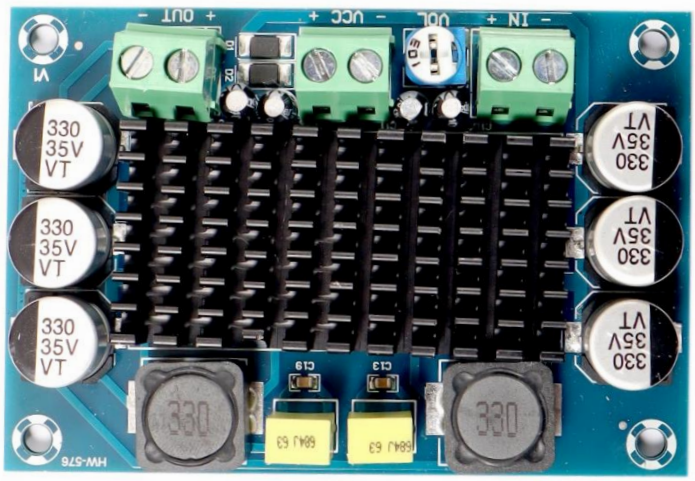
XH-M542 Single Channel High Power Digital Audio Power Amplifier Board TPA3116D2



Description:

This compact 2.4 GHz omni-directional "rubber-duck" antenna provides broad coverage and 6 dBi gain. It is a coaxial sleeve design with an omni-directional pattern. It is ideally suited for IEEE 802.11b and 802.11g wireless LANs, Bluetooth® and other WLAN applications.

Measuring 7.6 inches long, this flexible antenna features a tilt-and-swivel Reverse-Polarity SMA Plug connector, allowing them to be used vertically, at a right angle, or any angle in-between. It is suitable as a replacement RF antenna for many access points and radios that are equipped with reverse-polarity SMA connectors including D-Link®, Linksys® WET11 and others.

Features:

- Strong TPA3116D2 chip is a digital power amplifier chip, with low idle loss characteristics, makes it work well and quickly.
- Onboard, front-facing IC to improve the input sensitivity, high-definition sound quality.
- It can be used for car vehicle computer speaker, family audio and video, and empty square.
- This product has the characteristics of loud sound, the capacitance is large, , Pexcellent sound quality.
- There is no solder joint on the back of the circuit board, the chip capacitors and the solder board together, so there is no possibility of short circuit.

Specifications:

- Operating Voltage Range (VDC): 12 to 24
- Output Power (W): 100W
- Signal to Noise Ratio: 100db
- Supports Multiple Output Configurations

  2 × 50 W Into a 4-Ω BTL Load at 21 V (TPA3116D2)

  2 × 30 W Into a 8-Ω BTL Load at 24 V (TPA3118D2)

  2 × 15 W Into a 8-Ω BTL Load at 15 V (TPA3130D2)

