2 x 210 Watt STEREO DIGITAL AMPLIFIER POWER STAGE

FEATURES

- **2×165 W at 10% THD+N Into 8-Ω BTL**
- **2×210 W at 10% THD+N Into 6-Ω BTL**
- **1×300 W at 10% THD+N Into 4-Ω PBTL** (1)
- **>110 dB SNR (A-Weighted, TAS5518 Modulator)**
- **<0.09% THD+N at 1 W**
- **Two Thermally Enhanced Package Options:**
  - **– DKD (36-pin PSOP3)**
  - **– DDV (44-pin HTSSOP)**
- **High-Efficiency Power Stage (>90%) With 80-mΩ Output MOSFETs**
- **Power-On Reset for Protection on Power Up Without Any Power-Supply Sequencing**
- **Integrated Self-Protection Circuits Including Undervoltage, Overtemperature, Overload, Short Circuit**
- **Error Reporting**
- **EMI Compliant When Used With Recommended System Design**
- **Intelligent Gate Drive**

APPLICATIONS

- **Mini/Micro Audio System**
- **DVD Receiver**
- **Home Theater**

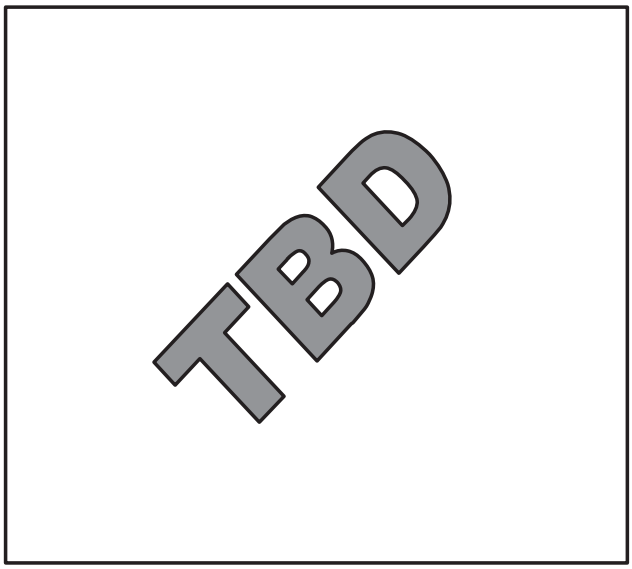
DESCRIPTION

The TAS5162 is a high performance, integrated stereo digital amplifier power stage with an improved protection system. The TAS5162 is capable of driving a 6-Ω bridge-tied load (BTL) at up to 210 W per channel at THD = 10%, low integrated noise at the output, low THD+N performance without clipping, and low idle power dissipation.

A low-cost, high-fidelity audio system can be built using a TI chipset, comprising a modulator (e.g., TAS5508) and the TAS5162. This system only requires a simple passive LC demodulation filter to deliver high-quality, high-efficiency audio amplification with proven EMI compliance. This device requires two power supplies, at 12 V for GVDD and VDD, and at 50V for PVDD. The TAS5162 does not require power-up sequencing due to internal power-on reset. The efficiency of this digital amplifier is greater than 90% into 6 Ω, which enables the use of smaller power supplies and heatsinks.

The TAS5162 has an innovative protection system integrated on-chip, safeguarding the device against a wide range of fault conditions that could damage the system. These safeguards are short-circuit protection, overcurrent protection, undervoltage protection, and overtemperature protection. The TAS5162 has a new proprietary current-limiting circuit that reduces the possibility of device shutdown during high-level music transients. A new programmable overcurrent detector allows the use of lower-cost inductors in the demodulation output filter.

BTL OUTPUT POWER vs SUPPLY VOLTAGE



(1) The DDV package will deliver 300 W peak; however, this is dependant on system configuration. The smaller pad area also makes the thermal interface to the heatsink more important. For multichannel systems that require two channels to be driven at full power with the DDV package option, it is recommended to design the system so that the two channels are in two separate devices.

PRODUCT PREVIEW

These devices have limited built-in ESD protection. The leads should be shorted together or the device placed in conductive foam during storage or handling to prevent electrostatic damage to the MOS gates.

