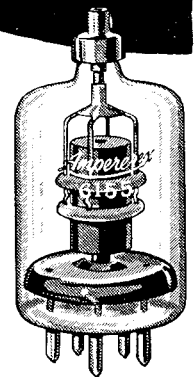
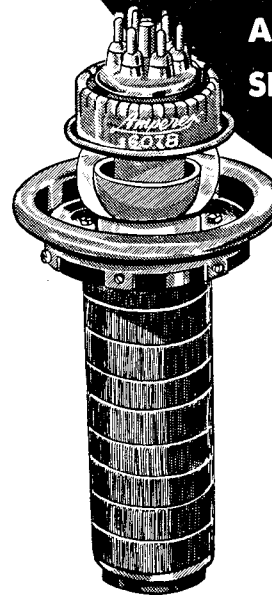
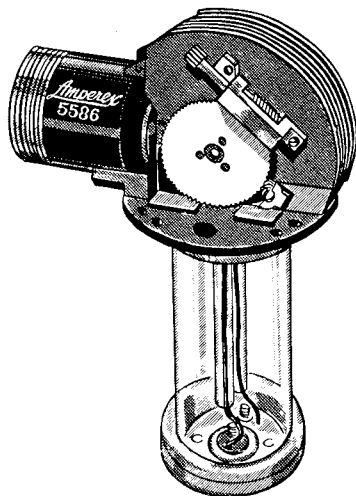
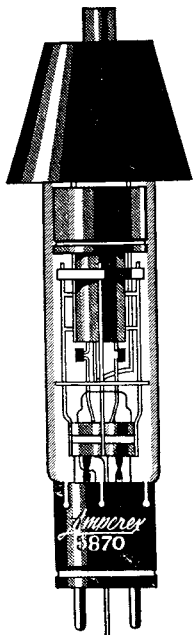


**ELECTRON
TUBES &
SEMICONDUCTORS**
by

AMPEREX[®]

for
**COMMUNICATION
INDUSTRIAL USE
RECTIFICATION
RADIATION DETECTION
ELECTRO-MEDICAL USE
AMATEUR USE
SPECIAL PURPOSES**





FOREWORD

This condensed catalog has been compiled for those in the engineering field who seek the proper tubes to suit their applications.

It is also intended to serve as a quick reference tube guide for initial equipment as well as for replacement purposes.

More detailed data sheets and brochures on the various products listed herein are available upon request. A detailed engineering transmitting, and power tube manual giving complete tube characteristics and application data is available to qualified engineers at the nominal cost of \$2.50 each. A semiconductor and special purpose tube manual is also available at \$2.50 each.

AMPEREX is always interested in quoting on all tube requirements. Our research, development and manufacturing facilities are such that we welcome inquiries on new products.

AMPEREX ELECTRONIC CORPORATION

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POWER TUBES
TRIODES, TETRODES & PENTODES

| TYPE NO. | FILAMENT | | Mu | Max. Diss. Watts | TYPICAL OPERATION | | | | | | MAX. FREQ. mc/sec |
|---------------|-------------|------------|-------|------------------|-------------------|---------|--------------|----------|---------|----------|----------------------|
| | Volts | Amps | | | PLATE | | | GRID | | SCREEN | |
| | | | | | Volts DC | Amps DC | Output Watts | Volts DC | Amps DC | Volts DC | |
| 2C39A | 6.3 | 1.0 | 100 | 100 | 800 | 0.090 | 40 | -40 | 0.030 | - | 2500 |
| 4X150A | 6.0 | 2.6 | 5** | 150 | 1,250 | 0.200 | 195 | -90 | 0.011 | 250 | 500 |
| AX4-125A/4D21 | | | | | | | | | | | (See Tube Type 6155) |
| AX4-250A/5D22 | | | | | | | | | | | (See Tube Type 6156) |
| 4X250B | 6.0 | 2.6 | 5** | 250 | 2,000 | 0.250 | 410 | -90 | 0.012 | 250 | 500 |
| 4X500A | 5.0 | 13.5 | 6.2** | 500 | 4,000 | 0.315 | 835 | -150 | 0.016 | 500 | 120 |
| HF-200 | 10.0 | 4 | 18 | 200 | 2,500 | 0.200 | 380 | -300 | 0.020 | - | 30 |
| HF-201A | 10.5 | 4 | 18 | 200 | 2,500 | 0.200 | 380 | -300 | 0.018 | - | 30 |
| 250-TH | 5.0 | 10.5 | 37 | 250 | 3,000 | 0.333 | 750 | -220 | 0.100 | - | 40 |
| 250-TL | 5.0 | 10.5 | 14 | 250 | 3,000 | 0.350 | 750 | -500 | 0.050 | - | 40 |
| HF-300 | 11.0 | 4 | 23 | 200 | 3,000 | 0.250 | 600 | -400 | 0.028 | - | 20 |
| 450-TH | 7.5 | 12.0 | 38 | 450 | 5,000 | 0.450 | 1,800 | -300 | 0.090 | - | 40 |
| 450-TL | 7.5 | 12.0 | 18 | 450 | 5,000 | 0.450 | 1,800 | -500 | 0.054 | - | 40 |
| 501-R/5759 | 7.5 | 24 | 24 | 1,000 | 3,500 | 0.870 | 2,175 | -250 | 0.133 | - | 150 |
| 502/5760 | 7.5 | 24 | 17 | 1,500 | 3,500 | 0.860 | 2,175 | -450 | 0.150 | - | 150 |
| 502-R/5761 | 7.5 | 24 | 17 | 1,500 | 3,500 | 0.860 | 2,175 | -450 | 0.150 | - | 150 |
| 504R | 7.5 | 24 | 17 | 1,000 | 3,500 | 0.860 | 2,175 | -750 | 0.150 | - | 150 |
| 508/6246 | 30 | 80 | 28 | 25,000 | 15,000 | 3.75 | 40,000 | -900 | 0.420 | - | 40 |
| 750TL | 7.5 | 21 | 15 | 750 | 6,000 | 0.625 | 3,000 | -700 | 105 | - | 40 |
| 805 | 10.0 | 3.25 | 50 | 125 | 1,500 | 0.200 | 215 | -105 | 0.025 | - | 30 |
| 807 | 6.3 | 0.9 | 8** | 25 | 600 | 0.100 | 40 | -45 | 0.004 | 250 | 60 |
| 810 | 10.0 | 4.5 | 36 | 125 | 2,250 | 0.275 | 475 | -160 | 0.010 | - | 30 |
| 813 | 10.0 | 5.0 | 8.5** | 100 | 1,500 | 0.180 | 190 | -70 | 0.006 | 300 | 30 |
| 828 | 10.0 | 3.25 | - | 80 | 1,500 | 0.180 | 200 | -100 | - | 400 | 30 |
| 832-A | 6.3 12.6 | 1.6 0.8 | 6.5** | 10 | 600 | 0.036 | 35 | -65 | - | 200 | 200 |
| 833-A | 10.0 | 10.0 | 35 | 400 | 4,000 | 0.450 | 1,440 | -200 | 0.075 | - | 30 |
| 838 | 10.0 | 3.25 | 50 | 100 | 1,250 | 0.160 | 150 | -150 | 0.026 | - | 30 |
| 845* | 10.0 | 3.25 | 5.3 | 100 | 1,250 | 0.220 | 105 | -105 | 0.030 | - | 15 |

* Conditions given are for Audio Amplifier Operation.
** Grid No. 2 to Grid No. 1.

NOTE: Typical operation as R-F amplifier and oscillator Class C telegraphy,
key down conditions per tube, without modulation for frequencies indicated.

| INTERELECTRODE CAPACITANCE - $\mu\mu\text{f}$ | | | DESCRIPTION | TYPE NO. |
|--|-------------------------|-------|--|---------------|
| G-P | G-F | P-F | | |
| 2.0 | 6.6 | 0.035 | Forced-air cooled triode. UHF oscillator, frequency multiplier or R-F amplifier. Suited to cavity type circuits. Features low interelectrode capacitance, high (closely controlled) transconductance and high plate dissipations. Indirectly heated, oxide coated cathode. | 2C39A |
| 0.03 | 15.7 | 4.3 | Forced-air cooled external anode tetrode. Suited for high power mobile applications. Makes an excellent wide-band amplifier for video application. | 4X150A |
| Pg. 8) | | | | AX4-125A/4D21 |
| Pg. 8) | | | | AX4-250A/5D22 |
| 0.03 | 15.7 | 4.5 | Forced-air cooled external anode tetrode. Brazed radiator. Interchangeable with 4X150A where higher plate dissipation is required. | 4X250B |
| 0.05 | 12.8 | 5.6 | Forced-air cooled external anode tetrode. Useful as power amplifier in FM, TV and VHF communication transmitters. | 4X500A |
| 6.9 | 6.2 | 1.2 | Radiation-cooled triode. Original Amperex design and ruggedness make it ideally suited for R-F heating as well as for broadcasters and amateurs. | HF-200 |
| 7.0 | 8.8 | 1.2 | Radiation-cooled triode, similar to HF-200, with different tube capacitance. Low voltage, high current characteristics. | HF-201A |
| 2.9 | 5.0 | 0.7 | Radiation-cooled high power triode. Used in low powered A-M broadcast stations. Also in electronic heating generators. | 250-TH |
| 3.1 | 3.7 | 0.7 | Radiation-cooled triode. Low mu version of 250-TH. | 250-TL |
| 7.0 | 6.0 | 1.0 | Radiation-cooled triode. Ideally suited for initial equipment and replacement for competitive types. Widely used in R-F heating applications, many commercial, police, and amateur transmitters. | HF-300 |
| 5.0 | 8.8 | 0.8 | Radiation-cooled triode. Very popular in A-M broadcast stations and Government transmitters. Also used in R-F heating applications. | 450-TH |
| 4.5 | 6.8 | 0.8 | Radiation-cooled, medium mu version of 450-TH. | 450-TL |
| 10.0 | 14.0 | 1.3 | Forced-air cooled triode. Low voltage, high current characteristics. Ideal for R-F heating. Has a thoriated-tungsten filament. | 501-R/5759 |
| 10.0 | 14.0 | 1.3 | Water-cooled triode. Thoriated-tungsten filament. Compactness and low voltage, high current make it ideally suitable for R-F heating. | 502/5760 |
| 10.0 | 14.0 | 1.3 | Forced-air version of 502. | 502-R/5761 |
| 10.0 | 14.0 | 1.3 | Forced-air cooled triode similar to AMPEREX 501R minus flexible leads. Interchangeable with 7C26 with very minor circuit changes. | 504R |
| 17.0 | 26.0 | 2.5 | Water-cooled triode. 40 kw output makes it ideally suited as high power R-F heating oscillator and R-F amplifier in A-M transmitters. | 508/6246 |
| 5.8 | 8.5 | 1.2 | Medium mu power triode. Amplifier, oscillator and modulator. | 750TL |
| 6.5 | 6.5 | 6.8 | Radiation-cooled triode. Amperex rugged design makes it the popular choice in R-F and A-F stages of A-M broadcast stations. | 805 |
| 0.2 | 11.0 | 7.0 | Radiation-cooled tetrode. Popular replacement as well as for initial equipment. | 807 |
| 4.8 | 8.7 | 12.0 | Radiation-cooled triode. Thousands of Amperex 810's are used yearly in initial equipment and as direct replacement. | 810 |
| 0.2 | 16.3 | 14.0 | Radiation-cooled low drive beam tetrode. Widely used in A-M broadcasting stations, Government, and amateur service. | 813 |
| .07 | Input 12 Output 14 | | Radiation-cooled beam pentode. Used in A-M broadcasting stations throughout world. | 828 |
| .05 | Input 7.5 Output 3.8 | | Radiation-cooled twin tetrode. Used in mobile and shipboard transmitters, as well as other communications fields. | 832-A |
| 6.3 | 12.3 | 8.5 | Radiation and forced-air cooled triode used widely in A-M transmitters and also some R-F heating applications. (Refer to AX-9902 data) | 833-A |
| 8.0 | 6.5 | 3.0 | Radiation-cooled zero bias triode. Still popular in amateur, commercial and Government transmitters. | 838 |
| 11.5 | 5.0 | 3.5 | Radiation-cooled triode. Still popular in amateur, commercial and Government transmitters. | 845* |



