

20-W STEREO DIGITAL AUDIO POWER AMPLIFIER WITH EQ AND DRC

Check for Samples: [TAS5707](#) [TAS5707A](#)

FEATURES

- **Audio Input/Output**
 - 20-W Into an 8-Ω Load From an 18-V Supply
 - Wide PVDD Range, From 8 V to 26 V
 - Efficient Class-D Operation Eliminates Need for Heatsinks
 - Requires Only 3.3 V and PVDD
 - One Serial Audio Input (Two Audio Channels)
 - Supports 8-kHz to 48-kHz Sample Rate (LJ/RJ/I²S)
- **Audio/PWM Processing**
 - Independent Channel Volume Controls With 24 dB to Mute
 - Soft Mute (50% Duty Cycle)
 - Programmable Dynamic Range Control
 - 14 Programmable Biquads for Speaker EQ and Other Audio Processing Features
 - Programmable Coefficients for DRC Filters
 - DC Blocking Filters
- **General Features**
 - Serial Control Interface Operational Without MCLK
 - Factory-Trimmed Internal Oscillator for Automatic Rate Detection
 - Surface Mount, 48-PIN, 7-mm × 7-mm HTQFP Package
 - Thermal and Short-Circuit Protection
- **Benefits**
 - EQ: Speaker Equalization Improves Audio Performance
 - DRC: Dynamic Range Compression. Can Be Used As Power Limiter. Enables Speaker Protection, Easy Listening,

Night-Mode Listening

- **Autobank Switching: Preload Coefficients for Different Sample Rates. No Need to Write New Coefficients to the Part When Sample Rate Changes.**
- **Autodetect: Automatically Detects Sample-Rate Changes. No Need for External Microprocessor Intervention**

APPLICATIONS

- Television
- iPod™ Dock
- Sound Bar

DESCRIPTION

The TAS5707 is a 20-W, efficient, digital-audio power amplifier for driving stereo bridge-tied speakers. One serial data input allows processing of up to two discrete audio channels and seamless integration to most digital audio processors and MPEG decoders. The device accepts a wide range of input data and data rates. A fully programmable data path routes these channels to the internal speaker drivers.

The TAS5707 is a slave-only device receiving all clocks from external sources. The TAS5707 operates with a PWM carrier between a 384-kHz switching rate and 352-KHz switching rate, depending on the input sample rate. Oversampling combined with a fourth-order noise shaper provides a flat noise floor and excellent dynamic range from 20 Hz to 20 kHz..

The TAS5707A is identical in function to the HTQFP packaged TAS5707, but has a unique I²C device address. The address of the TAS5707 is 0x36. The address of the TAS5707A is 0x3A.



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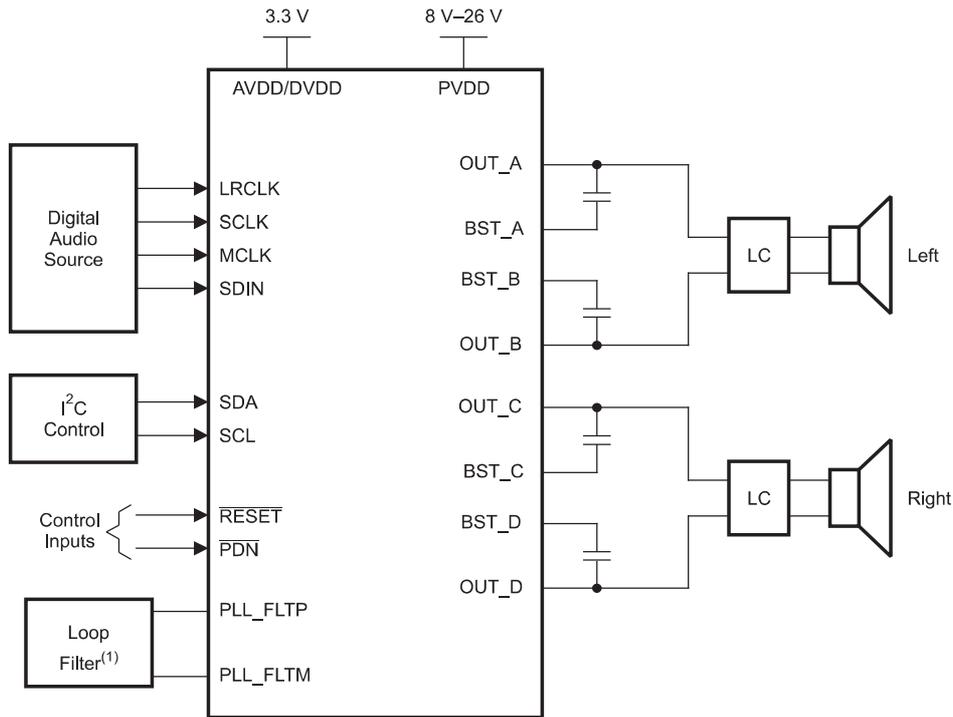
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This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

