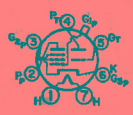
TUBE BASE DIAGRAMS

Bottom views are shown. Terminal designations on sockets are given on page V8.


7DT

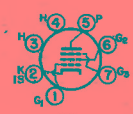

7DW


7E

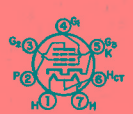

7EA


7EG


7EK


7EN

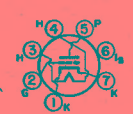

7EW


7F


7FB


7FL


7FN


7FP


7FQ


7G


7GA


7GK


7GM


7H

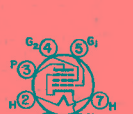

7J


7K


7L


7Q


7R


7S


7T


7U


7V


7W


7Z


8A


8AA


8AB


8AC


8AE


8AF


8AG


8AJ


8AL


8AN

8AO

8AR

8AS

8AU

8AV

8AW

8AX

8AY

8B

8BA

8BD

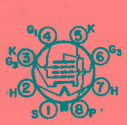
8BE

8BF

8BJ

TUBE BASE DIAGRAMS

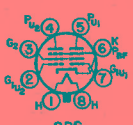
Bottom views are shown. Terminal designations on sockets are given on page V5.


8BK

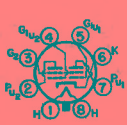

8BL

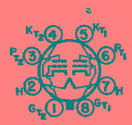

8BN


8BO


8BS


8BU

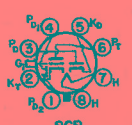

8BV

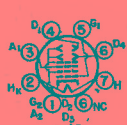

8BW

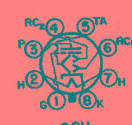

8BY

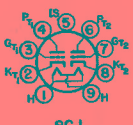

8BZ

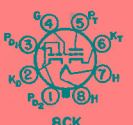

8C


8CB

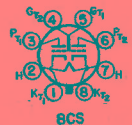

8CD


8CH


8CJ

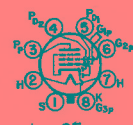

8CK


8CQ


8CS

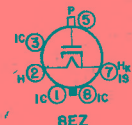

8CT


8DU

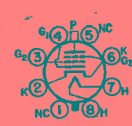

8E


8EL

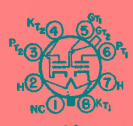

8EX


8EZ


8F


8FP


8FV

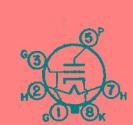

8G


8GD


8GS


8H


8HY


8JB


8JC


8JP


8K


8KQ


8KS


8L


8N

8O

8Q

8R

8S

8T

8U

8V

8W

8X

8Y

8Z

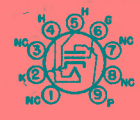
9A

9AA

9AB

TUBE BASE DIAGRAMS

Bottom views are shown. Terminal designations on sockets are given on page V5.


9AC


9AD


9AE


9AG


9AH


9AJ


9AK


9AM


9AQ


9AR


9AS


9AT


9AX


9AZ


9BA


9BB


9BC


9BD


9BF


9BG


9BJ


9BK


9BL


9BM


9BP


9BQ


9BS


9BU


9BV


9BW


9BX


9BY


9BZ


9C


9CA


9CB


9CD


9CF


9CG


9CK

9CT

9CV

9CY

9CZ

9DA

9DC

9DE

9DJ

9DP

9DR

9DS

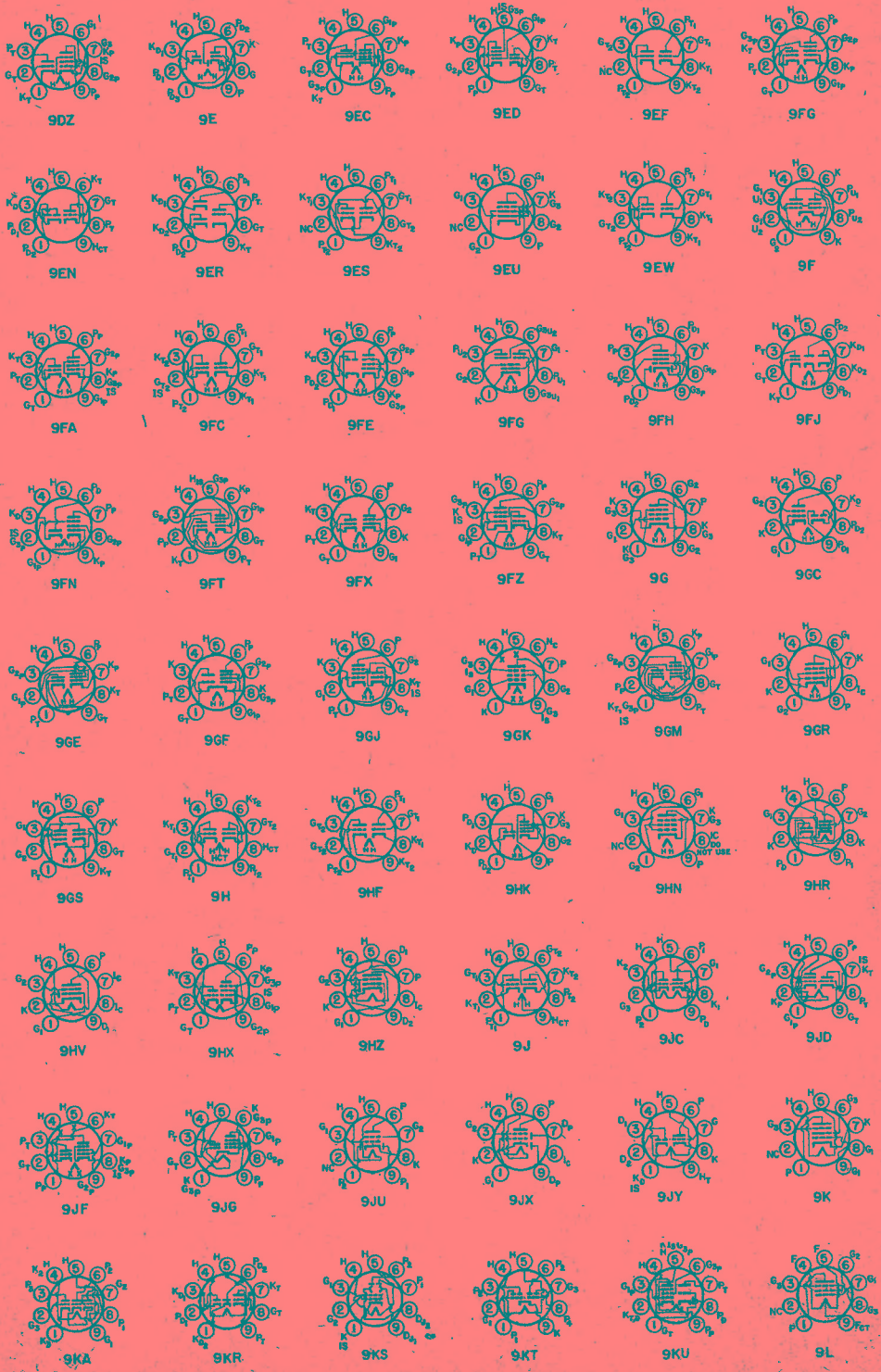
9DT

9DW

9DX

TUBE BASE DIAGRAMS

Bottom views are shown. Terminal designations on sockets are given on page V5.



TUBE BASE DIAGRAMS

Bottom views are shown. Terminal designations on sockets and * meaning are given on page V5.


