BEAM PENTODE
MINIATURE TYPE
COATED UNIPOTENTIAL CATHODE
HEATER
6.5 VOLTS 0.45 AMP.
AC OR DC
ANY MOUNTING POSITION

THE 6AQ5 AND 6AQ5A ARE BEAM POWER AMPLIFIERS USING THE 7 PIN MINIATURE CONSTRUCTION. THEY ARE DESIGNED FOR SERVICE IN TELEVISION RECEIVERS WHERE HIGH POWER SENSITIVITY AND HIGH POWER OUTPUT IS DESIRED. THERMAL CHARACTERISTICS OF THE HEATER OF THE 6AQ5A ARE CONTROLLED SUCH THAT HEATER VOLTAGE SURGES DURING THE WARM-UP CYCLE ARE MINIMIZED PROVIDED IT IS USED WITH OTHER TYPES WHICH ARE SIMILARLY CONTROLLED. EXCEPT FOR THE CONTROLLED HEATER WARM-UP TIME OF THE 6AQ5A, THE TUBES ARE IDENTICAL.

DIRECT INTERELECTRODE CAPACITANCES - APPROX. —
WITH NO EXTERNAL SHIELD

GRID #1 TO PLATE 0.4 \text{ \mu F}
INPUT 8.0 \text{ \mu F}
OUTPUT 8.5 \text{ \mu F}

RATINGS
INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM
CLASS A1 AMPLIFIER

HEATER VOLTAGE 6.3 \text{ VOLTS}
MAXIMUM PEAK HEATER—CATHODE VOLTAGE:
HEATER NEGATIVE WITH RESPECT TO CATHODE 200 \text{ VOLTS}
TOTAL DC AND PEAK
HEATER POSITIVE WITH RESPECT TO CATHODE 100 \text{ VOLTS}
DC TOTAL DC AND PEAK
MAXIMUM PLATE VOLTAGE 275 \text{ VOLTS}
MAXIMUM GRID #2 VOLTAGE 275 \text{ VOLTS}
MAXIMUM PLATE DISSIPATION 12 \text{ WATTS}
MAXIMUM GRID #2 INPUT 2 \text{ WATTS}
MAXIMUM BULB TEMPERATURE (AT HOTTEST POINT ON BULB SURFACE)\textsuperscript{A} 250 \text{ \degree C}
MAXIMUM GRID #1 CIRCUIT RESISTANCE:
FIXED BIAS OPERATION 0.1 \text{ MEGOHMS}
CATHODE BIAS OPERATION 0.5 \text{ MEGOHMS}
HEATER WARM-UP TIME (APPROX.)\textsuperscript{B} (6AQ5A ONLY) 11.0 \text{ SECONDS}

\textsuperscript{A} HIGH AMBIENT TEMPERATURE AND SHIELDOING MAY NECESSITATE A REDUCTION IN OPERATING DISSIPATION. WHEN TUBE SHIELDS ARE USED, IT IS ADVISABLE TO PAINT THE INSIDE AND OUTSIDE SURFACES OF THE TUBE SHIELD A DULL BLACK AND TO PROVIDE VENTILATION SLOTS TO REDUCE OPERATING TEMPERATURE.

\textsuperscript{B} HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 4 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SERIES WITH A RESISTANCE OF VALUE 3 TIMES THE NOMINAL HEATER OPERATING RESISTANCE.
TUNG-SOL

RATINGS - CONT'D.
INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM

VERTICAL DEFLECTION AMPLIFIER* C

VS' PIN 2 CONNECTED TO PLATE

HEATER VOLTAGE 6.3 VOLTS
MAXIMUM DC PLATE VOLTAGE 275 VOLTS
MAXIMUM PEAK POSITIVE PLATE VOLTAGE (ABS. MAX.) 1100 VOLTS
MAXIMUM PLATE DISSIPATION D 10 WATTS
MAXIMUM PEAK NEGATIVE GRID #1 VOLTAGE 275 VOLTS
MAXIMUM AVERAGE CATHODE CURRENT 40 MA.
MAXIMUM PEAK CATHODE CURRENT 115 MA.
MAXIMUM BULB TEMPERATURE (AT HOTTEST POINT) 250°C

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS
CLASS A1 AMPLIFIER E

HEATER VOLTAGE 6.3 6.3 VOLTS
HEATER CURRENT 0.45 0.45 AMP.
PLATE VOLTAGE 180 250 VOLTS
GRID #2 VOLTAGE 180 250 VOLTS
GRID #1 VOLTAGE -8.5 -12.5 VOLTS
PEAK AF GRID #1 VOLTAGE 8.5 12.5 VOLTS
ZERO-SIGNAL PLATE CURRENT 29 45 MA.
MAXIMUM SIGNAL PLATE CURRENT 30 47 MA.
ZERO-SIGNAL GRID #2 CURRENT (APPROX.) 3 4.5 MA.
MAXIMUM SIGNAL GRID #2 CURRENT (APPROX.) 4 7 MA.
PLATE RESISTANCE (APPROX.) 58 000 52 000 OHMS
TRANSCONDUCTANCE 3 700 4 100 \muH/MA
LOAD RESISTANCE 5 900 5 000 OHMS
TOTAL HARMONIC DISTORTION 8 8 PERCENT
MAXIMUM SIGNAL POWER OUTPUT 2.0 4.5 WATTS

E SINGLE TUBE.

AVERAGE CHARACTERISTICS - TRIODE CONNECTED *

PLATE VOLTAGE 250 VOLTS
GRID VOLTAGE -12.5 VOLTS
PLATE CURRENT 49.5 MA.
TRANSCONDUCTANCE 4800 \muH/MA
AMPLIFICATION FACTOR 9.5
PLATE RESISTANCE (APPROX.) 1970 OHMS
GRID VOLTAGE (APPROX.) FOR I_B=0.5 MA. -37 VOLTS

* INDICATES AN ADDITION.
→ INDICATES A CHANGE.

FOR OPERATION IN A 525-LINE, 30-FRAME SYSTEM AS DESCRIBED IN "STANDARDS OF GOOD ENGINEERING PRACTICE FOR TELEVISION BROADCAST STATIONS: FEDERAL COMMUNICATIONS COMMISSION", THE DUTY CYCLE OF THE VOLTAGE PULSE MUST NOT EXCEED 15% OF THE SCANNING CYCLE.

TRIODE CONNECTED

IN STAGES OPERATING WITH GRID LEAK BIAS, AN ADEQUATE CATHODE BIAS RESISTOR OR OTHER SUITABLE MEANS IS REQUIRED TO PROTECT THE TUBE IN THE ABSENCE OF EXCITATION.