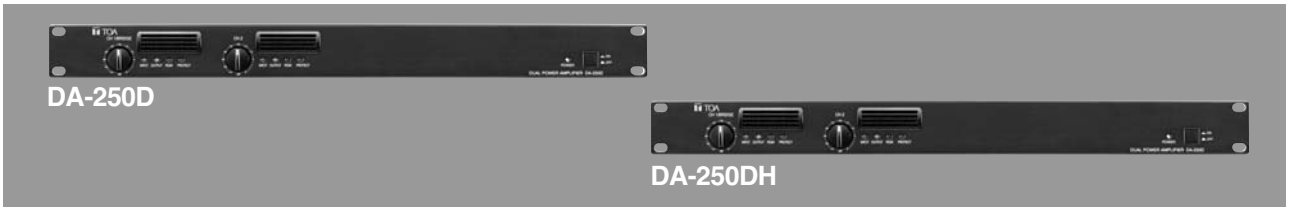
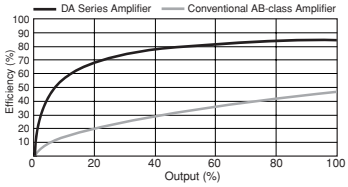
DA-250D/250DH
Dual-Channel Digital Power Amplifiers



DESCRIPTION

The TOA DA-250D and DA-250DH dual-channel power amplifiers offer a wider choice of power ratings, advanced 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 DA-250D is ideal for dual-zone applications such as presentation and press-conference rooms, restaurants and similar-sized locations. The DA-250DH is well-suited to such locations as exhibition halls, sports facilities, multipurpose halls and houses of worship.

FEATURES

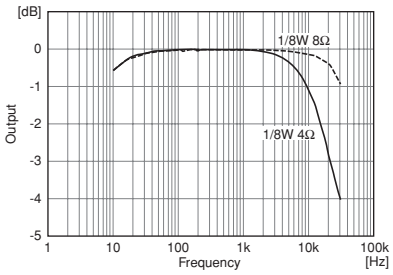


- **High efficiency**
  Extremely high amplification efficiency of 80-90%, resulting in reduction in power consumption by more than 60% compared with Class-AB amplifiers.
- **Highly durable**
  Stands up to extended hours of operation. The DA amplifier has undergone a large number of rigorous tests to 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 power amplifier heat sink temperature rise (over 100°C), temperature rise inside the unit (over 80°).
- **Amplifier with lightweight design**
  Installation has become much easier thanks to the lightweight design.
- **Compact design**
  The DA-250 Series is 1-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.
- **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 Channel 2. It is also possible to use the either channel as a spare amplifier.