9LK


9LS


9KV


9LW


9LY


9M


9MS


9N


9NM


9NT


9NZ


9PA


9PB


9PM


9PU


9PX


9Q


9QA


9QL


9QP

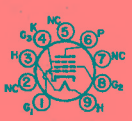

9R


9S


9T


9U


9V


9X


9Y

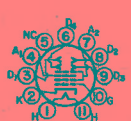

9Z


11A

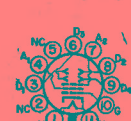

11B


11C


11J


11L

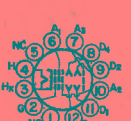

11M


11N


11S


11T


11V


12A


12AQ *

12AS *

12BF

12BJ

12BM

12BQ

12BW

J2BY

12CA

12CT

12E

12EA *

12EU

12F

12FB

TUBE BASE DIAGRAMS

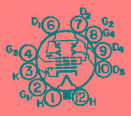
Bottom views are shown. Terminal designations on sockets are given on page V5.


12FM


12GW

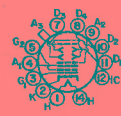

12HD

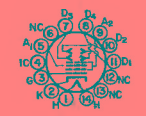

12J

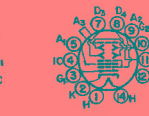

12T


14A


14B


14E


14G


14J


14K


14P


14R


14S


14U


14V


FIG. 1


FIG. 2

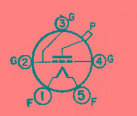


FIG. 3


FIG. 4

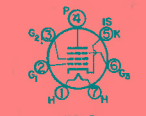


FIG. 5


FIG. 6

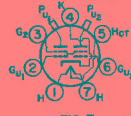


FIG. 7


FIG. 8


FIG. 9

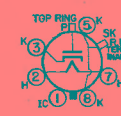


FIG. 10


FIG. 11


FIG. 12


FIG. 13


FIG. 14

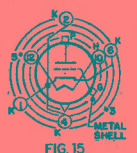


FIG. 15


FIG. 16


FIG. 17


FIG. 18


FIG. 19


FIG. 20


FIG. 21

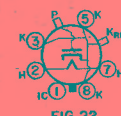


FIG. 22

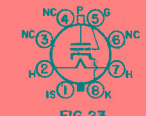


FIG. 23


FIG. 24

FIG. 25

FIG. 26

FIG. 27

FIG. 28

FIG. 29

FIG. 30

FIG. 31

FIG. 32

FIG. 33

FIG. 34

FIG. 35

FIG. 36

FIG. 37

FIG. 38

TUBE BASE DIAGRAMS

Bottom views are shown. Terminal designations on sockets are given on page V5.

