

AMPEREX TRANSMITTING TUBE 833-A

R.F. Power Amplifier, Oscillator, A.F. Power Amplifier, or Modulator

MAXIMUM RATINGS AND TYPICAL OPERATING CONDITIONS

A.F. Power Amplifier and Modulator—Class B

| | Convection Cooling | | Forced-Air Cooling** | |
|--------------------------------------|--------------------|------|----------------------|------|
| | CCS | CCS | CCS | ICAS |
| D.C. Plate Volts | 3000 | 4000 | 4000 | 4000 |
| D.C. Plate Current, Max.-Sig. (ma.)* | 500 | 500 | 500 | 500 |
| Plate Input, Max.-Sig. (watts)* | 1125 | 1600 | 1800 | 1800 |
| Plate Dissipation (watts)* | 300 | 400 | 450 | 450 |

Typical Operation:

Unless otherwise specified, values are for 2 tubes.

| | CCS | CCS | ICAS |
|--|------|-------|-------|
| D.C. Plate Voltage | 3000 | 4000 | 4000 |
| D.C. Plate Current, Zero-Sig. (ma.) | 100 | 100 | 100 |
| D.C. Plate Current, Max.-Sig. (ma.) | 750 | 800 | 900 |
| D.C. Grid Voltage† | -70 | -100 | -100 |
| Grid-to-Grid Voltage, Peak A.F. | 400 | 480 | 510 |
| Load Resis. (ohms) (per tube) | 2375 | 3000 | 2750 |
| Effec. Load Resis. (ohms) (Plate to Plate) | 9500 | 12000 | 11000 |
| Max.-Sig. Drive Power (watts) | 20 | 29 | 38 |
| Max.-Sig. Power Out. (watts) | 1650 | 2400 | 2700 |

R.F. Power Amplifier—Class B

Carrier conditions per tube for use with a maximum modulation factor of 1.0

| | Convection Cooling | | Forced-Air Cooling** | |
|---------------------------------------|--------------------|------|----------------------|------|
| | CCS | CCS | CCS | ICAS |
| D.C. Plate Voltage | 3000 | 4000 | 4000 | 4000 |
| D.C. Plate Current (ma.) | 300 | 300 | 300 | 300 |
| Plate Input (watts) | 450 | 600 | 675 | 675 |
| Plate Dissipation (watts) | 300 | 400 | 450 | 450 |
| Plate Volts and Input Max. % for 20MC | 100% | 100% | 100% | 100% |
| Plate Volts and Input Max. % for 30MC | 100% | .. | .. | .. |
| Plate Volts and Input Max. % for 50MC | 98% | 97% | 97% | 97% |
| Plate Volts and Input Max. % for 75MC | 94% | 93% | 93% | 93% |
| Typical Operation: | | | | |
| D.C. Plate Voltage | 3000 | 4000 | 4000 | 4000 |
| D.C. Plate Current (ma.) | 150 | 150 | 150 | 150 |
| D.C. Grid Voltage† | -70 | -120 | -120 | -120 |
| Grid Voltage, Peak R.F. | 90 | 120 | 130 | 130 |
| D.C. Grid Current (ma.) | 2 | 2 | 3 | 3 |
| Driving Power (watts)§ | 10 | 14 | 21 | 21 |
| Power Output (watts) | 150 | 225 | 250 | 250 |

Plate Modulated R.F. Power Amplifier Class C

Carrier conditions per tube for use with a maximum modulation factor of 1.0

| | Convection Cooling | | Forced-Air Cooling | |
|---------------------------|--------------------|------|--------------------|------|
| | CCS | CCS | CCS | ICAS |
| D.C. Plate Voltage | 2500 | 3000 | 4000 | 4000 |
| D.C. Plate Current (ma.) | 400 | 450 | 450 | 450 |
| Plate Input (watts) | 835 | 1250 | 1800 | 1800 |
| Plate Dissipation (watts) | 200 | 270 | 350 | 350 |

GENERAL CHARACTERISTICS

| | |
|--|-----------------------|
| Filament Voltage | 10 |
| Filament Current (amps) | 10 |
| Amplification Factor | 35 |
| Direct Interelectrode Capacitances: | |
| Grid to Plate | 6.3 $\mu\mu\text{f}$ |
| Grid to Filament | 12.3 $\mu\mu\text{f}$ |
| Plate to Filament | 8.5 $\mu\mu\text{f}$ |

