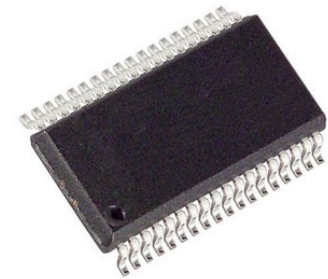


high-efficiency digital audio system



Images are for reference only

[Inquiry](#)

Manufacturer:	STMicroelectronics, Inc
Package/Case:	SSOP36
Product Type:	Embedded Processors & Controllers
Lifecycle:	Obsolete

General Description

The STA333BW is an integrated solution of digital audio processing, digital amplifier controls and power output stages to create a high-power single-chip FFX digital amplifier with high-quality and high-efficiency. Three channels of FFX processing are provided. The FFX processor implements the ternary, binary and binary differential processing capabilities of the full FFX processor. The STA333BW is part of the Sound Terminal® family that provides full digital audio streaming to the speakers and offers cost effectiveness, low power dissipation and sound enrichment. The power section consists of four independent half-bridges. These can be configured via digital control to operate in different modes. For example, 2.1 channels can be provided by two half-bridges and a single full-bridge, supplying up to $2 \times 9 \text{ W} + 1 \times 20 \text{ W}$ of output power or two channels can be provided by two full-bridges, supplying up to $2 \times 20 \text{ W}$ of output power. The IC can also be configured as 2.1 channels with $2 \times 20 \text{ W}$ supplied by the device plus a drive for an external FFX power amplifier, such as STA533WF or STA515W. The serial audio data input interface accepts all possible formats, including the popular I²S format. The high-quality conversion from PCM audio to FFX PWM switching provides over 100 dB of SNR and of dynamic range. Also provided in the STA333BW are a full assortment of digital processing features. This includes up to 5 programmable biquads (EQ) per channel. Available presets enable a time-to-market advantage by substantially reducing the amount of software development needed for functions such as audio preset volume loudness, preset volume curves and preset EQ settings. There are also new advanced AM radio interference reduction modes. The DRC dynamically equalizes the system to provide a linear frequency speaker response regardless of output power level.

Key Features

Wide-range supply voltage, 4.5 V to 21.5 V

Three power output configurations:

2 channels of ternary PWM ($2 \times 20 \text{ W}$ into 8Ω at 18 V) + PWM output

2 channels of ternary PWM ($2 \times 20 \text{ W}$ into 8Ω at 18 V) + ternary stereo line-out

2.1 channels of binary PWM (left, right, LFE) ($2 \times 9 \text{ W}$ into 4Ω + $1 \times 20 \text{ W}$ into 8Ω at 18 V)

2 channels of ternary PWM ($2 \times 20 \text{ W}$ into 8Ω at 18 V) + PWM output

2 channels of ternary PWM ($2 \times 20 \text{ W}$ into 8Ω at 18 V) + ternary stereo line-out

2.1 channels of binary PWM (left, right, LFE) ($2 \times 9 \text{ W}$ into 4Ω + $1 \times 20 \text{ W}$ into 8Ω at 18 V)

FFX with 100-dB SNR and dynamic range

Scalable FFX modulation index

Selectable 32- to 192-kHz input sample rates

I²C control with selectable device address

Digital gain/attenuation +48 dB to -80 dB with 0.5-dB/step resolution

Soft volume update with programmable ratio

Individual channel and master gain/attenuation

Dynamic range compression (DRC) or antialiasing mode

Audio presets:

- 15 preset crossover filters
- 5 preset antialiasing modes
- Preset night-time listening mode
- 15 preset crossover filters
- 5 preset antialiasing modes
- Preset night-time listening mode

Individual channel soft/hard mute

Independent channel volume and DSP bypass

I²S input data interface

Input and output channel mapping

Automatic invalid input-detect mute

Up to 5 user-programmable biquads/channel

Three coefficients banks for EQ presets storing with fast recall via I²C interface

Bass/treble tones and de-emphasis control

Selectable high-pass filter for DC blocking

Advanced AM interference frequency switching and noise suppression modes

Sub channel mix into left and right channels

Selectable high- or low-bandwidth noise-shaping topologies

Selectable clock input ratio

96 kHz internal processing sample rate

Thermal overload and short-circuit protection technology

Video apps: 576 x fSinput mode supported

Pin and SW compatible with STA335BW, STA339BW, STA339BWS, STA559BW and STA559BWS

Recommended For You

STA540

STMicroelectronics, Inc
ZIP15

STA339BWTR

STMicroelectronics, Inc
SSOP36

STA559BW

STMicroelectronics, Inc
SSOP36

STPA003OD-4WX

STMicroelectronics, Inc
144-LQFP

STA309A13TR

STMicroelectronics, Inc
QFP64

STA120D

STMicroelectronics, Inc
SOP28

STA308

STMicroelectronics, Inc
QFP

STA333W

STMicroelectronics, Inc
SSOP36

STA516B13TR

STMicroelectronics, Inc
HSSOP36

STABP01D

STMicroelectronics, Inc
SOP20

STA333ML

STMicroelectronics, Inc
SSOP36

STA321

STMicroelectronics, Inc
TQFP64

STA304A

STMicroelectronics, Inc
QFP

STA333IS

STMicroelectronics, Inc
CSP-30

STABP01

STMicroelectronics, Inc
DIP