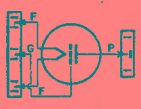


FIG. 39

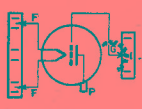


FIG. 40

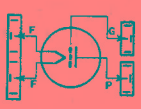


FIG. 41

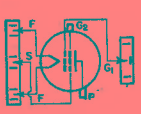


FIG. 42


FIG. 43

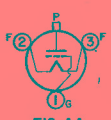


FIG. 44

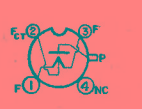


FIG. 45

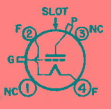


FIG. 46

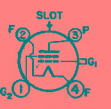


FIG. 47


FIG. 48

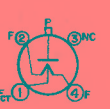


FIG. 49


FIG. 50


FIG. 51


FIG. 52


FIG. 53


FIG. 54


FIG. 55


FIG. 56


FIG. 57

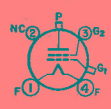


FIG. 58


FIG. 59


FIG. 60


FIG. 61


FIG. 62


FIG. 63


FIG. 64

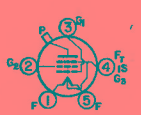


FIG. 65

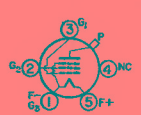


FIG. 66

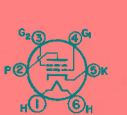


FIG. 67

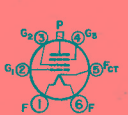


FIG. 68


FIG. 69


FIG. 70

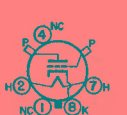


FIG. 71


FIG. 72

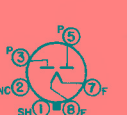


FIG. 73


FIG. 74


FIG. 75

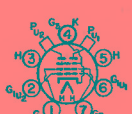


FIG. 76

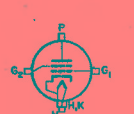


FIG. 77


FIG. 78

FIG. 79

FIG. 80

FIG. 81

FIG. 82

FIG. 83

FIG. 84

FIG. 85

FIG. 86

FIG. 87

Type	Name		Base	Fil. or Heater V	Fil. or Heater Amp.	Capacitances pF C_{in}	Capacitances pF C_{out}	Capacitances pF C_{gp}	Plate Supply V	Grid Bias	Screen Volts	Screen mA	Plate mA	Plate Res. Ohms	Transconductance[11]	Amp. Factor	Load Res. Ohms	Watts Output
6AF4A	Uhf — Triode	A_1 Amp. Osc. 950 MHz	7DK	6.3	0.225	2.2	0.45	1.9	80	150*	—	—	16	2.27K	6600	15	—	—
									100	10KΩ	—	0.4[9]	22	—	—	—	—	—
6AG9	Sharp Cut-off Pent.		7BD	6.3	0.3	6.5	1.8	0.03	250	180*	150	2.0	6.5	800K	5000	—	—	—
									100	180*	100	1.4	4.5	600K	4500	—	—	—
6AH6	Sharp Cut-off Pent.	Pent. Amp.	7BK	6.3	0.45	10.0	2.0	0.03	300	160*	150	2.5	10	500K	9600	—	—	—
		Triode Amp.							150	180*	—	—	12.5	3.6K	11K	40	—	—
6AJ4	Uhf Triode		9BX	6.3	0.225	4.4	0.18	2.4	125	68*	—	—	16	4.2K	10K	42	—	—
6AK5	Sharp Cut-off Pent.		7BD	6.3	0.175	4.0	2.8	0.02	180	200*	120	2.4	7.7	690K	5100	—	—	—
									150	330*	140	2.2	7	420K	4300	—	—	—
									120	200*	120	2.5	7.5	340K	5000	—	—	—
6AK8	Pwr. Amp. Pent.		7BK	6.3	0.15	3.6	4.2	0.12	180	−9	180	2.5	15	200K	2300	—	10K	1.1
6AL5	Dual Diode[10]		6BT	6.3	0.3	—	—	—	Max. rms voltage = 117. Max. dc output current = 9 mA.[1]									
6AM4	Uhf Triode		9BX	6.3	0.225	4.4	0.16	2.4	150	100*	—	—	7.5	10K	9000	90	—	—
6AN8	Beam Pwr. Pent.		7BD	6.3	0.45	9.0	4.8	0.075	120	120*	120	12.0	35	12.5K	8000	—	2.5K	1.3
6AN8A‡	Medium-μ Triode		9DA	6.3	0.45	2.0	2.7	1.5	200	−6	—	—	13	5.75K	3300	—	—	—
	Sharp Cut-off Pent.					7.0	2.3	0.04	200	160*	150	2.8	9.5	30K	6200	—	—	—
6AQ5A‡	Beam Pwr. Pent.		7BZ	6.3	0.45	8.3	8.2	0.35	180	−8.5	180	3/4	30[2]	58K	3700	29[6]	5.5K	2.0
									250	−12.5	250	4.5/7	47[2]	52K	4100	45[6]	5K	4.5
6AQ8	Dual Diode — High-μ Triode		7BT	6.3	0.15	1.7	1.5	1.8	100	−1	—	—	0.8	61K	1150	70	—	—
									250	−3	—	—	1	58K	1200	70	—	—
6AR5	Pwr. Amp. Pent.		9CC	6.3	0.4	—	—	—	250	−16.5	250	5.7/10	35[2]	65K	2400	34[6]	7K	3.2
									250	−18	250	5.5/10	33[2]	68K	2300	32[6]	7.6K	3.4
6AS6	Sharp Cut-off Pent.		7CM	6.3	0.175	4	3	0.2	120	−2	120	3.5	5.2	110K	3200	—	—	—
6AT6	Duplex Diode — High-μ Triode		7BT	6.3	0.3	2.3	1.1	2.1	250	−3	—	—	1	58K	1200	70	—	—
6AU6A‡	Sharp Cut-off Pent.		7BK	6.3	0.3	5.5	5	0.0035	250	68*	150	4.3	10.6	1 meg.	5200	—	—	—
6AV6	Dual Diode — High-μ Triode		7BT	6.3	0.3	2.2	0.8	2.0	250	−2	—	—	1.2	62.5K	1600	100	—	—
6AZ8	Medium-μ Triode		9ED	6.3	0.45	2	1.7	1.7	200	−6	—	—	13	5.75K	3300	19	—	—
	Semiremote Cut-off Pent.					6.5	2.2	0.02	200	160*	150	3	9.5	300K	6000	—	—	—
6BA6	Remote Cut-off Pent.		7BK	6.3	0.3	5.5	5	0.0035	250	68*	100	4.2	11	1 meg.	4400	—	—	—
6BA7	Pentagrid Conv.		8CT	6.3	0.3	Osc. 20kΩ			250	−1	100	10	3.8	1 meg.	950	—	—	—
6BE6	Uhf Medium-μ Triode		9DR	6.3	0.225	2.9	0.26	1.6	150	100*	—	—	14.5	4.8K	10K	48	—	—
6BE8	Pentagrid Conv.		7CH	6.3	0.3	Osc. 20kΩ			250	−1.5	100	6.8	2.9	1 meg.	475	—	—	—
6BE8A‡	Medium-μ Triode		9EG	6.3	0.45	2.8	1.5	1.8	150	56*	—	—	18	5K	8500	40	—	—
