



HIGH VOLTAGE AMPLIFIER MODEL T-800

SINGLE CHANNEL, VERY HIGH VOLTAGE AMPLIFIER

Description

The T-800 amplifier is a top-quality model with ± 500 V max output at 75mA peak-to-peak. This amplifier is assembled in a 19" rackmount chassis with an integrated, very low noise power supply. The instrument was specifically designed to drive piezoelectric transducers needing very high voltage at a non-trivial current. Completely output-protected from short circuits, has an automatic offset compensation circuit and a selectable gain of 10, 25 and 50.

Key features	Applications
Fast output settling	High voltage instrumentation
Three gains mode	Piezo transducer excitation
Very high voltage range	Semiconductor testing
Very low noise	Electrostatic transducers and deflection

Specifications	Physical dimensions
<ul style="list-style-type: none">Max input voltage: ± 10 V (20 Vpp)Max output voltage: ± 500 V (1000 Vpp)Bandwidth (without load): DC to 15 KHzChannels: 1Power supply 230 Vac 50-60 HzLoad: capacitive, resistiveOutput current: 75 mA peak-to-peak maxRipple Voltage: 2 mV max full bandwidthRMS noise absolute 1.2 mV (typical)	<p>Specifications:</p> <ul style="list-style-type: none">Width: 84 TE (19" Rack)Height: 3 UDepth: 410 mmWeight: 9.5 Kg <p>Environment:</p> <ul style="list-style-type: none">Operating Temperature: -10°C to 50°CHumidity: 0 to 95%

Configuration

The T-800 amplifier is enclosed into a 19" rack mount chassis, 3U x 84TE and include a precision, very low noise, very high voltage power supply.



Front and inside view of a T-800 High Voltage Amplifier. The device is based on a sophisticated power OpAmp-based power output stage. Input and output connectors are available at the front panel.



Module	Description	Order code
HV Amplifier	Single channel HV Amplifier module, ± 10 V input, ± 500 V max output, selectable gain=10, 25, 50, front panel connectors, including very low-noise, high voltage power supply	T-800

Technical notes

INPUT AMPLITUDE

The input amplitude should normally be kept within ± 10 V and not exceed ± 12 V. This is most important since the input protection network will limit the signal amplitude and cause distortion. The input protection network effectively cuts accidental spikes and overshoots.

LOAD

The amplifier is intended to drive resistive and capacitive loads. The maximum load capacitance depends on the slew rate of the amplifier and on the working frequency.

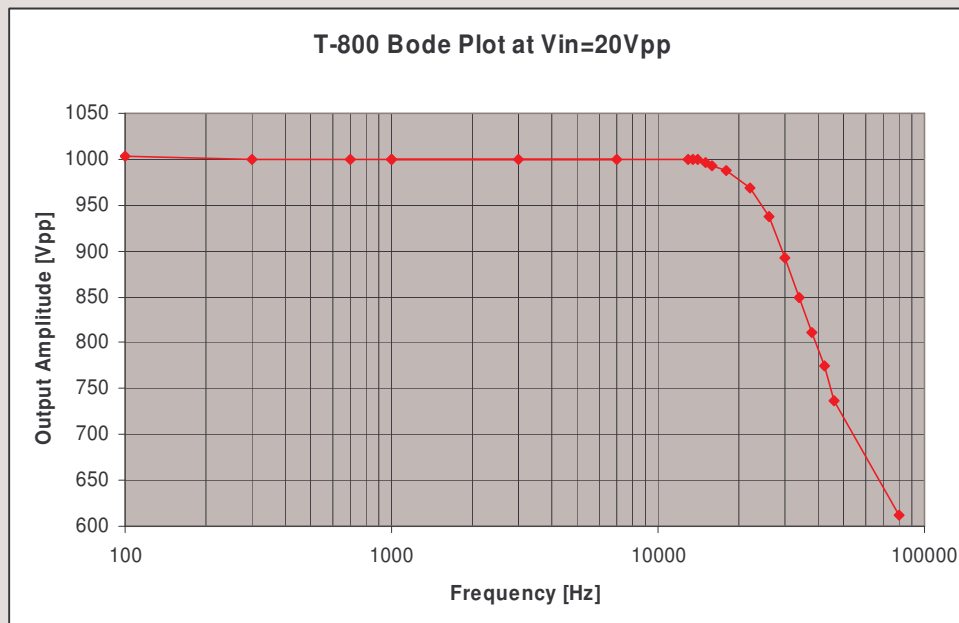
The maximum capacitance limit includes the capacitance of the connection cable (ca 100 pF/m for a standard coaxial cable). Increasing the capacitive load causes overshoot to appear. If a larger capacitive load is required then the slew rate should be reduced accordingly. Such an adjustment can be made before shipment. It may also be performed at a later date by qualified personnel and the factory should be contacted for advice. Inside the cabinet exist hazardous voltage levels and the amplifier circuit is sensitive to static discharge.

