

GAMMATRON

Engineering Data Sheet
Number . . . 3054-1

GAMMATRON TYPE 3054

PHYSICAL DATA

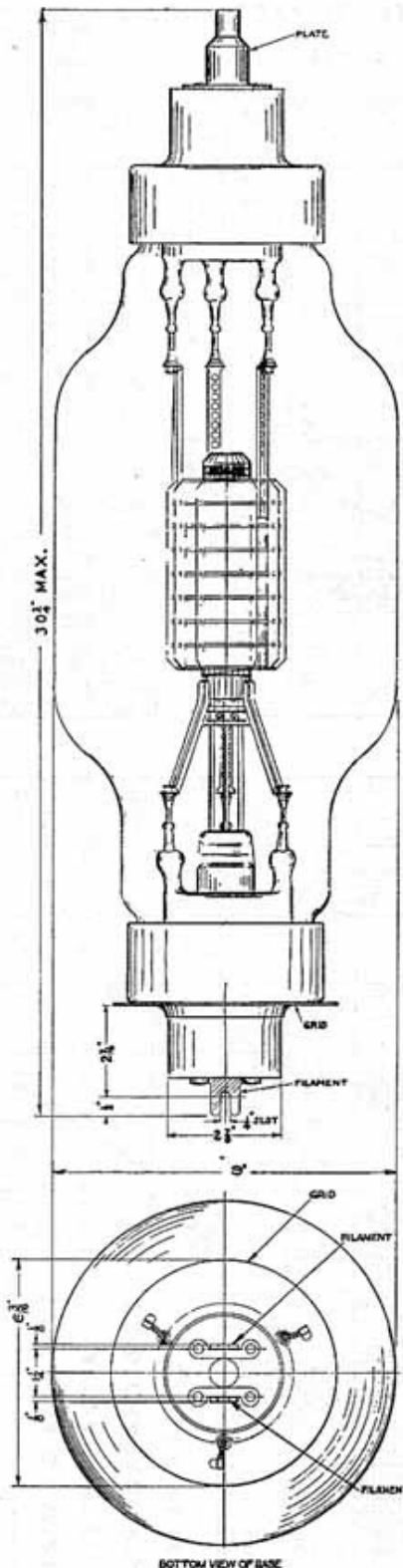
Plate	Cylindrical Tantalum
Grid	Braced Vertical Bar Tantalum
Filament	Thoriated Tungsten
Envelope	Nonex Glass
Base Insulator	Ceramic
Filament Clips (mounted)	Type HK-255-65
Net Weight	12½ Pounds
Shipping Weight	45 Pounds
Maximum Height	30¾ Inches
Maximum Diameter	9 Inches