	Sharp Cut-off Pent.					4.4	2.6	0.04	250	68*	110	3.5	10	400K	5200	—	—	—
6BF5	Beam Pwr. Amp.		7BZ	6.3	1.2	14	6	0.65	110	−7.5	110	4/10.5	39[2]	12K	7500	36[6]	2.5K	1.9
6BF6	Dual Diode — Medium-μ Triode		7BT	6.3	0.3	1.8	0.8	2	250	−9	—	—	9.5	8.5K	1900	16	10K	0.3
6BH6	Sharp Cut-off Pent.		7CM	6.3	0.15	5.4	4.4	0.0035	250	−1	150	2.9	7.4	1.4 meg.	4600	—	—	—
6BH8‡	Medium-μ Triode		9DX	6.3	0.6	2.6	0.38	2.4	150	−5	—	—	9.5	5.15K	3300	17	—	—
	Sharp Cut-off Pent.					7	2.4	0.046	200	82*	125	3.4	15	150K	7000	—	—	—
6BJ6A	Remote Cut-off Pent.		7CM	6.3	0.15	4.5	5.5	0.0035	250	−1	100	3.3	9.2	1.3 meg.	3800	—	—	—
6BJ7	Triple Diode		9AX	6.3	0.45	Max. peak inverse plate voltage = 330 V. Max. dc plate current each diode = 1.0 mA												
6BJ8‡	Dual Diode — Medium-μ Triode		8ER	6.3	0.6	2.8	0.38	2.6	250	−9	—	—	8	7.15K	2800	20	—	—
6BK6	Dual Diode — High-μ Triode		7BT	6.3	0.3	—	—	—	250	−2	—	—	1.2	62.5K	1600	100	—	—
6BK7B	Medium-μ Dual Triode[10]		9AJ	6.3	0.4	3	1	1.8	150	58*	—	—	18	4.6K	9300	43	—	—
6BL8	Triode		9DC	6.3	0.43	2.5	1.8	1.5	250	−1.3	—	—	14	—	5000	20	—	—
	Pentode					5.2	3.4	0.025	250	−1.3	175	2.8	10	400K	6200	47	—	—
6BN4A	Medium-μ Triode		7EG	6.3	0.2	3.2	1.4	1.2	150	220*	—	—	9	6.3K	6800	43	—	—
6BN6	Gated-Beam Pent.		7DF	6.3	0.3	4.2	3.3	0.004	80	−1.3	60	5	0.23	—	—	—	68K	—
6BN8‡	Dual Diode — High-μ Triode		9ER	6.3	0.6	3.6	0.25	2.5	250	−3	—	—	1.6	28K	2900	70	—	—
6BQ5	Pwr. Amp. Pent.		9CV	6.3	0.76	10.8	6.5	0.5	300	−7.3	200	10.8	49.5[2]	38K	—	—	5.2K	17[6]
6BQ7A	Medium-μ Dual Triode[10]		9AJ	6.3	0.4	2.85	1.35	1.15	150	220*	—	—	9	6.1K	6400	39	—	—
6BR8A‡	Medium-μ Triode		9FA	6.3	0.45	2.5	0.4	1.8	150	56*	—	—	18	5K	8500	40	—	—
	Sharp Cut-off Pent.					5	2.6	0.015	250	68*	110	3.5	10	400K	5200	—	—	—
6BS8	Low-Noise Dual Triode[10]		9AJ	6.3	0.4	2.6	1.35	1.15	150	220*	—	—	10	5K	7200	36	—	—
6BX8	Dual Triode[10]		9AJ	6.3	0.4	—	—	1.4	65	−1	—	—	9	—	6700	25	—	—
6BZ6	Semiremote Cut-off Pent.		7CM	6.3	0.3	7.5	1.8	0.02	200	180*	150	2.6	11	800K	6100	—	—	—
6BZ7	Medium-μ Dual Triode[10]		9AJ	6.3	0.4	2.5	1.35	1.15	150	220*	—	—	10	5.6K	6800	39	—	—
6BZ8	Dual Triode[10]		9AJ	6.3	0.4	—	—	—	125	100*	—	—	10[1]	5.6K	8000	45	—	—
6C4	Medium-μ Triode		6BG	6.3	0.15	1.8	1.3	1.6	250	−8.5	—	—	10.5	7.7K	2200	17	—	—
6CB6A‡	Sharp Cut-off Pent.		7CM	6.3	0.3	6.5	1.9	0.02	200	180*	150	2.8	9.5	800K	6200	—	—	—
6CE5‡	Rf Pent.		7BD	6.3	0.3	6.5	1.9	0.03	200	180*	150	2.8	9.5	600K	6200	—	—	—
6CG8	Semiremote Cut-off Pent.		7BK	6.3	0.3	5	5	0.008	250	−8	150	2.3	9	720K	2000	—	—	—
6CG7‡	Medium-μ Dual Triode[10]		9AJ	6.3	0.6	2.3	2.2	4	250	−8	—	—	9	7.7K	2600	20	—	—
6CL6	Pwr. Amp. Pent.		9BV	6.3	0.65	11	5.5	0.12	250	−3	150	7/7.2	31[2]	150K	11K	30[5]	7500	2.8
6CM4	Triode		12AQ	6.3	0.13	4.1	1.7	0.92	70	0	—	—	8	5.44K	12.5K	68	—	—
6CX8	Medium-μ Triode		9DX	6.3	0.75	2.2	0.38	4.4	150	150*	—	—	9.2	8.7K	4600	40	—	—
	Sharp Cut-off Pent.					9	4.4	0.06	200	68*	125	5.2	24	70K	10K	—	—	—
6CY5	Sharp Cut-off Tetrode		7EW	6.3	0.2	4.5	3	0.03	125	−7	80	1.5	10	100K	8000	—	—	—
6DJ8	Twin Triode		9AJ	6.3	0.365	3.3	1.8	1.4	90	−1.3	—	—	15	—	12.5K	33	—	—
6DK6	Sharp Cut-off Pent.		7CM	6.3	0.3	6.3	1.9	0.02	300	−6.5	150	3.8	12	—	9600	—	—	—
6DS4	High-μ Triode		12AQ	6.3	0.135	4.1	1.7	.92	70	0	—	—	8	5.44K	12.5K	68	—	—
6DT6	Sharp Cut-off Pent.		7EM	6.3	0.3	5.8	—	0.02	150	560*	100	2.1	1.1	150K	615	—	—	—
6DW5	Beam Pwr. Amp.		9CK	6.3	1.2	14	9	0.5	200	−22.5	150	2	55	15K	5500	—	—	—
6EA8‡	Triode		9AE	6.3	0.45	3	0.3	1.7	330	−12	—	—	18	5K	8500	40	—	—
	Sharp Cut-off Pent.					5	2.6	0.02	330	−9	330	4	12	80K	6400	—	—	—
6EB8	High-μ Triode		9DX	6.3	0.75	2.4	.36	4.4	330	−5	—	—	2	37K	2700	100	—	—
	Sharp Cut-off Pent.					11	4.2	0.1	330	−9	—	7	25	75K	12.5K	—	—	—
6EH5	Power Pentode		7CV	6.3	1.2	17	9	0.65	135	0	117	14.5	42	11K	14.6K	—	3K	1.4
6EW7	Remote Cut-off Pent.		9AQ	6.3	0.3	9	3	.005	200	−2	90	4.5	12	500K	12.5K	—	—	—
6EM8	Triode		9JG	6.3	0.45	2.8	1.7	1.8	125	−1	—	—	13.5	—	7500	40	—	—
	Pentagrid Conv.					4.8	2.4	0.02	125	−1	125	4	12	170K	6000	—	—	—
6EJ7	Sharp Cut-off Pent.		9AQ	6.3	0.3	10	3	.005	200	−2.5	200	4.7	10	350K	15K	—	—	—
6EK6	Tetrode		7FN	6.3	0.18	4.4	3.0	0.35	200	−1.2	0	0	10	8K	10.5K	80	—	—

