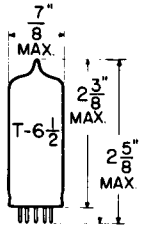
TUNG-SOL

TWIN DIODE-TETRODE

MINIATURE TYPE



GLASS BULB

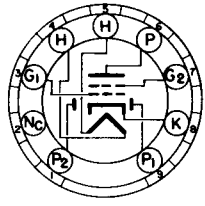
UNIPOTENTIAL CATHODE

HEATER

12.6 VOLTS 0.4 AMP.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW

SMALL-BUTTON NOVAL
9 PIN BASE
9JU

THE 12DS7A IS A TWIN DIODE AND A HIGH PERVEANCE POWER TETRODE OF THE SPACE-CHARGE-GRID TYPE IN THE 9 PIN MINIATURE CONSTRUCTION. IT IS INTENDED FOR USE IN "HYBRID" AUTOMOBILE RECEIVERS IN WHICH TUBE AND TRANSISTOR ELECTRODE VOLTAGES ARE OBTAINED DIRECTLY FROM A 6-ALL STORAGE BATTERY.

DIRECT INTERELECTRODE CAPACITANCES

WITHOUT EXTERNAL SHIELD

TETRODE UNIT:		
GRID #2 TO PLATE	13.8	μμf
GRID #2 TO GRID #1, HEATER & CATHODE	12.7	μμf
PLATE TO GRID #1, HEATER & CATHODE	2.2	μμf
DIODE UNITS:		
DIODE PLATE #1 TO DIODE CATHODE & HEATER	0.5	μμf
DIODE PLATE #2, TO DIODE CATHODE & HEATER	0.5	μμf
DIODE PLATE #1, TO DIODE PLATE #2	0.1	μμf
TETRODE GRID #2 TO DIODE PLATE #1	0.3	μμf
TETRODE GRID #2 TO DIODE PLATE #2	0.3	μμf

RATINGS

INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM

TETRODE UNIT – AUDIO DRIVER SERVICE

HEATER VOLTAGE[A]	12.6	VOLTS
MAXIMUM PLATE VOLTAGE	16	VOLTS
MAXIMUM GRID #2 (CONTROL-GRID) VOLTAGE		
NEGATIVE BIAS VALUE	-16	VOLTS
MAXIMUM GRID #1 (SPACE-CHARGE-GRID) VOLTAGE	16	VOLTS
MAXIMUM PEAK HEATER-CATHODE VOLTAGE:		
HEATER NEGATIVE WITH RESPECT TO CATHODE	16	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE	16	VOLTS

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RATINGS - CONT'D
INTERPRETED ACCORDING TO DESIGN MAXIMUM SYSTEM

DIODE UNITS - TWO
VALUES ARE FOR EACH UNIT

HEATER VOLTAGE[A]	12.6	VOLTS
MAXIMUM PLATE CURRENT	5	MA.
MAXIMUM PEAK HEATER-CATHODE VOLTAGE:		
HEATER NEGATIVE WITH RESPECT TO CATHODE	16	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE	16	VOLTS

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

CLASS A_1 AMPLIFIER

HEATER VOLTAGE[A]	12.6	VOLTS
HEATER CURRENT	0.4	AMP.
PLATE VOLTAGE	12.6	VOLTS
GRID #2 (CONTROL-GRID) VOLTAGE:		
DEVELOPED ACROSS A 2.2 MEGOHM RESISTOR	-0.5	VOLTS
GRID #1 (SPACE-CHARGE-GRID) VOLTAGE	12.6	VOLTS
PLATE RESISTANCE (APPROX.)	500	OHMS
AMPLIFICATION FACTOR, GRID #2 TO PLATE	9.1	
TRANSCONDUCTANCE, GRID #2 TO PLATE	19 000	μMHOS
PLATE CURRENT	35	MA.
GRID #1 CURRENT	75	MA.

TYPICAL OPERATION
AS DRIVER FOR
TRANSISTORIZED AF POWER-OUTPUT STAGE

PLATE SUPPLY VOLTAGE	11.2	VOLTS
PLATE VOLTAGE[B]		
GRID #1 SUPPLY VOLTAGE	11.2	VOLTS
GRID #2 SUPPLY VOLTAGE	0	VOLTS
GRID #2 RESISTOR	1.8	MEGOHMS
CATHODE RESISTOR	18	OHMS
PEAK AF GRID #2 SUPPLY VOLTAGE (APPROX.):		
FROM 3.3 MEGOHM SIGNAL SOURCE	4.25	VOLTS
PLATE CURRENT:		
ZERO SIGNAL (APPROX.)	20	MA.
INDICATED SIGNAL	7	MA.
GRID #1 CURRENT	58	MA.
LOAD RESISTANCE	1250	OHMS
TOTAL HARMONIC DISTORTION (AT POWER OUTPUT OF 2.5 MW)	5	PERCENT
INDICATED SIGNAL POWER OUTPUT	10	MW.

