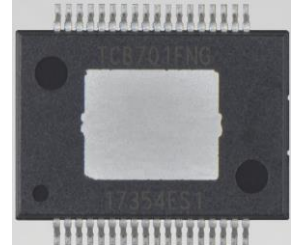


4-channel High Efficiency Linear Power Amplifier IC for Car Audio

We have launched a new 4-channel high-efficiency linear power amplifier "TCB701FNG," that meets current market requirement for high efficiency. Sample shipment has started in January, 2018.

With "TCB701FNG," the company has improved on its technology to realize efficiency comparable with a digital high efficiency, class D amplifier in actual operating range (0.5 to 4W). Power consumption is cut by up to 80% of that for a typical class AB amplifier.



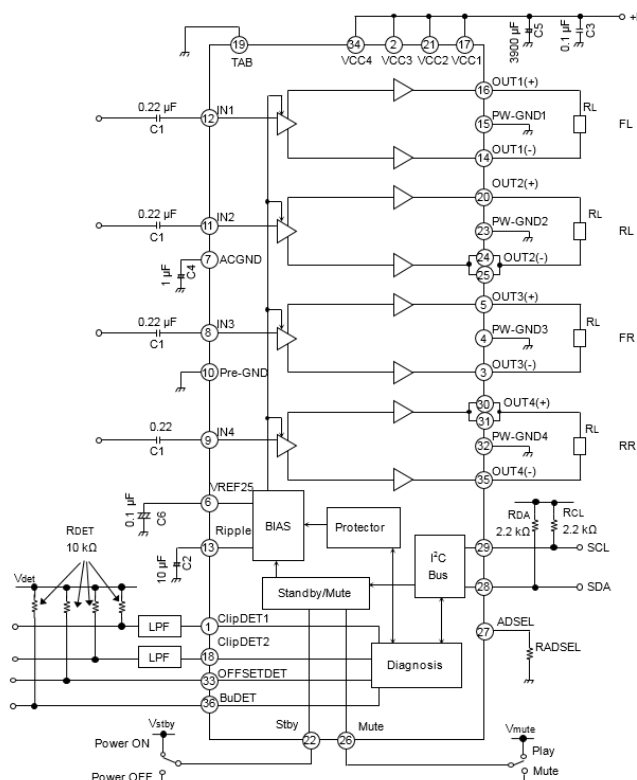
Three Features

- New high efficiency linear amplifier technology: This product has realized an efficiency equivalent to the digital high efficiency, class D amplifier in actual operating range (0.5W to 4W). Thereby, the power consumption is cut by up to 80% compared with a typical class AB amplifier.
- Full-time error detection of output DC offset voltage: This function can quickly detect an abnormal offset voltage and prevent a speaker burnout, improving set reliability.
- Self-diagnosis function: Built-in self-diagnosis function with I2C bus control allows error diagnoses, and contributes to a suitable set design by changing a detection setting for gain or time constants.

Applications

- Power IC for car audios

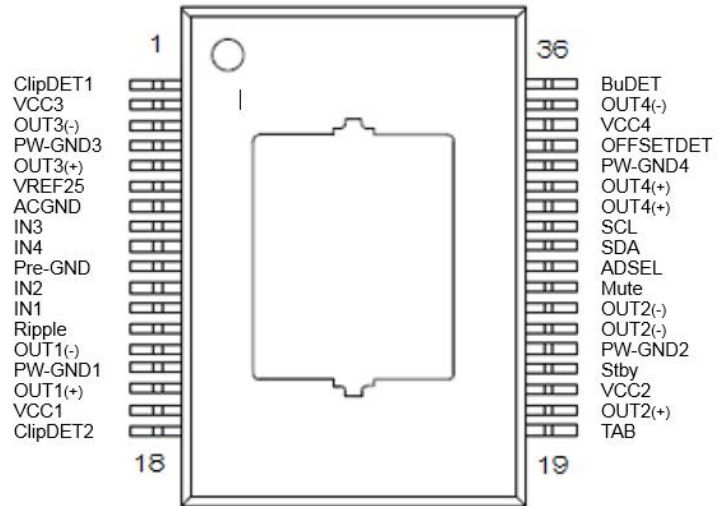
Block Diagram



Note: Some of the functional blocks, circuits, or constants in the block diagram may be omitted or simplified for explanatory purposes.

