

AE Techron's 7794 is a powerful four-quadrant amplifier that offers up to 200 Ap power, DC – 100 kHz bandwidth, and controlled-current or controlled-voltage modes of operation. The 7794 works best into loads of 0.5 ohms or less. For greater voltage or current (up to 800 Ap) units can be combined in parallel or series.

Typically used when large currents are needed to drive very low impedances for long periods of time. Often used as a battery substitute for transient immunity testing requiring a battery as specified in EMC Test Standards for military, aviation and the automotive industries.

Performance (Controlled Voltage Mode)

Note: Testing performed at 208V/415V AC. 7794 amplifiers can operate from 400V AC $\pm 10\%$. Since these amplifiers have an unregulated power supply, low line conditions may slightly affect the maximum voltage potential.

7794P accuracy was measured when driven into a 10 ohm load with between 0.1VDC and 6VDC or between 0.2V AC and 5V AC presented at its inputs.

Frequency Response:

DC – 30 kHz, +0.1, –0.5 dB

8 ohm Power Response:

DC-50 kHz: ± 95 Vpk

DC-150 kHz: ± 50 Vpk

DC-200 kHz: ± 25 Vpk

Maximum Continuous Output Power:

5000 watts RMS

Slew Rate:

41 V/ μ Sec

Phase Response:

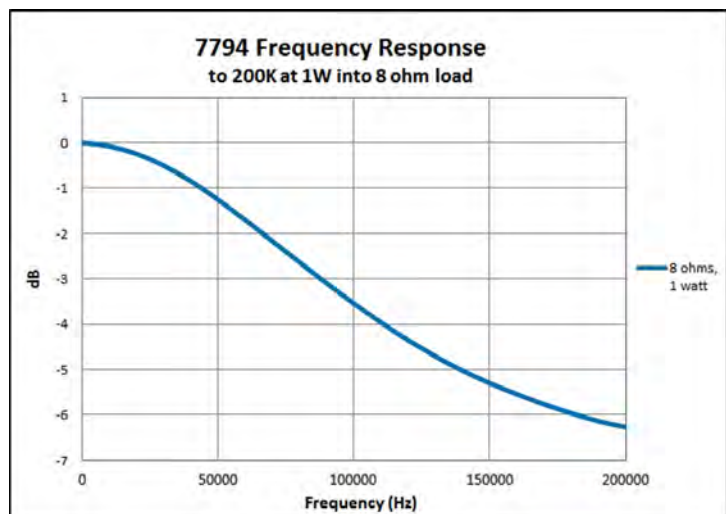
± 8.3 degrees (10 Hz – 10 kHz)



7794 SPECIFICATION SHEET

Features

- Stable when driving a wide range of resistive, inductive or capacitive loads
- 60A continuous at 13.8 VDC
- 200A in-rush current capability
- 150 kHz small signal bandwidth
- ± 95 VDC capable
- 41 V/ μ S slew rate
- Four-quadrant operation (source and sink)



AC Specifications

| Ohms | PEAK OUTPUT | | | | | | RMS OUTPUT | | | | |
|-------|---------------------------------|------|------------------------------|------|----------------------------|------|------------------------------|------|----------------------------|------|-------|
| | 40mSec Pulse, 30% Duty Cycle | | 5 Minute, 100% Duty Cycle | | 1 Hour, 100% Duty Cycle | | 5 Minute, 100% Duty Cycle | | 1 Hour, 100% Duty Cycle | | |
| | Volts | Amps | Volts | Amps | Volts | Amps | Volts | Amps | Volts | Amps | Watts |
| 8 | 98 | 13 | 98 | 13 | 97 | 13 | 69 | 9 | 69 | 9 | 600 |
| 4 | 95 | 23 | 95 | 23 | 95 | 23 | 66 | 16 | 66 | 16 | 1000 |
| 2 | 88 | 44 | 88 | 44 | 88 | 44 | 60 | 30 | 60 | 30 | 1800 |
| 1 | 81 | 81 | 81 | 81 | 81 | 81 | 56 | 56 | 56 | 56 | 3200 |
| 0.5 | 72 | 144 | 72 | 144 | 72 | 144 | 50 | 100 | 50 | 100 | 5000 |
| 0.25 | 50 | 210 | 32 | 134 | 32 | 134 | 23 | 91 | 23 | 91 | 2000 |
| 0.125 | 23 | 197 | 23 | 194 | 23 | 191 | 16 | 133 | 16 | 130 | 2000 |

Note: Performance levels typical up to 20 kHz frequency levels. Above 20 kHz, slew rate may affect performance, reducing maximum voltage, current and power output.

Output Offset:

Less than 5 mV, field adjustable to less than 1 mV

Unit to Unit Phase Error:

±0.1 degrees at 60Hz

Output Offset:

7794: Less than 5 mV, field adjustable to less than 1 mV

7794P: Less than 200 µV

Output Offset Current:

Less than 10 mA DC

DC Drift:

7794: ±1.5 mV

7794P: ± 400 µV (from cold to maximum operating temperature); ±200 µV (after 20 minutes of operation)

Residual Noise:

Unfiltered: Less than 75 µV

Filtered (400 Hz – 30 kHz): Less than 55 µV

THD:

DC - 30 kHz less than 0.1%

Input Characteristics

Balanced with ground:

Three terminal barrier block connector
20k ohm differential

Unbalanced:

BNC connector, 10k ohm single ended

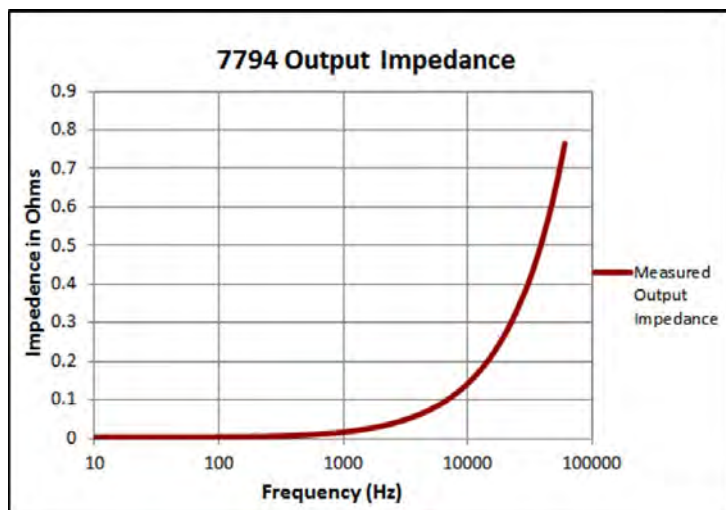
Gain:

Voltage Mode: 20 volts/volt

Current Mode: 20 amperes/volt

7794 One Hour DC Performance

| VOLTAGE DC | DC CURRENT |
|------------|------------|
| 13.5 | 60 |
| 28 | 106 |
| 32 | 115 |
| 80 | 70 |



Gain Linearity (over input signal, from 0.2 V to 5 V):

7794: 0.1%

7794P: DC: 0.0125% AC: 0.030%

Max Input Voltage:

±10 V balanced or unbalanced

Input Impedance:

20 kOhm differential

Input Sensitivity:

3.0V input for 3800W output into 1 ohm (adjustable)

Common Mode Rejection Range:

± 11 VDC maximum

Common Mode Rejection Ratio:

70 dB

Display, Control, Status, I/O

Front Panel

LED Displays indicate:

Run, Ready, Standby, Stop, and Fault conditions in the output stage

LCD Display:

Lists type of fault condition and gives suggested corrective action

Soft Touch Switches for:

Run (Enable), Stop, Reset

User Configurable:

LCD display can be configured for up to four simultaneous displays reporting one, two or all four of the following: Voltage Peak, Voltage RMS, Current Peak, and Current RMS

Back Panel

Power Connection:

NEMA-style locking receptacle; matching AC connector also included

Signal Output:

4-position terminal barrier block (OUTPUT/Common/SAMPLED Common/CHASSIS GROUND); resistor installed between SAMPLED Common AND CHASSIS GROUND is a 2.7-ohm, 2W, 5%, metal-oxide resistor

Signal Input:

User-selectable Unbalanced BNC or Balanced Barrier Strip

Interlock Connector:

25-pin D-sub connector used for amplifier control and status applications; also used in multi-amplifier applications

Communication Capabilities

Current Monitor: $\pm 1V / 20A \pm 1\%$

Reporting:

System Fault, OverTemp, Over Voltage, Overload

Control:

Force to Standby; Reset after a fault

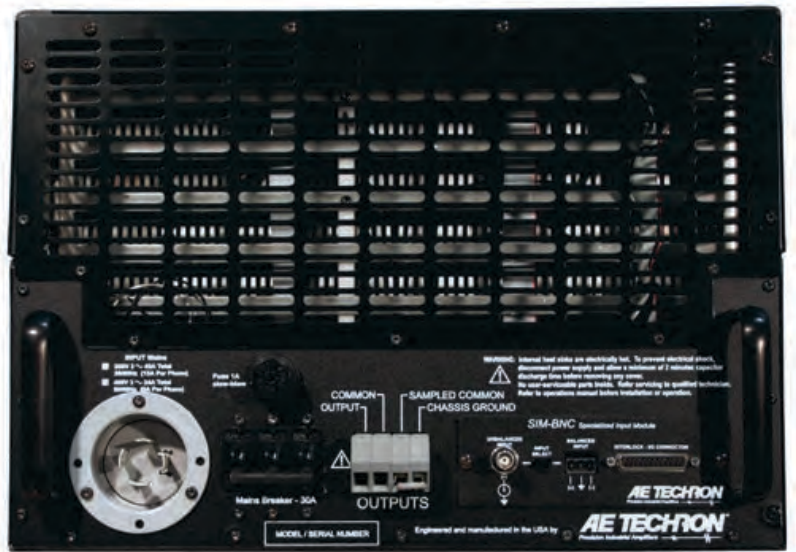
Protection

Over/Under Voltage:

$\pm 10\%$ from specified supply voltage amplifier is forced to Standby

Over Current:

Breaker protection on both main power and low voltage supplies



Over Temperature:

Separate Output transistor, heat sink, and transformer temperature monitoring and protection

Physical Characteristics

Chassis:

All aluminum construction designed for stand-alone or rack-mounted operation with black chassis; the amplifier occupies seven EIA 19-inch-wide rack units

Weight:

153 lbs. (69 kg)

AC Power:

Three-phase, 208 VAC $\pm 10\%$, 47-60 Hz, 30A AC service. (400 VAC $\pm 10\%$, 15A version available)

Operating Temperature:

10°C to 50°C (50°F to 122°F), Maximum Output Power de-rated above 30°C (86°F.)

Humidity:

70% or less, non-condensing

Cooling:

Forced air-cooling from front to back through removable filters via six 100 ft³/min. fans. No space is required between rack-mounted amplifiers. Air filters are removable from the rear via one fastener per side and may be eliminated if cabinet filtration is provided.

Dimensions:

19 in. x 22.8 in. x 12.25 in. (48.3 cm x 57.9 cm x 31.1 cm). Unit occupies seven EIA 19-inch-wide rack units.

AE Techron Sales Representative