TABLE I—MINIATURE RECEIVING TUBES—Continued

Type	Name	Base	Fil. or Heater V	Fil. or Heater Amp.	Capacitances pF C_{in}	Capacitances pF C_{out}	Capacitances pF C_{gp}	Plate Supply V	Grid Bias	Screen Volts	Screen mA	Plate mA	Plate Res. Ohms	Transconductance	Amp. Factor	Mod. Res. Ohms	Max. Plate Diss.
6E5	Dual Triode	9DE	6.3	0.365	3.4	1.7	1.9	130	−1.2	—	—	15	—	12.5K	34	—	—
6EU7	Twin Triode	9LS	6.3	0.3	1.6	0.2	1.5	100	−1	—	—	0.5	80K	1250	100	—	—
6EU8	Triode	9JF	6.3	0.45	5.0	2.6	0.02	150	—	—	—	18	5K	8500	40	—	—
	Pentode				3.0	1.6	1.7	125	−1	125	4	12	80K	6400	—	—	—
6EZ8	Triple Triode No. 1 / Triode Triodes No. 2 & 3	9KA	6.3	0.45	2.6	1.4 / 1.2	1.5	330	−4	—	—	4.2	13.6K	4200	57	—	—
6EV8	Sharp Cut-off Tetrode	7FQ	6.3	0.2	4.5	3	0.03	125	−1	80	1.5	10	100K	8000	—	—	—
6GC5	Pwr. Pent.	9EU	6.3	1.2	18.0	7.0	0.9	110	−7.5	110	4	50	13K	8000	—	2K	2.3
6GJ8	Triode	9AE	6.3	0.6	3.4	1.6	2.6	125	−1	—	—	13.5	5K	8500	40	—	—
	Pentode				8	2.4	0.36	125	−1	125	4.5	12	150K	7500	—	—	—
6GK5	High-μ Triode	7FP	6.3	0.18	5	3.5	0.52	135	−1	—	—	11.5	5400	15K	78	—	—
6GK6	Power Pentode	9GK	6.3	0.76	10	7.0	0.14	250	−7.3	250	5.5	48	38K	11.3K	—	5.2K	5.7
6GM5	Pentode	7CM	6.3	0.4	10	2.4	0.036	125	—	125	3.4	14	200K	13K	—	—	—
6GN8	High-μ Triode	9DX	6.3	0.75	2.4	0.36	4.4	250	−2	—	—	2	37K	2700	100	—	—
	Sharp Cut-off Pent.				11	4.2	0.1	200	—	150	5.5	25	80K	11.5K	—	—	—
6HB6	Power Pentode	9PU	6.3	0.76	13	8.0	0.18	250	100*	250	6.2	40	24K	20K	—	—	—
6J4	Grounded-Grid Triode	7BQ	6.3	0.4	7.5	3.9	0.12	150	100*	—	—	15	4.5K	12K	55	—	—
6J8A‡	Medium-μ Dual Triode A$_1$ Amp.[10] / Mixer	7BF	6.3	0.45	2.2	0.4	1.6	100	50*	—	—	8.5	7.1K	5300	36	—	—
								150	810*	—	—	4.8	10.2K	1900	Osc. peak voltage = 3 V		
6KD8	Sharp Cut-off Pent.	9AE	6.3	0.4	5.0	2.6	0.015	125	−1	110	3.5	9.5	200K	5000	—	—	—
	Medium-μ Triode				1.5	2.8	1.8	125	−1	—	—	13.5	—	7500	40	—	—
6KE8	Medium-μ Triode	9DC	6.3	0.4	2.4	2.0	1.3	125	68*	—	—	13	5.0K	8000	40	—	—
	Sharp Cut-off Pent.				5.0	3.4	.015	125	33*	125	2.8	10	125K	12K	—	—	—
6KR8	Sharp Cut-off Pent.	9DX	6.3	0.75	13	4.4	0.075	200	82*	100	3.0	19.5	60K	20K	—	—	—
	Medium-μ Triode				4.2	3.0	2.6	125	68*	—	—	15	4400	10.4K	46	—	—
6KT8	Remote Cut-off Pent.	9PM	6.3	0.3	9.5	3	0.19	125	56*	125	4.2	17	—	18K	—	—	—
6KT8	High-μ Triode	9QP	6.3	0.6	32	1.6	3.0	250	−2	—	—	1.8	31.5K	3200	100	—	—
	Sharp Cut-off Pent.				7.5	2.2	0.046	125	−1	125	4.5	12	150K	10K	—	—	—
6KZ8	Sharp Cut-off Pent.	9FZ	6.3	0.45	5.5	3.4	0.01	125	−1	125	4	12	200K	7500	—	—	—
	Medium-μ Triode				3.2	1.8	1.6	125	−1	—	—	13.5	5400	8500	46	—	—
6LJ8	Sharp Cut-off Pent.	9GF	6.3	0.4	5.5	3.4	0.015	125	33*	125	3.5	12	125K	13K	—	—	—
	Medium-μ Triode				2.4	2.0	1.4	125	68*	—	—	13	5K	8000	40	—	—
6LY6	High-μ Triode	9DX	6.3	0.75	2.6	2.8	3.8	200	−2.0	—	—	1.0	59K	1700	100	—	—
	Sharp Cut-off Pent.				13.0	4.4	0.75	200	—	100	3	19.5	80K	20K	—	—	—
6NU8	Medium-μ Triode	9AE	6.3	0.6	3	2.2	2.2	330	0	—	—	11.5	5.8K	6000	35	—	—
	Sharp Cut-off Pent.							330	0	150	4.2	19	165K	9000	—	—	—
6T4	Uhf Triode	7DK	6.3	0.225	2.6	0.25	1.7	80	150*	—	—	18	1.86K	7000	13	—	—
6T8A‡	Triple Diode-High-μ Triode	9E	6.3	0.45	1.6	1	2.2	100	−1	—	—	0.8	54K	1300	70	—	—
								250	−3	—	—	1	58K	1200	70	—	—
6U8A‡	Medium-μ Triode	9AE	6.3	0.45	2.5	0.4	1.8	150	56*	—	—	18	5K	9500	40	—	—
	Sharp Cut-off Pent.				5	2.6	0.01	250	68*	110	3.5	10	400K	5200	—	—	—
6X8A‡	Medium-μ Triode	9AK	6.3	0.45	2.0	0.5	1.4	100	100*	—	—	8.5	6.9K	—	40	—	—
	Sharp Cut-off Pent.				4.3	0.7	0.09	250	200*	150	1.6	7.7	750K	—	—	—	—
12AB5	Beam Pwr. Amp. A$_1$ Amp. / AB$_1$ Amp.[9]	9EU	12.6	0.2	8	8.5	0.7	250	−12.5	250	4.5/7	47[2]	50K	4100	45[5]	5K	4.5
								250	−15	250	5/13	75[2]	60K[1]	3750	70[5]	10K[6]	10
12AQ5	Beam Pwr. Amp. A$_1$ Amp. / AB$_1$ Amp.[3]	7BZ	12.6	0.225	6.3	8.2	0.35	250	−12.5	250	4.5/7	47[2]	52K	4100	45[5]	5K	4.5
								250	−15	250	5/13	75[2]	60K[1]	3750[1]	70[5]	10K[6]	10
12AT7	High-μ Dual Triode[10]	9A	12.6	0.15	2.2[7]	0.5[7]	1.5[7]	100	270*	—	—	3.7	15K	4000	60	—	—
			6.3	0.3	2.2[8]	0.4[8]	1.5[8]	250	200*	—	—	10	10.5K	5500	60	—	—
12AU7A	Medium-μ Dual Triode[10]	9A	12.6	0.15	1.6[7]	0.5[7]	1.5[7]	100	0	—	—	11.8	6.25K	3100	19.5	—	—
			6.3	0.3	1.6[8]	0.35[8]	1.5[8]	250	−8.5	—	—	10.5	7.7K	2200	17	—	—
12AV7	Medium-μ Dual Triode[10]	9A	12.6	0.225	3.1[7]	0.5[7]	1.9[7]	100	120*	—	—	9	6.1K	6100	37	—	—
			6.3	0.45	3.1[8]	0.4[8]	1.9[8]	150	56*	—	—	18	4.8K	8500	41	—	—
12AX7A	High-μ Dual Triode A$_1$ Amp.[10] / Class B	9A	12.6	0.15	1.6[7]	0.46[7]	1.7[7]	250	−2	—	—	1.2	62.5K	1600	100	—	—
			6.3	0.3	1.6[8]	0.34[8]	1.7[8]	300	0	—	—	40[2]	—	—	14[5]	16K[6]	7.5
12AY7	Medium-μ Dual Triode[10] A$_1$ Amp. / Low-Level Amp.	9A	12.6	0.15	1.3	0.6	1.3	250	−4	—	—	3	—	1750	40	—	—
			6.3	0.3				150	2700*	Plate resistor = 20K. Grid resistor = 0.1 meg. V. G. = 12.6							
12AZ7A‡	High-μ Dual Triode[10]	9A	12.6	0.225	3.1[7]	0.5[7]	1.9[7]	100	270*	—	—	3.7	15K	4000	60	—	—
			6.3	0.45	3.1[8]	0.4[8]	1.9[8]	250	200*	—	—	10	10.9K	5500	60	—	—
12BH7A‡	Medium-μ Dual Triode[10]	9A	12.6	0.3	3.2[7]	0.5[7]	2.6[7]	250	−10.6	—	—	11.5	5.3K	3100	16.5	—	—
			6.3	0.6	3.2[8]	0.4[8]	2.6[8]										
12BY7A‡	Sharp Cut-off Pent.	9BF	12.6	0.3	11.1	3	0.055	250	68*	150	6	25	90K	12K	1200	—	—
			6.3	0.6													
35B5	Beam Pwr. Amp.	7BZ	35	0.15	11	6.5	0.4	110	−7.5	110	3/7	41[2]	—	5800	40[5]	2.5K	1.5
50B5	Beam Pwr. Amp.	7BZ	50	0.15	13	6.5	0.5	110	−7.5	110	4/8.5	50[2]	14K	7500	49[5]	2.5K	1.9
50FK5	Pwr. Pent.	7CV	50	0.1	17	9	0.65	110	62*	115	12	32	14K	12.8K	—	3K	1.2
5686	Beam Pwr. Pent.	9G	6.3	0.35	6.4	8.5	0.11	250	−12.5	250	35	27[5]	45K	3100	—	9K	2.7
5687	Medium-μ Dual Triode[10]	9H	12.6	0.45	4[7]	0.6[7]	4[7]	120	−2	—	—	36	1.7K	11K	18.5	—	—
			6.3	0.9	4[8]	0.5[8]	4[8]	250	−12.5	—	—	12.5	3K	5500	16.8	—	—
5722	Noise Generating Diode	5CB	6.3	1.5	—	2.2	—	200	—	—	—	35	—	—	—	—	—
4A‡ / 1B24	High-μ Triode	9V	6.3	0.3	9.0	1.8	0.55	150	62*	—	—	26	1.8K	24K	43	—	—
5879	Sharp Cut-off Pent.	9AD	6.3	0.15	2.7	2.4	0.15	250	−3	100	0.4	1.8	2 meg.	1000	—	—	—
6386	Medium-μ Dual Triode[10]	9CJ	6.3	0.35	2	1.1	1.2	100	200*	—	—	9.6	4.25K	4000	17	—	—
6887	Dual Diode	9BT	6.3	0.2	Max. peak inverse plate voltage = 360 V. Max. dc plate current each diode = 10 mA.												
6972	Pwr. Pentode	9EU	6.3	0.45	6	6	0.4	440	−15	300	—	—	73K	4800	—	—	—
7189A	Pwr. Pentode	5CV	6.3	0.76	10.8	6.5	0.5	250	−7.3	250	5.5	48	40K	11.3K	—	—	—
7295	Sharp Cut-off	9DA	12.6	0.195	7	2.4	0.4	330	—	125	3.8	12	170K	7800	—	—	—
	Medium-μ Triode				2	0.26	1.5	360	−3	—	—	15	4.7K	4500	21	—	—
7586‡	Medium-μ Triode	12AQ	6.3	0.135	4.2	1.6	2.2	75	100*	—	—	10.5	3000	11.5K	35	—	—
7587	Sharp Cut-off Tet.	12AS	6.3	0.15	6.5	1.4	0.01	125	68*	50	2.7	10	200K	10.5K	—	—	—
7695	High-μ Triode	12AQ	6.3	0.135	4.2	1.7	0.9	110	0	—	—	7	6800	9400	64	—	—
7696	Medium-μ Triode	12AQ	6.3	0.135	4.0	1.7	2.1	12	0	—	—	5.8	1.6K	8000	12.5	—	—

