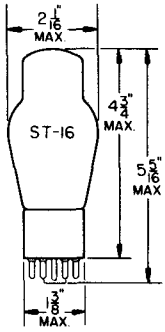
TUNG-SOL

TWIN TRIODE



GLASS BULB

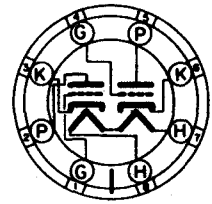
UNIPOTENTIAL CATHODE

HEATER

6.3±10% VOLTS 2.5 AMP.

AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW
MEDIUM SHELL
8 PIN OCTAL

THE 6520 IS A LOW-MU, HIGH PERVEANCE, TWIN POWER TRIODE OF THE HEATER-CATHODE TYPE INTENDED FOR USE AS A REGULATOR TUBE IN DC POWER SUPPLY UNITS, WHERE UTMOST RELIABILITY IS REQUIRED IN RESPECT TO TRIODE BALANCE, ABSENCE OF EXCESSIVE PLATE CURRENT DRIFT AND GRID TO PLATE INSULATION. IN ADDITION TO THE STANDARD 6AS7G CHARACTERISTICS, THE 6520 FEATURES A 600 VOLT POTENTIAL INSULATION BETWEEN GRID AND PLATE AND A COMBINED CATHODE AND FIXED BIAS TEST TO GUARANTEE RELIABLE PERFORMANCE WITHOUT EXCESSIVE TRIODE UNBALANCE OR PLATE CURRENT DRIFT.

GENERAL DATA

HEATER VOLTAGE (AC OR DC)	6.3±10%	VOLTS
HEATER CURRENT	2.5	AMP.

DIRECT INTERELECTRODE CAPACITANCES
WITHOUT EXTERNAL SHIELD

EACH UNIT

GRID TO PLATE	9.4	μμf
INPUT	8.4	μμf
OUTPUT	2.2	μμf
HEATER TO CATHODE:		
TRIODE UNIT #1	6.5	μμf
TRIODE UNIT #2	6.1	μμf
GRID OF UNIT #1 TO GRID OF UNIT #2	0.50	μμf
PLATE OF UNIT #1 TO PLATE OF UNIT #2	2.20	μμf

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TUNG-SOL

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CHARACTERISTICS

EACH UNIT

CATHODE BIAS CONDITIONS		
PLATE-SUPPLY VOLTAGE	135	VOLTS
CATHODE-BIAS RESISTOR	250	OHMS
AMPLIFICATION FACTOR	2	
PLATE RESISTANCE	280	OHMS
TRANSCONDUCTANCE	7000	μMHOS
PLATE CURRENT	112	MA.
COMBINED FIXED AND CATHODE BIAS OPERATION		
PLATE-SUPPLY VOLTAGE	150	VOLTS
CATHODE BIAS RESISTOR	100	OHMS
FIXED GRID BIAS	55	VOLTS
PLATE CURRENT	58	MA.

MECHANICAL DATA

MOUNTING POSITION	ANY	
MAXIMUM OVERALL LENGTH	5.32	INCHES
MAXIMUM SEATED LENGTH	4.77	INCHES
MAXIMUM DIAMETER	2.0	INCHES
BULB	ST-16	
BASE	MEDIUM SHELL OCTAL 8 PIN	

RATINGS

ABSOLUTE MAXIMUM VALUES

D C AMPLIFIER

VALUES ARE FOR EACH UNIT

HEATER VOLTAGE	6.3±10%	VOLTS
HEATER CURRENT	2.5	AMP.
MAXIMUM PLATE VOLTAGE	300	VOLTS
MAXIMUM PLATE CURRENT	125	MA.
MAXIMUM PLATE DISSIPATION	14	WATTS
MAXIMUM PEAK HEATER-CATHODE VOLTAGE:		
HEATER NEGATIVE WITH RESPECT TO CATHODE	300	VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE	300	VOLTS
PEAK SIMULTANEOUS GRID TO PLATE VOLTAGE:		
PLATE	+300	VOLTS
GRID	-300	VOLTS
MAXIMUM BULB TEMPERATUBE (AT HOTTEST POINT ON BULB SURFACE)	200	°C

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MAXIMUM CIRCUIT VALUES

MAXIMUM GRID-CIRCUIT RESISTANCE:		
FOR CATHODE-BIAS OPERATION	1.0	MEGOHM
FOR FIXED-BIAS OPERATION[A]	0.1	MEGOHM
FOR COMBINED FIXED-AND CATHODE-BIAS OPERATION[B]	0.1	MEGOHM

[A] WHEN FIXED BIAS IS USED, THE PLATE CIRCUIT SHOULD CONTAIN A PROTECTIVE RESISTANCE TO PROVIDE A MINIMUM DROP OF 15 VOLTS DC AT THE NORMAL OPERATING CONDITIONS. EXCLUSIVE FIXED BIAS IS NOT RECOMMENDED.

[B] WHEN COMBINED FIXED-AND CATHODE-BIAS IS USED, THE CATHODE-BIAS PORTION SHOULD HAVE A MINIMUM VALUE OF 7.5 VOLTS DC AT THE NORMAL OPERATING CONDITIONS.