ELECTRICAL DATA

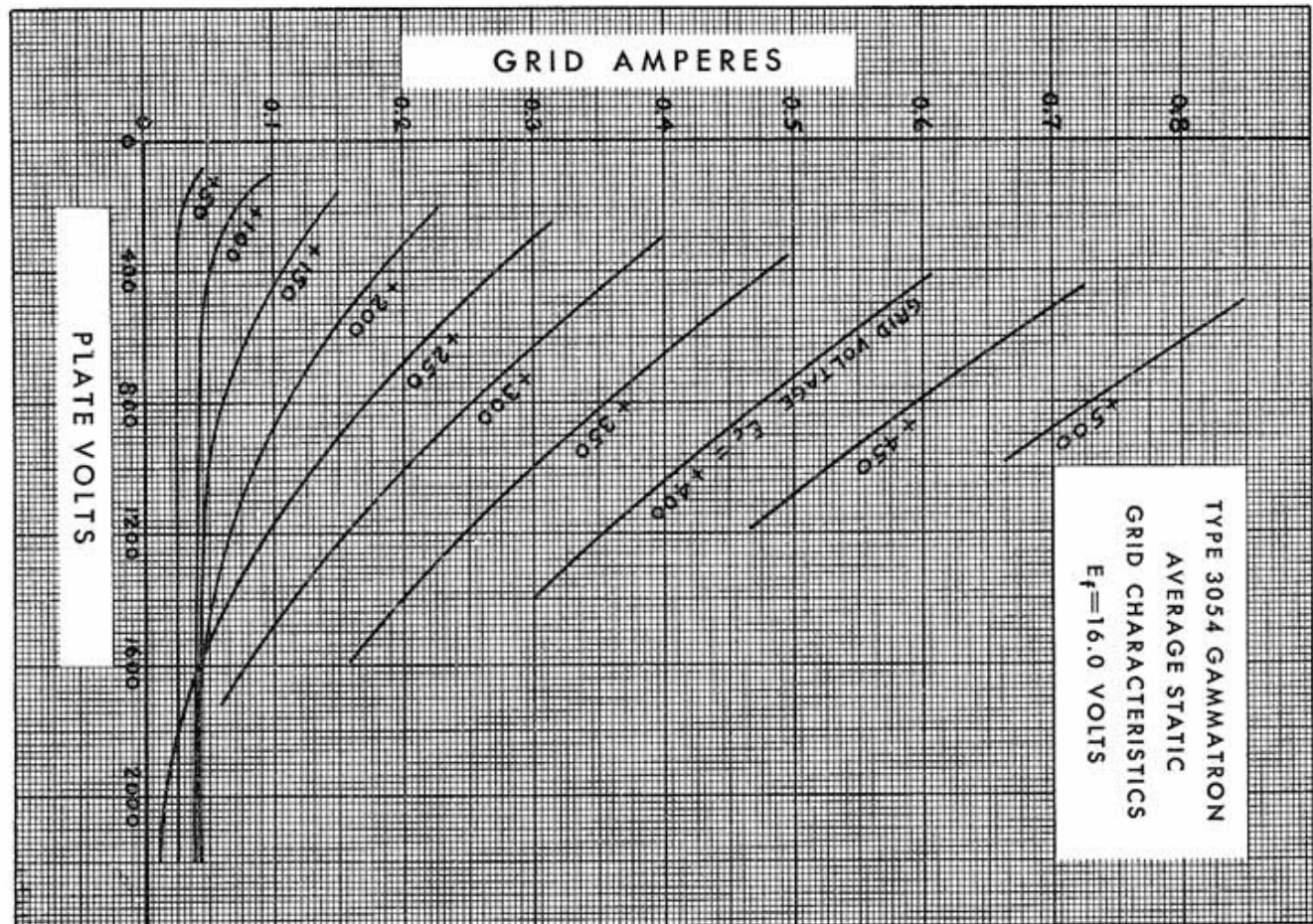
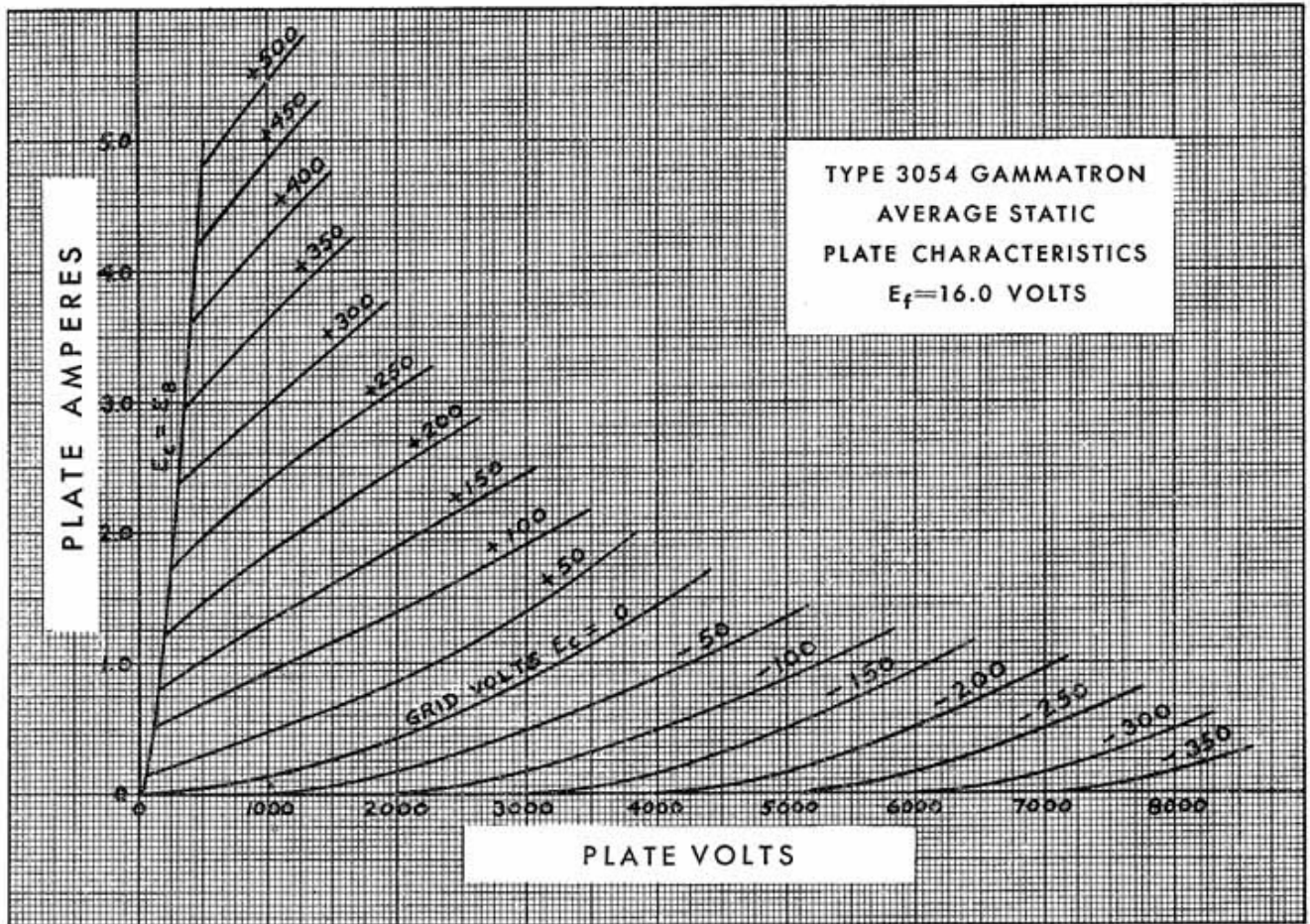
Filament Voltage	14.0 160 Volts
Filament Current45 50 Amps.
Normal Plate Dissipation	1500 Watts
Maximum Average Plate Current	2 Amps.
Maximum Average Plate Voltage	5000 Volts
Maximum Average Grid Current	0.50 Amp.
Average Dynamic Plate Resistance	2000 Ohms
Average Amplification Constant	20

