




MULTI-CHANNEL DIGITAL POWER AMPLIFIERS

DA-250F/250FH/250D/250DH/550F/500F-HL



***Top-of-the-line operation and
performance efficiency***



Full Digital Amplifier*

*Amplifiers feature switching power supply and Class-D technology.

TOA Digital Amplifier technology redefines the very concept of amplifiers.

The power supply unit is the heart of the amplifier. To ensure consistently high performance and reliable operation, TOA engineers have given the DA Series a system that provides power independently to each channel.

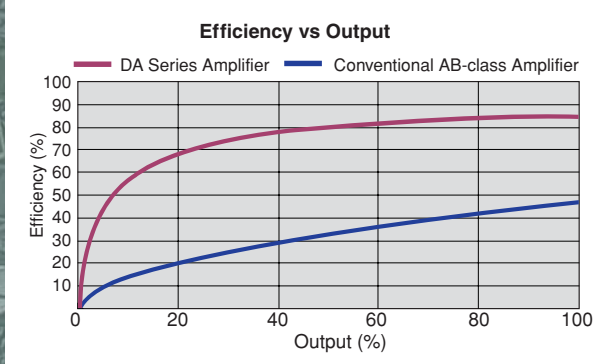
This testifies to TOA's attitude to product development, which is always totally motivated by the desire to provide high-quality products that offer worry-free use.

Never compromise —
that's the TOA philosophy.

FEATURES

High efficiency

Extremely high amplification efficiency of 80-90%, resulting in reduction in power consumption by more than 60% compared with Class-AB amplifiers.



Amplifier with world-class lightweight design*

Installation has become much easier thanks to the lightweight design.

*TOA comparative data (weight/watt)

Compact design

The DA-250 Series is 1-unit size and the DA-500 Series is 2-unit size, and they can be efficiently mounted on a rack, so they require only a small installation space. Because the amplifiers do not generate much heat, 5 units can be stacked together in a rack.

Highly durable

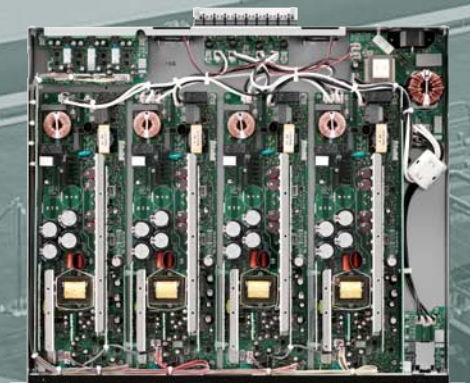
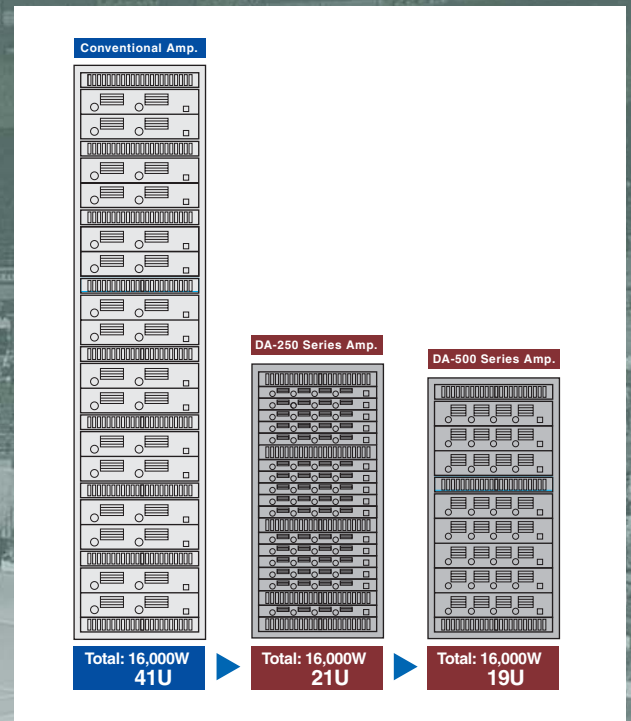
Stands up to extended hours of operation. The DA amplifier has undergone a large number of rigorous tests to prove its durability. In addition, TOA has been conducting a "non-stop driving test" of the DA Series.