[A] THIS TUBE IS INTENDED TO BE USED IN AUTOMOTIVE SERVICE FROM A NOMINAL 12 VOLT BATTERY SOURCE. THE HEATER IS THEREFORE DESIGNED TO OPERATE OVER THE 10.0 TO 15.9 VOLTAGE RANGE ENCOUNTERED IN THIS SERVICE. THE MAXIMUM RATINGS OF THE TUBE PROVIDE FOR AN ADEQUATE SAFETY FACTOR SUCH THAT THE TUBE WILL WITHSTAND THE WIDE VARIATION IN SUPPLY VOLTAGES.

[B] OBTAINED FROM INDICATED PLATE SUPPLY THROUGH SERIES 100 HENRY CHOKE HAVING DC RESISTANCE OF 150 OHMS.

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TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS - CONT'D.

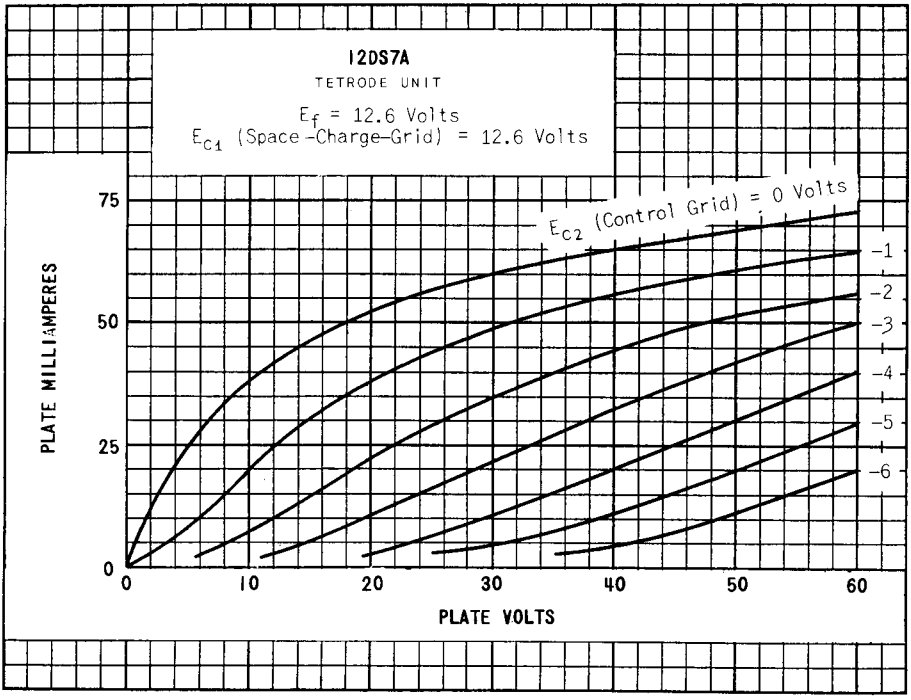
TYPICAL OPERATION

PLATE VOLTAGE	12.6	VOLTS
GRID #1 VOLTAGE	12.6	VOLTS
GRID #2 VOLTAGE:		
OBTAINED BY RECTIFICATION THROUGH A 2.2 MEGOHM RESISTOR	-2.5	VOLTS
PEAK AF GRID #2 VOLTAGE (APPROX.): FROM 0.22 MEGOHM SIGNAL SOURCE	2.5	VOLTS
PLATE CURRENT:		
ZERO SIGNAL (APPROX.)	35	MA.
MAXIMUM SIGNAL	11	MA.
GRID #1 CURRENT	80	MA.
LOAD RESISTANCE	700	OHMS
TOTAL HARMONIC DISTORTION	10	PERCENT
MAX. SIGNAL POWER OUTPUT	45	MW.
MAXIMUM CIRCUIT VALUES:		
GRID #2 CIRCUIT RESISTANCE	10	MEGOHMS

CHARACTERISTICS

DIODE UNITS - TWO
VALUES ARE FOR EACH UNIT

PLATE CURRENT FOR PLATE VOLTS = 10	3	MA.



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TENTATIVE DATA