TABLE I—MINIATURE RECEIVING TUBES—*Continued*

Type	Name	Base	Fil. or Heater V	Fil. or Heater Amp.	Capacitances pF C_{in}	Capacitances pF C_{out}	Capacitances pF C_{gp}	Plate Supply V	Grid Bias	Screen Volts	Screen mA	Plate mA	Plate Res. Ohms	Transconductance	Amp. Factor	Load Res. Ohms	Watts Output
6S3	High-μ Triode	12CT	6.3	0.135	6.0	0.046	1.3	110	47*	—	—	10	—	10K	—	—	—
6S5	Medium-μ Triode	12AQ	13.5	0.050	4.4	1.7	2.4	75	100*	—	—	10.5	3000	11.5K	35	—	—
6S6	High-μ Triode	12AQ	6.3	0.10	10	3.4	1.7	150	3.3K*	—	—	0.3	41K	3100	127	7K	—
6S7	Power Triode	12CT	6.3	0.15	6.0	1.2	—	100	1.2K*	—	—	20	3K	5400	70	—	1.4
6S8T	Sharp Cut-off Pent.	7BD	6.3	0.15	3.6	3	0.01	250	−3	100	0.7	2	1 meg.	1400	—	—	—
6S8Z	Uhf Triode	7BS	6.3	0.15	1.2	1.1	1.4	250	−7	—	—	6.3	11.4K	2200	25	—	—
6S8S	Remote Cut-off Pent.	7BD	6.3	0.15	3.4	3	0.1	250	−3	100	2.7	6.7	700K	1800	—	—	—
6S9S	Uhf Diode	6BH	6.3	0.15	Max. ac voltage = 270. Max. dc output current = 5 mA.												

‡ Controlled heater warm-up characteristic.
Ω Oscillator-gridleak or screen-dropping resistor ohms.
* Cathode resistor ohms.
** Space-charge grid.

[1] Per Plate.
[2] Maximum-signal current for full-power output.
[3] Values are for two tubes in push-pull.
[4] Unless otherwise noted.
[5] No signal plate mA.
[6] Effective plate-to-plate.
[7] Triode No. 1.
[8] Triode No. 2.
[9] Oscillator grid current mA.
[10] Values for each section.
[11] Micromhos.
[12] Through 33K.

TABLE II—METAL RECEIVING TUBES

Characteristics given in this table apply to all tubes having type numbers shown, including metal tubes, glass tubes with "G" suffix, and bantam tubes with "GT" suffix. For "G" and "GT"-tubes not listed (not having metal counterparts), see Tables III and V.

Type	Name	Base	Fil. or Heater V	Fil. or Heater Amp.	Capacitances pF C_{in}	Capacitances pF C_{out}	Capacitances pF C_{gp}	Plate Supply V	Grid Bias	Screen Volts	Screen mA	Plate mA	Plate Res. Ohms	Transconductance[12]	Amp. Factor[13]	Load Res. Ohms	Watts Output
6A8	Pentagrid Conv.	8A	6.3	0.3	—	—	—	250	−3	100	2.7	3.5	360K	550	—	—	—
								E_{bb} (Osc.) 250 V through 20K. Grid resistor (Osc.) 50K. I_b = 4 mA. I_{g1} = 0.4 mA.								
6AC7	Sharp Cut-off Pent.	6N	6.3	0.45	11	5	0.15	300	160*	150	2.5	10	1 meg.	9000	—	—	—
1852								300	160*	60K[8]	2.5	10	1 meg.	9000	—	—	—
6AG7	Pwr. Amp. Pent.	8Y	6.3	0.65	13	7.5	0.06	300	3	150	7/9	30/31	130K	11K	—	10K	3
6B8	Dual-Diode — Pent.	6E	6.3	0.3	6	9	0.005	250	−3	125	2.3	10	600K	1325	—	—	—
6F8	Pwr. Amp. Pent. A_1 Amp.[1, 5]	7S	6.3	0.7	6.5	13	0.2	250	20	20[10]	—	31/34	2.6K	2600	6.8	4K	0.85
	AB_2 Amp.[1, 6]							350	730*	132[11]	—	50/60	—	—	—	10K[7]	9
								350	−38	123[11]	—	48/92	—	—	—	6K[7]	13
	A_1 Amp.[5]							250	−16.5	250	6/11	34/36	80K	2500	—	7K	3.2
								285	−20	285	7/13	38/40	78K	2500	—	7K	4.8
	AB_2 Amp.[6]							375	26	250	5/20	34/32	—	—	82[11]	10K[7]	18.5
								375	340*	250	8/18	54/77	—	—	94[11]	10K[7]	19
6J5	Medium-μ Triode	6Q	6.3	0.3	3.4	3.6	3.4	250	−8	—	—	9	7.7K	2600	20	—	—
6J7	Sharp Cut-off Pent. A_1 Amp. Biased Detector	7R	6.3	0.3	7	12	0.005	250	−3	100	0.5	2	1 meg.	1225	—	—	—
								250	10K*	100	Zero signal cathode current = 0.43 mA.				0.5 meg.		
6K7	Variable-μ Pent. R.f. Amp. Mixer	7R	6.3	0.3	7	12	0.005	250	−3	125	2.6	10.5	600K	1650	990	—	—
								250	−10	100	Osc. peak volts = 7						
6K8	Triode — Hexode Conv. Hexode Triode	6K	6.3	0.3	—	—	—	250	−3	100	6	2.5	600K	350	—	—	—
								100	50K[8]	—	—	3.8		I_{g1} (Osc.) = 0.15 mA.			
6L6-GB[2]	Beam Pwr. Amp. A_1 Amp.[1, 5]	7AC	6.3	0.9	11.5	9.5	0.9	250	−20	20[10]	—	40/44	1.7K	4700	8	5K	1.4
	A_1 Amp.[5] Self Bias							250	167*	250	5.4/7.2	75/78	—	—	14[10]	2.5K	6.5
								300	218*	200	3/4.6	51/55	—	—	12.7[10]	4.5K	8.5
	A_1 Amp.[5] Fixed Bias							250	−14	250	5/7.3	72/79	22.5K	6000	14[10]	2.5K	6.5
								350	−18	250	2.5/7	54/66	33K	5200	18[10]	4.2K	10.5
	A_1 Amp.[6] Self Bias							250	125*	250	10/15	120/130	—	—	36.6[11]	5K[7]	13.8
	A_1 Amp.[6] Fixed Bias							270	125*	270	11/17	134/145	—	—	28.2[11]	5K[7]	18.5
								250	−16	250	10/16	120/140	24.5[5]	5500[5]	32[11]	5K[7]	14.5
	AB_1 Amp.[6] Self Bias							270	−17.5	270	11/17	134/155	23.5[5]	5700[5]	35[11]	5K[7]	17.5
								360	270*	270	5/17	88/100	—	—	40.6[11]	9K[7]	24.5
	AB_1 Amp.[6] Fixed Bias							360	−22.5	270	5/11	88/140	—	—	45[11]	3.8K[7]	18
								360	−22.5	270	5/15	88/132	—	—	45[11]	6.6K[7]	26.5
	AB_2 Amp.[6] Fixed Bias							360	−18	225	3.5/11	78/142	—	—	52[11]	6K[7]	31
								360	−22.5	270	5/16	88/205	—	—	72[11]	3.8K[7]	47
6L7	Pentagrid — A_1 Amp. Mixer Amp. Mixer	7T	6.3	0.3	—	—	—	250	−3	100	6.5	5.3	600K	1100	−3[14]	—	—
								250	−6	150	9.2	3.3	1 meg.	350	−15[14]	—	—
6N7GT	Class-B B Amp.[9] Twin Triode A_1 Amp.[10]	8B	6.3	0.8	—	—	—	300	0	—	—	35/70	—	—	8[11]	8K[7]	10
								250	−5	—	—	6	11.3K	3100	—	—	—
6Q7	Dual Diode — High-μ Triode	7V[2]	6.3	0.3	5	3.8	1.4	250	−3	—	—	1	58K	1200	70	—	—
6R7	Dual Diode — Triode	7V[2]	6.3	0.3	4.8	3.8	2.4	250	−9	—	—	9.5	8.5K	1900	16	10K	0.28
6SA7GT	Pentagrid Conv.	8R[2]	6.3	0.3	9.5	12	0.13	250	0[3]	100	8	3.4	800K	Grid No. 1 resistor 20K.			
								100	−1	100	10.2	3.6	50K	900	—	—	—
6SB7Y	Pentagrid Conv.	8R	6.3	0.3	9.6	9.2	0.13	250	−1	100	10	3.8	1 meg.	950	—	—	—
								250	22K[8]	12K[8]	12/13	6.8/6.5	Osc. Section in 88—100 Mhz. Service.				
6SC7	High-μ Dual Triode[4]	8S	6.3	0.3	2	3	2	250	−2	—	—	2	53K	1325	70	—	—
6SF7	Diode — Variable-μ Pent.	7AZ	6.3	0.3	5.5	6	0.004	250	−1	100	3.3	12.4	700K	2050	—	—	—
6SK7	Hf Amp. Pent.	6BK	6.3	0.3	8.5	7	0.003	250	−2.5	150	3.4	9.2	1 meg.	4000	—	—	—
6SH7	Hf Amp. Pent.	6BK	6.3	0.3	8.5	7	0.003	250	−1	150	4.1	10.8	900K	4900	—	—	—
6SJ7[4]	Sharp Cut-off Pent.	8N	6.3	0.3	6	7	0.005	250	−3	100	0.8	3	1 meg.	1650	—	—	—
6SK7	Variable-μ Pent.	8N	6.3	0.3	6	7	0.003	250	−3	100	2.6	9.2	800K	2000	—	—	—
6SQ7GT	Dual Diode — High-μ Triode	8Q	6.3	0.3	3.2	3	1.6	250	−2	—	—	0.9	91K	1100	100	—	—
6SR7	Dual Diode — Triode	8Q	6.3	0.3	3.6	2.8	2.4	250	−9	—	—	9.5	8.5K	1900	16	—	—
6V6GTA	Beam Pwr. Amp. A_1 Amp.[5]	7AC	6.3	0.45	10	11	0.3	180	−8.5	100	3/4	29/30	90K	3700	8.5[10]	5.5K	2
								250	−12.5	250	4.5/7	45/47	50K	4100	12.5[10]	5K	4.5
	AB_1 Amp.[6]							315	−13	225	2.2/6	34/35	80K	3750	13[10]	8.5K	5.5
								250	−15	250	5/13	70/79	60K	3750	30[11]	10K[7]	10
								285	−19	285	4/13.5	70/92	70K	3600	38[11]	8K[7]	14
6Z8	Sharp Cut-off Pent.	7R	6.3	0.3	7	12	0.005	250	−3	100	0.5	2	1 meg.	1225	—	—	—
6Z9	Sharp Cut-off Pent.	8N	6.3	0.3	5.3	6.2	0.005	250	−3	100	0.85	3	1 meg.	1850	—	—	—

