TDA7850

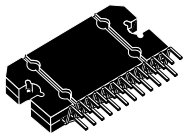
4 x 50 W MOSFET quad bridge power amplifier

Features

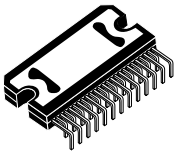
- High output power capability:
  - 4 x 50 W/4 Ω max.
  - 4 x 30 W/4 Ω @ 14.4 V, 1 kHz, 10 %
  - 4 x 80 W/2 Ω max.
  - 4 x 55 W/2 Ω @ 14.4V, 1 kHz, 10 %
- MOSFET output power stage
- Excellent 2 Ω driving capability
- Hi-Fi class distortion
- Low output noise
- ST-BY function
- Mute function
- Automute at min. supply voltage detection
- Low external component count:
  - Internally fixed gain (26 dB)
  - No external compensation
  - No bootstrap capacitors
- On board 0.35 A high side driver

Protections:

- Output short circuit to gnd, to V_S, across the load
- Very inductive loads
- Overrating chip temperature with soft thermal limiter
- Output DC offset detection
- Load dump voltage
- Fortuitous open gnd
- Reversed battery



Flexiwatt25 (Vertical)



Flexiwatt25 (Horizontal)

- ESD

Description

The TDA7850 is a breakthrough MOSFET technology class AB audio power amplifier in Flexiwatt 25 package designed for high power car radio. The fully complementary P-Channel/N-Channel output structure allows a rail to rail output voltage swing which, combined with high output current and minimized saturation losses sets new power references in the car-radio field, with unparalleled distortion performances.

The TDA7850 integrates a DC offset detector.

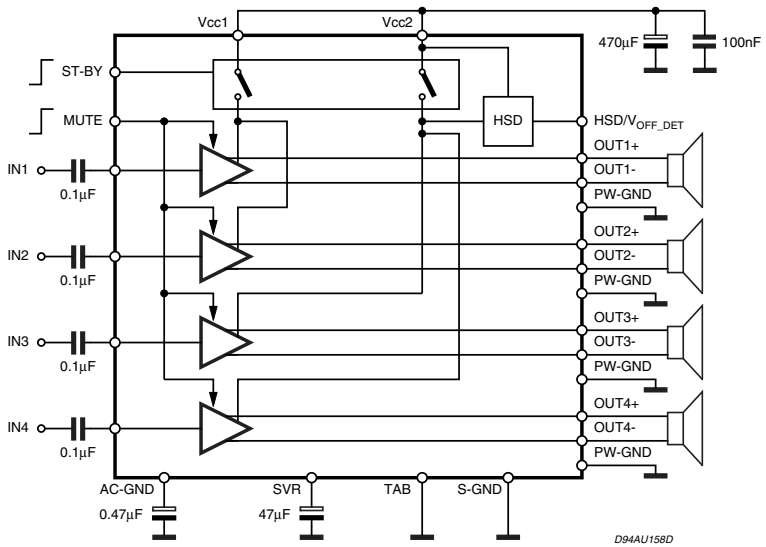
Table 1. Device summary

Order code	Package	Packing
TDA7850	Flexiwatt25 (Vertical)	Tube
TDA7850H	Flexiwatt25 (Horizontal	Tube