(Continued from Previous Column)

| | CCS | CCS | ICAS |
|---------------------------------------|------|------|------|
| Plate Volts and Input Max. % for 20MC | 100% | 100% | 100% |
| Plate Volts and Input Max. % for 30MC | 100% | .. | .. |
| Plate Volts and Input Max. % for 50MC | 90% | 83% | 83% |
| Plate Volts and Input Max. % for 75MC | 72% | 65% | 65% |
| D.C. Grid Voltage | -500 | -500 | -500 |
| D.C. Grid Current (ma.) | 75 | 100 | 100 |

Typical Operation:

| | | | |
|---------------------------|------|------|------|
| D.C. Plate Voltage | 2500 | 3000 | 4000 |
| D.C. Plate Current (ma.) | 335 | 415 | 450 |
| D.C. Grid Voltage (fixed) | -300 | -300 | -325 |
| From Grid Resistor (ohms) | 4000 | 3600 | 3600 |
| Grid Voltage, Peak R.F. | 460 | 490 | 520 |
| D.C. Grid Current (ma.) | 75 | 85 | 90 |
| Driving Power (watts) | 30 | 37 | 42 |
| Power Output (watts) | 635 | 1000 | 1500 |

R.F. Power Amplifier and Oscillator—Class C

Key-down conditions per tube without modulation†

| | Convection Cooling | | Forced-Air Cooling | |
|---------------------------------------|--------------------|------|--------------------|------|
| | CCS | CCS | CCS | ICAS |
| D.C. Plate Voltage | 3000 | 4000 | 4000 | 4000 |
| D.C. Plate Current (ma.) | 500 | 500 | 500 | 500 |
| Plate Input (watts) | 1250 | 1800 | 2000 | 2000 |
| Plate Dissipation (watts) | 300 | 400 | 450 | 450 |
| Plate Volts and Input Max. % for 20MC | 100% | 100% | 100% | 100% |
| Plate Volts and Input Max. % for 30MC | 100% | .. | .. | .. |
| Plate Volts and Input Max. % for 50MC | 90% | 83% | 83% | 83% |
| Plate Volts and Input Max. % for 75MC | 72% | 65% | 65% | 65% |
| D.C. Grid Voltage | -500 | -500 | -500 | -500 |
| D.C. Grid Current (ma.) | 75 | 100 | 100 | 100 |

Typical Operation:

| | | | |
|----------------------------|------|------|------|
| D.C. Plate Voltage | 3000 | 4000 | 4000 |
| D.C. Plate Current (ma.) | 415 | 450 | 500 |
| D.C. Grid Voltage (fixed) | -200 | -200 | -225 |
| From Grid Resis. (ohms) | 3500 | 2650 | 2400 |
| From Cathode Resis. (ohms) | 425 | 380 | 380 |
| Grid Voltage, Peak R.F. | 360 | 375 | 415 |
| D.C. Grid Current (ma.) | 55 | 75 | 95 |
| Driving Power (watts) | 20 | 26 | 35 |
| Power Output (watts) | 1000 | 1440 | 1600 |

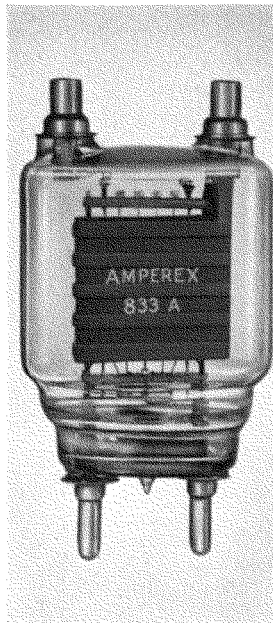
*Averaged over any A.F. cycle of sine-wave form.

**An air flow of 40 cubic feet per minute is required and above temperature must not exceed 145°C.

†Grid voltages are given with respect to the midpoint of filament operated on A-C. If D-C is used, each stated value of grid voltage should be decreased by 7 volts and the circuit returns connected to the negative end of the filament.

‡Modulation essentially negative may be used if the positive peak of the A.F. envelope does not exceed 115% of the carrier.

§At crest of A.F. cycle with modulation factor of 1.0.



AMPEREX

833-A

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