POWER TUBES
TRIODES, TETRODES & PENTODES

| TYPE NO. | FILAMENT | | Mu | Max. Diss. Watts | TYPICAL OPERATION | | | | | | MAX. FREQ. mc/sec |
|----------------|-------------|--------------|----------------|----------------------------------|---------------------|--------------|--------------------|--------------|----------------|------------|------------------------------|
| | Volts | Amps | | | PLATE | | | GRID | | SCREEN | |
| | | | | | Volts DC | Amps DC | Output Watts | Volts DC | Amps DC | Volts DC | Full Input Watts |
| 849 | 11.0 | 5 | 19 | 500 | 2,500 | 0.350 | 630 | -250 | 0.013 | - | 3 |
| 849-A | 11.0 | 7.7 | 19 | 500 | 3,000 | 0.500 | 1,200 | -500 | 0.100 | - | 20 |
| 880 | 12.6 | 315 | 20 | 20,000 | 10,000 | 6.0 | 40,000 | -1200 | 0.800 | - | 25 |
| 889-A | 11.0 | 125 | 21 | 5,000 | 7,500 | 2.0 | 10,000 | -800 | 0.240 | - | 50 |
| 889-RA | 11.0 | 125 | 21 | 5,000 | 7,500 | 2.0 | 10,000 | -800 | 0.240 | - | 25 |
| 891 | 22.0 | 60.0 | 8 | 6,000 | 10,000 | 1.45 | 10,000 | -3000 | 0.150 | - | 1.6 |
| 891-R | 22.0 | 60.0 | 8 | 4,000 | 10,000 | 1.4 | 10,000 | -2000 | 0.150 | - | 1.6 |
| 892 | 22.0 | 60.0 | 50 | 10,000 | 12,000 | 1.55 | 14,250 | -1600 | 0.165 | - | 1.6 |
| 892-R | 22.0 | 60.0 | 50 | 4,000 | 10,000 | 1.40 | 10,500 | -1300 | 0.160 | - | 1.6 |
| ZB-3200 | 22.0 | 40.5 | 75 | 2,500 | 8,000 | 0.960 | 5,800 | -400 | 0.150 | - | 10 |
| 5604 | 11.0 | 176.0 | 19 | 10,000 | 12,000 | 2.5 | 22,500 | -1170 | 0.220 | - | 22.5 |
| 5619 | 11.0 | 176.0 | 19 | 20,000 | 12,000 | 2.5 | 22,500 | -1170 | 0.220 | - | 22.5 |
| 5658 | 12.0 | 290.0 | 20.5 | 10,000 | 10,000 | 3.8 | 28,000 | -870 | 0.550 | - | 15 |
| 5666 | 11.0 | 120.0 | 21 | 12,500 | 9,000 | 2.0 | 12,200 | -750 | 0.210 | - | 22.5 |
| 5667 | 11.0 | 120.0 | 21 | 7,500 | 9,000 | 2.0 | 12,200 | -750 | 0.210 | - | 22.5 |
| 5736 | 6.0 | 60.0 | 22 | 2,500 | 5,000 | 1.0 | 4,100 | -850 | 0.210 | - | 60 |
| 5771 | 7.5 | 170 | 20 | 22,500 | 12,500 | 4.8 | 44,000 | -630 | 0.750 | - | 25 |
| 5866/AX-9900 | 6.3 | 5.4 | 25 | 135 | 2,500 | 0.200 | 390 | -300 | 0.045 | - | 150 |
| 5867/AX-9901 | 5.25 | 14.1 | 25 | 250 | 3,000 | 0.363 | 950 | -400 | 0.080 | - | 100 |
| 5868/AX-9902 | 10.0 | 10.0 | 27 | 450 | 4,000 | 0.475 | 1,673 | -350 | 0.100 | - | 100 |
| 5894 | 12.6 6.3 | 0.9 1.8 | 8.2** | CCS=40 ICAS=45 | CCS=600 ICAS=750 | 0.200 | CCS=85 ICAS=105 | -80 | 0.005 | 250 | 250 |
| 5923/AX-9904 | 12.6 | 33.0 | 32 | 6,000 | 6,000 | 1.5 | 6,900 | -400 | 0.310 | - | 75 |
| 5924/AX-9904-R | 12.6 | 33.0 | 32 | 6,000 | 6,000 | 1.5 | 6,900 | -400 | 0.310 | - | 75 |
| 5924A | 12.6 | 33.0 | 32 | CLASS B, TV SERVICE, SYNC. LEVEL | | | | | | - | 75 Full Input 220 Derated |
| | | | | 6,000 | 5,000 | 1.90 | 6,250 | -140 | 0.350 | - | |
| 6075/AX-9907 | 6.3 6.3 | 33.5 33.5 | 7.5** 7.5** | 3,000 3,000 | 4,000 5,000 | 1.10 1.10 | 3,300 4,100 | -250 -250 | 0.070 0.070 | 800 800 | 220 75 |
| 6076/AX-9907-R | 6.3 6.3 | 33.5 33.5 | 7.5 7.5 | 3,000 3,000 | 4,000 5,000 | 1.10 1.10 | 3,300 4,100 | -250 -250 | 0.070 0.070 | 800 800 | 220 75 |
| 6077/AX-9906 | 18.0 | 196.0 | 27 | 100,000 | 12,000 | 12.0 | 108,000 | -1000 | 2.250 | - | 30 |
| 6078/AX-9906-R | 18.0 | 196.0 | 27 | 45,000 | 10,000 | 12.0 | 108,000 | -1000 | 2.6 | - | 30 |
| 6079/AX-9908 | 10.0 | 9.7 | 9.5** | 500 | 5,000 | 0.452 | 1,760 | -200 | 0.030 | 700 | 75 |

**Grid No. 2 to Grid No. 1.

NOTE: Typical operation as R-F amplifier and oscillator Class C telegraphy,
key down conditions per tube, without modulation for frequencies indicated.

| INTERELECTRODE CAPACITANCE - $\mu\mu\text{f}$ | | | DESCRIPTION | TYPE NO. |
|--|--|------------|---|----------------|
| G-P | G-F | P-F | | |
| 33.0 | 11.0 | 2.0 | Radiation and forced-air-cooled triode. Still popular as replacement in some A-M broadcast transmitters and R-F heating. | 849 |
| 11.5 | 14.0 | 1.8 | Same information as above. Interelectrode capacitance different. | 849-A |
| 26.0 | 29.0 | 2.6 | Water-cooled triode. This rugged "powerhouse" very popular in broadcasting stations and ideal for R-F heating applications. | 880 |
| 17.8 | 19.5 | 3.0 | Water-cooled triode. Another rugged high power R-F tube for broadcasting stations and R-F heating applications. | 889-A |
| 20.7 | 19.5 | 3.0 | Forced-air-cooled triode version of 889-A, with improved radiator design. | 889-RA |
| 28.0 | 16.0 | 3.0 | Water-cooled triode. This is one of the tubes that built Amperex reputation. Used in 5 and 10 kw broadcasting stations. Also popular in R-F heating. | 891 |
| 30.0 | 16.0 | 3.0 | Forced-air-cooled version of 891. | 891-R |
| 32.0 | 17.0 | 1.8 | Water-cooled triode. Widely used all over the world in broadcasting stations. Also another ideal R-F heating tube. | 892 |
| 32.0 | 17.0 | 2.0 | Forced-air-cooled version of 892. | 892-R |
| 10.0 | 13.0 | 2.0 | Forced-air-cooled triode. Original Amperex design. 5.8 kw output at 10 mc with zero bias. Used principally in broadcasting. | ZB-3200 |
| 25.0 | 30.0 | 1.25 | Forced-air-cooled triode. Ideal oscillator for R-F heating and broadcast service. | 5604 |
| 24.0 | 30.0 | 1.0 | Water-cooled version of 5604. | 5619 |
| 24.0 | 39.0 | 2.5 | Industrial water-cooled version of type 880 | 5658 |
| 18.0 | 23.5 | 2.6 | Water-cooled triode. Heavy duty version of 889-A for industrial R-F heating application. | 5666 |
| 18.5 | 23.5 | 3.0 | Forced-air cooled triode. Heavy duty version of 889-RA for industrial R-F heating application. | 5667 |
| 14.5 | 17.5 | 0.5 | Thoriated tungsten filament power triode, Modulator, amplifier or oscillator for H.F. transmitters and R.F. power amplifier in wide-band TV service. | 5736 |
| 24.5 | 47.0 | 3.0 | Improved version of 880 with thoriated tungsten filament for high emission capability and a saving of 70% in filament power. Has rugged Kovar grid and filament seals. For industrial & communication applications. | 5771 |
| 5.5 | 5.8 | 0.1 | Radiation and/or forced-air-cooled H.F. triode of original Amperex design. Powdered glass dish-type base with extremely low lead inductance makes this tube ideally suited for almost any H-F application. | 5866/AX-9900 |
| 5.3 | 7.0 | 0.15 | Radiation and/or forced-air-cooled H.F. low drive triode of original Amperex design. | 5867/AX-9901 |
| 8.0 | 11.0 | 0.35 | Radiation and/or forced-air-cooled H-F triode with rugged 100 watt filament. Of original Amperex design, for all heavy duty R-F applications. | 5868/AX-9902 |
| 0.08 | Input 6.7 Output 2.1 (Push-Pull) | | Radiation and/or forced-air-cooled twin-tetrode of original Amperex design as H-F version of conventional 829-B. Makes ideal multiplier, as well as straight amplifier and modulator. | 5894 |
| 11.0 | 16.0 | 0.3 | Water-cooled low drive H.F. triode. Rugged for H.F. heating application. | 5923/AX-9904 |
| 11.0 | 16.0 | 0.3 | Forced-air cooled version of type 5923. | 5924/AX-9904-R |
| 11.0 | 16.0 | 0.3 | Forced-air cooled triode for FM & TV transmitters. Brazed radiator shell & external surfaces silverplated throughout. | 5924A |
| | 24.0 24.0 | 8.5 8.5 | Water-cooled low drive, H-F tetrode designed for F-M and television transmitter power amplifier. | 6075/AX-9907 |
| 0.2 0.2 | 24.0 24.0 | 8.5 8.5 | Forced-air-cooled external anode version of 6075/AX-9907 | 6076/AX-9907-R |
| 6.0 | 116.0 | 3.4 | Water-cooled triode, thoriated-tungsten filament. Designed for high power communication and industrial R-F heating services. | 6077/AX-9906 |
| 86.0 | 116.0 | 3.4 | Forced-air-cooled version of 6077/AX-9906. Improved radiator with unique air flow chamber design for minimum air flow requirements. Highest power air cooled tube in the world. | 6078/AX-9906-R |
| 0.24 | Input 25 Output 7.2 | | Radiation and/or forced-air-cooled low drive H-F tetrode for F-M and A-M transmitters. Also ideal in screen modulator stages. | 6079/AX-9908 |



POWER TUBES
TRIODES, TETRODES & PENTODES

| TYPE NO. | FILAMENT | | Mu | Max. Diss. Watts | TYPICAL OPERATION | | | | | | MAX. FREQ. mc/sec | Full Input Watts |
|--------------|-------------|----------------|-------|--------------------|-------------------|----------------|----------------|--------------|------------------|------------|-------------------|------------------|
| | Volts | Amps | | | PLATE | | | GRID | | SCREEN | | |
| | | | | | Volts DC | Amps DC | Output Watts | Volts DC | Amps DC | Volts DC | | |
| 6083/AX-9909 | 12.6 | 1.35 | 6.7 | 45 | 1,000 | 0.017 | 132 | -120 | 0.005 | 250 | 60 | |
| 6146 | 6.3 | 1.25 | 4.5 | CCS=20 ICAS=25 | 600 750 | 0.112 0.12 | 52 70 | -58 -62 | 0.0028 0.0031 | 150 160 | 60 | |
| 6155 | 5.0 | 6.5 | 6.2** | 125 | 2,500 | 0.200 | 375 | -150 | 0.010 | 350 | 120 | |
| 6156 | 5.0 | 14.5 | 6.0** | 250 | 3,500 | 0.345 | 800 | -500 | 0.020 | 600 | 75 | |
| 6252/AX-9910 | 12.6 6.3 | 0.65 1.3 | 8.5** | CCS=20 ICAS=25 | 600 750 | 0.100 0.150 | 42 79 | -60 -60 | 0.0014 0.002 | 250 250 | 300 | |
| 6333 | 22.0 | 60.0 | 50 | 10,000 | 12,000 | 1.55 | 14,250 | -1600 | 0.165 | - | 5 | |
| 6360 | 12.6 6.3 | 0.410 0.820 | 7.5** | CCS=10 ICAS=14 | 300 | 0.100 | ICAS 18.5 | -45 | 0.003 | 200 | 200 | |
| 6445 | 22.0 | 60.0 | 50 | 5,000 | 10,000 | 1.40 | 10,500 | -1300 | 0.160 | - | 5 | |
| 6446 | 22.0 | 60.0 | 50 | 20,000 | 15,000 | 2.0 | 20,000 | -1250 | 0.250 | - | 5 | |
| 6447 | 22.0 | 60.0 | 50 | 10,000 | 12,000 | 2.0 | 17,500 | -500 | 0.230 | - | 5 | |
| 6617 | 8.0 | 98 | 34 | 20,000 | 12,000 | 4.5 | 39,000 | -1000 | 0.800 | - | 30 | |
| 6618 | 8.0 | 98 | 34 | 15,000 | 12,000 | 4.5 | 39,000 | -1000 | 0.800 | - | 30 | |
| 6756 | 7.5 | 100 | 13.5 | 20,000 | 12,000 | 3.5 | 30,640 | -1220 | 0.210 | - | 30 | |
| 6757 | 7.5 | 100 | 13.5 | 15,000 | 12,000 | 3.5 | 30,640 | -1220 | 0.210 | - | 30 | |
| 6800 | 7.5 | 100 | 19.5 | 20,000 | 12,500 | 3.5 | 33,000 | -1200 | 0.250 | - | 22.5 | |
| 6801 | 7.5 | 100 | 19.5 | 10,000 | 11,800 | 3.5 | 31,000 | -1200 | 0.250 | - | 22.5 | |
| 6907 | 12.6 6.3 | 0.65 1.3 | 8.5** | CCS=20 ICAS=25 | 600 750 | 0.100 0.150 | 42 79 | -60 -60 | 0.0014 0.002 | 250 250 | 300 | |
| 6939 | 12.6 6.3 | 0.375 0.75 | 33** | CCS= 6 ICAS=7.5 | 180 200 | 0.055 0.060 | 5.8 7.5 | -20 -20 | 0.002 0.002 | 180 200 | 500 | |
| 6960 | 12.6 | 33 | 32 | 6,000 | 6,500 | 2.0 | 10,000 | -450 | 0.600 | - | 55 | |
| 6961 | 12.6 | 33 | 32 | 6,000 | 6,500 | 2.0 | 10,000 | -450 | 0.600 | - | 55 | |
| 6979 | 6.0 | 2.6 | 5** | 250 | 2,000 | 0.250 | 410 | -90 | 0.012 | 250 | 250 | |
| 7004 | 3.4 | 19.0 | 32 | 300 | 2,500 | 0.260 | 45 | -200 | 0.100 | - | 175 900† | |
| 7092 | 6.3 | 32.5 | 22 | 800 1,200† | 5,000 5,550 | 0.700 0.855 | 2,720 3,685 | -400 -490 | 0.160 0.195 | - | 50 | |

** Grid No. 2 to Grid No. 1
† Derated for 155 watts output
‡ 50% duty cycle

NOTE: Typical operation as R-F amplifier and oscillator Class C telegraphy, key down conditions per tube, without modulation for frequencies indicated.

