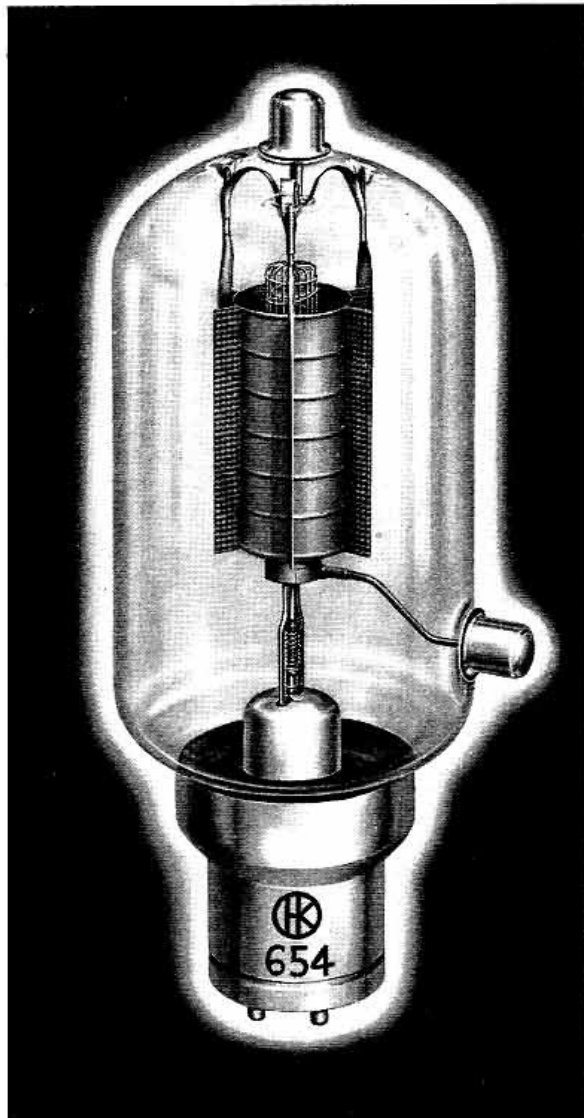


GAMMATRON TYPE 654



GENERAL PURPOSE TRIODE

Medium μ universal triode, 300 watt radiation cooled tantalum plate. Special design permits high voltage operation.

PHYSICAL DATA

Plate	Cylindrical Tantalum
Grid	Braced Vertical Bar Tantalum
Filament	Thoriated Tungsten
Blank	Nonex Glass
Base	Standard Fifty Watt
Base Insulator	Ceramic
Net Weight	14 Ounces
Shipping Weight	6.5 Pounds
Maximum Height	10 $\frac{1}{16}$ Inches
Maximum Width	4 $\frac{5}{8}$ Inches

ELECTRICAL DATA

Filament Voltage	7.5 Volts
Filament Current	15 Amps.
Normal Plate Dissipation	300 Watts
Maximum Average Plate Current	0.6 Amps.
Maximum Plate Voltage	4000 Volts
Maximum Average Grid Current	0.10 Amps.
Average Plate Impedance	3700 Ohms
Average Amplification Constant	22

INTERELECTRODE CAPACITANCES

Grid-Plate Capacitance	5.4 mmfd.
Grid-Filament Capacitance	6.6 mmfd.
Plate-Filament Capacitance	0.8 mmfd.

The 654 GAMMATRON is a general purpose triode. It has a tantalum plate and grid and embodies the fundamental design features characteristic of GAMMATRON transmitting tubes. Scientific engineering, combined with the highest manufacturing skill, results in a definite superiority over tubes of conventional design.

The plate and grid are mounted on short, direct, low inductance leads. Internal insulators are completely eliminated while perfect alignment is maintained and extremely high interelectrode insulation is permitted. Thus, with the use of tantalum and the elimination of unnecessary internal struc-

ture, it is possible to completely out-gas GAMMATRON tubes without the use of the usual "getter." This excellent vacuum is retained throughout the full life and it is not possible to cause this tube to go soft due to overload. The filament may then be operated in a manner consistent with high thermionic efficiency and long life.

The GAMMATRON method of design results in a tube that is easy to neutralize because of its low interelectrode capacity. It is easy to drive because of its special vertical grid capacity. It is easy to drive because of its special vertical grid bar design, and it has extremely long life because of its ability to maintain a permanent vacuum of a high degree.

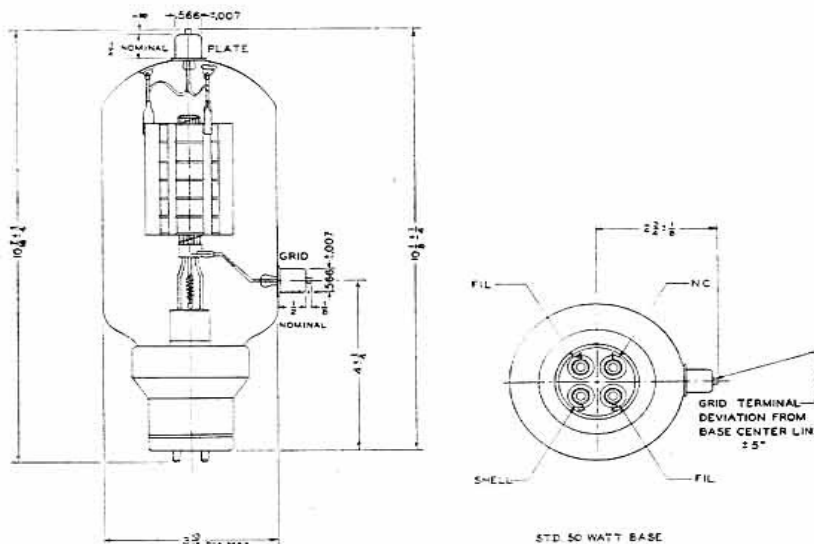
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HEINTZ AND KAUFMAN LTD.