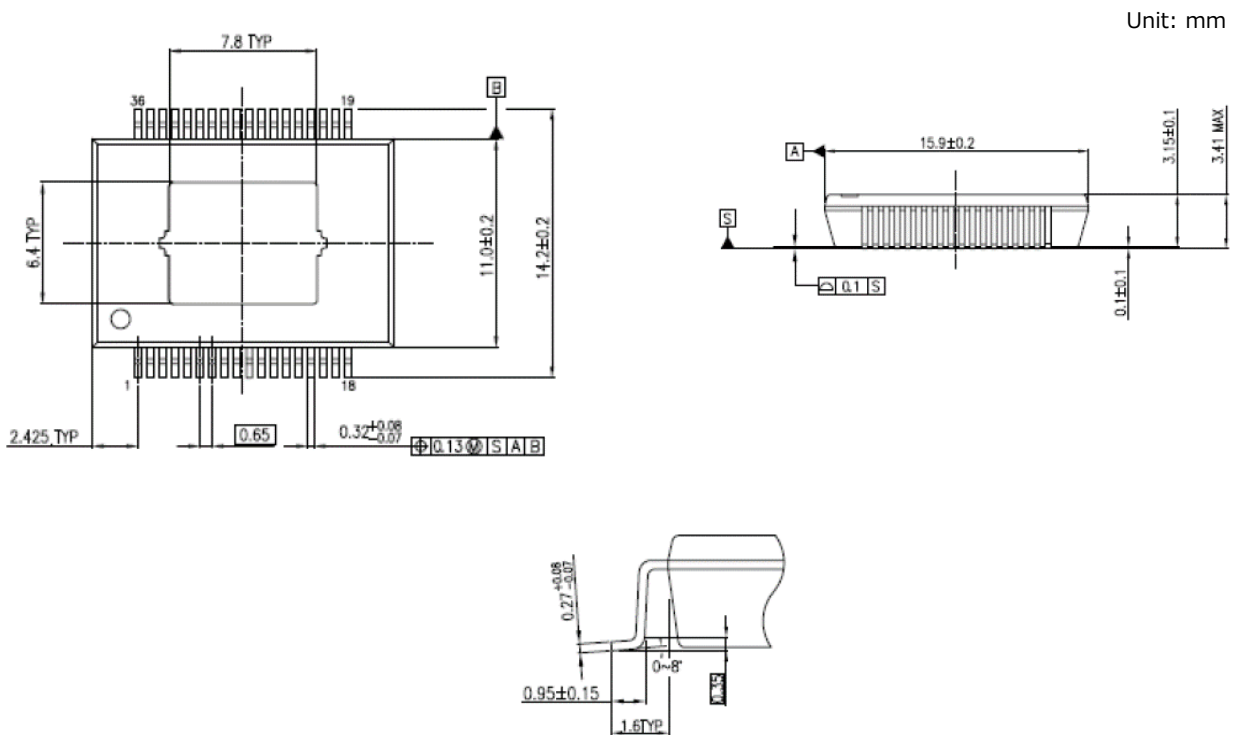
Specifications

Characteristics	Specifications
Maximum output power	49W×4ch ($V_{CC}=15.2V, R_L=4\Omega, \text{MaxPower}$)
Total harmonic distortion (THD)	0.01% ($P_{OUT}=4W$)
Operating supply voltage	6V to 18V
Output noise voltage	60 μ Vrms (BW=DIN AUDIO)
Power consumption	Up to 80% lower than a typical class AB amplifier (supply voltage=14.4V, in case of 0.8W output)
Package	P-HSSOP36-1116-0.65-001
Operating temperature range	-40 to 85 °C



Pin Layout (Top View)

Package Dimensions



Information of Technology and Characteristics

■ High efficiency linear amplifier

• High efficiency Class TB

49W×4ch@15.2V

In the actually used output level, the power consumption has been lowered to 1/5 compared with the conventional Class AB amplifier. (In the area between 0.5W and 4W, the efficiency is equivalent to Class D amplifier.)

■ High reliability

• Full-time offset detection

Generating an abnormal offset voltage can be detected promptly during playing music.

• Humidity measure

Preventing an address garbling by changing resistance value of I²C bus line due to humidity

• Low voltage detection

Preventing an incorrect judgement during idling reduction

The operation of peripheral devices can be stopped with this signal.

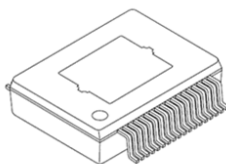
■ Package

Flat type of 36-pin package (HSSOP36) is used.

■ Comparison with various amplifiers

	Conventional amplifier (Class AB)	High efficiency amplifier (Class TB)	Digital amplifier (Class D)
Power consumption (P _{OUT} =0.8W*)	20W	4W	2W
Unnecessary radiation	None	None	Required measures
Cost for external parts	Low	Low	High

* V_{CC}=14V, f=1kHz, R_L=4Ω×4ch driving



Before creating and producing designs and using, customers must also refer to and comply with the latest versions of all relevant information of this document and the instructions for the application that Product will be used with or for.