Inter-Electrode Capacities

Grid-Plate	15. mmfd.
Grid-Filament	25. mmfd.
Plate-Filament	2.5 mmfd.



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H&K TYPE 3054 CLASS B AUDIO AMPLIFIER
(Data for 2 Tubes)

(Total arithmetic sum of 3rd, 5th, 7th and 9th harmonics
will not exceed 2.5%)

TABLE I-A

WITH MAXIMUM SIGNAL APPLIED									
Plate Volt- age in Volts	Neg. ** Grid Bias in Volts	No ¹ Signal Plate Current in Amps.	Load Resist- ance in Ohms Plate to Plate	Peak Signal Volts Grid to Grid	Peak ^o Driving Power in Watts	Plate Current in Amps.	Power Output in Watts	Plate* Loss in Watts	Plate Eff. in Per Cent
2000	35	.500	1100	1070	420	3.20	3460	2940	54
2500	60	.500	1670	1080	400	3.04	4640	2980	61
3000	95	.400	2300	1100	380	2.85	5720	2830	67
4000	150	.300	4150	1100	330	2.30	6720	2480	73
5000	205	.250	6400	1110	280	1.91	7150	2400	75

TABLE I-B

WITH SMALLER SIGNAL APPLIED									
Plate Volt- age in Volts	Neg. ** Grid Bias in Volts	No ¹ Signal Plate Current in Amps.	Load Resist- ance in Ohms Plate to Plate	Peak Signal Volts Grid to Grid	Peak ^o Driving Power in Watts	Plate Current in Amps.	Power Output in Watts	Plate* Loss in Watts	Plate Eff. in Per Cent
2000	35	.500	1100	670	50	2.00	1360	2640	34
2500	60	.500	1670	720	50	2.00	2000	3000	40
3000	95	.400	2300	770	50	1.95	2710	3140	46.5
4000	150	.300	4150	850	50	1.80	4170	3030	58
5000	205	.250	6400	910	50	1.60	4960	3046	62

^oApproximate instantaneous peak power in watts drawn by grid at crest of wave.
Effective power is one-half this value.