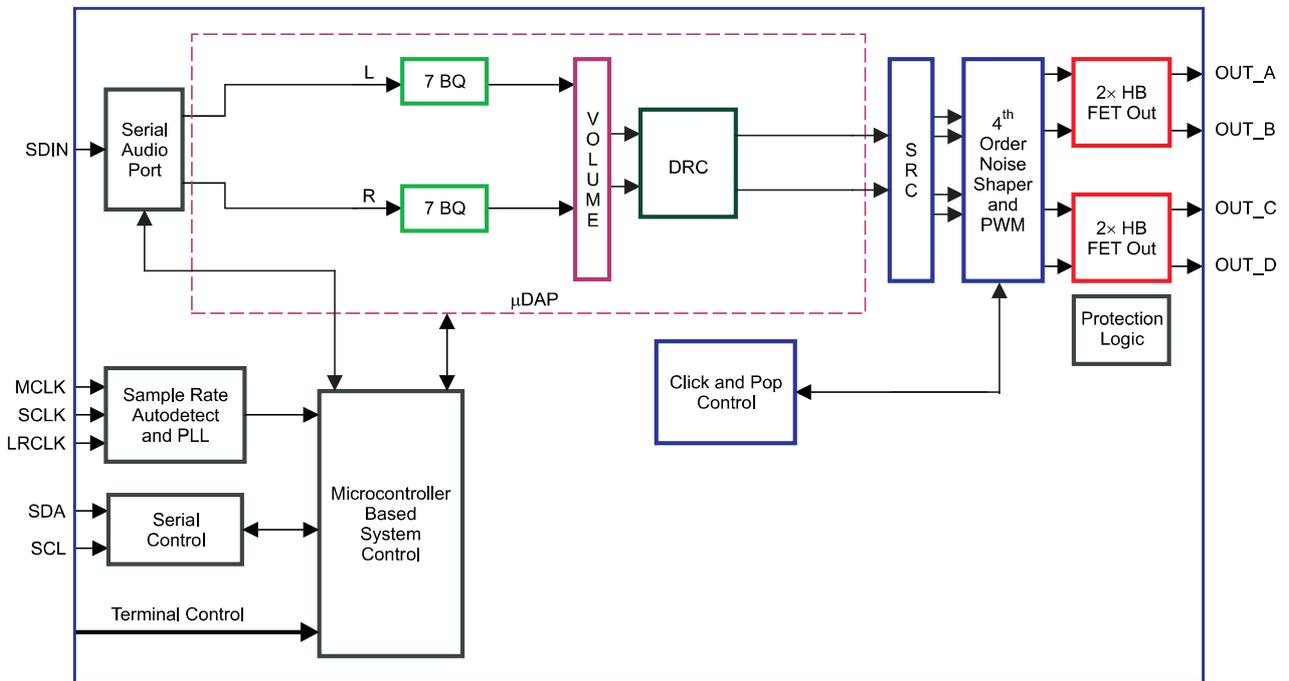
SIMPLIFIED APPLICATION DIAGRAM



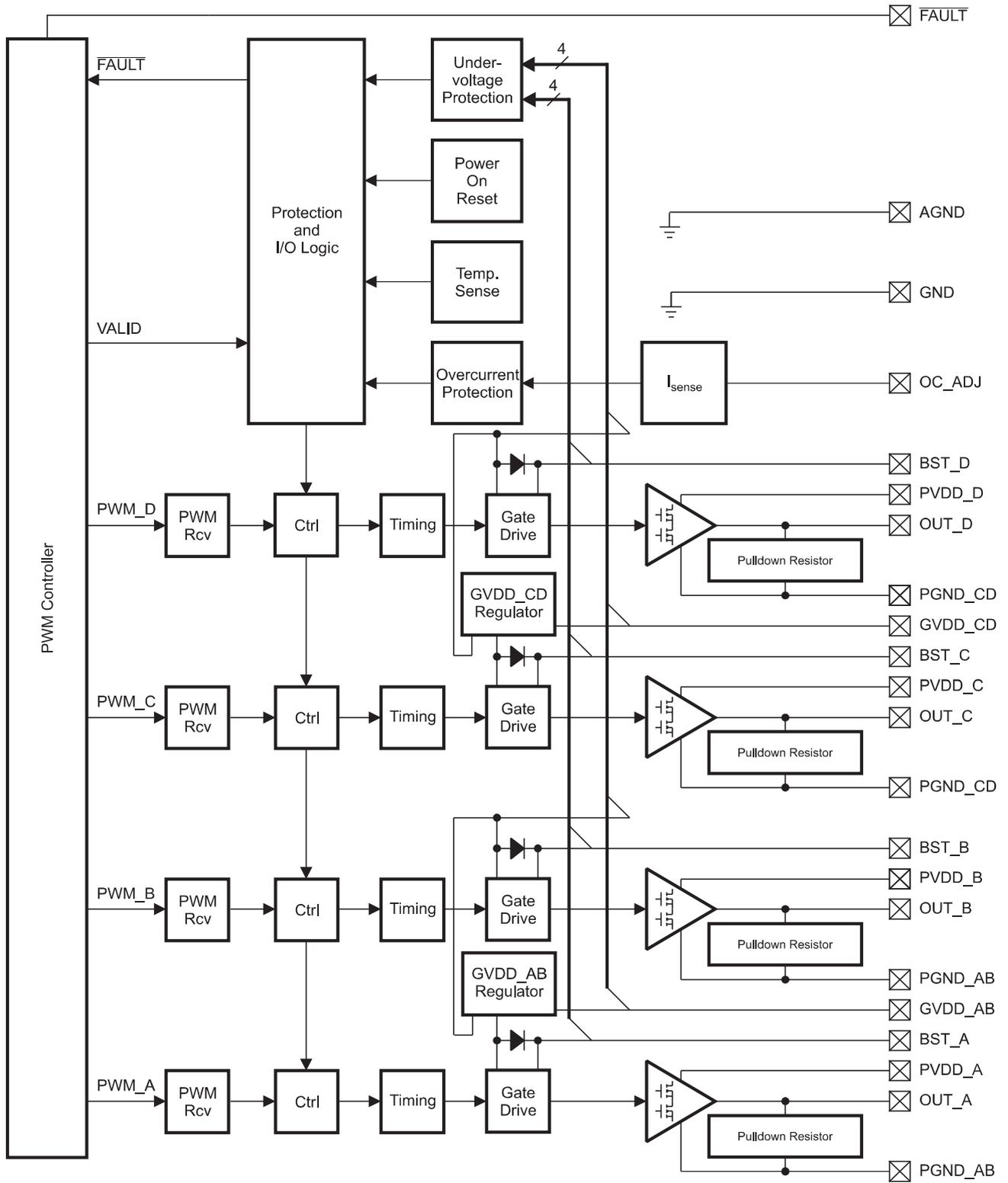
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(1)See user's guide for loop-filter details.

