



# UHF TRIODES AND SPECIAL PURPOSE TUBES - MAXIMUM RATINGS

| TYPE NO.  | Filament |      | Plate Dissipation<br>Watts                                                                                                                                                                              | Mu | Transcon-<br>ductance<br>(micromhos) | Plate                                                                                          |                                            | Power Output<br>Characteristics            | Max. Fre<br>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<br>(Bandwidth 4.5 mc) | 500                |
| 6R4/EC81  | 6.3      | 0.24 | 5                                                                                                                                                                                                       | 16 | 5,500                                | 300                                                                                            | 0.0277                                     | Power Output<br>1.1 w at 750 mc            | 1200               |
| EA52      | 6.3      | 0.3  | -                                                                                                                                                                                                       | -  | -                                    | 1000 V at<br><100 mc<br>$f_o^{\dagger}$<br>$1000 \times \frac{f_o^{\dagger}}{f}$<br>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.<br>volts<br>300                                                                      | Max. Avg. Cath.<br>Current - Amp.<br>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 | <b>OPERATING CHARACTERISTICS</b><br>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 |    |                                      |                                                                                                |                                            |                                            |                    |

$\dagger f_o = 100 \text{ mc.}$



## KLYSTRONS - FIXED FREQUENCY<sup>†</sup>

| 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                  |

<sup>†</sup> More detailed information available on request.

\*\*These tubes are available at any fixed frequency in the rang



## 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<br>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  |
| -                                   | $\leq 0.5$ | -      | 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<br>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 *<br>Tuning<br>(KC/sec./volt) | Temp.<br>Coefficient<br>(mc/sec./°C) | Pulling<br>Figure<br>(mc/sec.) | Output<br>Connector |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          |
| 10                                       | 0.2                                  | 10                             | Waveguide<br>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<br>RG-52U |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DX-123   |
| 5.0                                      | 0.2                                  | 10                             | Waveguide<br>RG-52U |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | DX-124   |

\*Indicated; tolerance  $\pm 20$  mc. \*Tube may also be grid modulated, AM or FM.

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