




# 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.

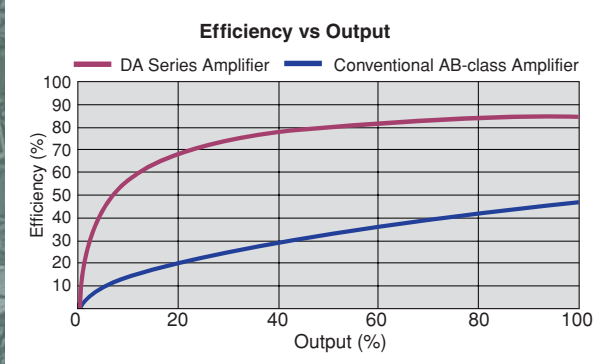
This testifies to TOA's attitude to product development, which is always totally motivated by the desire to provide high-quality products that offer worry-free use.

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

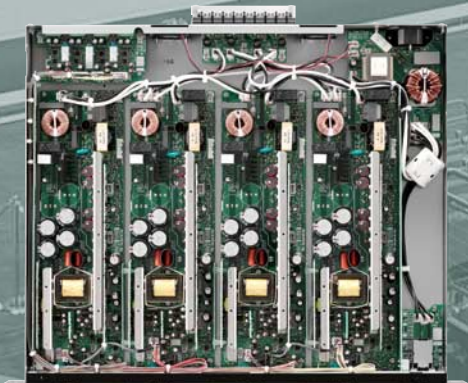
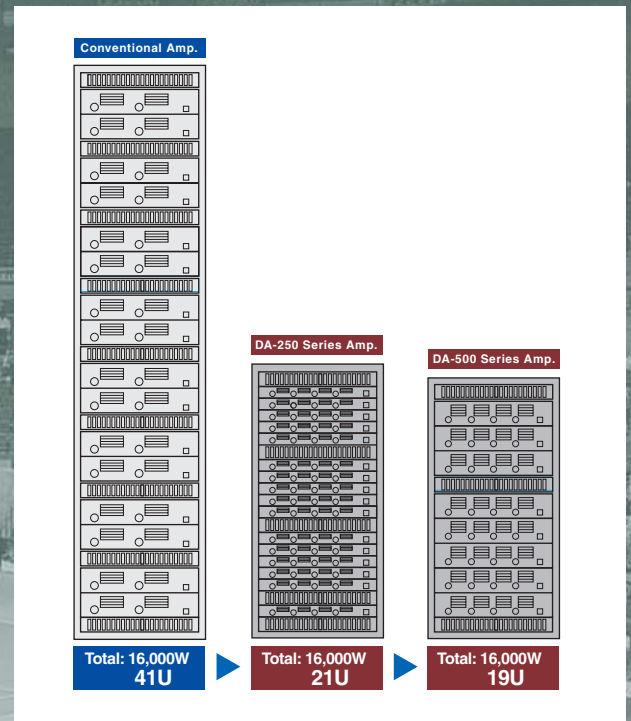
Stands up to extended hours of operation. The DA amplifier has undergone a large number of rigorous tests to prove its durability. In addition, TOA has been conducting a "non-stop driving test" of the DA Series.

## High reliability

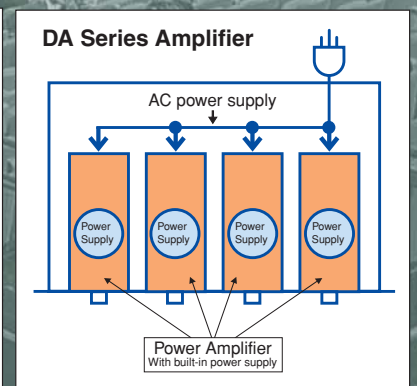
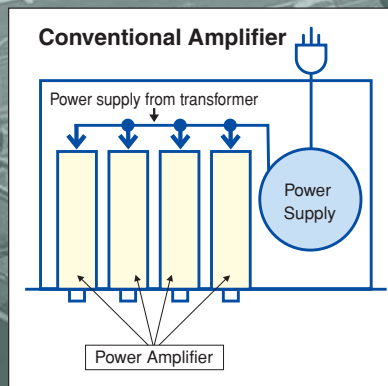
The DA amplifier has a comprehensive protection circuitry for protection against excessive current flow due to overload, short circuit, unusual DC voltage output, and heat sink temperature rise (DA-250D/DH, DA-550F/500F-HL: over 100°C, DA-250F/FH: over 110°C).