GENERAL INFORMATION

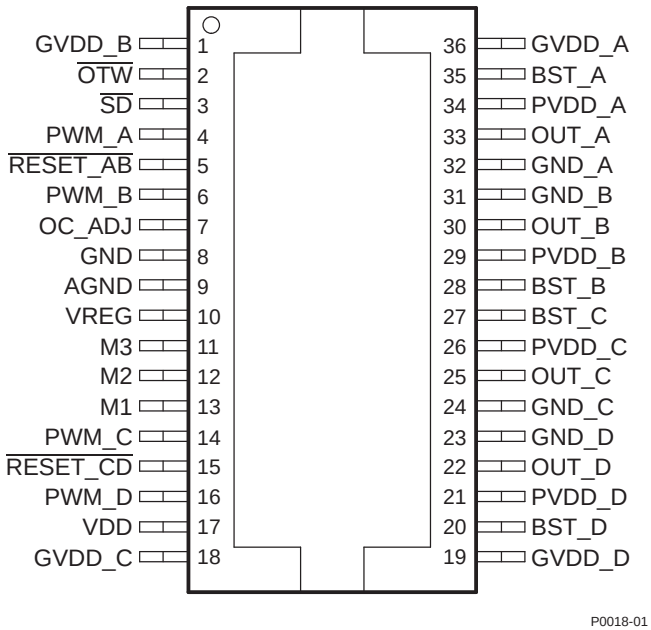
Terminal Assignment

The TAS5162 is available in two thermally enhanced packages:

- 36-pin PSOP3 package (DKD)
- 44-pin HTSSOP PowerPad™ package (DDV)

Both package types contain a heat slug that is located on the top side of the device for convenient thermal coupling to the heatsink.

DKD PACKAGE
(TOP VIEW)



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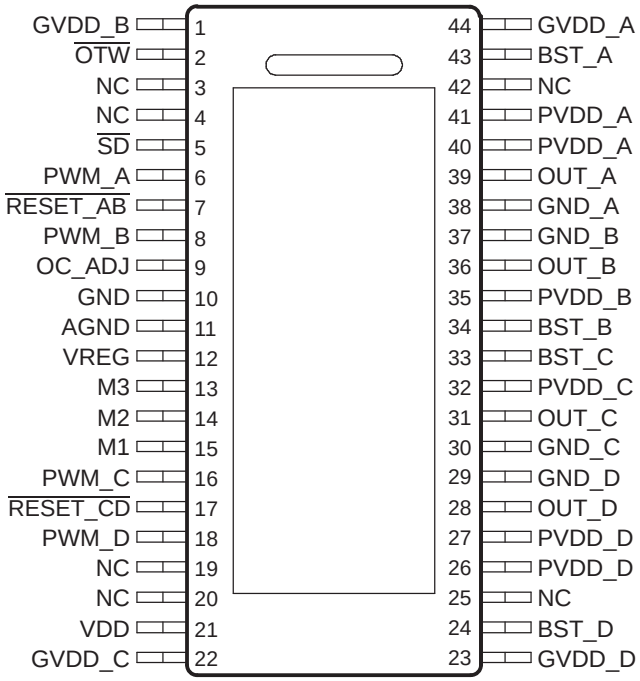
DDV PACKAGE
(TOP VIEW)