*Plate loss may be slightly greater at lower signal levels.

¹Lower no signal plate currents will cause somewhat higher distortion.

**Adjust bias for correct no signal plate current.



TABLE II

H&K TYPE 3054 CLASS B RADIO FREQUENCY AMPLIFIER
CARRIER WITH UP TO 100% MODULATION

Plate Voltage in Volts	Plate loss in Watts	Negative Grid Bias Voltage in Volts	Load Resistance in Ohms	Peak Driving Power in Watts*	Plate Current in Amperes	Carrier Output in Watts	Plate Efficiency in Per Cent
2500	1500	105	350	150	0.89	710	32.0
3000	1500	130	550	130	0.75	760	33.5
4000	1500	180	1000	100	0.582	830	35.5
5000	1500	230	1530	80	0.47	860	36.5

*At crest of audio cycle with 100% modulation.

TABLE III

H&K TYPE 3054 CLASS C RADIO FREQUENCY POWER AMPLIFIER
UNMODULATED

Plate Voltage in Volts	Plate Dissipation in Watts	Negative Grid Bias in Volts	Excitation Voltage in Volts Peak	Grid Current in Amps.	Grid Power in Watts	Load Resistance in Ohms	Plate Current in Amps.	In-put Power in Watts	Out-put Power in Watts	Plate Eff. in Per Cent
2500	1500	492	1190	0.23	193	635	1.62	4050	2550	63
2500	2000*	600	1350	0.25	340	510	2.00	5000	3000	60
3000	1500	800	1490	0.20	300	790	1.65	4850	3350	69
3000	2280*	900	1740	0.22	385	620	2.00	6000	3720	62
4000	1500	935	1630	0.18	295	1210	1.50	6000	4500	75
4000	2240*	1090	1930	0.22	425	860	2.00	8000	5760	72
5000	1500	950	1610	0.163	270	1750	1.36	6820	5320	78
5000	2500	1140	1980	0.22	440	1150	2.00	10,000	7500	75

*For use in telegraph operation when keyed so average dissipation does not exceed 1500 watts.



TABLE IV

H&K TYPE 3054 CLASS C RADIO FREQUENCY POWER AMPLIFIER
PLATE UNMODULATED

(Carrier conditions for use with 100% modulation peaks and 60% average value. Plate voltage not to exceed 3000 volts)

Plate Volt- age in Volts	Plate Dissi- pation in Watts	Nega- tive Grid Bias in Volts	Exci- tation Voltage in Volts Peak	Grid Current in Amps.	Grid Power in Watts	Load Resist- ance in Ohms	Plate Current in Amps.	In- put Power in Watts	Out- put Power in Watts	Plate Eff. Per Cent
2000	1225	575	1200	0.20	215	845	1.625	3250	1975	61
2500	1225	600	1210	0.20	220	710	1.500	3750	2475	66
3000	1225	600	1210	0.18	195	955	1.430	4300	3025	70

TABLE V

H&K TYPE 3054 CLASS A AUDIO AMPLIFIER

(Second harmonic less than 5% - third harmonic less than 1%)

Plate Voltage in Volts	Negative Grid Bias in Volts	Signal Voltage in Volts Eff.	Load Resistance in Ohms	Plate Current in Amperes	Power Input in Watts	Power Output in Watts	Plate Eff. in Per Cent
2000	62	43	8000	0.13	260	47	18
2500	81	57	8000	0.145	360	69	19
3000	100	71	8000	0.165	495	99	20
4000	130	92	8000	0.250	1000	220	22
5000	175	124	8000	0.300	1500	380	25.2