

DATA SHEET

TDA2615

2 × 6 W hi-fi audio power amplifier

Product specification
Supersedes data of July 1994
File under Integrated Circuits, IC01

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Philips Semiconductors



PHILIPS

2 × 6 W hi-fi audio power amplifier**TDA2615****FEATURES**

- Requires very few external components
- No switch-on/switch-off clicks
- Input mute during switch-on and switch-off
- Low offset voltage between output and ground
- Excellent gain balance of both amplifiers
- Hi-fi in accordance with "IEC 268" and "DIN 45500"
- Short-circuit proof and thermal protected
- Mute possibility.

GENERAL DESCRIPTION

The TDA2615 is a dual power amplifier in a 9-lead plastic single-in-line (SIL9MPF) medium power package. It has been especially designed for mains fed applications, such as stereo radio and stereo TV.

QUICK REFERENCE DATA

Stereo application.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
$\pm V_P$	supply voltage range		7.5	–	21	V
P_O	output power	$V_S = \pm 12\text{ V}$; THD = 0.5%	–	6	–	W
G_v	internal voltage gain		–	30	–	dB
$ G_v $	channel unbalance		–	0.2	–	dB
α	channel separation		–	70	–	dB
SVRR	supply voltage ripple rejection		–	60	–	dB
V_{no}	noise output voltage		–	70	–	μV

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
TDA2615	SIL9MPF	plastic single in-line medium power package with fin; 9 leads	SOT110-1