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PRODUCT PREVIEW

PACKAGING INFORMATION

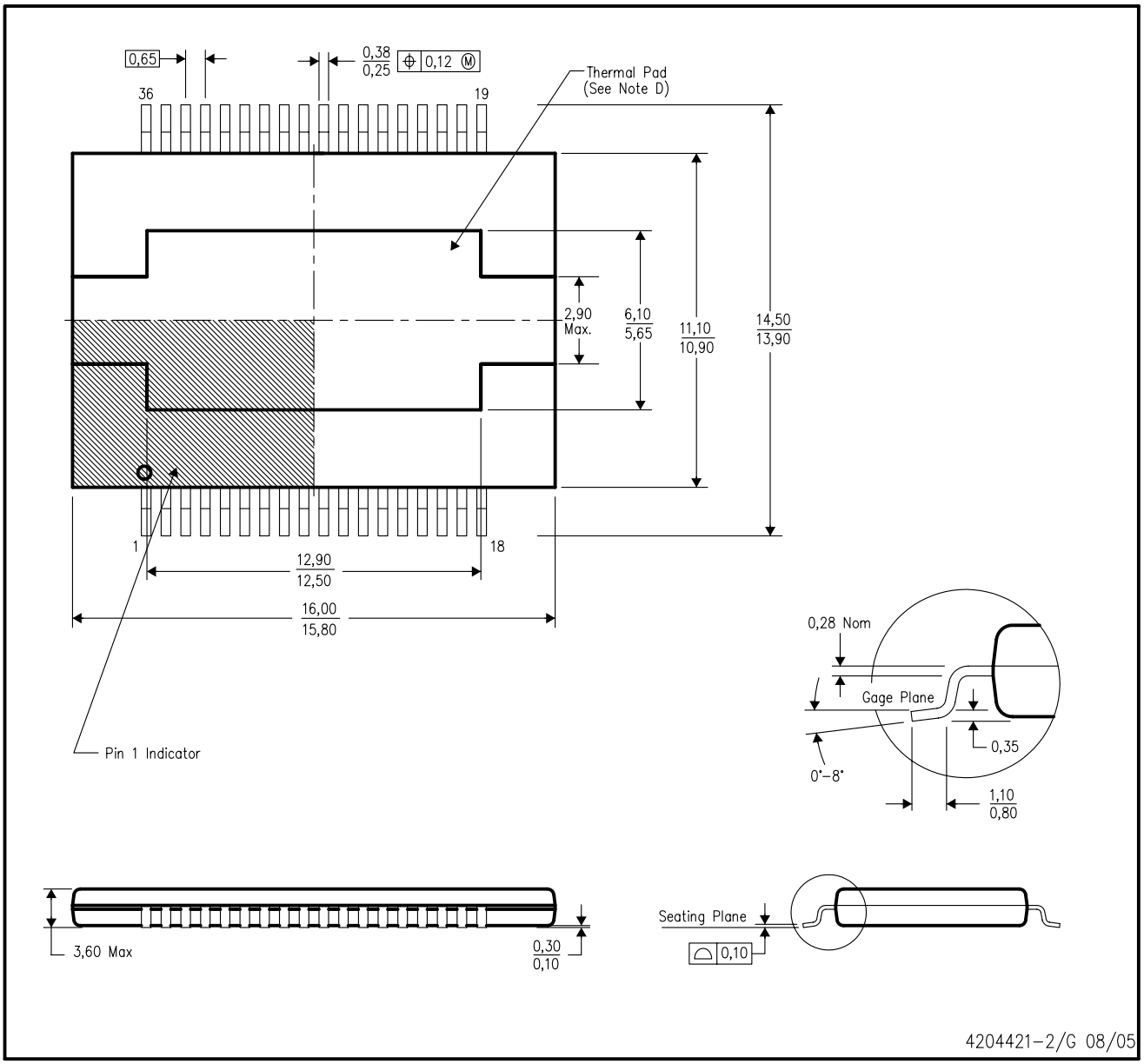
Orderable Device	Status [1]	Package Type	Package Drawing	Pins	Package Qty	Eco Plan [2]	Lead/Ball Finish	MSL Peak Temp [3]
TAS5162DDV	PREVIEW	HTSSOP	DDV	44	35	TBD	Call TI	Call TI
TAS5162DKD	PREVIEW	SSOP	DKD	36	29	TBD	Call TI	Call TI

[1] The marketing status values are defined as follows:
ACTIVE: Product device recommended for new designs.
LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.
NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.
PREVIEW: Device has been announced but is not in production. Samples may or may not be available.
OBSOLETE: TI has discontinued the production of the device.