* Cathode resistor-ohms.
[1] Screen tied to plate.
[2] No connection to Pin No. 1 for 6L6G, 6Q7G, 6RGT/G, 6V6G, 6SA7GT/G and 6SF5-GT.
[3] Grid bias = 2 volts if separate oscillator excitation is used.
[4] Also type 6SJ7Y.
[5] Values are for single tube or section.
[6] Values are for two tubes in push-pull.
[7] Plate-to-plate value.
[8] Osc. grid leak — Scrn. res.
[9] Values for two units.
[10] Peak af grid voltage.
[11] Peak af G-G voltage.
[12] Micromhos.
[13] Unless otherwise noted.
[14] G_1 voltage.
[15] Units connected in parallel.

TABLE III—6.3-VOLT GLASS TUBES WITH OCTAL BASES

(For "O" and "GT"-type tubes not listed here, see equivalent type in Tables II and V; characteristics and connections will be similar)

Type	Name	Plate Dissipation (Watts)	Base	Fil. or Heater V	Fil. or Heater Amp.	Capacitances pF C_{in}	Capacitances pF C_{out}	Capacitances pF C_{gp}	Plate Supply V	Grid Bias	Screen Volts	Screen mA	Plate mA	Plate Res. Ohms	Transconductance	Amp. Factor	Load Res. Ohms	Watts Output
6AL7GT	Electron-Ray Indicator	—	8CH	6.3	0.15	—	—	—	Outer edge of any of the three illuminated areas displaced 1/16 in. min. outward with +6 volts to its electrode. Similar inward disp. with −5 volts. No pattern with −6 volts grid.									
6AQ7GT	Dual Diode—High-μ Triode	—	8CK	6.3	0.3	2.8	3.2	3	250	−2	—	—	2.3	44K	1600	70	—	—
6AR8	Beam Pent.	—	6BQ	6.3	1.2	11	7	0.55	250	−22.5	250	5	77	21K	5400	—	—	—
6AR7GT	Dual Diode—Remote Pent.	—	7DE	6.3	0.3	5.5	7.5	0.003	250	−2	100	1.8	7	1.2 meg.	2500	—	—	—
6AS7GA	Low-μ Twin Triode—DC Amp.[1]	—	8BD	6.3	2.5	6.5	2.2	7.5	135	250*	—	—	125	0.28K	7000	2	—	—
6AU5GT	Beam Pwr. Amp.[3]	10	8CK	6.3	1.25	11.3	7	0.5	115	−20	175	6.8	60	6K	5600	—	—	—
6BL7GTA	Medium-μ Dual Triode[1]	—	8BD	6.3	1.5	4.4	0.9	6	250	−9	—	—	40	2.15K	7000	15	—	—
6BQ6GT/6CU6	Beam Pwr. Amp.[3]	11	6AM	6.3	1.2	15	7	0.6	250	−22.5	150	2.1	57	14.5K	5900	—	—	—
6BX7GT	Dual Triode[1]	—	8BD	6.3	1.5	5	3.4	4.2	250	390*	—	—	42	1.3K	7600	10	—	—
6C8A	Beam Pwr. Amp.[3]	26	9GD	6.3	2.5	22	10	0.4	175	−30	175	6	90	5K	8800	—	—	—
6CD6GA	Beam Pwr. Amp.[3]	20	5BT	6.3	2.5	24	9.5	0.8	175	−30	175	5.5	75	7.2K	7700	—	—	—
6CK4	Low-μ Triode	—	8JB	6.3	1.25	8	1.8	6.5	550	−26	—	—	55	1.0K	6500	6.7	—	—
6CL3	Beam Pwr. Amp.[3]	25	9GD	6.3	2.5	20	11.5	0.7	175	−40	175	7	90	6K	6500	—	—	—
6DN6	Beam Pwr. Pent.[3]	15	5BT	6.3	2.5	22	11.5	0.8	125	−18	125	6.3	70	4K	9000	—	—	—
6DN7	Dissimilar Dual Triode	—	6BD	6.3	0.9	2.2	0.7	4	350	−8	—	—	8	9K	2500	22	—	—
						4.6	1	5.5	550	−9.5	—	—	68	2K	7700	15	—	—
6DQ5	Beam Pwr. Amp.[3]	24	8JC	6.3	2.5	23	11	0.5	175	−25	125	5	110	5.5K	10.5K	—	—	—
6DQ6B	Beam Pwr. Amp.[3]	18	6AM	6.3	1.2	15	7	0.55	250	−22.5	150	2.4	75	20K	6600	—	—	—
6DZ7	Twin Pwr. Pent.[1]	13.2	8JP	6.3	1.52	11	5	0.6	300	120*	250	15	80	—	—	—	9K[2]	12
6E5	Electron Ray—Triode	—	8R	6.3	0.3	—	—	—	250	—	—	—	—	—	—	—	—	—
6EA7	Dissimilar—Dual Triode	—	6BD	6.3	1.05	2.2	0.6	4	350	−3	—	—	1.5	34K	1900	65	—	—
						6	1.3	8	550	−25	—	—	95	770	6500	5	—	—
6EF6	Beam Pwr. Amp.[5]	—	7S	6.3	0.9	11.5	9	0.8	250	−18	250	2	50	—	5000	—	—	—
6EY6	Beam Pwr. Pent.	—	7AC	6.3	0.68	8.5	7	0.7	350	−17.5	300	3	44	60K	4400	—	—	—
6EZ5	Beam Pwr. Pent.	—	7AC	6.3	0.8	9	7	0.6	350	−20	300	3.5	43	50K	4100	—	—	—
6FH8	Beam Pwr. Pent.	—	6AM	6.3	1.2	33	8	0.4	770	−22.5	220	1.7	75	12K	6000	—	—	—
6GW6	Beam Power Amp.[3]	17.5	8AM	6.3	1.2	17	7	0.5	250	−22.5	150	2.1	70	15K	7100	—	—	—
6K6GT	Pwr. Amp. Pent.	—	7S	6.3	0.4	5.5	6	0.5	315	−21	250	4/9	25/28	110K	2100	—	9K	4.5
6SL7GT	High-μ Dual Triode[1]	—	8BD	6.3	0.3	3.4	3.8	2.8	250	−2	—	—	2.3	44K	1600	70	—	—
6SN7GTB	Medium-μ Dual Triode[1]	—	8BD	6.3	0.6	3	1.2	4	250	−8	—	—	9	7.7K	2600	20	—	—
6W6GT	Beam Pwr. Amp.	—	7S	6.3	1.2	15	9	0.5	200	180*	125	2/8.5	46/47	28K	8000	—	4K	3.8
6Y6GA	Beam Pwr. Amp.	—	7S	6.3	1.25	15	1	0.7	200	−14	135	2.2/9	61/66	18.3K	7100	—	2.6K	6
1635	High-μ Dual Triode	—	8B	6.3	0.6	—	—	—	300	0	—	—	6.6/54	—	—	—	12K[2]	10.4
6550	Power Pentode	35	7S	6.3	1.6	14	12	0.85	400	−16.5	225	18	105	27K	9000	—	3K	20
7027A	Beam Pwr. Amp.	—	8HY	6.3	0.9	10	7.5	1.5	450	−30	350	19.2	194	—	6000	—	6K[2]	50
7581	Beam Pwr. Amp.	19	8KQ	6.3	0.8	10	5	0.25	450	200*	400	22	94	—	—	—	9K[2]	28