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BLOCK DIAGRAM

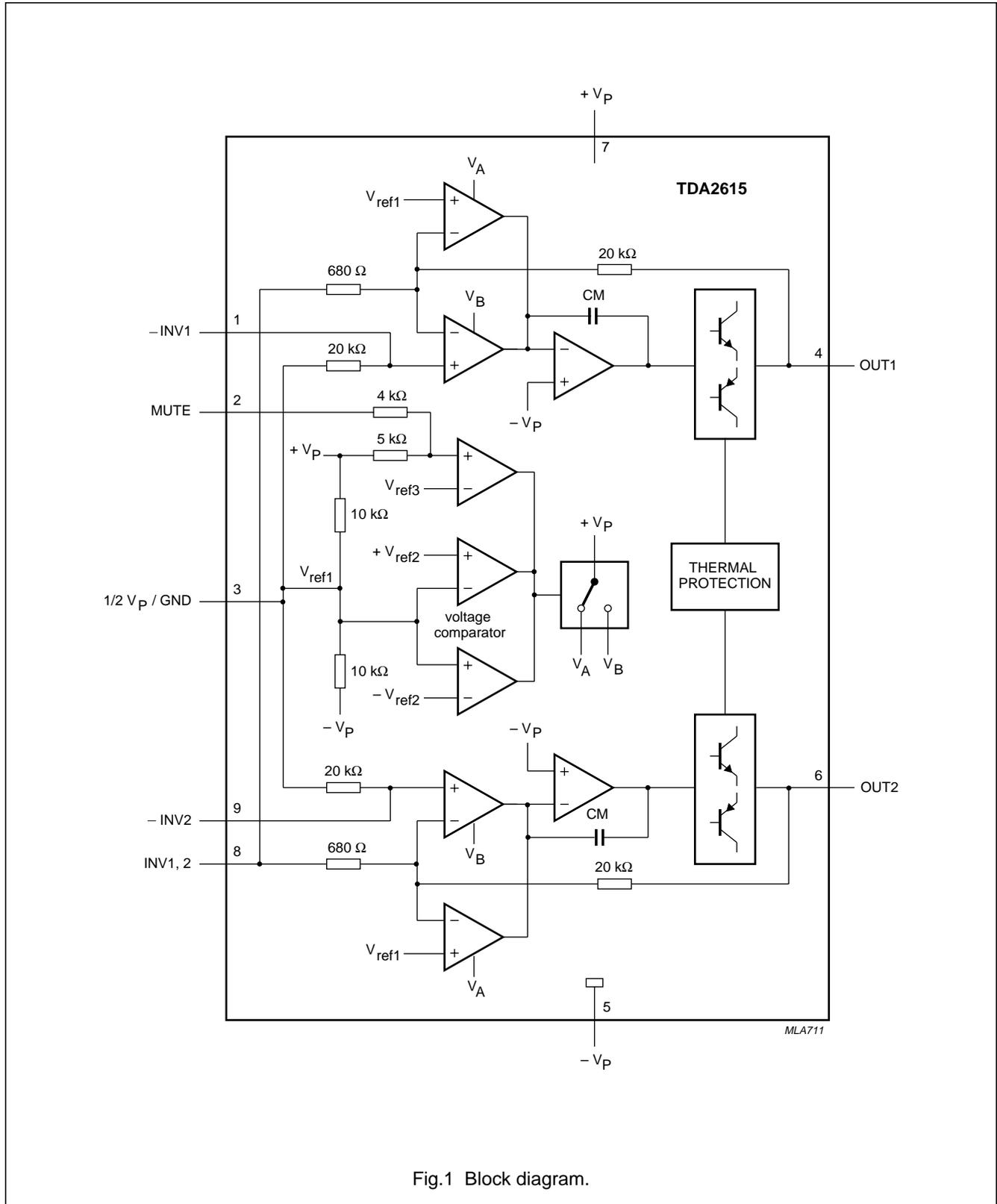


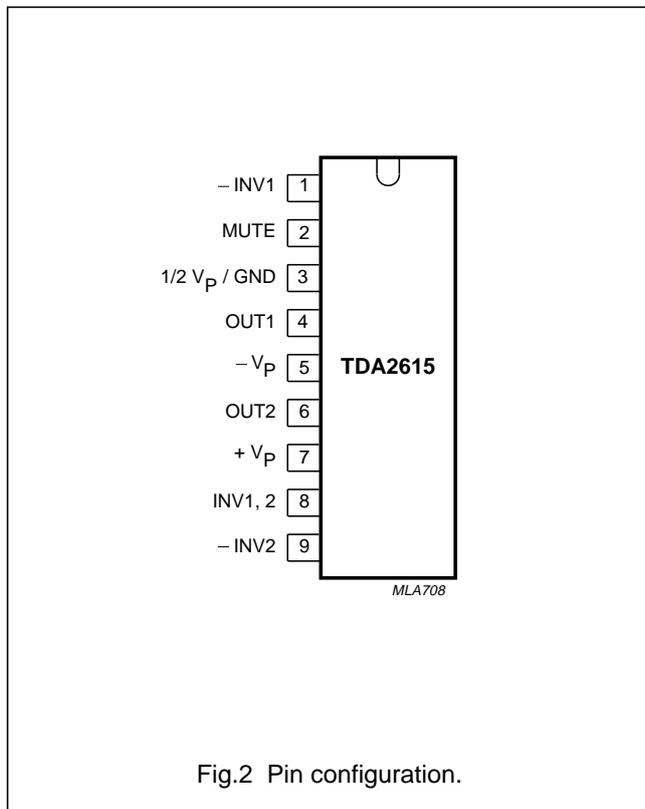
Fig.1 Block diagram.

2 × 6 W hi-fi audio power amplifier

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PINNING

SYMBOL	PIN	DESCRIPTION
-INV1	1	non-inverting input 1
MUTE	2	mute input
1/2V _P /GND	3	1/2 supply voltage or ground
OUT1	4	output 1
-V _P	5	supply voltage (negative)
OUT2	6	output 2
+V _P	7	supply voltage (positive)
INV1, 2	8	inverting input 1 and 2
-INV2	9	non-inverting input 2



FUNCTIONAL DESCRIPTION

The TDA2615 is a hi-fi stereo amplifier designed for mains fed applications, such as stereo radio and stereo TV. The circuit is optimally designed for symmetrical power supplies, but is also well-suited to asymmetrical power supply systems.

An output power of 2 × 6 W (THD = 0.5%) can be delivered into an 8 Ω load with a symmetrical power supply of ±12 V. The gain is internally fixed at 30 dB, thus offering a low gain spread and a very good gain balance between the two amplifiers (0.2 dB).

A special feature is the input mute circuit. This circuit disconnects the non-inverting inputs when the supply voltage drops below ±6 V, while the amplifier still retains its DC operating adjustment. The circuit features suppression of unwanted signals at the inputs, during switch-on and switch-off.

The mute circuit can also be activated via pin 2. When a current of 300 μA is present at pin 2, the circuit is in the mute condition.

The device is provided with two thermal protection circuits. One circuit measures the average temperature of the crystal and the other measures the momentary temperature of the power transistors. These control circuits attack at temperatures in excess of +150 °C, so a crystal operating temperature of max. +150 °C can be used without extra distortion.

With the derating value of 6 K/W, the heatsink can be calculated as follows:

at R_L = 8 Ω and V_S = ±12 V, the measured maximum dissipation is 7.8 W.

With a maximum ambient temperature of +60 °C, the thermal resistance of the heatsink is:

$$R_{th} = \frac{150 - 60}{7.8} - 6 = 5.5 \text{ K/W}$$

The metal tab has the same potential as pin 5.