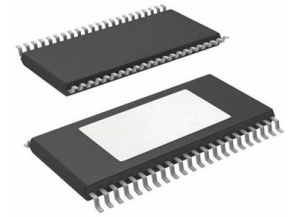


Audio Amp Speaker 1-CH Mono/2-CH Stereo/4-CH Stereo 189W
Class-D 44-Pin HTSSOP EP T/R



Images are for reference only

Manufacturer: [Texas Instruments, Inc](#)

Package/Case: HTSSOP44

Product Type: Amplifier ICs

RoHS: RoHS Compliant/Lead free 

Lifecycle: Active

[Inquiry](#)

General Description

The TPA6404-Q1 device is a four-channel analog-input Class-D audio amplifier that implements a 2.1 MHz PWM switching frequency that enables a cost optimized solution in a very small 4.5 cm² PCB size, full operation down to 4.5 V for start/stop events, and exceptional sound quality with up to 100 kHz audio bandwidth.

The TPA6404-Q1 Class-D audio amplifier has an optimal design for use in entry level automotive head units that provide analog audio input signals as part of their system design.

The Class-D topology dramatically improves efficiency over traditional linear amplifier solutions.

The output switching frequency operates above the AM band, which eliminates the AM band interference and reduces the output filter size and cost.

The device is offered in a 56 pin HSSOP package with the exposed thermal pad up.

Key Features

Advanced Load Diagnostics
 AC Diagnostic for Tweeter Detection with Impedance and Phase Response

Integrated sine wave Generator

Easy to meet CISPR25-L5 EMC specification

AEC-Q100 Qualified With the Following Results for Automotive Applications:
 Device Temperature Grade 1: -40°C to 125°C Ambient Operating Temperature Range

Device HBM ESD Classification Level: 3A

Device CDM ESD Classification Level: C4B

Audio Inputs
 4 Channel Differential Analog Input

Four I²C-Controlled Gain Options

High Input Impedance for Low Value AC-coupling Capacitor

Audio Outputs
 Four-Channel Bridge-Tied Load (BTL), with Option of Parallel BTL (PBTL)

Up to 2.1 MHz Output Switching Frequency

27 W, 10% THD into 4 at 14.4 V

45 W, 10% THD into 2 at 14.4 V

85 W, 10% THD into 1 at 14.4 V PBTL

Audio Performance into 4 at 14.4 V, 1 kHz
THD+N < 0.01%

42 μ V_{RMS} Output Noise

- 90 dB Crosstalk

Load Diagnostics
Output Open and Shorted Load

Output-to-Battery or Ground Shorts

Line Output Detection Up to 6 k

Runs without Input Clocks

Protection
Output Current Limiting

Output Short Protection

40 V Load Dump

Fortuitous Open Ground and Power Tolerant

DC Offset

Over Temperature

Undervoltage and Overvoltage

General Operation
4.5 V to 18 V supply voltage

I²C Control With 4 Address Options

Clip Detection and Thermal Foldback

Recommended For You

TPA3125D2N

Texas Instruments, Inc

DIP20

TPA6111A2DR

Texas Instruments, Inc

SOP8

TPA2012D2RTJR

Texas Instruments, Inc

QFN20

TPA6132A2RTER

Texas Instruments, Inc

QFN

TPA2013D1RGPR

Texas Instruments, Inc

QFN20

TPA2010D1YZFR

Texas Instruments, Inc

DSBGA9

TPA3118D2QDAPRQ1

Texas Instruments, Inc
HTSSOP-32

TPA6211A1TDGNRQ1

Texas Instruments, Inc
MSOP8

TAS5414CTPHDRQ1

Texas Instruments, Inc
HTQFP-64

PCMI681TPWPRQ1

Texas Instruments, Inc
HTSSOP28

TPA3131D2RHBR

Texas Instruments, Inc
VQFN32

TPA3100D2PHP

Texas Instruments, Inc
QFP

TPA3244DDWR

Texas Instruments, Inc
HTSSOP-44

TPA6017A2PWP

Texas Instruments, Inc
HTSSOP20

TPA4861D

Texas Instruments, Inc
SOP8