High reliability

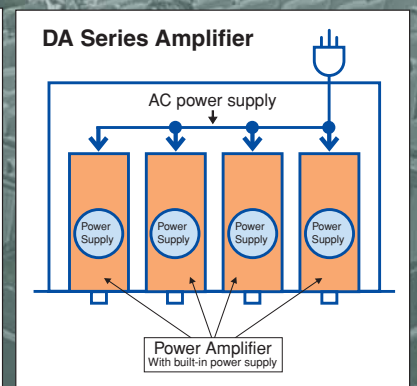
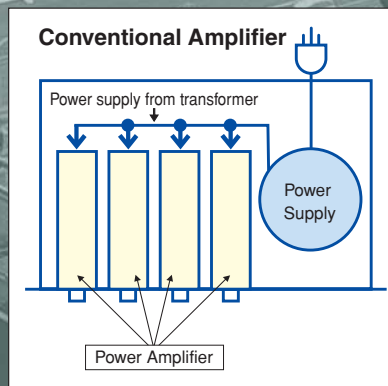
The DA amplifier has a comprehensive protection circuitry for protection against excessive current flow due to overload, short circuit, unusual DC voltage output, and heat sink temperature rise (DA-250D/DH, DA-550F/500F-HL: over 100°C, DA-250F/FH: over 110°C).

Independent power supply

Each of the channels has its own power supply. If the power supply of Channel 1 should fail, this won't affect the operation of Channels 2-4 (Channel 2 in case of DA-250D/DH). It is also possible to use one of the channels as a spare amplifier.



Inside of DA-250F/FH model.





Design optimization for efficient and reliable high-level performance

The TOA DA-250F/FH, DA-250D/DH and DA-550F/500F-HL multi-channel power amplifiers offer a wider choice of power ratings, advanced digital Class D amplification circuitry, and a highly efficient AC mains to output power ratio, for the complete technological superiority it takes to support long-term installation applications. These energy-efficient, space-saving amplifiers are designed to combine high levels of performance and efficiency, and are well-suited to ensure sound reinforcement reliability in a wide range of venue types. The low-impedance models are ideal for multi-zone applications such as presentation and press-conference rooms, restaurants and similar-sized locations. The high-impedance units are well-suited to such locations as exhibition halls, sports facilities, multipurpose halls and houses of worship.





DA-250D (rear)



DA-250F (rear)



DA-500F-HL (rear)

MT-251H Matching Transformer (option)



- Capacity:** 0 – 250W
- Primary impedance:** 100V line: 40Ω (250W), 70V line: 19.6Ω (250W)
- Secondary impedance:** 100V line: 40Ω (250W), 70V line: 19.6Ω (250W), 50V line: 10Ω (250W), 35V line: 4.9Ω (250W)
- Frequency Response:** 30 – 18,000Hz (+0dB, -3dB)
- Connection Terminal:** M3 screw terminal, distance between barriers: 6.6mm
- Dimensions:** 108(W) × 80(D) × 122(H) mm (4.25" × 3.15" × 4.8")
- Weight:** 2.4kg (5.29 lb)

