考資料

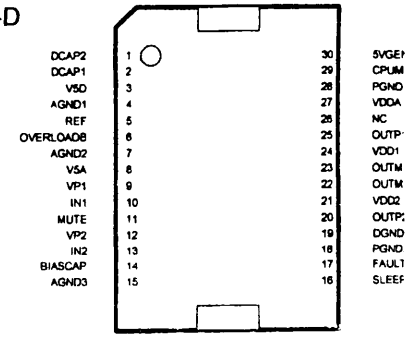

オーディオ
音量
音声
ハードウェア
サウンド
USB オーディオ デバイス
デバイスの音量
低
高
ミュート(M)
タスクバーに音量アイコンを配置する(T)
詳細設定(V)...
スピーカーの設定
下の設定を使って、各スピーカーの音量やその他の設定を変更します。
スピーカーの音量(S)...
詳細設定(D)...
OK
キャンセル
適用(A)


ファイル(F) 操作(A) 表示(V) ヘルプ(H)
USB ルート ハブ
USB ルート ハブ
USB 印刷サポート
USB 複合デバイス
キーボード
コンピュータ
サウンド、ビデオ、およびゲーム コントローラ
システム デバイス
ディスク ドライブ
ディスプレイ アダプタ
ネットワーク アダプタ
バッテリ
HID 準拠コンシューマ制御デバイス
USB ヒューマン インターフェイス デバイス
プロセッサ
フロッピー ディスク コントローラ
フロッピー ディスク ドライブ
ポート (COM と LPT)

Stereo 10W (4Ω) Class-T™ Digital Audio Amplifier using Digital Power Processing™ Technology TA1101B

September 2000

30-pin Power SOP Package
(Top View)



General Description

The TA1101B is a 10W continuous average two-channel Class-T Digital Audio Power Amplifier IC using Tripath's proprietary Digital Power Processing™ technology. Class-T amplifiers offer both the audio fidelity of Class-AB and the power efficiency of Class-D amplifiers.

Applications

- Computer/PC Multimedia
- DVD Players
- Cable Set-Top Products
- Televisions
- Video CD Players
- Battery Powered Systems

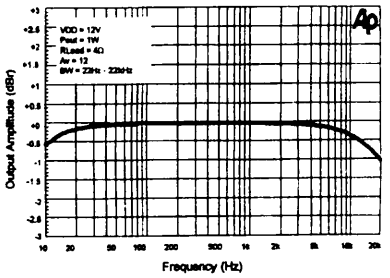
Benefits

- Fully integrated solution with FETs
- Easier to design-in than Class-D
- Reduced system cost with no heat sink
- Dramatically improves efficiency versus Class-AB
- Signal fidelity equal to high quality linear amplifiers
- High dynamic range compatible with digital media such as CD, DVD, and Internet audio

Features

- Class-T architecture
- Single Supply Operation
- "Audiophile" Quality Sound
  - 0.04% THD+N @ 9W, 4Ω
  - 0.18% IHF-IM @ 1W, 4Ω
  - 6W @ 8Ω, 0.1% THD+N
  - 11W @ 4Ω, 0.1% THD+N
- High Power
  - 10W @ 8Ω, 10% THD+N
  - 15W @ 4Ω, 10% THD+N
- High Efficiency
  - 88% @ 10W, 8Ω
  - 81% @ 15W, 4Ω
- Dynamic Range = 102 dB
- Mute and Sleep inputs
- Turn-on & turn-off pop suppression
- Over-current protection
- Over-temperature protection
- Bridged outputs
- 30-pin Power SOP package

Frequency Response



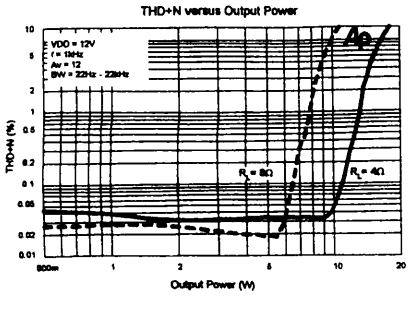
参考資料

Pin Description

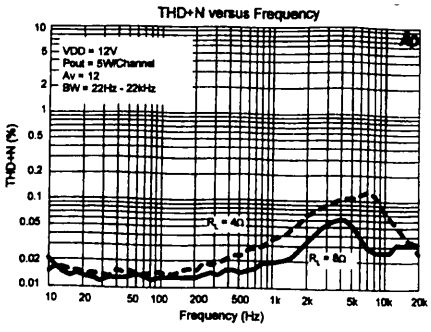
Pin	Function	Description
1, 2	DCAP2, DCAP1	Charge pump switching pins. DCAP1 (pin 2) is a free running 300kHz square wave between VDDA and DGND (12Vpp nominal). DCAP2 (pin 1) is level shifted 10 volts above DCAP1 (pin 2) with the same amplitude (12Vpp nominal), frequency, and phase as DCAP1.
3, 8	V5D, V5A	Digital 5VDC, Analog 5VDC
4, 7, 15	AGND1, AGND2, AGND3	Analog Ground
5	REF	Internal reference voltage; approximately 1.0 VDC.
6	OVERLOADB	A logic low output indicates the input signal has overloaded the amplifier.
9, 12	VP1, VP2	Input stage output pins.
10, 13	IN1, IN2	Single-ended inputs. Inputs are a "virtual" ground of an inverting opamp with approximately 2.4VDC bias.
11	MUTE	When set to logic high, both amplifiers are muted and in idle mode. When low (grounded), both amplifiers are fully operational. If left floating, the device stays in the mute mode. Ground if not used.
14	BIASCAP	Input stage bias voltage (approximately 2.4VDC).
16	SLEEP	When set to logic high, device goes into low power mode. If not used, this pin should be grounded
17	FAULT	A logic high output indicates thermal overload, or an output is shorted to ground, or another output.
18, 28	PGND2, PGND1	Power Grounds (high current)
19	DGND	Digital Ground
20, 22; 25, 23	OUTP2 & OUTM2; OUTP1 & OUTM1	Bridged outputs
21, 24	VDD2, VDD1	Supply pins for high current H-bridges, nominally 12VDC.
26	NC	Not connected
27	VDDA	Analog 12VDC
29	CPUMP	Charge pump output (nominally 10V above VDDA)
30	5VGEN	Regulated 5VDC source used to supply power to the input section (pins 3 and 8).

Typical Performance

THD+N versus Output Power



THD+N versus Frequency



Channel Separation versus Frequency