| INTERELECTRODE CAPACITANCE - $\mu\mu\text{f}$ | | | DESCRIPTION | TYPE NO. |
|---|-------------------------|--------------|--|--------------|
| G-P | G-F | P-F | | |
| 0.1 | 22.5 | 11.0 | Radiation-cooled pentode with low voltage - high current characteristics. Powder glass dish type base with short internal lead connections. Up to 150 watts, Class C Telephony, ICAS. | 6083/AX-9909 |
| 0.22 | 13.5 | 8.5 | Beam power tube for use as R-F power amplifier, oscillator, frequency multiplier, AF power amplifier or modulator for mobile and fixed equipment. Anode capable of dissipating 25 watts ICAS. | 6146 |
| 0.05 | 10.8 | 3.1 | Convection and forced-air-cooled tetrode. "Magnisorb" anode and low drive make it excellent R-F amplifier tube in F.M. broadcasting. Improved version of 4-125A/4D21. | 6155 |
| 0.12 | 12.7 | 4.5 | Convection and forced-air-cooled tetrode. "Magnisorb" anode and low drive characteristics with "sintered" glass base. Improved version of 4-250A/5022. | 6156 |
| - | Input 4.0 Output 1.3 | | Radiation and/or forced-air-cooled twin tetrode of Amperex design. H.F. version of conventional 832A. Makes ideal multiplier as well as straight amplifier and modulator. Useful up to 700 mc. at reduced ratings. Delivers 15 watts at 600 mc. under CCS conditions. | 6252/AX-9910 |
| 32.0 | 17.0 | 1.8 | Improved ruggedized version of standard 892 with spiral filament, Kovar seals, powdered glass stem. Grid side arm deleted and replaced with Kovar ring. Excellent industrial tube for heavy duty, also communication. | 6333 |
| <0.1 | Input 6.2 Output 2.6 | | High-gain, twin tetrode for use as Class C amplifier, oscillator, frequency multiplier and modulator, ICAS plate input = 30 watts up to 200 mc. Capable of delivering 18.5 watts output at 200 mc. | 6360 |
| 32.0 | 17.0 | 1.8 | Forced-air-cooled version of type 6333. See above. | 6445 |
| 32.0 | 17.0 | 1.8 | Improved, ruggedized, heavy-wall version of type 892. Has powdered glass stem, Kovar grid ring, Kovar anode seal, stronger spiral filament giving more uniform heat distribution over anode surface. Also has strong conical, low-inductance grid support. An unusual industrial tube without equal. | 6446 |
| 32.0 | 17.0 | 1.8 | Forced-air-cooled version of type 6446. See above. | 6447 |
| 30.0 | 37.0 | 0.5 | Thoriated tungsten filamentary triode. 20 kw anode dissipation. Water-cooled. High power, low impedance, R.F. amplifier and industrial oscillator. | 6617 |
| 30.0 | 37.0 | 0.5 | Same as 6617 except 15 kw anode dissipation. Forced-air-cooled. | 6618 |
| 47.6 | 25.1 | 1.5 | Water-cooled triode with special characteristics as a low impedance. R.F. industrial oscillator. Particularly suited to induction and dielectric heating applications. | 6756 |
| 50.0 | 25.1 | 2.0 | Forced-air-cooled version of type 6756. | 6757 |
| 26.0 | 25.0 | 1.0 | Thoriated tungsten filamentary triode. 20 kw anode dissipation. Water-cooled. High power RF amplifier and industrial oscillator. | 6800 |
| 27.0 | 25.0 | 1.25 | Same as 6800 except 10 kw anode dissipation. Forced air-cooled. | 6801 |
| - | Input 4.0 Output 1.3 | | Twin tetrode, radiation-cooled. Special AMPEREX design for mobile service. HF version of conventional 832A. Ideal multiplier and straight amplifier and modulator. Useful up to 1000 mc. Delivers 15 watts at 600 mc, CCS. | 6907 |
| - | Input 3.8 Output 0.8 | | High-gain twin tetrode for use as Class C amplifier, oscillator, frequency multiplier and modulator. ICAS plate input = 14 watts up to 500 mc. Capable of delivering 7.5 watts output at 500 mc. | 6939 |
| 11.0 | 16.0 | 0.3 | Industrial water-cooled triode with large overload capacity on grid and plate currents. Suitable for 7.5 kw induction and dielectric heaters and 10 kw plastic sealers. | 6960 |
| 11.0 | 16.0 | 0.3 | Forced-air cooled version of 6960. Suitable for 7.5 kw induction and dielectric heaters and 10 kw plastic sealers. | 6961 |
| 0.03 | 15.7 | 4.5 | Forced-air cooled external anode tetrode. Brazed radiator. Interchangeable with 4X150A where higher plate dissipation is required. | 6979 |
| 4.0 | 9.0 | 0.12 Max. | Compact, coaxial transmitting triode. Forced-air cooled. UHF oscillator, amplifier and frequency multiplier. Useful up to 900 mc. | 7004 |
| 6.2 | 10.5 | 0.25 | Radiation cooled triode for industrial oscillator and amplifier applications. Rugged construction. Graphite anode with unusual overload capability. Thoriated tungsten filament. | 7092 |



HIGH QUALITY TUBES FOR HI-FI APPLICATIONS

| TYPE NO. | FILAMENT | | TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS | | | | | | | | | |
|-------------|-------------|--------------|--|--|--------|-------|--------------------|---------------------|----------------------|---------------------------|------------------------------|-----------------------|
| | | | Circuit Application | Applied Voltages | | | Plate Current (mA) | Screen Current (mA) | Amplification Factor | Plate Resistance (K ohms) | Transconductance (micromhos) | Max. Pow 2 Tubes Clas |
| | Volts | Amps | | Plate | Screen | Grid | | | | | | |
| EF86/6267 | 6.3 | 0.2 | Voltage Amplifier | 250 | 140 | -2.0 | 3.0 | 0.6 | - | 2500 | 2000 | - |
| ECC81/12AT7 | 12.6 6.3 | 0.15 0.30 | Voltage Amplifier | 250 | - | -2.0 | 10.0 | - | 55 | - | 5500 | - |
| ECC82/12AU7 | 12.6 6.3 | 0.15 0.30 | Voltage Amplifier | 250 | - | -8.5 | 10.5 | - | 17 | 7.7 | 2200 | - |
| ECC83/12AX7 | 12.6 6.3 | 0.15 0.30 | Voltage Amplifier | 250 | - | -2.0 | 1.2 | - | 100 | 62.5 | 1600 | - |
| ECC85/6AQ8 | 6.3 | 0.435 | RF Amplifier and Mixer | RF Amp 230 | - | -2.0 | 10.0 | - | 57 | 9.7 | 6000 | - |
| | | | | Mixer 190 | - | ** | 5.2 | - | 57 | 2.2 | 2300† | - |
| EL84/6BQ5 | 6.3 | 0.76 | Power Output Tube | 300 | 300 | -14.5 | 2 X 46 | 2 X 11 | - | - | 11,300 | 17 |
| 6CA7/EL34 | 6.3 | 1.5 | Power Output Tube | 800 | 400 | -39 | 2 X 91 | 2 X 19 | - | - | 11,300 | 100 |
| EZ80/6V4 | 6.3 | 0.6 | Full Wave Rectifier | AC Supply (Plate-to-Plate) Voltage (RMS) = 2 X DC Output Current (max.) = 90 Max. Capacity Condenser Input Filter = 50 DC Output Voltage = 310 | | | | | | | | |
| EZ81/6CA4 | 6.3 | 1.0 | Full Wave Rectifier | AC Supply (Plate-to-Plate) Voltage (RMS) = 2 X DC Output Current (max.) = 150 Max. Capacity Condenser Input Filter = 50 DC Output Voltage = 347 | | | | | | | | |
| GZ34/5AR4 | 5.0 | 1.9 | Full wave Rectifier | AC Supply (Plate-to-Plate) Voltage (RMS) = 2 X DC Output Current (max.) = 250 Max. Capacity Condenser Input Filter = 60 DC Output Voltage = 610 | | | | | | | | |

**Grid leak resistance = 1 megohm

† Conversion conductance



HYDROGEN THYRATRONS

| TYPE NO. | Peak Forward Anode Voltage Max. | Peak Anode Current Max. (Amps) | Av. Anode Current Max. (mA) | Pulse Width Max. |
|--------------|---------------------------------|--------------------------------|-----------------------------|------------------|
| 6268/AX-9911 | 8,000 | 90 | 100 | 6 μsec |
| 6279/AX-9912 | 16,000 | 325 | 200 | 6 μsec |



SUB-MINIATURE TUBES (SCREEN GRID TYPES) - MAXIMUM RATINGS

| TYPE NO. | Filament | | Capacitances μμf | | | Plate | | Grid #1 Volts | Grid #2 Volts | Plate | |
|-----------|-----------|------------|------------------|-------|--------|-------|------------------|---------------|---------------|------------|-------------------|
| | D-C Volts | Current mA | G-P | Input | Output | Volts | Diss. Milliwatts | | | Micro-Amps | Resistanc Megohms |
| 6007/5913 | 1.25 | 13.3 | 0.2 | 2.5 | 2.2 | 45 | 25 | -0.2 | 45 | 475 | 0.4 |
| 6008/5911 | 0.625 | 13.3 | 0.2 | | 1.5 | 45 | 1.5 | -0.2 | 45 | 50 | 0.4 |

| Output-Push-Pull B | Load Resistance (K ohms) | Cut-Off Bias (volts) | DESCRIPTION | TYPE NO. |
|--|--------------------------|----------------------|--|-------------|
| - | - | - | High gain pentode particularly suitable for preamplifier and input stages in which hum, noise and microphony must be kept to a minimum. Electrode structure rigid. Heater is bifilar, twisted pair of wires with magnetic field of one opposed to that of the other. | EF86/6267 |
| - | - | -12.0 | Medium-gain dual triode with low hum, noise and microphonics. Replaces the 12AT7 without circuit changes. | ECC81/12AT7 |
| - | - | - | Low noise dual triode with low hum, noise and microphonics. Replaces the 12AU7 without circuit changes. | ECC82/12AU7 |
| - | - | - | High-gain dual triode with low hum, noise and microphonics. Replaces the 12AX7 without circuit changes. | ECC83/12AX7 |
| - | - | - | Twin triode specifically designed for use in "front-end" stages of FM receivers as a combined RF Amplifier and self-oscillating additive mixer. Features extensive internal screening between the two triodes which reduces oscillator radiation. The high mutual conductance, input resistance and amplification factor make possible an average overall "front-end" gain of 350. | ECC85/6A08 |
| - | 8 Plate-to-Plate | - | High quality pentodes designed especially for high fidelity audio systems. High efficiency with low distortion. High sensitivity. Exceedingly small spread in characteristics between individual tubes so that maximum rated output is obtained with all tubes. | EL84/6BQ5 |
| - | 11 Plate-to-Plate | - | | 6CA7/EL34 |
| 300 volts mA μ f volts dc | | | Indirectly heated, full-wave rectifier with 90 mA output capacity and 9 pin miniature construction. | EZ80/6V4 |
| 350 volts mA μ f volts dc | | | Indirectly heated, full-wave rectifier with 6.3 volt, 1 amp heater, 150 mA output capacity and 9 pin miniature construction. | EZ81/6CA4 |
| 550 volts mA μ f volts dc | | | Indirectly heated, full-wave rectifier with 5.0 volt, 1.9 amp heater and 250 mA output capacity. Octal base. | GZ34/5AR4 |

| DESCRIPTION | TYPE NO. |
|---|--------------|
| These tubes are used as drivers for pulsing magnetrons and other oscillators and as high speed switches. Hydrogen-filled, they have extremely low de-ionization time. They are zero bias tubes, triggered by a positive grid pulse. Maximum pulse repetition frequency (prf in pulses per second) will depend on the peak forward anode voltage (epy in volts) according to formula: $(epy)^2 \times (prf) = 2.6 \times 10^{11} \text{ max.}$ | |
| Completely interchangeable with 4C35 in every respect except that it has self-contained source of hydrogen providing life expectancy of minimum 1000 hours. | 6268/AX-9911 |
| Completely interchangeable with 5C22 in every respect except that it has self-contained source of hydrogen providing life expectancy of minimum 1000 hours. | 6279/AX-9912 |

| Trans-conductance Micromhos | Output Milliwatts | DESCRIPTION | TYPE NO. |
|-----------------------------|-------------------|--|-----------|
| 420 | 6 | Radiation-cooled pentode output amplifier for hearing aids and other purposes, where small size, light weight and low battery drain are important. An ideal tube for receivers, etc. | 6007/5913 |
| 100 | 2.25 | Same as above except this tube is a voltage amplifier. | 6008/5911 |



RECTIFIERS - DIODES

| TYPE NO. | Filament | | Fil. Heating Time (sec) | Tube Drop Volts | Peak Inverse Anode Volts | Anode Current | | Surge Current Amps |
|----------|----------|------|-------------------------|-----------------|---------------------------|----------------|----------------|--------------------|
| | Volts | Amps | | | | Peak Amps | Average Amps | |
| 3B-28 | 2.5 | 5.0 | 5 | 10.0 | 10,000 | 1.0 | 0.250 | - |
| 4B-32 | 5.0 | 7.5 | 30 | 10.0 | 10,000 | 5.0 | 1.25 | 50.0 |
| 249-B | 2.5 | 7.5 | 15 | 15.0 | 7,500 | 2.5 | 0.640 | - |
| 575-A | 5.0 | 10.0 | 30 | 10.0 | 15,000 | 6.0 | 1.5 | 60.0 |
| 673 | 5.0 | 10.0 | 30 | 10.0 | 15,000 | 6.0 | 1.5 | 60.0 |
| 857-B | 5.0 | 30.0 | 60 | 10.0 | 22,000 | 40.0 | 10.0 | 400.0 |
| 866-AX | 2.5 | 5.0 | 20 | 10.0 | 10,000 | 1.0 | 0.250 | - |
| 869-B | 5.0 | 18.0 | 60 | 10.0 | 20,000 | 10.0 | 2.50 | - |
| 869-BL | 5.0 | 18.0 | 60 | 10.0 | 20,000 | 10.0 | 2.50 | - |
| 872-AX | 5.0 | 7.5 | 30 | 10.0 | 10,000 | 5.0 | 1.25 | 50.0 |
| 6339 | 6.3 | 1.5 | 30 | - | WITH LIQUID COOLING | | | |
| | | | | | 16,000 10,000 | 0.250 0.400 | 0.065 0.100 | - |
| | | | | | WITHOUT COOLING - AIR OPE | | | |
| | | | | | 12,000 | 0.200 | 0.050 | - |
| 6508 | 5.0 | 12.5 | 90 | 12.0 | 21,000 | 10.0 | 2.5 | 100.0 |
| 6693 | 5.0 | 11.5 | 60 | 12.0 | 2,500 | 10.0 | 5.0 | 200.0 |
| | | | | | 15,000 | 12.0 | 3.0 | 120.0 |
| 7136 | 5.0 | 11.5 | 60 | 12.0 | 15,000 | 12.0 | 2.5 | 120.0 |
| 8008-AX | 5.0 | 7.5 | 30 | 10.0 | 10,000 | 5.0 | 1.25 | 50.0 |
| 8020-AX | 5.0 | 6.0 | 5 | 200V at 100ma | 40,000 | 0.750 | 0.100 | - |