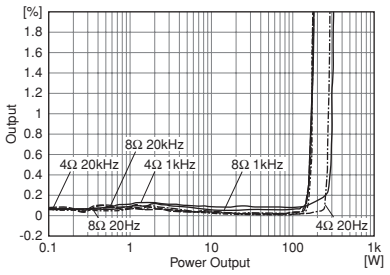
TOA

CE Version

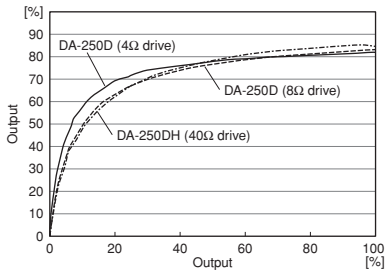
DA-250D Frequency Response



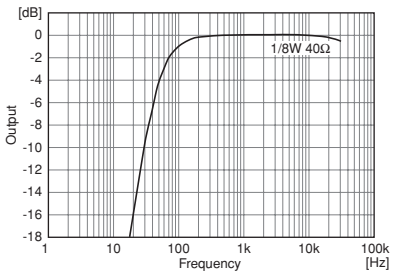
DA-250D T.H.D vs Power Output



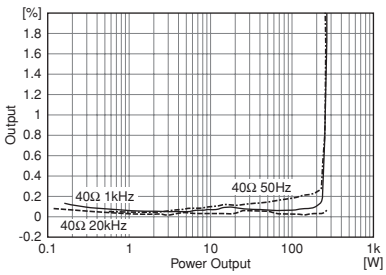
Efficiency vs Output



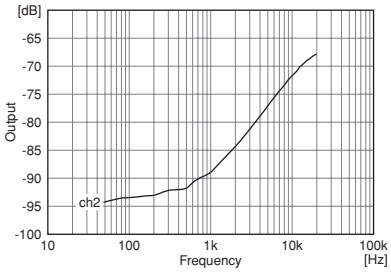
DA-250DH Frequency Response



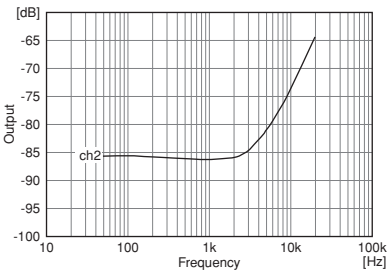
DA-250DH T.H.D vs Power Output



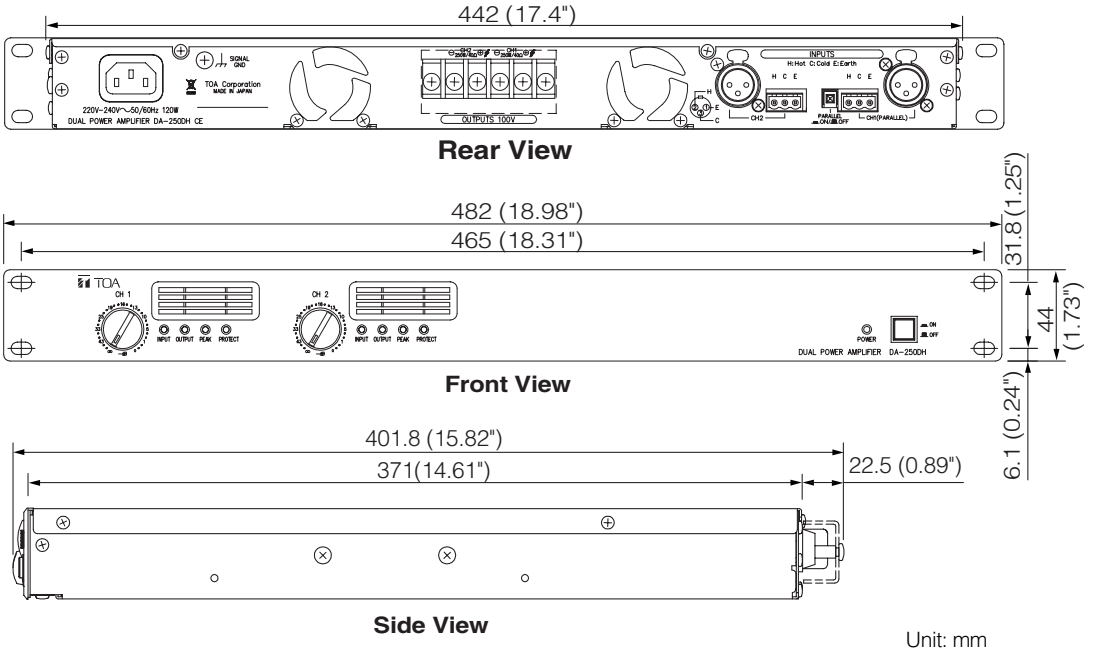
DA-250D Channel Separation



DA-250DH Channel Separation



APPEARANCE AND DIMENSIONAL DIAGRAM



Unit: mm

ARCHITECTURAL AND ENGINEERING SPECIFICATIONS

DA-250D SPECIFICATIONS

The dual-channel power amplifier shall use digital class-D circuit topology and shall be configurable to allow two channel operation. Power output in two-channel mode with all channels driven shall be: 250W per channel into 4 ohms and 170W per channel into 8 ohms. A pair of channels shall be bridgeable to produce 500 W. Total harmonic distortion (THD) shall be less than 0.1% (1kHz), 0.3 % (20 to 20,000 Hz). The frequency response shall be 20 to 20,000 Hz (±1 dB). The signal to noise ratio shall be 100 dB (A-weighted). The crosstalk shall be 70 dB (A-weighted). The input impedance shall be 10k ohms for each input into an electronically balanced input circuit. Rear panel switches shall allow selection of bridged operation for 1-2 channels. A rear channel input mode switch shall allow the selection of input 1 to all mode, whereby the signal from input 1 is simultaneously fed to other channel. Each input shall feature a 3 pin phoenix block and XLR connector. Rear panel output connector shall be a heavy-gauge M4 screw-terminal barrier strip suitable for use with spade lugs or up to #12 AWG bare wires. The front panel attenuators shall be recessed to prevent accidental level changes and may be removed and replaced by included security covers once levels have been properly set. The front panel shall have two sets of four LED indicators to indicate the following conditions: signal presence at input (greater than -20 dB), signal presence at output (greater than 1 W @ 8 ohms load), peak clipping and protection circuit activation. The front panel shall also have two removable air filters that may be removed for cleaning without removing the amplifier from the rack. The amplifier shall be forced-air fan cooled with the air intake at the front and exhaust at the rear.