SPECIFICATIONS

| Model | DA-250F | DA-250FH | DA-250D | DA-250DH | DA-550F | DA-500F-HL |
|--|---|---|--|--|--|---|
| Power Req. | 120V AC, 50/60Hz | | | | | |
| Number of Channels | 4 | | 2 | | 4 | |
| Total Output All Channel Driven | 1000W (1kHz, 4Ω) 680W (1kHz, 8Ω) | 1000W (1kHz, 19.6Ω) | 500W (1kHz, 4Ω) 340W (1kHz, 8Ω) | 500W (1kHz, 19.6Ω) | 2200W (1kHz, 4Ω) 1400W (1kHz, 8Ω) | 400W (1kHz, 4Ω) 2200W (1kHz, 8Ω) 2000W (1kHz, 9.8Ω) |
| Output Voltage per Channel | 31.6V (1kHz, 4Ω) 36.9V (1kHz, 8Ω) | 70V (1kHz, 19.6Ω) | 31.6V (1kHz, 4Ω) 36.9V (1kHz, 8Ω) | 70V (1kHz, 19.6Ω) | 46.9V (1kHz, 4Ω) 52.9V (1kHz, 8Ω) | 20V (1kHz, 4Ω) 66.3V (1kHz, 8Ω) 70V (1kHz, 9.8Ω) |
| Output Current per Channel | 7.9A (1kHz, 4Ω) 4.6A (1kHz, 8Ω) | 3.6A (1kHz, 19.6Ω) | 7.9A (1kHz, 4Ω) 4.6A (1kHz, 8Ω) | 3.6A (1kHz, 19.6Ω) | 11.7A (1kHz, 4Ω) 6.6A (1kHz, 8Ω) | 5A (1kHz, 4Ω) 8.3A (1kHz, 8Ω) 7.1A (1kHz, 9.8Ω) |
| Power Output | | | | | | |
| 8 ohms per channel | 170W | — | 170W | — | 350W | 550W |
| 4 ohms per channel | 250W | — | 250W | — | 550W | 100W*1 |
| 16 ohms bridged | 340W | — | 340W | — | 700W | 1100W |
| 8 ohms bridged | 500W | — | 500W | — | 1100W | — |
| Hi-Z: 70V per channel | — | 250W | — | 250W | — | 500W |
| Hi-Z: 140V bridged, per channel | — | 500W | — | 500W | — | 1000W |
| Power Consumption* | | | | | | |
| Idle power consumption | 56W, 1.0A | 58W, 1.0A | 28W, 0.5A | 35W, 0.7A | 63W, 1.2A | 69W, 1.3A |
| Rated power consumption | | | | | | |
| 1kHz 8 ohms | 850W, 11.7A | — | 420W, 5.9A | — | 1650W, 22.4A | 2600W, 33.2A |
| 4 ohms | 1300W, 16.9A | — | 650W, 8.7A | — | 2800W, 35.5A | 580W, 9.1A |
| 70 Volts | — | 1200W, 15.9A | — | 580W, 7.8A | — | 2350W, 30.4A |
| 1/8 Power Pink noise*2 8 ohms | 183W, 3.0A | — | 102W, 1.7A | — | 317W, 5.2A | 504W, 7.4A |
| 4 ohms | 257W, 4.2A | — | 132W, 2.3A | — | 658W, 9.7A | 171W, 2.9A |
| 70 Volts | — | 265W, 4.1A | — | 147W, 2.3A | — | 437W, 6.7A |
| 1/3 Power Pink noise*3 8 ohms | 362W, 5.4A | — | 197W, 3.1A | — | 667W, 9.5A | 1080W, 15.2A |
| 4 ohms | 597W, 8.6A | — | 308W, 4.4A | — | 1060W, 14.0A | 313W, 4.9A |
| 70 Volts | — | 609W, 8.5A | — | 311W, 4.5A | — | 1036W, 13.9A |
| 1/8 Power 1kHz 8 ohms | 152W, 2.5A | — | 84W, 1.4A | — | 277W, 4.5A | 410W, 6.3A |
| 4 ohms | 219W, 3.5A | — | 112W, 1.8A | — | 510W, 7.6A | 151W, 2.7A |
| 70 Volts | — | 224W, 3.6A | — | 123W, 2.0A | — | 374W, 5.9A |
| 1/3 Power 1kHz 8 ohms | 314W, 4.7A | — | 160W, 2.5A | — | 519W, 8.6A | 991W, 13.5A |
| 4 ohms | 507W, 7.3A | — | 222W, 3.4A | — | 958W, 13.0A | 260W, 4.3A |
| 70 Volts | — | 499W, 7.2A | — | 256W, 3.8A | — | 883W, 12.2A |