RUGGEDIZED MINIATURE TUBES A.R.I.N.C. TYPES

| TYPE NO. | PROTOTYPE | HEATER | | AMPLIFICATION FACTOR | TRANSCONDUCTANCE (MICROMHOS) | TYPICAL OPERATION | | | | | |
|----------|-----------|--------|-------|--|------------------------------|-------------------|---------------|-------------------|---------------------|----------|------------|
| | | VOLTS | AMPS | | | PLATE | | | GRID VOLTS DC | SCREEN | |
| | | | | | | VOLTS DC | CURRENT mA-DC | RESISTANCE K OHMS | | VOLTS DC | CURRE mA-D |
| 5726 | 6AL5 | 6.3 | 0.3 | Max. plate 117 V. rms at 9 mA-DC total output; Peak plate current 54 mA ma | | | | | | | |
| 5654 | 6AK5 | 6.3 | 0.175 | - | 5000 | 120 | 7.5 | 340 | R _k =200 | 120 | 2.5 |

| Temperature Range °C | | DESCRIPTION | TYPE NO. |
|----------------------------|----------------------------|---|----------|
| Ambient | Mercury | | |
| - | - | Xenon gas filled half-wave rectifier with wider temperature ranges than mercury-vapor tubes. Used largely by armed services to replace 866-A's. | 3B-28 |
| - | - | Xenon gas filled half-wave rectifier with wider temperature ranges than mercury-vapor tubes. Used largely by armed services to replace 872-A's. | 4B-32 |
| - | +25 to +70° | Convection-cooled mercury-vapor half-wave rectifier. Used in most Western Electric r-f equipment. | 249-B |
| - | +20 to +50° | Convection-cooled mercury-vapor half-wave rectifier. Widely used in broadcast and industrial power supplies. | 575-A |
| - | +20 to +50° | Convection-cooled mercury-vapor half-wave rectifier. Popular in high voltage and current applications. | 673 |
| - | +30 to +40° | Mercury-vapor half-wave rectifier with low voltage drop. Extremely popular in most high power broadcasting stations. Convection cooled. | 857-B |
| - | +25 to +70° | Mercury-vapor half-wave rectifier of Amperex own design. More rugged trouble-free operation at only slight additional cost. Convection cooled. | 866-AX |
| - | +30 to +40° | Mercury-vapor half-wave rectifier and probably the most popular intermediate high voltage tube in use today with broadcasters and industrial users. Convection cooled. | 869-B |
| - | +30 to +40° | Electrically same as 869-B. Base has flexible filament leads with spade lugs for better, low-resistance contact with socket. | 869-BL |
| - | +20 to +60° | Mercury-vapor half-wave rectifier. Universally used by almost every user and designer of H-V equipment. Convection cooled. | 872-AX |
| -65 to +165° | - | High vacuum clipper diode and rectifier. Miniature version of 3B29 for liquid immersion cooling or air operation. | 6339 |
| T10N | | | |
| -55 to +85° | - | | |
| - | +25 to +45° | Mercury vapor rectifier for relatively high voltage and current. A high quality, long-life tube priced lower than any tube in its class on the market. | 6508 |
| +15 to +55° +15 to +35° | +25 to +75° +25 to +55° | Single-anode, mercury vapor rectifier with ratings, intermediate between standard types 575A and 869B. Delivers 9 amps up to 12 KV in a full wave, 3 phase power supply. Three tubes in a three phase half-wave power supply deliver 6 KV at 9 amps using only one filament transformer. Has large contact area, industrial base preventing base contact oxidation. Priced low for replacement market and original equipment. | 6693 |
| +15 to +35° | +25 to +55° | Single anode, mercury vapor, high voltage rectifier. Plate current ratings intermediate between types 575A and 6693. Cathode and anode design similar to 6693 but with 575A base. Recommended replacement for 575A in older equipment. For new equipment design, the 6693 is recommended. | 7136 |
| - | +20 to +60° | Mercury-vapor half-wave rectifier similar to 872-A characteristics; with heavy long pin industrial base. Used by armed services and in commercial applications. Convection cooled. | 8008-AX |
| - | - | Half-wave, high vacuum rectifier with high inverse voltage and low average current. Used in radar and precipitator power supplies. | 8020-AX |

| POWER OUTPUT Watts | LOAD RESISTANCE K ohms | CUT-OFF BIAS Volts | CAPACITANCES- $\mu\mu\text{f}$ | | | DESCRIPTION | TYPE NO. |
|-----------------------|---------------------------|-----------------------|--------------------------------|-------|--------|--|----------|
| | | | G-P | INPUT | OUTPUT | | |
| - | - | - | - | - | 3.2 | High permeance twin diode. Rugged and reliable. For use in critical applications in which operational dependability is of primary importance. | 5726 |
| - | - | -12 | 0.02 | 4.0 | 2.9 | Sharp cut-off pentode particularly suited for use as a wide band, high frequency amplifier. Ruggedized construction makes it suitable for critical applications in which operational dependability is of primary importance. | 5654 |



PREMIUM QUALITY, 10,000 HOUR TUBES

| TYPE | Heater | | Capacitances | | | MAXIMUM RATINGS | | | | | TYPICAL CHARACTERISTICS | | | | | | | |
|--|--|-----------------|--------------|---------------|---------------|------------------------------------|---|-------------------------|---------------------|-----------------|-------------------------|---------------|------------------|---------------|---------------------|--------------------|----------------------|----|
| | Voltage | Current | Cold Values | Input | Output | Max. Anode Dissipation | Anode Voltage | Suppressor Grid Voltage | Screen Grid Voltage | Cathode Current | Screen Grid Voltage | Anode Voltage | Cathode Resistor | Anode Current | Screen Grid Current | Mutual Conductance | Amplification Factor | |
| | volts | amp. | | μf | μf | watts | volts | volts | volts | mA | volts | volts | ohms | mA | mA | micromhos | | |
| E81L/6686 Power Pentode | 6.3 | 0.375 | - | 11.5 | 6.5 | 4.5 (design center value) | 210 | 0 | 210 | 30 | 210 | 210 | 120 | 20 | 5.3 | 11,000 | 36 | |
| E83F/6689 wide-band amplifier pentode | 6.3 | 0.3 | - | 8.5 | 3.6 | 2.1 (design center value) | 210 | 0 | 210 | 16 | 120 | 210 | 165 | 10 | 2.1 | 9,000 | 34 | |
| E92CC Twin Triode | 6.3 | 0.4 | one section | 3.5 | 0.3 | 2.0 \ddagger (absolute value) | 300 | - | - | 15 | - | 150 | - | 8.5 | - | 6,000 | 50 | |
| 5920/E90CC Twin Triode | 6.3 | 0.4 | one section | 3.4 | 0.35 | 2.0 \ddagger (absolute value) | 300 | - | - | 15 | - | 100 | - | 8.5 | - | 6,000 | 27 | |
| 7062 Twin Triode | 6.3 | 0.400 | one section | 3.5 | 0.5 | 2.0 \ddagger (absolute value) | 600 | - | - | 20 | - | 150 | - | 8.5 | - | 6,300 | 45 | |
| | 12.6 | 0.200 | | | | | | | | | | | | | | | | |
| 7119/E182CC Twin Triode | Series 12.6 | 0.4 | one section | 6.5 | 1.1 | 4.5 (absolute value) | 330 | - | - | 60 | - | 120 | - | 36 | - | 15,500 | 24. | |
| | Par. 6.3 | 0.8 | | | | | | | | | | | | | | | | |
| Rugged Construction | E88CC/6922 Twin Triode | 6.3 | 0.3 | one section | 3.3 | 0.2 | 1.5 \ddagger (design center value) | 220 | - | - | 20 | - | 100 | 680 | 15 | - | 12,500 | 33 |
| | E180F/6688 Broad-band amplifier pentode | 6.3 | 0.3 | - | 7.5 | 3.0 | 3.0 (absolute value) | 210 | 0 | 175 | 25 | 160 | 190 | 630 | 13 | 3.3 | 16,500 | 50 |
| | 6084/E80F Sharp cut-off amplifier pentode | 6.3 | 0.3 | - | 5.0 | 7.3 | 1.3 (absolute value) | 300 | 0 | 200 | 9 | 100 | 250 | 550 | 3 | 0.65 | 1,850 | 25 |
| | 6085/E80CC Twin Triode | par.series 12.6 | 0.3 | one section | 2.6 | 3.5 | 2.0 \ddagger (absolute value) | 300 | - | - | 12 | - | 250 | 920 | 6 | - | 2,700 | 27 |
| | | 6.3 | 0.6 | | | | | | | | | | | | | | | |
| 6227/E80L Power Pentode | 6.3 | 0.75 | - | 11.5 | 7.0 | 8.0 (absolute value) | 300 | 0 | 300 | 50 | 250 | 250 | 130 | 30 | 4.1 | 9,000 | 21. | |

\ddagger Ratings and operating conditions apply to one section

| Typical Operation | | | | | | | | | | | | | | | | | |
|-------------------|---------------|------------------|----------------------|------------------|---------------------------|--|--------------------|-----------------|---------------------|------------|--------------|-----------------|------------------|--------------------------|----------------|--|--|
| Plate Resistance | Anode Current | Anode Resistance | Screen Grid Resistor | Cathode Resistor | Cathode By-Pass Capacitor | Input Resistance Following Amplifier Stage | Grid Leak Resistor | Output Voltage | Amplification | Distortion | Output Power | Input Voltage | Base Connections | Life | Maximum Length | Maximum Diameter | TYPE |
| megohms | mA | kilohms | kilohms | kilohms | μ f | kilohms | megohms | volts effective | $V_o \setminus V_i$ | % | watts | volts effective | | | inches | inches | |
| 0.3 | 20 | 15 | - | 0.12 | 50 | - | 0.1 | - | - | 5 | 1.0 | - | | LONGER THAN 10,000 HOURS | 2-5/8 | 7/8 | E81L/6686 Power Pentode |
| 0.5 | 8.3 | 20 | 5.6 | 0.18 | 50 | - | 0.1 | - | 10 | 0.66 | 1.1 | | 2-5/8 | | 7/8 | E83F/6689 wide-band amplifier pentode | |
| 0.0083 | - | - | - | - | - | - | - | - | - | - | - | | 2-5/8 | | 3/4 | E92CC Twin Triode | |
| 0.0045 | - | - | - | - | - | - | - | - | - | - | - | | 2-5/8 | | 3/4 | 5920/E90CC Twin Triode | |
| 0.0072 | - | - | - | - | - | - | - | - | - | - | - | | 2-5/8 | | 7/8 | 7062 Twin Triode | |
| 0.0016 | - | - | - | - | - | - | - | - | - | - | - | | 2-5/8 | | 7/8 | 7119/E182CC Twin Triode | |
| 0.00264 | - | - | - | - | - | - | - | - | - | - | - | | 2-3/16 | | 7/8 | E88CC/6922 Twin Triode | |
| 0.09 | - | 1.0 | - | - | - | - | 0.5 | - | - | 0.9 | - | 0.1 | | | 1-3/4 | 7/8 | E180F/6688 Broad-band amplifier pentode |
| 1.5 | 0.8 | 220 | 1200 | 1.5 | 50 | 680 | 1.0 | 25 | 175 | 1.4 | - | - | | | 2-5/8 | 7/8 | 6084/E80F Sharp cut-off amplifier pentode |
| 0.01 | 0.67 | 220 | - | 3.9 | 50 | 680 | - | 29 | 21 | 2.6 | - | - | | | 3-1/16 | 7/8 | 6085/E80CC Twin Triode |
| 0.09 | 24 | 10 | 1.0 | 0.27 | 50 | - | 1.0 | - | - | 10 | 2.8 | 2.9 | | 3-1/16 | 7/8 | 6227/E80L Power Pentode | |

Rugged Construction



MERCURY VAPOR AND INERT GAS THYRATRONS - TRIODES AND TETRODES

| TYPE NO. | Heater or Filament | | Filament Heating Time (sec.) | Tube Drop (Volts) | Peak Voltage | | Anode Current | | Max. Grid Volts | Ionization Time μ sec. | Deionization Time μ sec. |
|---------------|--------------------|-------|------------------------------|-------------------|---------------|---------------|---------------|--------------|-----------------|----------------------------|------------------------------|
| | Volts | Amps | | | Forward Volts | Inverse Volts | Peak Amps | Average Amps | | | |
| 2D21 | 6.3 | 0.6 | 10 | 8 | 650 | 1300 | 0.5 | 0.1 | -100 | 0.5 | - |
| AX-105 | 5.0 | 10.0 | 300 | 16 | 10000 | 10000 | 8.0 | 4.0 | -500 | 10 | 1000 |
| AX-255 | 5.0 | 16.0 | 300 | 12 | 1500 | 2500 | 80.0 | 12.5 | -300 | 10 | 1000 |
| AX-260 | 5.0 | 25.0 | 600 | 10 | 1500 | 2500 | 160.0 | 25.0 | -300 | 10 | 1000 |
| 678 | 5.0 | 7.5 | 60 | 15 | 15000 | 15000 | 6.0 | 1.6 | -500 | - | - |
| 1701 | 2.5 | 5.0 | 5 | 16 | 2500 | 5000 | 1.0 | 0.5 | -500 | 10 | 1000 |
| 5544 | 2.5 | 12.0 | 60 | 16 | 1500 | 1500 | 40.0 | 3.2 | -250 | - | 400 |
| 5545 | 2.5 | 21.0 | 60 | 16 | 1500 | 1500 | 80.0 | 6.4 | -250 | - | 500 |
| 5559 | 5.0 | 4.5 | 300 | 16 | 1000 | 1500 | 15.0 | 2.5 | -500 | 10 | 1000 |
| 5560/FG95 | 5.0 | 4.5 | 300 | 16 | 1000 | 1000 | 15.0 | 2.5 | -1000 | 10 | 1000 |
| 5685/C6J | 2.5 | 21.0 | 60 | 9 | 750 | 1250 | 12.8 | 6.4 | -100 | - | 1000 |
| 5727 | 6.3 | 0.6 | 10 | 8 | 650 | 1300 | 0.5 | 0.1 | -100 | 0.5 | 35 min. |
| 5869/AGR-9950 | 5.0 | 6.5 | 120 | 15 | 13000 | 13000 | 4.0 | 1.0 | -100 | 10 | 250 |
| 5870/AGR-9951 | 5.0 | 14.0 | 120 | 12 | 27000 | 27000 | 10.0 | 2.5 | -100 | 10 | 250 |
| 6786 | 5.0 | 15-20 | 600 | 12 | 15000 | 15000 | 45.0 | 10-15 | - | - | - |