- Wide Voltage Range: 4.5 V to 26 V
- Efficient Class-D Operation

  >90% Power Efficiency Combined With Low Idle Loss Greatly Reduces Heat Sink Size

  Advanced Modulation Schemes

- Multiple Switching Frequencies

  AM Avoidance

  Master and Slave Synchronization

  Up to 1.2-MHz Switching Frequency

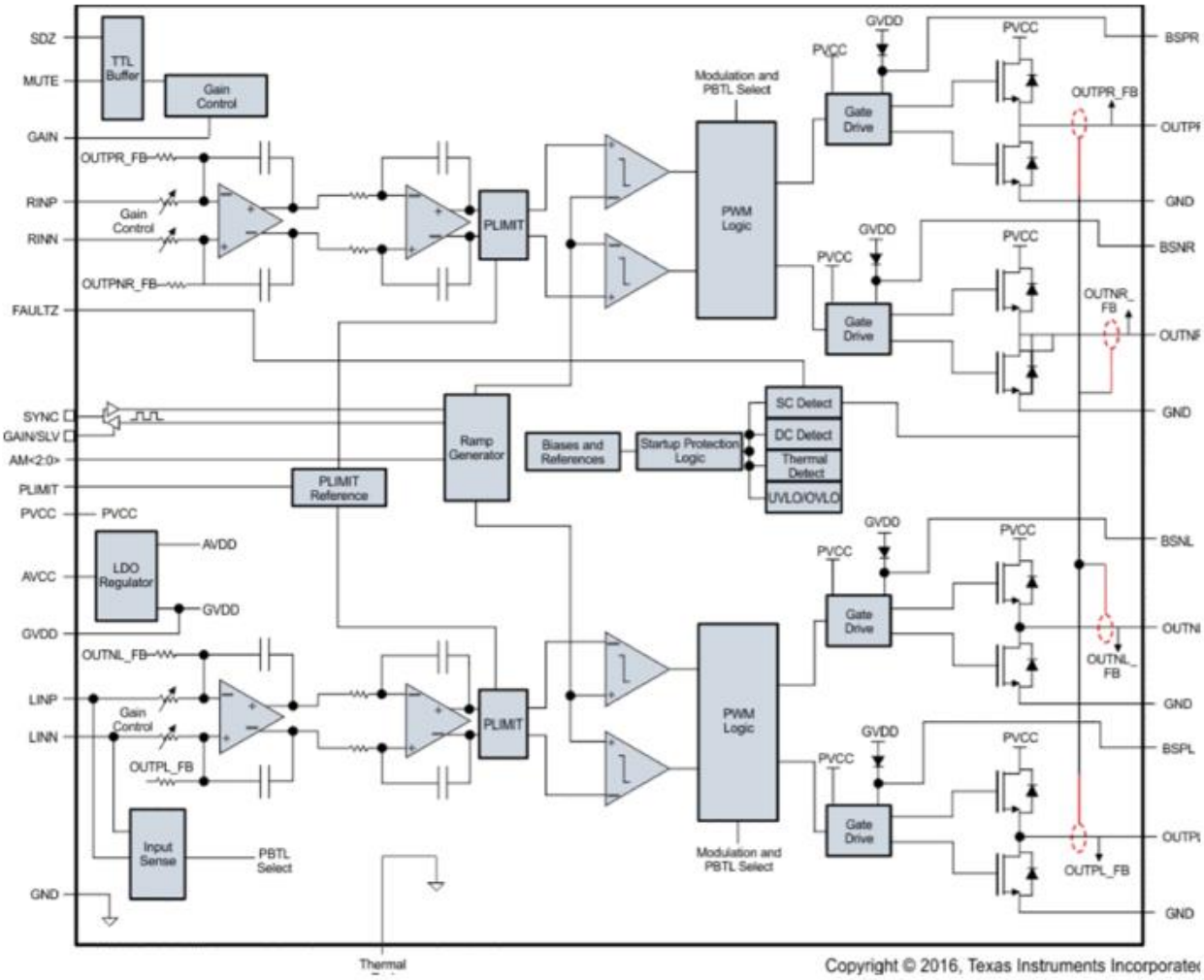
- Feedback Power-Stage Architecture With High PSRR Reduces PSU Requirements
- Programmable Power Limit
- Differential and Single-Ended Inputs
- Stereo and Mono Mode With Single-Filter Mono Configuration
- Single Power Supply Reduces Component Count
- Integrated Self-Protection Circuits Including Overvoltage, Undervoltage, Overtemperature, DC-Detect, and Short Circuit With Error Reporting
- Thermally Enhanced Packages

DAD (32-Pin HTSSOP Pad Up)

DAP (32-Pin HTSSOP Pad Down)

- –40°C to 85°C Ambient Temperature Range
- Length (mm): 79
- Width (mm): 54
- Height (mm): 16
- Weight (gm): 55

Functional Description:

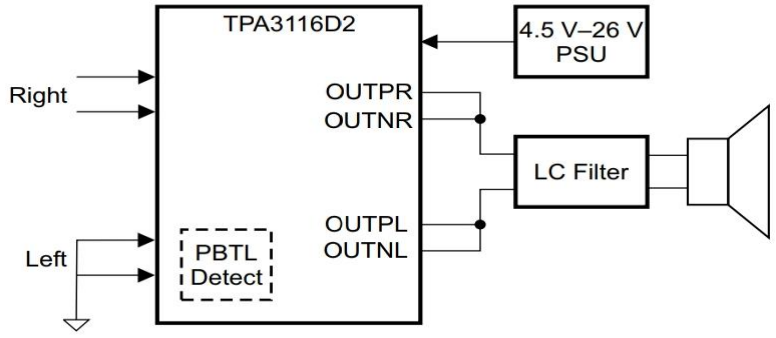


- The TPA31xxD2 series are stereo efficient, digital amplifier power stage for driving speakers up to 100 W / 2 Ω in mono.
- If even higher power is needed the TPA3116D2 does 2 × 50 W / 4 Ω with a small heat-sink attached to its top side PowerPAD. All three devices share the same footprint enabling a single PCB to be used across different power levels.
- The TPA31xxD2 advanced oscillator/PLL circuit employs a multiple switching frequency option to avoid AM interferences; this is achieved together with an option of either master or slave option, making it possible to synchronize multiple devices.
- The TPA31xxD2 devices are fully protected against faults with short-circuit protection and thermal protection as well as overvoltage, undervoltage, and DC protection. Faults are reported back to the processor to prevent devices from being damaged during overload conditions.

Device Functional Modes:

Mono Mode (PBTL):

- The TPA31xxD2 family can be connected in MONO mode enabling up to 100W output power. This is done by:
- Connect INPL and INNL directly to Ground (without capacitors) this sets the device in Mono mode during power up.
- Connect OUTPR and OUTNR together for the positive speaker terminal and OUTNL and OUTPL together for the negative pin.
- Analog input signal is applied to INPR and INNR.



Pin Functions:

Pin No	Pin Name	Type	Description
1	MODSEL	I	Mode selection logic input (LOW = BD mode, HIGH = 1 SPW mode). TTL logic levels with compliance to AVCC.
2	SDZ	I	Shutdown logic input for audio amp (LOW = outputs Hi-Z, HIGH = outputs enabled). TTL logic levels with compliance to AVCC
3	FAULTZ	D0	General fault reporting including Over-temp, DC Detect. Open drain. FAULTZ = High, normal operation FAULTZ = Low, fault condition
4	RINP	I	Positive audio input for right channel. Biased at 3 V.
5	RINN	P	Negative audio input for right channel. Biased at 3 V.
6	PLIMIT	I	Power limit level adjust. Connect a resistor divider from GVDD to GND to set power limit. Connect directly to GVDD for no power limit.
7	GVDD	PO	Internally generated gate voltage supply. Not to be used as a supply or connected to any component other than a 1 µF X7R ceramic decoupling capacitor and the PLIMIT and GAIN/SLV resistor dividers.
8	GAIN/SLV	I	Selects Gain and selects between Master and Slave mode depending on pin voltage divider.
9	GND	G	Ground
10	LINP	I	Positive audio input for left channel. Biased at 3 V. Connect to GND for PBTL mode.
11	LINN	I	Negative audio input for left channel. Biased at 3 V. Connect to GND for PBTL mode.
12	MUTE	I	Mute signal for fast disable/enable of outputs (HIGH = outputs Hi-Z, LOW = outputs enabled). TTL logic levels with compliance to AVCC.
13	AM2	I	AM Avoidance Frequency Selection
14	AM1	I	AM Avoidance Frequency Selection
15	AM0	I	AM Avoidance Frequency Selection

16	SYNC	DIO	Clock input/output for synchronizing multiple class-D devices. Direction determined by GAIN/SLV terminal.
17	AVCC	P	Analog Supply
18	PVCC	P	Power Supply
19	PVCC	P	Power Supply
20	BSNL	BST	Boot strap for negative left channel output, connect to 220 nF X5R, or better ceramic cap to OUTNL
21	OUTNL	PO	Negative left channel output
22	GND	G	Ground
23	OUTPL	PO	Positive left channel output
24	BSPL	BST	Boot strap for positive left channel output, connect to 220 nF X5R, or better ceramic cap to OUTPL
25	GND	G	Ground
26	**BSNR**	**BST**	**Boot strap for negative right channel output, connect to 220 nF X5R, or better ceramic cap to OUTNR**
27	**OUTNR**	**PO**	**Negative right channel output**
28	**GND**	**G**	**Ground**
29	**OUTPR**	**PO**	**Positive right channel output**
30	**BSPR**	**BST**	**Boot strap for positive right channel output, connect to 220 nF X5R or better ceramic cap to OUTPR**
31	**PVCC**	**P**	**Power Supply**
32	**PVCC**	**P**	**Power Supply**
33	**PowerPad**	**G**	**Connect to GND for best system performance. If not connected to GND, leave floating**