[2] Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check http://www.ti.com/productcontent for the latest availability information and additional product content details.
TBD: The Pb-Free/Green conversion plan has not been defined.
Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.
Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.
Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

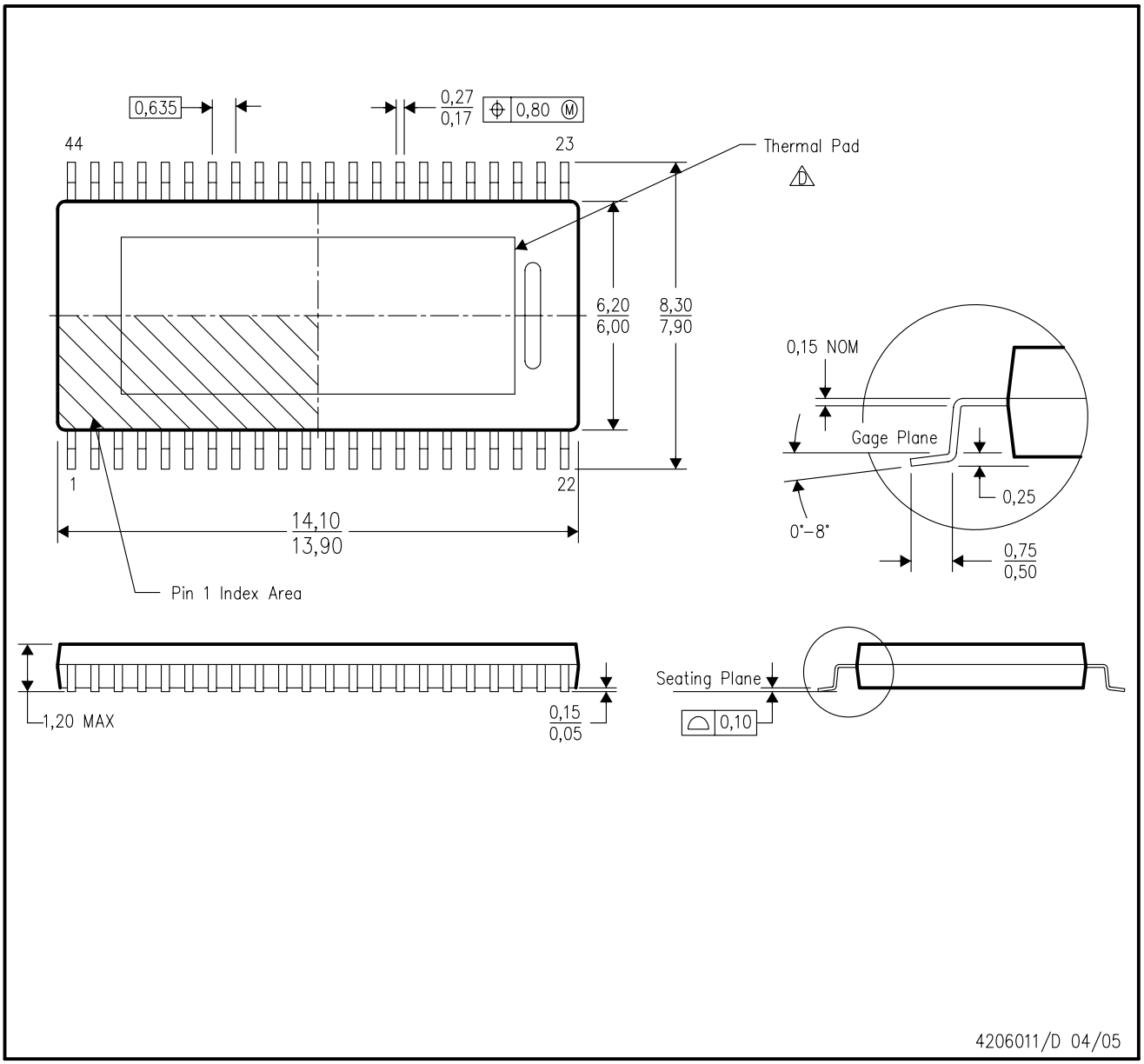
[3] MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

DKD (R–PDSO–G36) PLASTIC SMALL OUTLINE



NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion not to exceed 0.15mm.
D. The package thermal performance is optimized for conductive cooling with attachment to an external heat sink. See the product data sheet for details regarding the exposed thermal pad dimensions.

DDV (R–PDSO–G44) PowerPAD™ PLASTIC SMALL–OUTLINE PACKAGE (DIE DOWN)



NOTES:
A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
D. This package thermal performance is optimized for conductive cooling with attachment to an external heat sink. See the product data sheet for details regarding the exposed thermal pad dimensions.

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