## 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 (0.26")
- Dimensions:** 108(W) × 80 (H) × 122 (D) 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  |
|--|---|---|--|--|--|---|
| <b>Power Req.</b>                      | 120V AC, 50/60Hz  |   |  |  |  |   |
| <b>Number of Channels</b>              | 4   |   | 2  |  | 4  |   |
| <b>Total Output All Channel Driven</b> | 1000W (1kHz, 4Ω)<br>680W (1kHz, 8Ω)   | 1000W (1kHz, 19.6Ω)   | 500W (1kHz, 4Ω)<br>340W (1kHz, 8Ω)                                       | 500W (1kHz, 19.6Ω)   | 2200W (1kHz, 4Ω)<br>1400W (1kHz, 8Ω)                                     | 400W (1kHz, 4Ω)<br>2200W (1kHz, 8Ω)<br>2000W (1kHz, 9.8Ω)                         |
| <b>Output Voltage per Channel</b>      | 31.6V (1kHz, 4Ω)<br>36.9V (1kHz, 8Ω)  | 70V (1kHz, 19.6Ω)   | 31.6V (1kHz, 4Ω)<br>36.9V (1kHz, 8Ω)                                     | 70V (1kHz, 19.6Ω)  | 46.9V (1kHz, 4Ω)<br>52.9V (1kHz, 8Ω)                                     | 20V (1kHz, 4Ω)<br>66.3V (1kHz, 8Ω)<br>70V (1kHz, 9.8Ω)                            |
| <b>Output Current per Channel</b>      | 7.9A (1kHz, 4Ω)<br>4.6A (1kHz, 8Ω)  | 3.6A (1kHz, 19.6Ω)  | 7.9A (1kHz, 4Ω)<br>4.6A (1kHz, 8Ω)                                       | 3.6A (1kHz, 19.6Ω)   | 11.7A (1kHz, 4Ω)<br>6.6A (1kHz, 8Ω)                                      | 5A (1kHz, 4Ω)<br>8.3A (1kHz, 8Ω)<br>7.1A (1kHz, 9.8Ω)                             |
| <b>Power Output</b>                    | 8 ohms per channel<br>4 ohms per channel<br>16 ohms bridged<br>8 ohms bridged<br>Hi-Z: 70V per channel<br>Hi-Z: 140V bridged, per channel | —<br>—<br>—<br>—<br>250W<br>500W  | 170W<br>250W<br>340W<br>500W<br>—<br>—                                   | —<br>—<br>—<br>—<br>250W<br>500W   | 350W<br>550W<br>700W<br>1100W<br>—<br>—                                  | 550W<br>100W**<br>1100W<br>—<br>500W<br>1000W                                     |
| <b>Power Consumption*</b>              |   |   |  |  |  |   |
| 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** 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** 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   |
| <b>Frequency Response</b>              | 20Hz – 20kHz (±1dB)   | HPF ON: 50Hz – 20kHz<br>(–3dB, 0dB)<br>HPF OFF: 20Hz – 20kHz<br>(±1dB)  | 20Hz – 20kHz (±1dB)  | HPF ON: 50Hz – 20kHz<br>(–3dB, 0dB)<br>HPF OFF: 20Hz – 20kHz<br>(±1dB)                           | 20Hz – 20kHz (–2dB, +1dB)  | HPF ON: 50Hz – 20kHz<br>(–3dB, +1dB)<br>HPF OFF: 20Hz – 20kHz<br>(–2dB, +1dB)     |
| <b>THD</b>                             | 0.1 % (1kHz)<br>0.3 % (20Hz – 20kHz)  | HPF ON: 0.1 % (1kHz),<br>0.3 % (100Hz – 20kHz)<br>HPF OFF: 0.1 % (1kHz),<br>0.3 % (20Hz – 20kHz)                        | 0.1 % (1kHz)<br>0.3 % (20Hz – 20kHz)                                     | HPF ON: 0.1 % (1kHz),<br>0.3 % (100Hz – 20kHz)<br>HPF OFF: 0.1 % (1kHz),<br>0.3 % (20Hz – 20kHz) | 0.1 % (1kHz)<br>0.15 % (20Hz – 20kHz)                                    | 0.1 % (1kHz)<br>HPF ON: 0.3 % (100Hz – 20kHz)<br>HPF OFF: 0.3 %<br>(20Hz – 20kHz) |
| <b>S/N Ratio (A weighted)</b>          | 100dB   |   |  |  |  |   |
| <b>Crosstalk at 10kHz (A weighted)</b> | 70dB  |   |  |  |  |   |
| <b>DC Offset*</b>                      | ±5mV  |   |  |  |  |   |
| <b>Voltage Gain*</b>                   | 29.5dB  | 35.1dB  | 29.5dB   | 35.1dB   | 32.6dB   | 35.1dB  |
| <b>Damping Factor*</b>                 | 100   | 220   | 100  | 220  | 95   | 115   |
| <b>Inputs</b>                          | Input impedance<br>Input sensitivity<br>Input clipping  | 10kΩ (unbalanced), 20kΩ (balanced)<br>+4dB (1.23V)<br>14V (25.1dBu)   |  |  | 10kΩ (unbalanced), 20kΩ (balanced)<br>+4dB (1.23V)<br>12V (23.8dBu)      |   |
| <b>Protection Circuit</b>              | Amplifier section<br>Power supply section   | DC output, overheat protection, load shorting, overload current, maximum output<br>Overheat protection, AC rush current |  |  |  |   |
| <b>Operating Temperature</b>           | –10°C to +40°C (14°F to 104°F)  |   |  |  |  |   |
| <b>Operating Humidity</b>              | Under 90% RH (no condensation)  |   |  |  |  |   |
| <b>Dimensions</b>                      | 482 (W) × 44 (H) × 401.8 (D)mm<br>(18.98" × 1.73" × 15.82")   |   |  |  | 482 (W) × 88.4 (H) × 404.2 (D)mm<br>(18.98" × 3.48" × 15.91")            |   |
| <b>Weight</b>                          | 6.6kg (14.6 lb)   |   | 5kg (11.02 lb)   |  | 8.8kg (19.4 lb)  |   |
| <b>Finish</b>                          | Panel: Aluminum, alumite process, black/Case: Plated steel sheet  |   |  |  |  |   |
| <b>Accessory</b>                       | Euro style terminal block connector (3-pin) × 4,<br>Tamper-proof cap × 4  |   | Euro style terminal block connector (3-pin) × 2,<br>Tamper-proof cap × 2 |  | Euro style terminal block connector (3-pin) × 4,<br>Tamper-proof cap × 4 |   |
| <b>Option</b>                          | —   | Matching transformer: MT-251H   | —  | Matching transformer: MT-251H  | —  | Matching transformer: MT-251H   |

0dB–0.775Vrms

\*Typical data

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

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

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



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Specifications are subject to change without notice.  
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