

3.4W Non-Clip Class-D Audio Power Amplifier

GENERAL DESCRIPTION

The ft2146 is a mono, non-clip, filterless, Class-D audio power amplifier. It operates from 2.7V to 5.5V supply. When powered with 5V supply voltage, the ft2146 is capable of delivering 3.4W into to 4Ω load or 1.8W into 8Ω load, with THD+N less than 10%.

The ft2146 features a non-clip output control which detects the output clip caused by the over-level input signal and automatically adjusts the dynamic range of the output signal to prevent the distortion of the audio signal. The non-clip output control also eliminates the output clip due to a low battery supply voltage.

As a Class-D power amplifier, the ft2146 features high efficiency (up to 90%) and high PSRR (75dB at 217Hz), which make the device ideal for use in cellular handsets and other portable devices.

APPLICATIONS

- Cellular handsets
- Portable navigation devices
- Multimedia internet devices

FEATURES

- Non-clip control to suppress output clip
- Filterless Class-D operation
- High efficiency up to 90%
- Output power at 5V supply
 - 1.8W (8Ω load, 10% THD+N)
 - 1.5W (8Ω load, 1% THD+N)
 - 3.4W (4Ω load, 10% THD+N)
 - 2.7W (4Ω load, 1% THD+N)
- Low THD+N: 0.06% (typical) @ 1KHz (VDD=3.6V, RL=4Ω, PO=0.65W)
- Low quiescent current: 2.2mA @ VDD=3.6V with no load
- Low shutdown current: 0.1μA (typical)
- High PSRR: 75dB (typical)
- Short-circuit & thermal protection
- Fast start-up time: 5ms
- Available in space-saving package:
 - 1.43mm x 1.43mm WCSP-9L package
 - MSOP-8L package



CSP9 Package
1.43mmX1.43mm
-40°C ~ 85°C



MSOP-8L

APPLICATION CIRCUIT

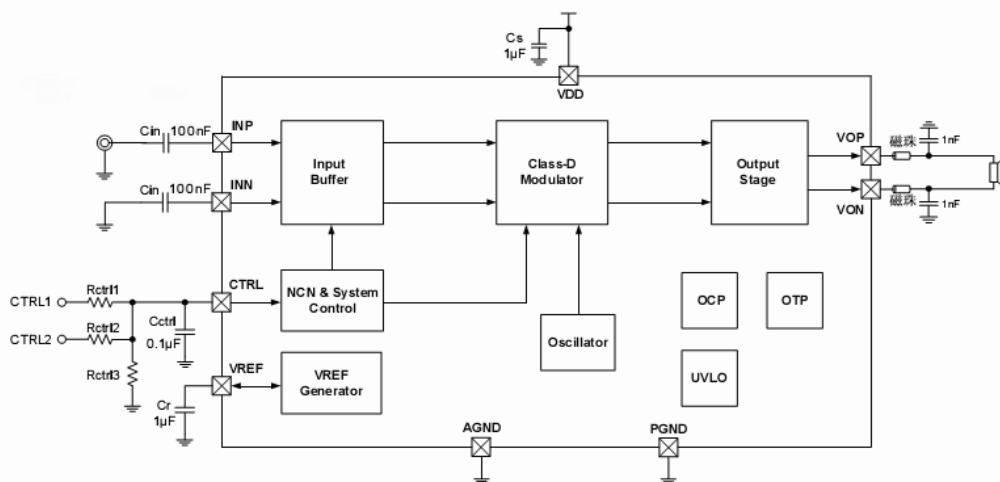
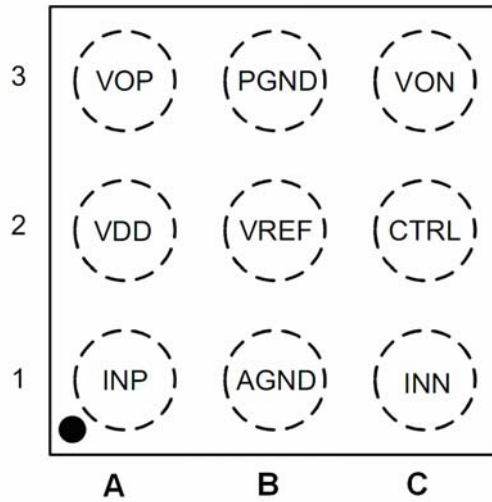


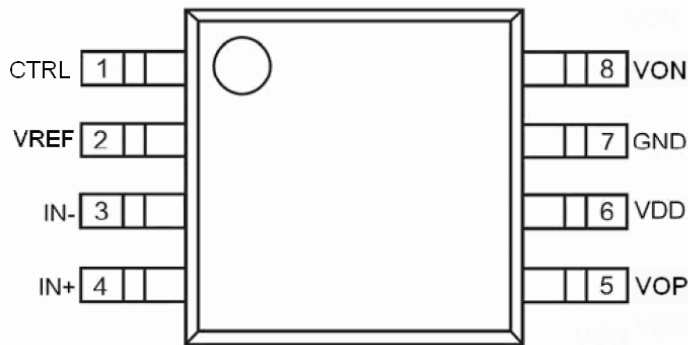
Figure 1: Typical Application Circuit Diagram

PIN CONFIGURATION AND PIN DESCRIPTION

**Top View
ft2146W**



**Top View
ft2146M**



SYMBOL	WCSP-9L	MSOP-8L	DESCRIPTION
INP	A1	4	Positive input pin (differential+)
VDD	A2	6	Power supply
VOP	A3	5	Positive output pin (differential+)
AGND	B1	7	Analog ground
VREF	B2	2	Analog reference power supply pin
PGND	B3	7	Power ground
INN	C1	3	Negative input pin (differential-)
CTRL	C2	1	Shutdown and non-clip control pin
VON	C3	8	Negative output pin (differential-)

ORDERING INFORMATION

PART NUMBER	TEMPERATURE RANGE	PACKAGE	GAIN (dB)
ft2146W	-40°C to +85°C	WCSP-9L	Adjustable
ft2146M	-40°C to +85°C	MSOP-8L	Adjustable