



## 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 $\mu$ sec. | Deionization Time $\mu$ 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                     |                           |                                | 6.5                        |                        | .001        |
| 2J42              | 9345              | 9405 | 7.0                    | 7.0                    | 5.5                       | 4.5                            | 4.5                        | Packaged               | .001        |
| 2J48 <sup>1</sup> | 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 <sup>2</sup> | 2700              | 2900 | 800                    | 400                    | 30.0                      | 70.0                           | 35                         | 2700                   | .0005       |
| 5657 <sup>2</sup> | 2900              | 3100 | 800                    | 400                    | 30.0                      | 70.0                           | 35                         | 2700                   | .0005       |
| 6507 <sup>3</sup> | 9345              | 9405 | 65                     | 65                     | 15.0                      | 15.0                           | 15.0                       | Packaged               | .001        |
| 6589 <sup>2</sup> | 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:

<sup>1</sup>Tube can be operated with external stabilizing cavity, in which case frequency is  $9310 \pm 1$  mc/sec.

<sup>2</sup>Tunable type, mechanical tuning.

| Condensed Mercury<br>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 +800                          | Radiation-cooled mercury-vapor thyatron-tetrode.                                                                                                                                                                               | AX-105        |
| +350 to +750                          | Heavy-duty, mercury vapor thyatron for motor control and A.C. welder control.                                                                                                                                                  | AX-255        |
| +350 to +750                          | Heavy-duty, mercury vapor thyatron for motor control and A.C. welder control.                                                                                                                                                  | AX-260        |
| +250 to +500                          | Negative-control, H.V. mercury vapor tube. Especially suitable for relay uses where current flow is desired in absence of grid excitation.                                                                                     | 678           |
| +300 to +800                          | 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 +750                          | Indirectly heated, mercury-vapor triode with negative control characteristics.                                                                                                                                                 | 5559          |
| +40° to +800                          | 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          |
| +250 to +550                          | Radiation-cooled mercury-vapor thyatron. Oxide coated filament. Used for stepless control of voltage output and D-C motor control.                                                                                             | 5869/AGR-9950 |
| +300 to +450                          | Same as above for type 5869/AGR-9950.                                                                                                                                                                                          | 5870/AGR-9951 |
| +250 to +550                          | High voltage, grid controlled mercury vapor thyatron. For industrial RF generators and transmitting equipment.                                                                                                                 | 6786          |

| Starting<br>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   |                                                                                                                                                                                                                                                                                                                                                                            |

<sup>3</sup>This tube also operates at pulse width = 14  $\mu$ sec., duty factor .001. Also pulse width = 5  $\mu$ sec., duty factor .0025. For more detailed information, write to Magnetron Engineering Section.