Built-in protection circuitry shall monitor voltage and current levels to minimize potential damage from overloads, and disable output during shorts, DC offset, or excessive operating temperature at power amp heat sink over 100°C, or excessive temperature inside the unit over 80°C via a relay for each channel. The relay shall also delay amplifier connection to the load during turn-on for about 2 seconds, so as to prevent any occurrence of noise at turn-on. Power consumption shall be 120 W (based on EN standards) and 620 W (rated output 4 ohms x 2 channels), and 400 W (rated output at 8 ohms x 2 channels).

The amplifier shall use only one standard rack-space or 44.5 mm and its dimensions shall be 482 (W) × 44 (H) × 401.8 (D) mm. Front panel finish shall be black anodized aluminum and case finish shall be sheet steel. Weight shall be 5.3 kg.

The amplifier shall be a TOA model DA-250D.

DA-250DH SPECIFICATIONS

The dual-channel power amplifier shall use digital class-D circuit topology and shall be configurable to allow two, three or four channel operation. Power output in two-channel mode with all channels driven shall be: 250W per channel into 40 ohms (100V). Total harmonic distortion (THD) shall be less than 0.1% (1kHz), 0.3 % (100 to 20,000 Hz). The frequency response shall be 50 to 20,000 Hz (-3 dB, +1 dB). The crosstalk shall be 70 dB (A-weighted). The input impedance shall be 10k ohms for each input into an electronically balanced input circuit. Rear panel switches shall allow selection of bridged operation 1-2 channels. A rear channel input mode switch shall allow the selection of input 1 to all mode, whereby the signal from input 1 is simultaneously fed to other channel. Each input shall feature a 3 pin phoenix block and XLR connector. Rear panel output connector shall be a heavy-gauge M4 screw-terminal barrier strip suitable for use with spade lugs or up to #12 AWG bare wires.The front panel attenuators shall be recessed to prevent accidental level changes and may be removed and replaced by included security covers once levels have been properly set. The front panel shall have two sets of four LED indicators to indicate the following conditions: signal presence at input (greater than -20 dB), signal presence at output (greater than 1 W @ 40 ohms load), peak clipping, and protection circuit activation. The front panel shall also have two removable air filters that may be removed for cleaning without removing the amplifier from the rack. The amplifier shall be forced-air fan cooled with the air intake at the front and exhaust at the rear.

Built-in protection circuitry shall monitor voltage and current levels to minimize potential damage from overloads and disable output during shorts, DC offset or excessive operating temperature at power amp heat sink over 100°C or excessive temperature inside the unit over 80°C via a relay for each channel. The relay shall also delay amplifier connection to the load during turn-on for about 2 seconds, so as to prevent any occurrence of noise at turn-on. Power consumption shall be 120W (based on EN standards) and 580W (rated output 40 ohms x 2 channels).

The amplifier shall use only one standard rack-space or 44.5 mm and its dimensions shall be 482 (W) × 44 (H) × 401.8 (D) mm. Front panel finish shall be black anodized aluminum and case finish shall be sheet steel. Weight shall be 5.3 kg.

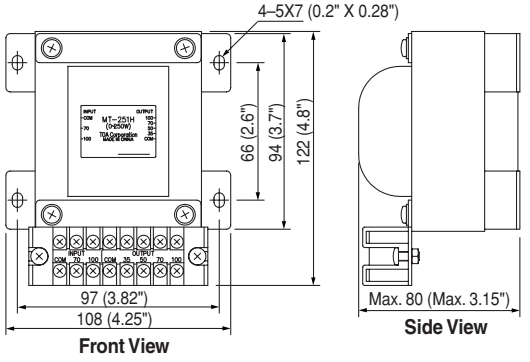
The amplifier shall be a TOA model DA-250DH.