MAGNETRONS - Typical operating conditions

| TYPE NO. | Frequency mc/sec. | | Power Output Pulsed KW | Power Output Av. Watts | Plate Voltage Pulsed (KV) | Plate Current Pulsed (Amperes) | Plate Current Average (mA) | Magnetic Field (Gauss) | Duty Factor |
|-------------------|-------------------|------|------------------------|------------------------|---------------------------|--------------------------------|----------------------------|------------------------|-------------|
| | Min. | Max. | Min. | Approx. | | | | | |
| JP9-15 | 9345 | 9405 | 18 | 3.6 | 7.5 | 6.5 | 1.3 | Packaged | .0002 |
| | | | | 18 | | | | | .001 |
| 2J42 | 9345 | 9405 | 7.0 | 7.0 | 5.5 | 4.5 | 4.5 | Packaged | .001 |
| 2J48 ¹ | 9310 | 9320 | 38 | 38 | 10.5 | 10.0 | 10 | 4850 | .001 |
| 2J55 | 9345 | 9405 | 40 | 40 | 12.0 | 12.0 | 12 | Packaged | .001 |
| 2J56 | 9215 | 9275 | 40 | 40 | 12.0 | 12.0 | 12 | Packaged | .001 |
| 4J47 | 2785 | 2820 | 700 | 350 | 25.0 | 60.0 | 30 | 2700 | .0005 |
| 4J57 | 6475 | 6575 | 180 | 180 | 17.5 | 30.0 | 30 | Packaged | .001 |
| 4J58 | 6375 | 6475 | 180 | 180 | 17.5 | 30.0 | 30 | Packaged | .001 |
| 4J59 | 6275 | 6375 | 180 | 180 | 17.5 | 30.0 | 30 | Packaged | .001 |
| 5586 ² | 2700 | 2900 | 800 | 400 | 30.0 | 70.0 | 35 | 2700 | .0005 |
| 5657 ² | 2900 | 3100 | 800 | 400 | 30.0 | 70.0 | 35 | 2700 | .0005 |
| 6507 ³ | 9345 | 9405 | 65 | 65 | 15.0 | 15.0 | 15.0 | Packaged | .001 |
| 6589 ² | 3350 | 3500 | 500 | 250 | 28.0 | 50.0 | 25 | 2700 | .0005 |
| 6972 | 9345 | 9405 | 75 | 75 | 15.0 | 15.0 | 15.0 | Packaged | .001 |

NOTES:

¹Tube can be operated with external stabilizing cavity, in which case frequency is 9310 ± 1 mc/sec.

²Tunable type, mechanical tuning.

| Condensed Mercury Temp. Range - °C | DESCRIPTION | TYPE NO. |
|---------------------------------------|--|---------------|
| - | High control ratio, temperature independent Thyatron with high circuit sensitivity. Inert gas filled. Negative control characteristics. | 2D21 |
| +40° to +80° | Radiation-cooled mercury-vapor thyatron-tetrode. | AX-105 |
| +35° to +75° | Heavy-duty, mercury vapor thyatron for motor control and A.C. welder control. | AX-255 |
| +35° to +75° | Heavy-duty, mercury vapor thyatron for motor control and A.C. welder control. | AX-260 |
| +25° to +50° | Negative-control, H.V. mercury vapor tube. Especially suitable for relay uses where current flow is desired in absence of grid excitation. | 678 |
| +30° to +80° | Radiation-cooled mercury-vapor low voltage thyatron. Similar in structure to 866-A. | 1701 |
| - | Xenon filled thyatron with reliable operation over wide temperature range. For electronic control of D.C. motor speed, regulation of current and voltage, counting and sorting devices and electronic switching machines. | 5544 |
| - | Same as for type 5544 above. | 5545 |
| +40° to +75° | Indirectly heated, mercury-vapor triode with negative control characteristics. | 5559 |
| +40° to +80° | Four electrode, mercury vapor thyatron with negative control characteristics. Designed for applications where the available grid power is very small and where it is desired to actuate the grid from a high impedance source. | 5560/FG95 |
| - | Grid-control, Xenon thyatron. Tantalum anode provides good heat dissipation and gettering properties. | 5685/C6J |
| - | Ruggedized version of 2D21. Particularly suitable for mobile and aircraft operation where mechanical strength and reliability are important. Designed for relay, servo control applications, etc. | 5727 |
| +25° to +55° | Radiation-cooled mercury-vapor thyatron. Oxide coated filament. Used for stepless control of voltage output and D-C motor control. | 5869/AGR-9950 |
| +30° to +45° | Same as above for type 5869/AGR-9950. | 5870/AGR-9951 |
| +25° to +55° | High voltage, grid controlled mercury vapor thyatron. For industrial RF generators and transmitting equipment. | 6786 |

| Starting Filament | | DESCRIPTION |
|-------------------|--------|--|
| (Volts) | (Amps) | |
| 6.3 | 0.6 | <p>The Amperex family of magnetrons operate in the VUHF frequency bands ranging from 2700 to 9405 mc/sec. at peak power levels ranging from 0.5 kw to 800 kw. Designed for radar application but also suitable in applications requiring short pulses of R.F. power of high intensity. Detailed data sheets for each of the magnetrons shown are available on request.</p> |
| 6.3 | 0.6 | |
| 6.3 | 1.0 | |
| 6.3 | 1.0 | |
| 6.3 | 1.0 | |
| 12.6 | 1.45 | |
| 12.6 | 3.62 | |
| 12.6 | 3.62 | |
| 12.6 | 3.62 | |
| 16.0 | 3.1 | |
| 16.0 | 3.1 | |
| 12.6 | 2.1 | |
| 16.0 | 3.1 | |
| 10.0 | 2.85 | |

³This tube also operates at pulse width = 14 μ sec., duty factor .001. Also pulse width = 5 μ sec., duty factor .0025. For more detailed information, write to Magnetron Engineering Section.



UHF TRIODES AND SPECIAL PURPOSE TUBES - MAXIMUM RATINGS

| TYPE NO. | Filament | | Plate Dissipation Watts | Mu | Transcon- ductance (micromhos) | Plate | | Power Output Characteristics | Max. Fre mc/sec | |
|-----------|----------|------|---|----|--------------------------------------|---|--|--|--------------------|--|
| | Volts | Amps | | | | Volts | Amps | | | |
| 6Q4/EC80 | 6.3 | 0.45 | 4 | 30 | 12,000 | 550 | 0.015 | 15 db gain at 300 mc (Bandwidth 4.5 mc) | 500 | |
| 6R4/EC81 | 6.3 | 0.24 | 5 | 16 | 5,500 | 300 | 0.0277 | Power Output 1.1 w at 750 mc | 1200 | |
| EA52 | 6.3 | 0.3 | - | - | - | 1000 V at <100 mc $1000 \times \frac{f_0}{f}$ at >100 mc | 0.0003 | - | 1000 | |
| EFP60 | 6.3 | 0.37 | 2 | - | 25,000 | 300 | 0.020 | - | - | |
| DX144 | 6.3 | 0.65 | 10 | 43 | 19,000 | Max. Plt. volts 300 | Max. Avg. Cath. Current - Amp. 0.035 | 0.5 w at 4000 mc | 4000 | |
| DX145 | 6.3 | 0.65 | 10 | 43 | 19,000 | 300 | 0.070 | 1.8 w at 4000 mc | 4000 | |
| 5847 | 6.3 | 0.3 | 3.0 | - | 12,500 | 180 | 0.35 | - | - | |
| E91H/6687 | 6.3 | 0.27 | OPERATING CHARACTERISTICS with either control at -10 volts and plate voltage at 150 volts, the plate current less than 0.2 mA. With both control grids at 0 volts, the plate current is nomin | | | | | | | |

† fo = 100 mc.



KLYSTRONS - FIXED FREQUENCY †

| TYPE NO. | Frequency Range** (mc) | Power Output (watts) | Filament | | TYPICAL | | | | |
|----------|------------------------|----------------------|--------------------------|----------------|----------------|--------------------------|--------------|-------------------|----------------------|
| | | | Voltage (volts-AC or DC) | Current (amps) | Frequency (mc) | Anode Voltage (volts-DC) | Grid Voltage | Beam Current (ma) | Power Output (watts) |
| DX-122 | 8500-10,500 | 5 | 9.0 - 11.0 | 0.8-1.2 | 9,300 | 2750 | 0 | 35 | 5 |
| DX-123 | 8500-10,500 | 20-35 | 9.0 - 11.0 | 0.8-1.2 | 9,700 | 4350 | 0 | 71 | 33 |
| DX-124 | 8500-10,500 | 100-200 | 9.0 - 11.0 | 0.8-1.2 | 10,000 | 8800 | 0 | 180 | 210 |

† More detailed information available on request. **These tubes are available at any fixed frequency in the range



REFLEX KLYSTRONS

| TYPE NO. | Max. Frequency Range (mc) | Frequency (mc) | Wavelength (cm) | TYPICAL | | | |
|----------|---------------------------|----------------|-----------------|-------------------|------|----------------------------------|---------------------------|
| | | | | Power Output (mw) | | Reflector Potential (Volts-D.C.) | Beam Voltage (Volts-D.C.) |
| | | | | Ave. | Min. | | |
| 2K25 | 8500-9660 | 9370 | 3.21 | 32 | 20 | -128 to -183 | 300 |

| Capacitances in $\mu\mu\text{f}$ | | | DESCRIPTION | TYPE NO. |
|-------------------------------------|------------|--------|---|-----------|
| G-P | Input | Output | | |
| 0.06 | 5.4 | 3.4 | Radiation-cooled triode, button type base, indirectly heated cathode. For use as amplifier and mixer up to 500 mc. Ideally suited for UHF television, balloon sondes, measuring equipment, etc. | 6Q4/EC80 |
| 1.5 | 1.7 | 0.5 | Radiation-cooled triode, standard button base, indirectly heated cathode. Used as oscillator up to 1200 mc. High efficiency at high frequencies. | 6R4/EC81 |
| - | ≤ 0.5 | - | Disc-seal, vacuum diode for UHF voltmeters and monitoring devices. Anode pin connection adaptable for use as probe contact. | EA52 |
| 0.004 | 9.2 | 6 | Secondary emission pentode for wide band amplifier application where stability and high ratio of transconductance to capacities is important. Used in high speed computer service and high quality TV applications. | EFP60 |
| 1.6 | 3.3 | 0.04 | Disc-seal triode, indirectly heated. Features "L" type, high emission, long life cathode. For frequencies up to 4000 mc. General purpose, low level amplifier. | DX144 |
| 1.6 | 3.3 | 0.04 | Same as DX144 except higher current rating | DX145 |
| 0.05 | 7.0 | 2.5 | High-gain miniature pentode with high figure of merit. For broad-band applications. Plug-in replacement for Western Electric 404A. | 5847 |
| will be ly 5.75 mA. | | | Dual control heptode for use as gated amplifier in computer and "on-off" control circuits. Direct replacement for 5915A. | E91H/6687 |

| OPERATION | | | | DESCRIPTION | TYPE NO. |
|--|--|--------------------------------|---------------------|---|----------|
| Electronic * Tuning (KC/sec./volt) | Temp. Coefficient (mc/sec./ $^{\circ}\text{C}$) | Pulling Figure (mc/sec.) | Output Connector | | |
| 10 | 0.2 | 10 | Waveguide RG-52U | The quietest, CW, high-power microwave generators available on the market. Microphonic effects are orders of magnitude less than in comparable tubes using flexible diaphragms as a part of the resonant circuit. Feature high power output, excellent frequency stability, very low microphonics and rugged construction. Require no mechanical adjustment, are simple to operate, easily modulated AM or FM and have minimum life expectancy of 1000 hours due to use of a new, impregnated cathode. No instruments required to align the tubes or to peak the operation. Tubes deliver rated output at rated frequency on application of potentials. Base connections are made directly on stem pins. Water-cooled (approx. 1/2 gal. per minute.) Size - approx. 7-1/2 x 4-5/8 x 2 inches. | DX-122 |
| 7.5 | 0.2 | 10 | Waveguide RG-52U | | DX-123 |
| 5.0 | 0.2 | 10 | Waveguide RG-52U | | DX-124 |

indicated; tolerance ± 20 mc. *Tube may also be grid modulated, AM or FM.

| OPERATION | | | Type of Cavity | Type of Tuning | Type of Output Coupling | Base | TYPE NO. |
|---|--|------------------------------------|----------------------|--------------------------|-------------------------------|-------------------------------|----------|
| Electronic Tuning E.Ref./ $\frac{P_o}{2}$ (mc) | Max. Thermal Drift mc/ $^{\circ}\text{C}$ | Fil. Current at 6.3V. (amps) | | | | | |
| 55 Average | 0 to -0.2 | 0.440 | Self Contained | Mechanical Capacitive | Waveguide RG-52U | Modified Standard Octal | 2K25 |



VACUUM CAPACITORS (Fixed)

| TYPE NO. | Capacity mmfd | Max. Peak KV | Max. RMS Current Amps | Freq. at Max. Current Megacycles | TYPE NO. |
|----------|------------------|-----------------|-----------------------------|---|----------|
| *VC25/20 | 25 | 20 | 60 | 27 | *VC25/20 |
| VC50/20 | 50 | 20 | 60 | 13 | VC50/20 |
| VC100/20 | 100 | 20 | 60 | 6.8 | VC100/20 |

| TYPE NO. | Capacity mmfd | Max. Peak KV | Max. RMS Current Amps | Freq. at Max. Current Megacycles | TYPE NO. |
|----------|------------------|-----------------|-----------------------------|---|----------|
| *VC25/32 | 25 | 32 | 60 | 16 | *VC25/32 |
| VC50/32 | 50 | 32 | 60 | 7.7 | VC50/32 |
| VC100/32 | 100 | 32 | 60 | 4 | VC100/32 |
| VC250/32 | 250 | 32 | 60 | 3.7 | VC250/32 |

NOTE: All metal parts of Amperex fixed vacuum capacitors are OFHC (oxygen free high conductivity) copper.