SOUTH SAN FRANCISCO, CALIFORNIA, U · S · A

TYPE HK 654

The information on this and the following page does not represent exact conditions of operation to be imposed for any particular situation. Because tubes are used under many widely different conditions Heintz and Kaufman will gladly furnish information for applications which differ appreciably from the illustrative examples given.



RADIO FREQUENCY POWER AMPLIFIER CLASS "C" UNMODULATED

	Maximum Rating Per Tube	TYPICAL OPERATION, 1 TUBE			
		1400	1125	720	Watts
Power Output		1400	1125	720	Watts
Driving Power		85	69	57	Watts
DC Plate Voltage	4000	4000	3000	2000	Volts
DC Plate Current	600	425	475	500	M. A.
DC Grid Current	100	75	75	75	M. A.
DC Grid Voltage	-1500	-735	-522	-380	Volts
Peak R.F. Grid Voltage		1130	915	760	Volts
Plate Dissipation	300	300	300	280	Watts
Plate Input	1700	1700	1425	1000	Watts

RADIO FREQUENCY POWER AMPLIFIER CLASS "C" PLATE MODULATED*

	Maximum Rating Per Tube	TYPICAL OPERATION, 1 TUBE			
		945	805	655	Watts
Power Output		945	805	655	Watts
Driving Power		60	65	70	Watts
DC Plate Voltage	3000	3000	2500	2000	Volts
DC Plate Current	475	400	420	450	M. A.
DC Grid Current	125	95	100	110	M. A.
DC Grid Voltage	-1000	-390	-390	-365	Volts
Peak R.F. Grid Voltage		720	740	720	Volts
Plate Dissipation	225	255	255	255	Watts
Plate Input	1200	1200	1060	910	Watts

*Carrier conditions for 100% modulation peaks and 60% average value.

RADIO FREQUENCY POWER AMPLIFIER CLASS "B" LINEAR*

	Maximum Rating Per Tube	TYPICAL OPERATION, 1 TUBE			
		200	185	140	Watts
Power Output		200	185	140	Watts
Driving Power**		25	25	25	Watts
DC Plate Voltage	4000	3500	3000	2000	Volts
DC Plate Current	475	145	160	197	M. A.
DC Grid Current	100	9	1	14	M. A.
DC Grid Voltage	-1500	-137	-117	-70	Volts
Peak R.F. Grid Voltage		125	120	105	Volts
Plate Dissipation	300	300	290	255	Watts
Plate Input	500	500	475	394	Watts

*Carrier conditions for 100% modulation.

**At crest of audio cycle.

Gammatron Tubes

AUDIO FREQUENCY POWER AMPLIFIER

CLASS "B"*

	Maximum Rating Two Tubes	TYPICAL OPERATION, 2 TUBES			
Power Output		1135	1150	860	Watts
Driving Power**		50	50	50	Watts
DC Plate Voltage	4000	3000	2500	2000	Volts
DC Plate Current Zero Signal		100	100	100	M. A.
DC Plate Current Max. Signal	1200	650	680	710	M. A.
DC Grid Voltage	-1500	-105	-90	-68	Volts
Peak A.F. Grid to Grid Voltage		600	588	560	Volts
Plate Input Max. Signal	2000	1950	1700	1420	Watts
Load Resistance Plate to Plate		10400	8000	5600	Ohms

*All data for two tubes.

**Instantaneous power at crest of cycle; effective power is one-half of this value.

AUDIO FREQUENCY POWER AMPLIFIER

CLASS "A"—SINGLE TUBE

	Maximum Rating Per Tube	TYPICAL OPERATION, 1 TUBE			
Power Output		95	75	18	
DC Plate Voltage	4000	4000	3000	2000	Volts
DC Plate Current		75	100	150	M. A.
DC Grid Voltage		-140	-90	-40	Volts
Peak A.F. Grid Voltage		125	85	40	Volts
Load Resistance		30000	15000	7500	Ohms

VERY HIGH FREQUENCY RATINGS

Frequency	25	50	75	100	150	M. C.
Class "C" Unmodulated						
Max. Input	1050	900	750	675	525	Watts
Max. Plate Volts	3500	3000	2500	2250	1800	Volts
Class "C" Plate Mod.						
Max. Input	900	750	640	575	450	Watts
Max. Plate Volts	2600	2250	1900	1700	1350	Volts
Class "B" Linear						
Max. Input	460	440	420	410	380	Watts
Max. Plate Volts	3500	3000	2500	2250	1800	Volts

Gammatron Tubes

TYPE 654 GAMMATRON
 AVERAGE STATIC
 CHARACTERISTICS
 $E_f = 7.5$ VOLTS