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN

	MIN.	MAX.	
HEATER CURRENT[C]	2.26	2.74	AMP.
GRID-PLATE CAPACITANCE (EACH UNIT)	6.9	9.9	μμf
INPUT CAPACITANCE (EACH UNIT)	4.7	7.7	μμf
OUTPUT CAPACITANCE (EACH UNIT)	1.7	2.7	μμf
HEATER-CATHODE CAPACITANCE:			
TRIODE UNIT #1	4.5	8.5	μμf
TRIODE UNIT #2	4.1	8.1	μμf
AMPLIFICATION FACTOR (EACH UNIT)[C,D]	1.9	2.5	
PLATE CURRENT (EACH UNIT)[C,D]	100	125	MA.
TRANSCONDUCTANCE (EACH UNIT)[C,D]	6400	7800	μMHOS
REVERSE GRID CURRENT (EACH UNIT)[C,E]	---	2.5	μAMP

[C] WITH 6.3 VOLTS AC OR DC ON HEATER.

[D] WITH PLATE-SUPPLY VOLTAGE OF 135 VOLTS, AND CATHODE-BIAS RESISTOR OF 250 OHMS IN EACH CATHODE (BOTH TRIODE UNITS OPERATING).

[E] WITH PLATE-SUPPLY VOLTAGE OF 135 VOLTS, AND GRID RESISTOR OF 1 MEGOHM IN EACH GRID (BOTH TRIODE UNITS OPERATING).

OPERATING NOTES

THE MAXIMUM RATINGS IN THE TABULATED DATA FOR THE 6520 ARE LIMITING VALUES ABOVE WHICH THE SERVICEABILITY OF THE 6520 MAY BE IMPAIRED FROM THE VIEWPOINT OF THE LIFE AND SATISFACTORY PERFORMANCE. THEREFORE, IN ORDER NOT TO EXCEED THESE ABSOLUTE RATINGS, THE EQUIPMENT DESIGNER HAS THE RESPONSIBILITY OF DETERMINING AN AVERAGE DESIGN VALUE FOR EACH RATING BELOW THE ABSOLUTE VALUE OF THAT RATING BY AN AMOUNT SUCH THAT THE ABSOLUTE VALUES WILL NEVER BE EXCEEDED UNDER ANY USUAL CONDITION OF SUPPLY-VOLTAGE VARIATION IN THE EQUIPMENT ITSELF.

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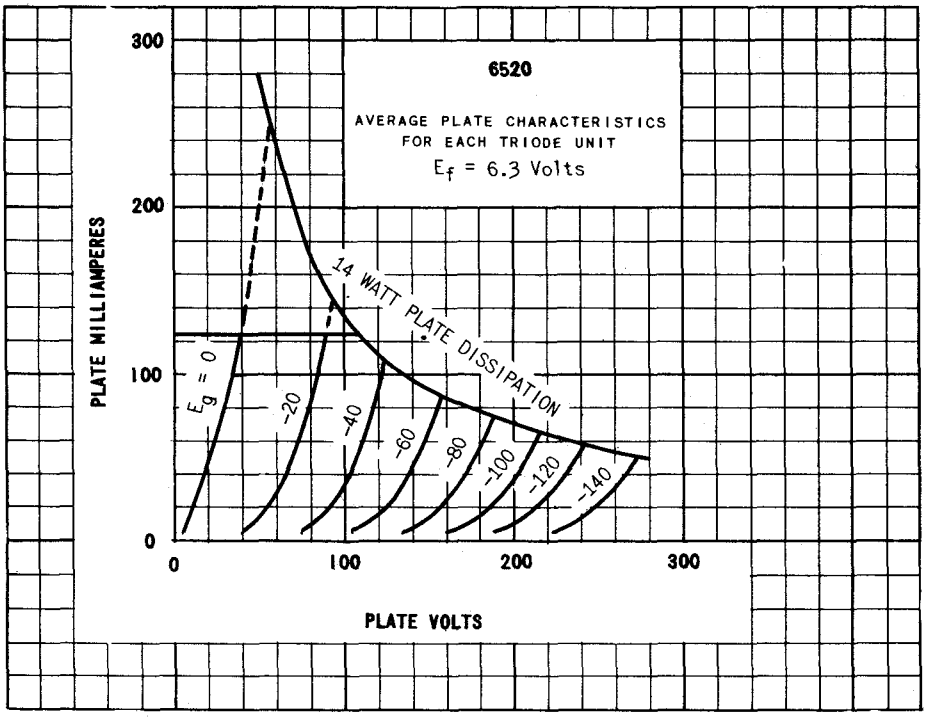
6520
AVERAGE PLATE CHARACTERISTICS
FOR EACH TRIODE UNIT
Ef = 6.3 Volts
14 WATT PLATE DISSIPATION
Eg = 0
-20
-40
-60
-80
-100
-120
-140
PLATE MILLIAMPERES
PLATE VOLTS
0
100
200
300