1 Block diagram and application circuit

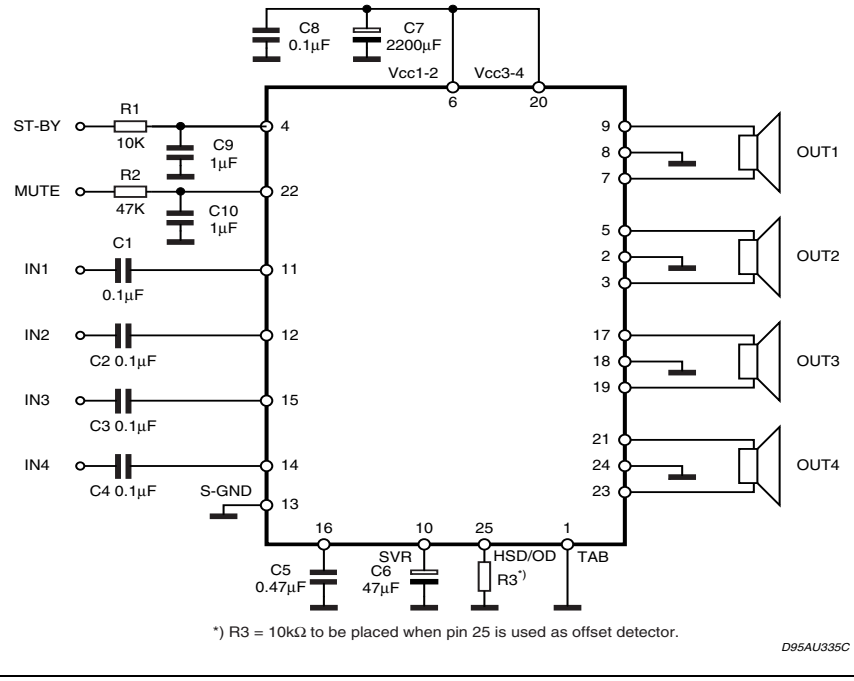
1.1 Block diagram

Figure 1. Block diagram



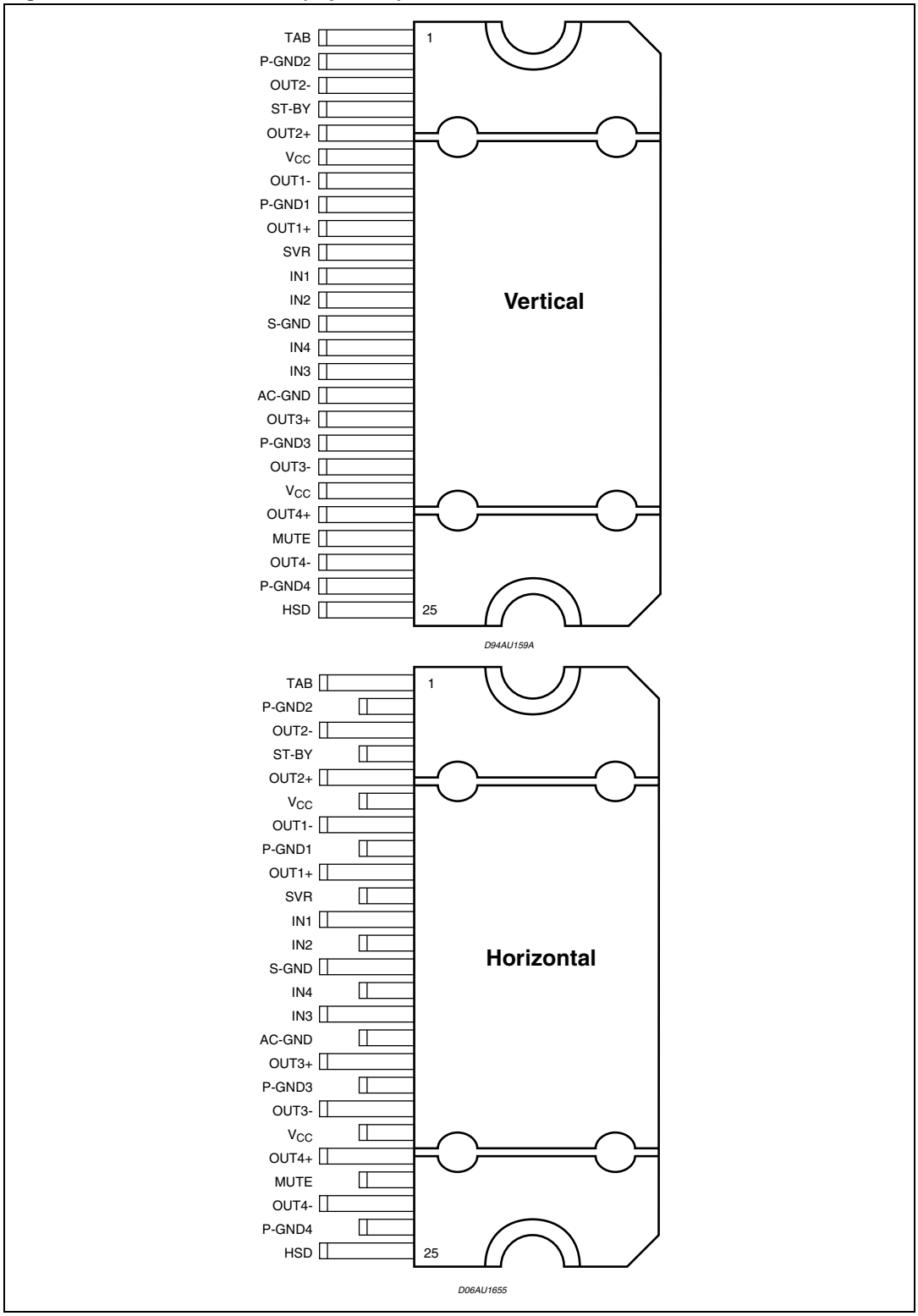
1.2 Standard test and application circuit

Figure 2. Standard test and application circuit



2 Pin description

Figure 3. Pin connection (top view)



3 Electrical specifications

3.1 Absolute maximum ratings

Table 2. Absolute maximum ratings

Symbol	Parameter	Value	Unit
V_S	Operating supply voltage	18	V
$V_{S\ (DC)}$	DC supply voltage	28	V
$V_{S\ (pk)}$	Peak supply voltage (for t = 50 ms)	50	V
I_O	Output peak current repetitive (duty cycle 10 % at f = 10 Hz) non repetitive (t = 100 µs)	 9 10	 A A
P_{tot}	Power dissipation T_{case} = 70 °C	80	W
T_j	Junction temperature	150	°C
T_{stg}	Storage temperature	-55 to 150	°C

3.2 Thermal data

Table 3. Thermal data

Symbol	Parameter		Value	Unit
$R_{th\ j\text{-}case}$	Thermal resistance junction to case	Max.	1	°C/W