The above condensers should not be confused with old style vacuum condensers of nickel construction which results in high R-F losses, high temperature co-efficient, seal puncture and low voltage breakdown.

Amperex vacuum capacitors employ large elements with glass to copper seals. This results in low temperature co-efficient, low R-F losses and low inductance.

Maximum current ratings of Amperex vacuum condensers are based on a maximum glass to metal seal temperature of 180°C. The internal condenser losses are largely ohmic, I²R, losses and decrease as the frequency decreases; therefore the maximum RMS current ratings (ie; VC100) increases from 40 amperes at 40 mc to 70 amperes at 5 mc.

Capacitors identified with * (asterisk) have a capacity tolerance of ±1 mmfd. All other capacitors have a tolerance of ±2% of rated value.



VOLTAGE REFERENCE AND REGULATOR TUBES

| TYPE NO. | Operating Voltage (Approx.) Volts | Operating Voltage Limits Volts | Recommended Quiescent Current Milliamperes | Ignition Voltage ^② Volts | Internal Resistance Max. Ohms | Current Range Milliamperes | Regulation ^③ Max. Volts |
|-------------------------------|--|---|---|---|--|----------------------------------|--|
| 0A2 | 150 | 144-164 | 17.5 | 185 max. | 240 | 5-30 | 6 |
| 0B2 | 108 | 106-111 | 17.5 | 133 max. | 140 | 5-30 | 3.5 |
| 90C1 | 90 | 86-94 | 20 | 125 max. | 350 | 1-40 | 14 |
| 6354/150B2 | 150 | 146-154 ^④ | 10 | 180 max. | 500 | 5-15 | 5 |
| Voltage Reference Tubes | 0E3/85A1 ^⑤ | 85 | 83-87 | 4 | 120 max. | 1-8 | 3.15 |
| | 0G3/85A2 ^⑤ | 85 | 83-87 | 6 | 125 max. | 1-10 | 4 |
| | 5651 | 87 | 82-92 | 2.5 | 115 min. | 1.5-3.5 | 3 |

① Spread in operating voltage from tube to tube at recommended quiescent current

② Over tube life

③ Over full current range

④ Drift in operating voltage during 1000 hours: max. 1%

⑤ Drift in operating voltage during the first 300 hours of life: max. 0.3%

Short term drift in operating voltage (100 hours max.) after the first 300 hours of operation: max. 0.1%

Temperature coefficient of operating voltage = -2.7 mV/°C



IGNITRONS High efficiency, rugged construction, for WELDER CONTROL SERVICE.

| TYPE NO. | R.M.S. Volts Range | Max. KVA Demand & Corresponding Average Current | | Max. Average Current & Corresponding KVA Demand | | Type Cooling |
|-----------|--------------------|---|-------|---|------|--------------|
| | | K.V.A. | Amps | K.V.A. | Amps | |
| 5554/679 | 2400 | 1200 | 75.0 | 600 | 113 | Water |
| 5555/653B | 2400 | 2400 | 135.0 | 1105 | 207 | Water |
| 5822 | 220-600 | 424 | 20 | 188 | 70 | Water |

High efficiency, rugged construction, for CONTINUOUS RECTIFIER SERVICE.

| TYPE NO. | Typical D.C. Output Voltage (v) | Max. Peak Inverse & Forward Voltage (v) | Max. Peak Anode Current (A) | Max. Continuous Average Anode Current (A) | Max. Average Current (A) 1 minute | Type Cooling |
|-----------|---------------------------------|---|-----------------------------|---|-----------------------------------|--------------|
| 5554/679 | 300* | 2100 | 900 | 100 | 200 | Water |
| | 600* | 2100 | 600 | 75 | 150 | |
| 5555/653B | 300* | 2100 | 1800 | 200 | 400 | Water |
| | 600* | 2100 | 1200 | 150 | 300 | |

*Six-phase, double Y, single way circuits.



IGNITRONS - THERMOSTATICALLY CONTROLLED

| TYPE NO. | R.M.S. Volts Range | Max. KVA Demand & Corresponding Average Current | | Max. Average Current & Corresponding KVA Demand | | Type Cooling |
|----------|--------------------|---|-------|---|------|--------------|
| | | K.V.A. | Amps | K.V.A. | Amps | |
| 5551-A | 250-600 | 600 | 30.2 | 200 | 56 | Water |
| 5552-A | 250-600 | 1200 | 75.6 | 400 | 140 | Water |
| 5553-B | 250-600 | 2400 | 192.0 | 800 | 355 | Water |



IGNITRONS - WITH INSULATED COATING †

| TYPE NO. | Description | R.M.S. Volts Range | Max. KVA Demand & Corresponding Average Current | | Max. Average Current & Corresponding KVA Demand | | Type Cooling |
|----------|------------------------------------|--------------------|---|-------|---|------|--------------|
| | | | K.V.A. | Amps | K.V.A. | Amps | |
| 5551A/P | Coated Thermostatically Controlled | 250-600 | 600 | 30.2 | 200 | 56 | Water |
| 5552A/P | Coated Thermostatically Controlled | 250-600 | 1200 | 75.6 | 400 | 140 | Water |
| 5553/P | Coated | 250-600 | 2400 | 192.0 | 800 | 355 | Water |
| 5822/P | Coated | 220-600 | 424 | 20 | 188 | 70 | Water |

† These ignitrons are partially insulated to reduce, as far as practicable, the possibility of accidental electric shock.

‡ These tubes are identical with the corresponding types 5551, 5552 and 5553 except that they are fitted with a "sensing" plate for adaption of a thermostat. They do not include the thermostat or thermostat mounting under these designations. If thermostatic control is required one of the following accessory groups should be ordered with each tube:

(A) AMPEREX "Water Saver" Thermostat Assembly, Cat. No. S-17024 (Consists of Thermostat No. C 4391-7-51, mounting clamp, terminal block and four sets of nuts, bolts and washers)

(B) AMPEREX "Overload Protection" Thermostat Assembly, Cat. No. S-17025. (Consists of Thermostat No. C 4391-7-52, mounting clamp, terminal block and four sets of nuts, bolts and washers)



PERMANENT SENSITIVITY, RADIATION COUNTER TUBES □

| TYPE NO. | Filling | Operating Voltage | Plateau | Slope Plateau | Dead Time (Approx.) | Background (Shielded 2" Lead) |
|----------------------|-----------------------------|-----------------------|------------------------|-----------------------------|---------------------|-------------------------------|
| 75N-7 [†] | Neon + quenching admixture | 700 D.C. [†] | in excess of 125 volts | 15% per 100 volts max. | 100 micro-seconds | 50 counts per minute max. |
| 75NB3-7 [†] | Neon + quenching admixture | 700 D.C. [†] | in excess of 125 volts | 15% per 100 volts max. | 100 micro-seconds | 50 counts per minute max. |
| 90NB | Neon + quenching admixture | 900 D.C. | in excess of 200 volts | 10% per 100 volts max. | 100 micro-seconds | 50 counts per minute max. |
| 100C | Argon + quenching admixture | 1200 D.C. | in excess of 300 volts | 5% to 10% per 100 volts | 200 micro-seconds | 50 counts per minute max. |
| 100CB | Argon + quenching admixture | 1200 D.C. | in excess of 300 volts | 5% to 10% per 100 volts | 200 micro-seconds | 50 counts per minute max. |
| 100N | Neon + quenching admixture | 700 D.C. | in excess of 200 volts | 5% to 10% per 100 volts | 200 micro-seconds | 50 counts per minute max. |
| 100NB | Neon + quenching admixture | 700 D.C. | in excess of 200 volts | 5% to 10% per 100 volts | 200 micro-seconds | 50 counts per minute max. |
| 120C | Argon + quenching admixture | 1200 D.C. | in excess of 300 volts | 5% to 10% per 100 volts | 300 micro-seconds | 100 counts per minute max. |
| 120N | Neon + quenching admixture | 700 D.C. | in excess of 200 volts | 5% to 10% per 100 volts | 300 micro-seconds | 100 counts per minute max. |
| 120NB | Neon + quenching admixture | 700 D.C. | in excess of 200 volts | 5% to 10% per 100 volts | 300 micro-seconds | 100 counts per minute max. |
| 150N | Neon + quenching admixture | 700 D.C. | in excess of 180 volts | 10% per 100 volts max. | 150 micro-seconds | 75 counts per minute max. |
| 150NB | Neon + quenching admixture | 700 D.C. | in excess of 180 volts | 10% per 100 volts max. | 150 micro-seconds | 75 counts per minute max. |
| 153C | Argon + quenching admixture | 1500 D.C. | in excess of 400 volts | 3% to 8% per 100 volts | 150 micro-seconds | 60 counts per minute max. |
| 200C | Argon + quenching admixture | 1200 D.C. | in excess of 300 volts | 5% to 10% per 100 volts | 200 micro-seconds | 50 counts per minute max. |
| 200CB | Argon + quenching admixture | 1200 D.C. | in excess of 300 volts | 5% to 10% per 100 volts | 200 micro-seconds | 50 counts per minute max. |
| 200N | Neon + quenching admixture | 700 D.C. | in excess of 200 volts | 5% to 10% per 100 volts | 200 micro-seconds | 50 counts per minute max. |
| 200NB | Neon + quenching admixture | 700 D.C. | in excess of 200 volts | 5% to 10% per 100 volts | 200 micro-seconds | 50 counts per minute max. |
| 230N | Neon + quenching admixture | 850 D.C. | in excess of 150 volts | Less than 15% per 100 volts | 100 micro-seconds | 15 counts per minute max. |
| 240C | Neon + quenching admixture | 1200 D.C. | in excess of 200 volts | Less than 10% per 100 volts | 100 micro-seconds | 50 counts per minute max. |
| 240N | Neon + quenching admixture | 850-900 D.C. | in excess of 150 volts | Less than 15% per 100 volts | 100 micro-seconds | 50 counts per minute max. |
| 912NB* | Neon + quenching admixture | 900 D.C. | in excess of 200 volts | 10% per 100 volts max. | 100 micro-seconds | 75 counts per minute max. |

NOTE: All cathodes are stainless steel.
 Life expectancy unlimited by use.
 Operating temperature range, -55°C to +75°C.

| Average Mica Window or Wall Thickness | Effective Dia. of Mica Window | Effective Cathode Dimensions (Inches) | Max. Overall Tube Dimensions (Inches) | Application | TYPE NO. |
|---|-------------------------------|---------------------------------------|---------------------------------------|----------------------------|-----------|
| 150 mg/cm ² | — | 2-11/16 long x 5/8 O.D. x .009" Wall | 5/8 x 4-3/8 | Gamma | 75N-7 † |
| 150 mg/cm ² | — | 2-11/16 long x 5/8 O.D. x .009" Wall | 5/8 x 4-5/16 (3 Pin Base) | Gamma | 75NB3-7 † |
| 30-40 mg/cm ² | — | 3 long x 5/8 O.D. | 5/8 O.D. x 5-5/8 (3 Pin Base) | Beta & Gamma | 90NB |
| .0005 in. = 3.5 mg/cm ² = 12.70 microns | 1-3/32" | 1-1/2 lg. x 1-3/16 O.D. x 3/32 Wall | 1-1/2 x 3-3/4 | Beta & X-Ray | 100C |
| .0005 in. = 3.5 mg/cm ² = 12.70 microns | 1-3/32" | 1-1/2 lg. x 1-3/16 O.D. x 3/32 Wall | 1-3/8 x 4-11/32 (4 Pin Base) | Beta & X-Ray | 100CB |
| .0005 in. = 3.5 mg/cm ² = 12.70 microns | 1-3/32" | 1-1/2 lg. x 1-3/16 O.D. x 3/32 Wall | 1-1/2 x 3-3/4 | Beta | 100N |
| .0005 in. = 3.5 mg/cm ² = 12.70 microns | 1-3/32" | 1-1/2 lg. x 1-3/16 O.D. x 3/32 Wall | 1-3/8 x 4-11/32 (4 Pin Base) | Beta | 100NB |
| .0008 in. = 5.6 mg/cm ² = 20.32 microns | 1-29/32" | 2-11/16 lg. x 2 O.D. x 5/64 Wall | 2-3/8 x 5-1/8 | Beta & X-Ray | 120C |
| .0008 in. = 5.6 mg/cm ² = 20.32 microns | 1-29/32" | 2-11/16 lg. x 2 O.D. x 5/64 Wall | 2-3/8 x 5-1/8 | Beta | 120N |
| .0008 in. = 5.6 mg/cm ² = 20.32 microns | 1-29/32" | 2-11/16 lg. x 2 O.D. x 5/64 Wall | 2-5/16 x 5-3/4 (4 Pin Base) | Beta | 120NB |
| .0005 in. = 3.5 mg/cm ² = 12.70 microns | 25/32" | 4 lg. x 7/8 O.D. x 3/64 Wall | 1 x 6-5/8 (4 Pin Base) | Beta & Gamma | 150N |
| .0005 in. = 3.5 mg/cm ² = 12.70 microns | 25/32" | 4 lg. x 7/8 O.D. x 3/64 Wall | 1-5/32 x 7-1/8 | Beta & Gamma | 150NB |
| .0005 in. = 3.5 mg/cm ² = 12.70 microns | 25/32" | 4-3/8 lg. x 7/8 O.D. | 1 O.D. x 6 lg. | X-Ray | 153C |
| .0002 in. = 1.4 mg/cm ² = 5.08 microns | 1-3/32" | 1-1/2 lg. x 1-3/16 O.D. x 3/32 Wall | 1-1/2 x 3-3/4 | Alpha, Beta, Gamma & X-Ray | 200C |
| .0002 in. = 1.4 mg/cm ² = 5.08 microns | 1-3/32" | 1-1/2 lg. x 1-3/16 O.D. x 3/32 Wall | 1-3/8 x 4-11/32 (4 Pin Base) | Alpha, Beta, Gamma & X-Ray | 200CB |
| .0002 in. = 1.4 mg/cm ² = 5.08 microns | 1-3/32" | 1-1/2 lg. x 1-3/16 O.D. x 3/32 Wall | 1-1/2 x 3-3/4 | Alpha & Beta | 200N |
| .0002 in. = 1.4 mg/cm ² = 5.08 microns | 1-3/32" | 1-1/2 lg. x 1-3/16 O.D. x 3/32 Wall | 1-3/8 x 4-11/32 (4 Pin Base) | Alpha & Beta | 200NB |
| .0002 in. = 1.4 mg/cm ² = 5.08 microns | 13/32" | 1-1/4 lg. x 5/8 O.D. x .010" Wall | 5/8 x 3-1/4 (3 Pin Base) | Alpha & Beta | 230N |
| .0002 in. = 1.4 mg/cm ² = 5.08 microns | 13/32" | 4 lg. x 5/8 O.D. x .010" Wall | 5/8 x 5-7/8 (3 Pin Base) | Alpha, Beta & Gamma | 240C |
| .0002 in. = 1.4 mg/cm ² = 5.08 microns | 13/32" | 4 lg. x 5/8 O.D. x .010" Wall | 5/8 x 5-7/8 (3 Pin Base) | X-Ray | 240N |
| 30-40 mg/cm ² | — | 7 lg. x 5/8 O.D. | 5/8 O.D. x 11-25/32 (4 Pin Base) | Beta & Gamma | 912NB* |