| Frequency Response | 20Hz – 20kHz (±1dB) | HPF ON: 50Hz – 20kHz (–3dB, 0dB) HPF OFF: 20Hz – 20kHz (±1dB) | 20Hz – 20kHz (±1dB) | HPF ON: 50Hz – 20kHz (–3dB, 0dB) HPF OFF: 20Hz – 20kHz (±1dB) | 20Hz – 20kHz (–2dB, +1dB) | HPF ON: 50Hz – 20kHz (–3dB, +1dB) HPF OFF: 20Hz – 20kHz (–2dB, +1dB) |
| THD | 0.1 % (1kHz) 0.3 % (20Hz – 20kHz) | HPF ON: 0.1 % (1kHz), 0.3 % (100Hz – 20kHz) HPF OFF: 0.1 % (1kHz), 0.3 % (20Hz – 20kHz) | 0.1 % (1kHz) 0.3 % (20Hz – 20kHz) | HPF ON: 0.1 % (1kHz), 0.3 % (100Hz – 20kHz) HPF OFF: 0.1 % (1kHz), 0.3 % (20Hz – 20kHz) | 0.1 % (1kHz) 0.15 % (20Hz – 20kHz) | 0.1 % (1kHz) HPF ON: 0.3 % (100Hz – 20kHz) HPF OFF: 0.3 % (20Hz – 20kHz) |
| S/N Ratio (A weighted) | 100dB | | | | | |
| Crosstalk at 10kHz (A weighted) | 70dB | | | | | |
| DC Offset* | ±5mV | | | | | |
| Voltage Gain* | 29.5dB | 35.1dB | 29.5dB | 35.1dB | 32.6dB | 35.1dB |
| Damping Factor* | 100 | 220 | 100 | 220 | 95 | 115 |
| Inputs | Input impedance Input sensitivity Input clipping | 10kΩ (unbalanced), 20kΩ (balanced) +4dB (1.23V) 14V (25.1dBu) | | | 10kΩ (unbalanced), 20kΩ (balanced) +4dB (1.23V) 12V (23.8dBu) | |
| Protection Circuit | Amplifier section Power supply section | DC output, overheat protection, load shorting, overload current, maximum output Overheat protection, AC rush current | | | | |
| Cooling | Continuously constant speed fan with front-to-rear airflow, 50,000 hours life time at 25°C | | | | Continuously constant speed fan with front-to-rear airflow, 100,000 hours life time at 25°C | |
| Operating Temperature | –10°C to +40°C (14°F to 104°F) | | | | | |
| Operating Humidity | Under 90% RH (no condensation) | | | | | |
| Dimensions | 482 (W) × 44 (H) × 401 (D)mm (18.98" × 1.73" × 15.79") | | | | 482 (W) × 88.4 (H) × 404.2 (D)mm (18.98" × 3.48" × 15.91") | |
| Weight | 6.6kg (14.6 lb) | | 5kg (11.02 lb) | | 8.8kg (19.4 lb) | |
| Finish | Panel: Aluminum, alumite process, black/Case: Plated steel sheet | | | | | |
| Accessory | Euro style terminal block connector (3-pin) × 4, Tamper-proof cap × 4 | | Euro style terminal block connector (3-pin) × 2, Tamper-proof cap × 2 | | Euro style terminal block connector (3-pin) × 4, Tamper-proof cap × 4 | |
| Option | — | Matching transformer: MT-251H | — | Matching transformer: MT-251H | — | Matching transformer: MT-251H |

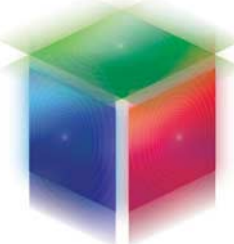
0dB=0.775Vrms

*Typical data

*1 For a 4Ω speaker, max. output is limited to 100W.

*2 1/8 power with pink noise represents typical program with occasional clipping.

*3 1/3 power with pink noise represents severe program with heavy clipping.



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Sound & Communication

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Specifications are subject to change without notice.
Printed in Japan (0803) 833-52-362-4A u