TUNG-SOL

BEAM PENTODE
MINIATURE TYPE

COATED UNIPOTENTIAL CATHODE
FOR MOBILE AND
AIRCRAFT APPLICATIONS
ANY MOUNTING POSITION

GLASS BULB

MINIATURE
9 PIN BASE 19-1
OUTLINE DRAWING
JEDEC 6-3

THE 6216 IS A BEAM PENTODE POWER AMPLIFIER IN THE 9 PIN MINIATURE CONSTRUCTION. IT IS EXTREMELY RESISTANT TO THE VIBRATIONS ENCOUNTERED IN PRESENT HIGH-SPEED MILITARY AIRCRAFT.

THE 6216 MAY BE USED IN CLASS A, CLASS B, AND CLASS C AMPLIFIER APPLICATIONS, AS A PASSING TUBE IN ELECTRONIC VOLTAGE-REGULATED POWER SUPPLIES, IN WIDE BAND VIDEO AMPLIFIERS, AND IN PASSIVE SWITCHING APPLICATIONS.

DIRECT INTERELECTRODE CAPACITANCES
WITHOUT SHIELD

GRID TO PLATE: (G1 TO P), MAX. 0.370 pf
INPUT: G1 TO (H*K+G2+G3+B.P.+B.S.+I.S.) 12.3 pf
OUTPUT: P TO (H*K+G2+G3+B.P.+B.S.+I.S.) 6.7 pf

HEATER CHARACTERISTICS AND RATINGS
DESIGN CENTER VALUES - SEE EIA STANDARD RS-239

AVERAGE CHARACTERISTICS:
VOLTAGE 6.3 VOLTS
CURRENT 1200 MA.
MAXIMUM HEATER-CATHODE VOLTAGE 150 VOLTS

MAXIMUM RATINGS
DESIGN CENTER VALUES - SEE EIA STANDARD RS-239

PLATE VOLTAGE 300 VOLTS
GRID #2 VOLTAGE 200 VOLTS
POSITIVE DC GRID #1 VOLTAGE 0 VOLTS
PLATE DISSIPATION 10 WATTS

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MAXIMUM RATINGS - CONT’D.
DESIGN CENTER VALUES - SEE EIA STANDARD RS-239

GRID #2 DISSIPATION
CATHODE CURRENT
BULB TEMPERATURE AT ANY POINT
GRID #1 CIRCUIT RESISTANCE (FIXED BIAS)
GRID #1 CIRCUIT RESISTANCE (SELF BIAS)

1.0 WATTS
110 MA.
210 °C
0.1 MEGOHM
0.5 MEGOHM

AVERAGE CHARACTERISTICS
FILTER REACTOR

PLATE VOLTAGE
GRID #2 VOLTAGE
GRID #1 VOLTAGE
GRID #1 RESISTOR
PLATE RESISTANCE (APPROX.)
TRANSCONDUCTANCE
PLATE CURRENT
GRID #2 CURRENT
GRID #1 VOLTAGE (APPROX.) FOR IB = 50 μA

100 VOLTS
100 VOLTS
-3 VOLTS
0.1 MEGOHM
18 500 OHMS
12 800 μMHOS
72 MA.
3 MA.
-25 VOLTS

TYPICAL OPERATION
FILTER REATOR (SEE CIRCUIT)

DC PLATE SUPPLY VOLTAGE (INPUT TO FILTER)
DC PLATE VOLTAGE (PLATE TO CATHODE)
DC GRID #2 VOLTAGE
DC GRID #1 VOLTAGE
DC OUTPUT VOLTAGE (OUTPUT FROM FILTER)
DC CATHODE CURRENT
RMS RIPPLE VOLTAGE (IN OUTPUT) (NOTE 1)

400 VOLTS
60 VOLTS
100 VOLTS
-1 VOLTS
355 VOLTS
110 MA DC
210 MV.

CLASS A AUDIO AMPLIFIER

PLATE VOLTAGE
GRID #2 (SCREEN) VOLTAGE
GRID #1 (CONTROL GRID) VOLTAGE
PEAK AF GRID #1 VOLTAGE
ZERO SIGNAL PLATE CURRENT
MAX. SIGNAL PLATE CURRENT
ZERO SIGNAL GRID #2 CURRENT
MAX. SIGNAL GRID #2 CURRENT
PLATE RESISTANCE
TRANSCONDUCTANCE
LOAD RESISTANCE
TOTAL HARMONIC
MAX. SIGNAL POWER OUTPUT

200 VOLTS
100 VOLTS
-6 VOLTS
6 VOLTS
47 MA.
51 MA.
2.0 MA.
4.0 MA.
38 800 OHMS
8 800 μMHOS
4 500 OHMS
10 PERCENT
3.8 WATTS

CONTINUED ON FOLLOWING PAGE
TYPICAL OPERATION - CONT'D.

CLASS C OSCILLATOR-AMPLIFIER - 50 MC

DC PLATE VOLTAGE 300 VOLTS
DC GRID #2 VOLTAGE 150 VOLTS
DC GRID #1 VOLTAGE 50 VOLTS
  22,000 OHMS
PEAK RF GRID #1 VOLTAGE 65 VOLTS
DC PLATE CURRENT 63 MA.
DC GRID #2 CURRENT 8.0 MA.
DC GRID #1 CURRENT 2.0 MA.
GRID #1 DRIVING POWER (APPROX.) 0.3 WATTS
USEFUL POWER OUTPUT 8.8 WATTS

*OBTAINED FROM FIXED SOURCE OF GRID RESISTOR OF VALUE SHOWN.

NOTE:
1 WHEN THE 6216 IS USED IN THE CIRCUIT SHOWN BELOW, THE POTENTIOMETER R SHOULD BE ADJUSTED FOR MINIMUM AC OUTPUT VOLTAGE ACROSS THE E0 TERMINALS. THE CURVE SHOWN IN THE APPENDIX REPRESENTS ADJUSTMENT FOR MINIMUM AC OUTPUT VOLTAGE AT 100 MA DC LOAD CURRENT.
COMPARISON OF FILTERING ACTION
VS IRON CORE CHOKE 12H = 150 MA

$E_f = 6.3\text{ Volts}$

$E_{C2} = \text{Derived from 400V thru 60k}$

$E_C = \text{(Input to Filter): 400 V}$

$E_{C4} = \text{See Graph}$