† Also available in 600 volt operating voltage. Specify Type 75N-6 or 75NB3-6. For 900 volt operation, specify Type 75N-9 or 75NB3-9.

Detailed catalogue available upon request.

* Also available with 3 Pin Base, specify Type 912NB-3. Overall tube length = 11-3/8".



GERMANIUM DIODES - ALL GLASS, HERMETICALLY SEALED (Characteristics at 25 °C)

| CONSTRUCTION (ALL GLASS) | | | DESCRIPTION | MAX. CONTINUOUS OPERATING INVERSE VOLTAGE (VOLTS) | MAXIMUM PEAK INVERSE VOLTAGE (VOLTS) | MAXIMUM PEAK RECTIFIED CURRENT (MA) | MAXIMUM AVERAGE RECTIFIED CURRENT (MA) | MIN. FORWARD CURRENT (MA) AT | | | | |
|--------------------------|----------------------|----------------------|---|---|--------------------------------------|-------------------------------------|--|--|----------|------------|-------------------------|-----|
| CLIP-IN | SOLDER-IN | SUB-MINIATURE | | | | | | +1 VOLT | +3 VOLTS | -1.5 VOLTS | - VOLT | |
| IN34A | IN34 | | General Purpose | 60 | 75 | 150 | 50 | 5 | | | | |
| IN38A | IN38 | | High Peak Voltage | 100 | 120 | 150 | 50 | 4 | | | 5 at -3V. | |
| | G48 ¹ | | General Purpose | 70 | 85 | 150 | 50 | 4 | | | | |
| IN54A | IN54 | | High Back Resistance | 50 | 75 | 150 | 50 | 5 | | | | |
| IN58A | IN58 | | High Peak Voltage | 100 | 120 | 150 | 50 | 4 | | | | |
| C60 ¹ | IN60 | | Video Detector | 25 | 30 | 150 | 50 | 1.55 volts output in circuit, 150 K ohms t | | | | |
| IN63 | G63 ¹ | | High Back Resistance | 100 | 125 | 150 | 50 | 4 | | | | |
| C67 ¹ | G67 ¹ | IN67A | High Back Resistance | 80 | 100 | 90 | 30 | 4 | | | | |
| C68 ¹ | G68 ¹ | IN68A | High Peak Voltage | 100 | 130 | 90 | 30 | 3 | | | | |
| | IN87* | IN87A* | Video Detector | 25 | 30 | 150 | 50 | 0.1 at 0.25V. | | | 25 | |
| | IN88 | | D.C. Restorer | 85 | 110 | 150 | 50 | 2.5 | | | | |
| C89 ¹ | G89 ¹ | IN89 | General Purpose | 80 | 100 | 90 | 30 | 3.5 | | | | |
| | | IN90 | General Purpose | 60 | 75 | 90 | 30 | 5 | | | | |
| C95 ¹ | | IN95 | General Purpose | 60 | 75 | 90 | 30 | 10 | | | | |
| C99 ¹ | | IN99 | High Back Resistance | 80 | 100 | 90 | 30 | 10 | | | | |
| C116 ¹ | | IN116 | High Back Resistance | 60 | 75 | 90 | 30 | 5 | | | | |
| C117 ¹ | | IN117 | High Back Resistance | 60 | 75 | 90 | 30 | 10 | | | | |
| IN119 ⁵ | IN480 ⁵ * | | Computer | 60 | 90 | 150 | 35 | 5 | | | 400 K ohms at 55°C, -20 | |
| IN120 ⁵ | IN490 ⁵ * | | Computer | 60 | 90 | 150 | 35 | 5 | | | 200 K ohms at 55°C, -20 | |
| | | IN126 | General Purpose | 60 | 75 | 90 | 30 | 5 | | | | |
| | | IN128 | General Purpose | 40 | 50 | 90 | 30 | 3 | | | | |
| | | IN198 | General Purpose | 80 | 100 | 90 | 30 | 5 | | | | |
| IN477 ² * | IN476 ² * | | High Peak Voltage | 90 | 115 | 150 | 50 | 3 | | 25 | | |
| IN479 ² * | IN478 ² * | | High Peak Voltage | 90 | 115 | 150 | 50 | 5 | | 30 | | 5 |
| | IN541* | | A.M. Detector | 30 | 45 | 100 | 10 | 1.5 | 18 | | 2.8 | |
| | IN542* | | Ratio Detector | The IN542 is a matched pair of IN541 diodes | | | | | | | | |
| | IN616 ² * | | Video Detector | 30 | 40 | 150 | 30 | 8 | | | 18 | |
| | | IN617 ² * | High Peak Voltage | 90 | 115 | 150 | 50 | 3 | | 25 | | |
| | | IN618 ² * | High Peak Voltage | 90 | 115 | 150 | 50 | 5 | | 35 | | 4.5 |
| SINGLE ENDED 0A5 | | | High-Current Computer Switching Gold Bonded | 100 | 100 | 350 | 115 | 200 | | | | -5 |

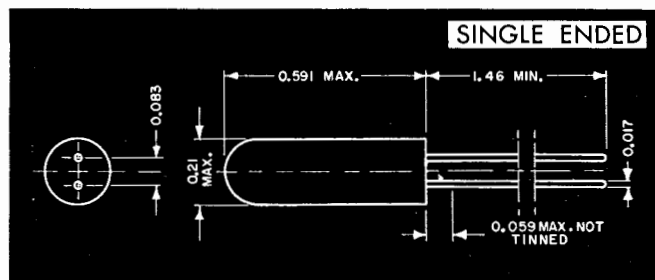
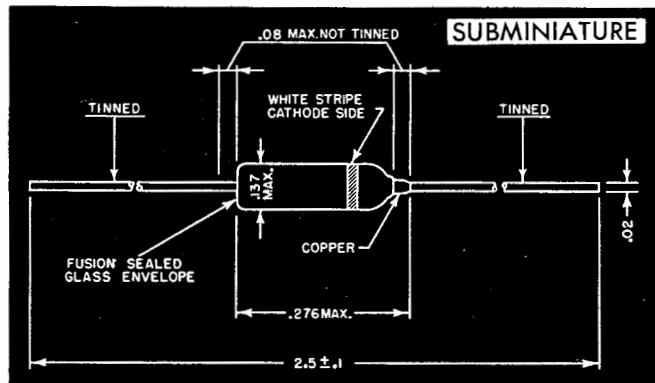
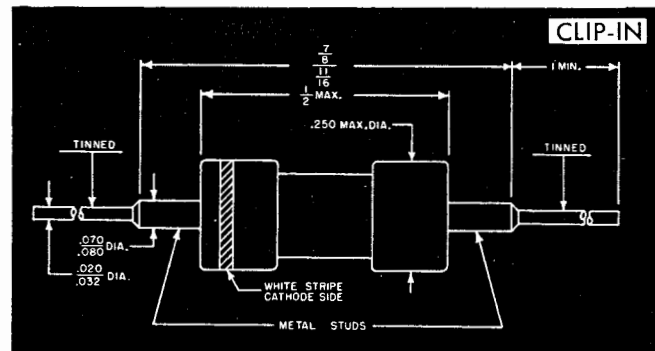
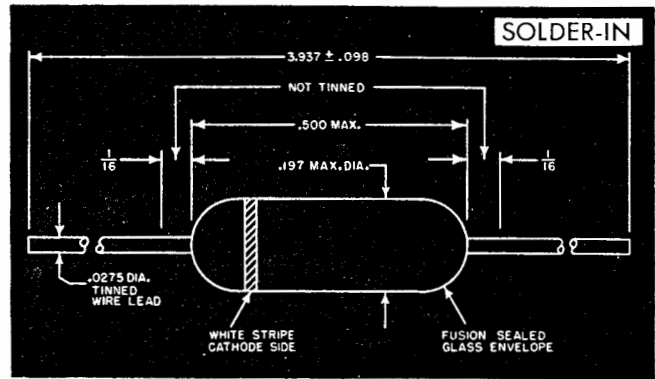
*Detailed data sheets available upon request

Notes:

1. Non-RETMA numbers. Diode types meet electrical specifications as shown.
2. Both minimum and maximum limits are listed on detailed specifications. Characteristics are also specified at 60°C.
3. These values tested at 75°C.
4. Shunt capacitance for all types = 1.0 mmf maximum.

POINT CONTACT DIODES NOT SHOWN
ON THIS CHART ARE ALSO AVAILABLE
ON QUANTITY REQUIREMENTS

| TS | MAXIMUM INVERSE CURRENT (MICROAMPS) AT | | | | MAXIMUM SURGE CURRENT (MA) MAXIMUM 1 SECOND |
|--|--|------------------|------------|------------|---|
| | -10 VOLTS | -50 VOLTS | -75 VOLTS | -100 VOLTS | |
| | 30 | 500 | | | 500 |
| | | | | 500 | 500 |
| | 50 | 833 | | | 400 |
| | 7 | 100 | | | 500 |
| | 50 | | | 600 | 500 |
| test cir- -10 volts | | | | | 500 |
| | | 50 | | | 400 |
| | | 50 | | | 250 |
| | | | | 625 | 350 |
| 60% rect. eff. damping resistance = 3000 ohms in specified test circuit. | | | | | 400 |
| | | 100 | | | 400 |
| | | 100 | | | 250 |
| | | 500 | | | 250 |
| | | 500 | | | 300 |
| | | 50 | | | 300 |
| | | 100 | | | 300 |
| | | 100 | | | 300 |
| to -50 volts | | | | | 500 |
| to -50 volts | | | | | 500 |
| | 50 | 850 | | | 300 |
| | 10 | | | | 300 |
| | 75 ^a | 250 ^a | | | 300 |
| | 11 | 80 | 180 | 275 | 500 |
| -3v. | 7 | 65 | 155 | 250 | 500 |
| | 18 | 150at-30v. | 350at-45v. | | 200 |
| 150at-30v., 350at-45v. | | | | | 200 |
| | 11 | 87 | 180 | 275 | 500 |
| | 7 | 50 | 115 | 250 | 500 |
| | -6 | -9 | | 30 | 500 |



5. Reverse recovery time for these diodes is specified and defined as the time required for the diode to recover to a given reverse current when the operating voltage necessary to give 30 mA forward current is rapidly switched to -35 volts.

| | Recovery Time (μsec.) | Reverse Current (μAmp) |
|---------------|-----------------------|------------------------|
| IN119 & IN480 | 0.5 | 700 |
| | 3.5 | 87.5 |
| IN120 & IN490 | 0.5 | 700 |
| | 3.5 | 175 |

For information on AMPEREX gold bonded and germanium power diodes, write to the factory.



P-N-P ALLOY JUNCTION GERMANIUM TRANSISTORS

| TYPE NUMBER | APPLICATION | ABSOLUTE MAXIMUM RATINGS | | | | | | | |
|----------------------------|--|----------------------------|----------------------------|----------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| | | V _{CE} (volts) | V _{CB} (volts) | V _{EB} (volts) | I _C (mA) | I _E (mA) | I _B (mA) | T _j (°C) | K (°C/mW) |
| 2N115** | Audio Gen. Purpose High Power | -32 | -32 | -10 | -3000 | 3300 | -500 | 75 ¹ | .0018 |
| 2N279* | Audio Gen. Purpose Low Power | -30 | -30 | - | -50 | 55 | - | 75 ¹ | 0.4 |
| 2N280* | Audio Gen. Purpose Low Power | -30 | -30 | - | -50 | 55 | - | 75 ¹ | 0.4 |
| 2N281* | Audio Gen. Purpose Medium Power | -32 | -32 | -10 | -250 | 250 | -125 | 75 ¹ | 0.3 |
| 2N282* | Audio Gen. Purpose Medium Power | Matched P | | | | | | | |
| 2N283* | Tight Tolerance Audio Gen. Purpose Low Power | -30 | -32 | -30 | -10 | -10 | - | 75 ¹ | 0.4 |
| 2N284* | Switching and D.C. Converter Circuits | -32 | -32 | -10 | -250 | 250 | -125 | 75 ¹ | 0.4 0.3 ⁴ |
| 2N284A* | Switching and D.C. Converter Circuits | -60 | -60 | -10 | -250 | 250 | -125 | 75 ¹ | 0.4 0.3 ⁴ |
| 0C44* | R.F. Converters, Mixer-Oscillator Circuits | -15 | -15 | -12 | -10 | 10 | - | 75 ¹ | 0.5 |
| 0C45* | I.F. Amplifier Circuits | -15 | -15 | -12 | -10 | 10 | - | 75 ¹ | 0.5 |
| 0C65** | Subminiature Audio Gen. Purpose Low Power | -10 | -10 | -10 | -10 | 10 | -2 | 75 ¹ | 0.65 |
| 0C66** | Subminiature Audio Gen. Purpose Low Power | -10 | -10 | -10 | -10 | 10 | -2 | 75 ¹ | 0.65 |
| 2N109/ 2N217 EQUIV.* | Audio Gen. Purpose Medium Power | -32 | -32 | -10 | -70 | 70 | - | 75 ¹ | 0.4 |

¹ Intermittent operation at a junction temperature of 90°C is allowed providing adequate stabilization is assured
² Minimum value. ³ Maximum value. ⁴ With cooling clamp attached to appropriate heat sink.