Overloading the output may cause an overshoot which might be dangerous for the connected devices. This amplifier cannot be used to drive inductive loads.

The continuous output current limit is 75 mApp and the output power limit is 75 W, which corresponds to Safe Operating Area (SOA). The temporary peak current may be up to 100 mApp. The output is equipped with a current limiting circuit which withstands accidental short-circuits.

The amplifier may be overheated when the output is short-circuited for a long time and/or if the peak current appears to be frequent.

Typical Bode plot (no load):

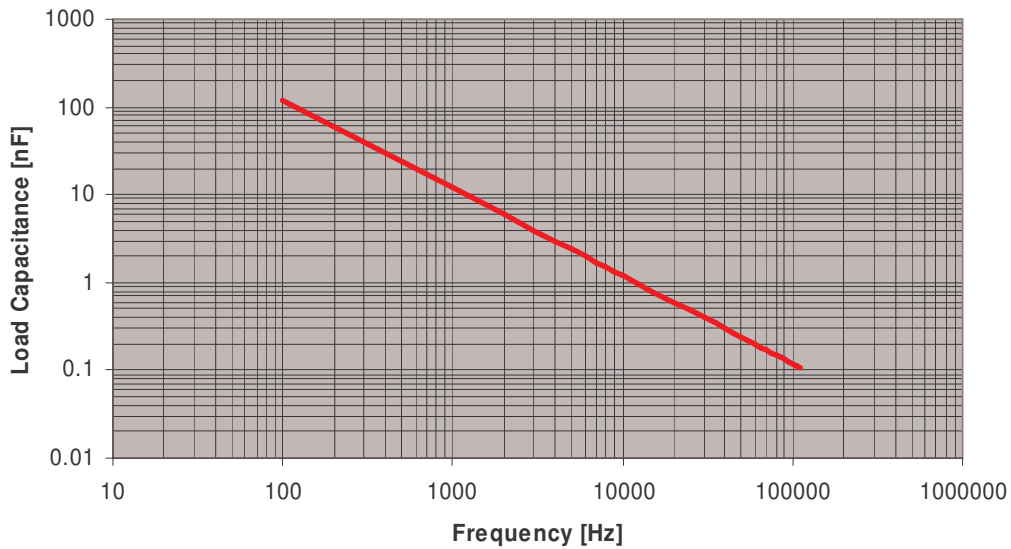


Bode plot of the output signal of a T-400-B HV amplifier with 20Vpp sinusoidal AC input signal



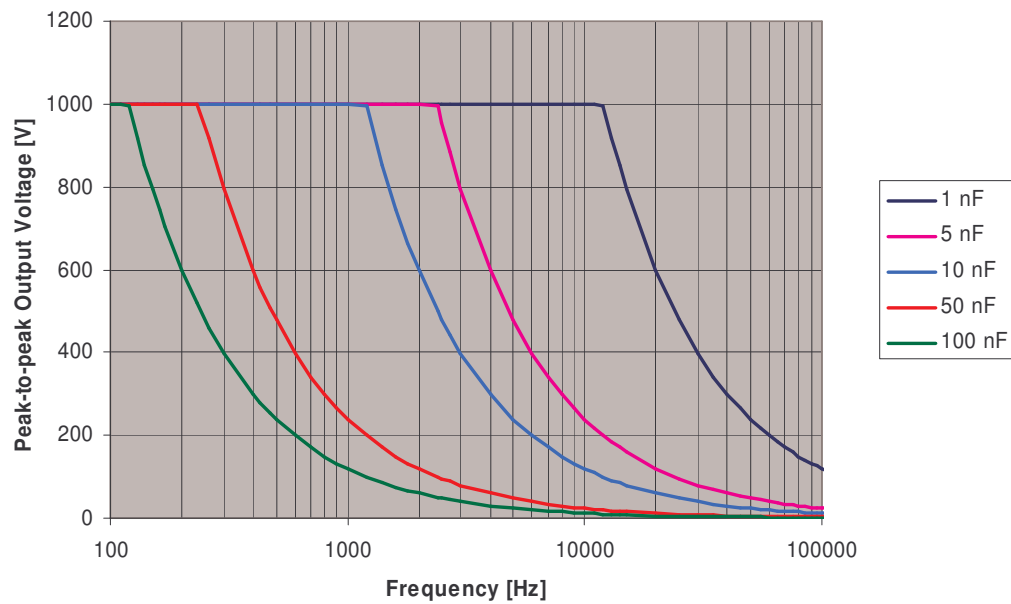
Frequency performance

T-800 bandwidth as a function of load capacitance at maximum output voltage



Output voltage

T-800 Output voltage vs. load capacitance



Specifications of this datasheet are subject to change without notice