The optimal 1:1 line isolation transformer shall be TOA model MT-251H.

OPTION

MT-251H





Unit: mm

Matching Transformer

Designed for use with the DA-250DH Dual-Channel Power Amplifier (option), the MT-251H electrically isolates the high-impedance speaker lines from the amplifier.

- **Capacity:** 0W – 250W
- **Primary Side:** 100V line, 70V line
- **Secondary Side:** 100V line, 70V line, 50V line, 35V line
- **Frequency Response:** 30 – 18,000Hz (+0dB, –3dB)
- **Connection Terminal:** M3 screw terminal, distance between barriers: 6.6mm
- **Dimensions:** 108 (W) x 80 (H) x 122 (D)mm
- **Weight:** 2.4kg

SPECIFICATIONS

Model			DA-250D	DA-250DH
Power Source			220 – 240V, 50/60Hz	
Number of Channels			2	
Total Output All Channel Driven			500W (1kHz, 4Ω) 340W (1kHz, 8Ω)	500W (1kHz, 40Ω: 100V line)
Output Voltage per Channel			31.6V (1kHz, 4Ω) 36.9V (1kHz, 8Ω)	100V (1kHz, 40Ω: 100V line)
Output Current per Channel			7.9A (1kHz, 4Ω) 4.6A (1kHz, 8Ω)	2.5A (1kHz, 40Ω: 100V line)
Power Output				
8 ohms per channel			170W	—
4 ohms per channel			250W	—
16 ohms bridged			340W	—
8 ohms bridged			500W	—
Hi-Z: 100V per channel			—	250W
Power Consumption*				
Idle power consumption			27W, 0.3A	46W, 0.5A
Rated power consumption				
	1kHz	8 ohms	400W, 2.8A	—
		4 ohms	620W, 4.2A	—
		100 Volts	—	580W, 3.9A
	1/8 Power Pink noise*1	8 ohms	95W, 0.8A	—
		4 ohms	126W, 0.9A	—
		100 Volts	—	143W, 1.1A
	1/3 Power Pink noise*2	8 ohms	184W, 1.3A	—
		4 ohms	267W, 1.9A	—
		100 Volts	—	278W, 2.0A
	1/8 Power 1kHz	8 ohms	79W, 0.7A	—
		4 ohms	110W, 0.9A	—
		100 Volts	—	128W, 1.0A
	1/3 Power 1kHz	8 ohms	150W, 1.1A	—
		4 ohms	215W, 1.5A	—
		100 Volts	—	237.7W, 1.7A
Frequency Response			20Hz – 20kHz (±1dB)	50Hz – 20kHz (–3dB, +1dB)
THD			0.1 % (1kHz) 0.3% (20Hz – 20kHz)	0.1 % (1kHz) 0.3% (100Hz – 20kHz)
S/N Ratio (A weighted)			100dB	
Crosstalk at 10kHz (A weighted)			70dB	
DC Offset*			±5mV	
Voltage Gain*			29.5dB	38.2dB
Damping Factor*			100 (1kHz, 8Ω)	300 (1kHz, 40Ω:100V line)
Inputs	Input impedance		10kΩ (unbalanced), 20kΩ (balanced)	
	Input sensitivity		+4dB (1.23V)	
	Input clipping		14V (25.1dBu)	
Protection Circuit	Amplifier section		DC output, overheat protection, load shorting, overload current, maximum output	
	Power supply section		Overheat protection, AC rush current	
Cooling			Continuously constant speed fan with front-to-rear airflow, 50,000 hours life time at 25°C	
Operating Temperature			–10°C to +40°C	
Operating Humidity			Under 90% RH (no condensation)	
Dimensions			482 (W) × 44 (H) × 401.8 (D)mm (EIA Standard 19-inch rack mount width)	
Weight			5.3kg	
Finish			Panel: Aluminum, alumite process, black Case: Plated steel sheet	
Accessories			Power cord (2m) x 1, Euro style terminal block connector (3-pin) × 2, Tamper-proof cap × 2, Rack mounting screw × 2	
Option			—	Matching transformer: MT-251H

0dB=0.775Vrms

* Typical data

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

*2 1/3 power with pink noise represents severe program with heavy clipping.

TOA Corporation

www.toa.jp

Specifications are subject to change without notice.
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