INDICATOR TUBES

| TYPE NO. | FILAMENT | | SUPPLY AND SCREEN VOLTS | SCREEN CURRENT AT START OF CONTROL (mA) | ANODE SERIES RESISTANCE (Megohms) | GRID BIAS FOR END OF CONTROL RANGE (Volts) | |
|-----------|------------------------|------|---|---|---|--|-------------------------|
| | Volts | Amps | | | | | |
| EM34 | 6.3 | 0.2 | 250 | 2.0 | 1.0 | Section 1 = -5 Section 2 = -16 | |
| DM70/IM3 | 1.4 | 0.25 | 85 | 0.17 | - | -10 | |
| EM80 | 6.3 | 0.3 | 250 | 2.0 | 0.5 | -16 | |
| EM81 | 6.3 | 0.3 | 250 | 2.0 | 0.5 | -16 | |
| EM84 | 6.3 | 0.27 | 250 | 1.1 | 0.47 | -22 | |
| EIT/6370* | 6.3 | 0.3 | Special "Beam Deflecting" miniature cathode ray tube. D rate 100,000 cps. For nuclear scalars, computers, indus | | | | |
| 6977 | 1.0 A.C. or D.C. | 0.30 | ANODE VOLTAGE | MAX. LIGHT OUTPUT | ZERO LIGHT OUTPUT V _f = 1.0 V.A.C. | | |
| | | | +50V.D.C. | V _g = 0 I _a = 0.6 mA | One side grounded | Center tap grounded | Neg. terminal gro |
| | | | | | V _g = 3.5 V. | V _g = 3.0 V. | V _g = 2.5 V. |

* Write for detailed application bulletin.

ELECTRICAL CHARACTERISTICS (Ambient Temperature = 25°C)

| Common Emitter | | | | | | Common Base | | | | | |
|---|---------------------|---------------|-------------------------|--------------------|-----------------|--------------------------|--------------------------|---------------------|---------------|--------------------------|--------------------|
| I_{CE0} (μA) | V_{CE} (volts) | I_C (mA) | h_{FE} (β) | f_{ae} (KC/s) | NF (db) | I_{EB0} (μA) | I_{CB0} (μA) | V_{CB} (volts) | I_C (mA) | h_{fb} (α) | f_{ab} (KC/s) |
| -600 | -14 | -30 | 40 | - | - | -10 | -20 | -7 | -300 | - | 200 |
| -110 | -2 | -0.5 | 30 | 15 | 10 | - | -5 | -2 | -0.5 | 0.968 | 300 |
| -150 | -2 | -3 | 47 | -10 | 8 | - | -4.5 | -2 | -3 | 0.979 | 300 |
| -145 | -5.4 | -10 | 70 | 8 ² | 15 ³ | -4.5 | -4.5 | -6 | -10 | - | 350 |
| of 2N281 Transistors ($\frac{h_{FE1}}{h_{FE2}} \leq 1.3$) | | | | | | | | | | | |
| - | -10 | -0.5 | 40 | - | 10 | -3.5 | -3.5 | -10 | -0.5 | - | 500 |
| -200 | -0.7 | -125 | 25 ² | - | 15 ³ | -4.5 | -4.5 | -6 | -10 | - | 350 ² |
| -200 | -0.7 | -125 | 25 ² | - | 15 ³ | -4.5 | -4.5 | -6 | -10 | - | 350 ² |
| -25 | -6 | -1 | 100 | - | - | -0.4 | -0.5 | -6 | -1 | - | 15,000 |
| -12 | -6 | -1 | 40 | - | - | -0.4 | -0.5 | -6 | -1 | - | 6,000 |
| -110 | -2 | -0.5 | 30 | 15 | 9 | - | -5 | -2 | -0.5 | 0.968 | 450 |
| -150 | -2 | -3 | 47 | 10 | 9 | - | -5 | -2 | -3 | 0.979 | 470 |
| -125 | -5.4 | -10 | 70 | 8 ² | 15 ³ | -4.5 | -4.5 | -6 | -10 | - | 350 ² |

* Hermetically, glass-fusion sealed, using vacuum tube techniques.
 ** Hermetically sealed, metal case.

NOTE: All values are average unless otherwise stated.

| DESCRIPTION | TYPE NO. |
|--|-----------|
| Tuning indicator featuring double sensitivity, clear indication even with weak signals | EM34 |
| Tuning indicator especially designed for battery operated sets featuring low filament consumption (25mA), subminiature size and "on-off" indication. Ideal for transistorized computers | DM70/IM3 |
| 9 pin miniature tuning indicator featuring small size, ease of installation and high sensitivity for weak signals | EM80 |
| Same as EM80 except for different fluorescent pattern. Suitable for radios, tape recorders and measuring equipment. Pattern makes it useful also as a level indicator. | EM81 |
| 9 pin miniature tuning indicator for use in broadcast receivers and tape recorders. The deflection electrode is connected separately to a pin at the base. Converging dual fluorescent bar pattern. | EM84 |
| counter with luminescent spot at numbers on face 0 to 9. Max. counting counters, control and memory applications. | EIT/6370* |
| Subminiature vacuum triode with fluorescent anode. Designed for electronic computer and business machine applications to replace neon lamps. Particularly suited to use in transistorized circuits. Designed for 20,000 hour life. | 6977 |



TUBE ACCESSORIES

| TYPE NO. | Water Jacket | Gasket | Stand Off Insulator | External Grid Connector | External Filament Lead or Connector | External Plate Connector | Socket Assembly |
|----------------------------|--------------|--------|---------------------|---|-------------------------------------|--------------------------|-----------------|
| EIT | - | - | - | - | - | - | S-13264 |
| 4X150A | - | - | - | - | - | - | S-19931* |
| 4X250B | - | - | - | - | - | - | S-19931* |
| EFP60 | - | - | - | - | - | - | S-13211 |
| DM70/IM3 | - | - | - | - | - | - | S-19883 |
| 502 | DW-2200 | 1-55 | SI-5002 | - | - | - | - |
| 508 | DW-2500 | 1-51 | SI-5003 | 1-66 | - | - | - |
| 833-A | - | - | - | 1-65 | - | 1-65 | 1-64 |
| 880 | S-13240 | - | - | - | - | - | - |
| 889-A | DW-2100 | 1-52 | SI-5001 | S-13483 | S-13484 | - | - |
| 889-AR | - | - | - | S-13483 | S-13484 | - | - |
| 891 | DW-1580 | 1-53 | - | 1-66 | 1-62 & 1-63 | - | - |
| 891-R | - | - | - | 1-66 | 1-62 & 1-63 | - | - |
| 892 | DW-1580 | 1-53 | - | 1-66 | 1-62 & 1-63 | - | - |
| 892-R | - | - | - | 1-66 | 1-62 & 1-63 | - | - |
| ZB-3200 | - | - | SI-5005 | 1-66 | - | - | - |
| 5604 | - | - | - | S-13483 | S-13484 | - | - |
| 5619 ^e | S-17427 | - | - | S-13483 | S-13484 | - | - |
| 5658 | S-13240 | - | - | - | - | - | - |
| 5666 ^e | S-13241 | - | - | S-13483 | S-13484 | - | - |
| 5667 | - | - | - | S-13483 | S-13484 | - | - |
| 5771 | S-13240 | - | - | S-13483 | S-13484 | - | - |
| 5868/AX-9902 | - | - | - | - | - | S-3702 | S-3703 |
| 5894 | - | - | - | - | - | S-3712 | - |
| 5923/AX-9904 | S-3737 | - | - | S-3706 | S-3707 | - | - |
| 5924/AX-9904R ¹ | - | - | - | S-3706 | S-3707 | - | - |
| 5924A ¹ | - | - | - | S-3706 | S-3707 | - | - |
| 6075/AX-9907 | S-3737 | - | - | S-3706 | S-3707 | - | - |
| 6076/AX-9907R ³ | - | - | - | S-3706 | S-3707 | - | - |
| 6077/AX-9906 ⁵ | S-3738 | - | - | - | S-3739 | - | - |
| 6078/AX-9906R ² | - | - | - | - | S-3739 | - | - |
| 6079/AX-9908 | - | - | - | - | - | S-3702 | S-3703 |
| 6155/4-125A | - | - | - | - | - | S-3702 | - |
| 6156/4-250A | - | - | - | - | - | S-3702 | - |
| 6252/AX-9910 | - | - | - | - | - | S-3712 | - |
| 6333 | DW-1580 | - | - | Y-13326 ⁴ | S-13484 | - | - |
| 6445 | - | - | - | Y-13326 ⁴ | S-13484 | - | - |
| 6446 ^e | S-15096 | - | - | Y-13326 ⁴ | S-13484 | - | - |
| 6447 | - | - | - | Y-13326 ⁴ | S-13484 | - | - |
| 6617 | S-15936 | - | - | S-15937 | S-15938 | - | - |
| 6618 ^e | - | - | - | S-15937 | S-15938 | - | - |
| 6756 | S-15096 | - | - | Y-13326 ⁴ | - | - | - |
| 6757 | - | - | - | Y-13326 ⁴ | - | - | - |
| 6758 | S-3737 | - | - | S-17288 | - | - | - |
| 6759 ⁷ | - | - | - | S-17288 | - | - | - |
| 6800 | S-17427 | - | - | S-13483 | S-13484 | - | - |
| 6960 | S-3737 | - | - | S-17288 ¹⁰ S-3706 ¹¹ | S-3707 S-21000 ⁹ | - | - |
| 6961 ¹ | - | - | - | S-17288 ¹⁰ S-3706 ¹¹ | S-3707 S-21000 ⁹ | - | - |
| 6979 | - | - | - | - | - | - | S-19931* |
| 7092 | - | - | - | - | - | S-3702 | S-21421 |

¹ Airflow Chamber S-3705

² Airflow Chamber S-3740

³ Airflow Chamber S-11882

⁴ Supplied with each tube without charge

⁵ Key for water jacket, S-13209

^e Water Jacket mounting clamp S-17463
Water Jacket mounting plate S-17464

⁷ Airflow Chamber S-3705

⁹ Airflow Chamber S-19489

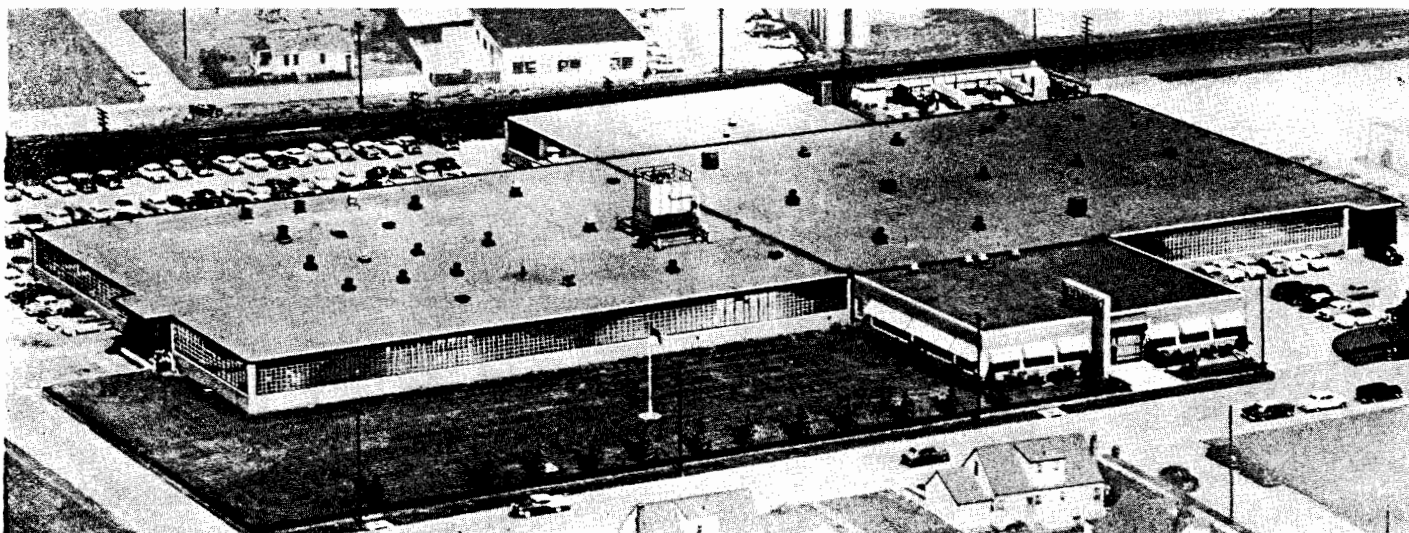
⁹ Filament center pin connector

¹⁰ For use up to 30 Mc.

¹¹ For use above 30 Mc.

* Includes screen by-pass condenser and air system chimney.

THE AMPEREX PLANT AT HICKSVILLE, L. I., NEW YORK



In line with the growth, complexity and new applications of electronics, The AMPEREX ELECTRONIC CORP. research laboratories are continuously improving existing tubes and developing new types.

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