FUNCTIONAL VIEW



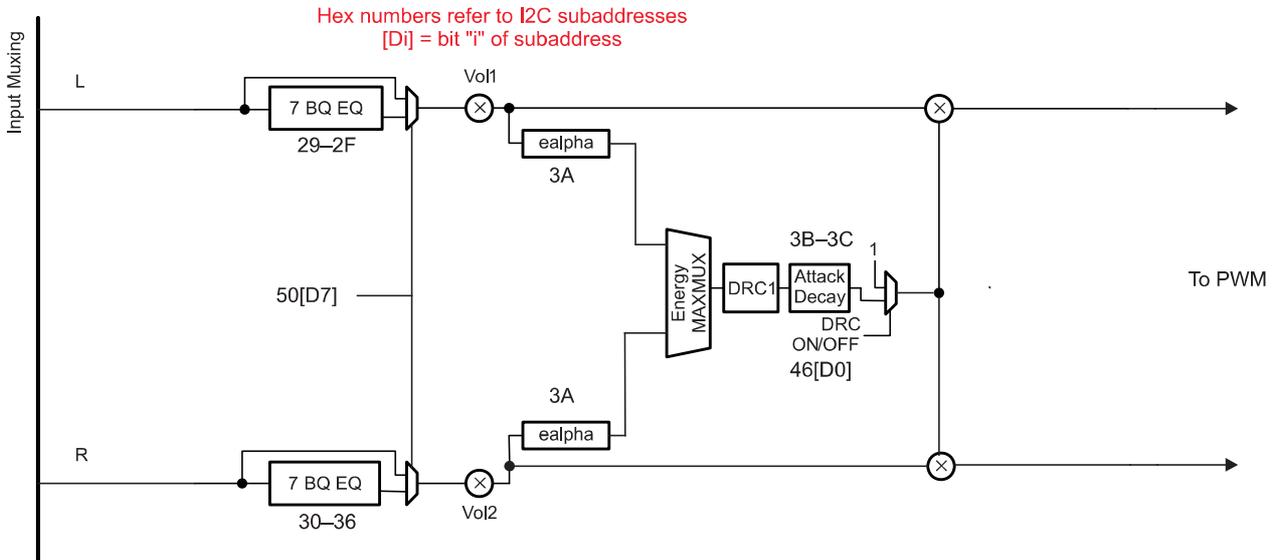
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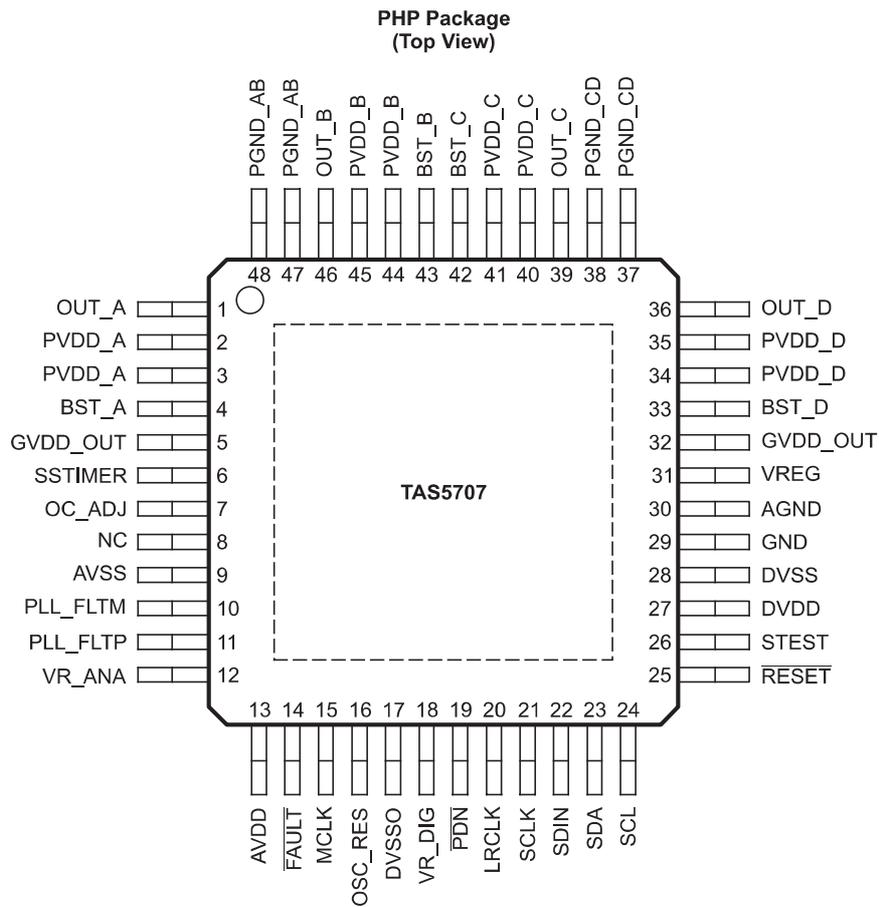
Figure 1. Power Stage Functional Block Diagram

DAP Process Structure



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48-TERMINAL, HTQFP PACKAGE (TOP VIEW)



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