* Cathode resistor-ohms.
[1] Per section.
[2] Plate-to-plate value.
[3] Horz. Deflection Amp.
[4] Micromhos. A
[5] Vert. Deflection mp.

TABLE IV—CONTROL AND REGULATOR TUBES

Type	Name	Base	Cathode	Fil. or Heater Volts	Fil. or Heater Amp.	Peak Anode Voltage	Max. Anode mA	Minimum Supply Voltage	Operating Voltage	Operating mA	Grid Resistor	Tube Voltage Drop
0A2 6073	Voltage Regulator	5BO	Cold	—	—	—	—	185	150	5–30	—	—
0A3A/VR75	Voltage Regulator	4AJ	Cold	—	—	—	—	105	75	5–40	—	—
0B2 6074	Voltage Regulator	5BO	Cold	—	—	—	—	133	108	5–30	—	—
0B3/VR90	Voltage Regulator	4AJ	Cold	—	—	—	—	125	90	5–40	—	—
0C2	Voltage Regulator	5BO	Cold	—	—	—	—	105	75	5–30	—	—
0C3A/VR105	Voltage Regulator	4AJ	Cold	—	—	—	—	135	105	5–40	—	—
0D3A/VR150	Voltage Regulator	4AJ	Cold	—	—	—	—	185	150	5–40	—	—
5651	Voltage Regulator	5BO	Cold	—	—	115	—	115	87	1.5–3.5	—	—
5642	Thyratron—Fuse	Fig. 79	Htr.	6.3	1.5	200[1]	I_k to fuse—150 Amp., 60 cycle, half-wave					50 V
5696	Relay Service	7BN	Htr.	6.3	0.15	500[1]	100 ma. peak current; 25-ma. average.					
5727	Gas Thyratron	7BN	Htr.	6.3	0.6	650	—	—	—	—	—	—
5823	Relay or Trigger	4CK	Cold	—	—	Max. peak inv. volts = 200; Peak mA = 100; Avg. mA = 25.						
5882	Voltage Regulator	2AG	Cold	—	—	—	—	730	700	5/55[2]	—	—
5908	Series Regulator	8BD	Htr.	6.3	2.4	250	125	—	110	100	350[2]	—

[1] Peak inverse voltage.
[2] Values in microamperes.

TABLE V—RECTIFIERS—RECEIVING AND TRANSMITTING

See Also Table IV—Controls and Regulator Tubes

Type	Name	Base	Cathode	Fil. or Heater Volts	Fil. or Heater Amp.	Max. AC Voltage Per Plate	DC Output Current mA	Max. Inverse Peak Voltage	Peak Plate Current mA	Type
0Z4-G	Full-Wave Rectifier	4R	Cold	—	—	300	75	1000	200	GAS
1B3-GT/ 1B3-GT	Half-Wave Rectifier	3C	Fil.	1.25	0.2	—	1.0	33000	80	HV
1K2/1L3	Half-Wave Rectifier	3C	Fil.	1.25	0.2	—	0.5	26000	50	HV
1V2	Half-Wave Rectifier	9B	Fil.	0.625	0.3	—	0.5	7500	10	HV
2X2-A	Half-Wave Rectifier	4AB	Htr.	2.5	1.75	4500	7.5	—	—	HV
5V2	Half-Wave Rectifier	4AB	Fil.	2.5	1.75	4400	5.0	—	—	HV
872/872A	Half-Wave Rectifier	4B	Fil.	2.5	1.5	350	50	—	—	HV

TABLE V — RECTIFIERS — RECEIVING AND TRANSMITTING — Continued

See Also Table IV — Controls and Regulator Tubes

Type	Name	Base	Cathode	Fil. or Heater Volts	Fil. or Heater Amp.	Max. AC Voltage Per Plate	D.C. Output Current mA	Max. Inverse Peak Voltage	Peak Plate Current mA	Type
3B24	Half-Wave Rectifier	Fig. 49	Fil.	5.0	3.0	—	60	20000	300	HV
				2.5[5]	3.0	—	30	20000	150	
3B28	Half-Wave Rectifier	4P	Fil.	2.5	5.0	—	250	10000	1000	GAS
5AR4	Full-Wave Rectifier	5L	Htr.	5.0	2.25	550	800	1550	—	HV
5AU4	Full-Wave Rectifier	5T	Fil.	5.0	4.5	300[3]	350[3]	1400	1075	HV
						400[3]	325[3]			
						500[4]	325[4]			
5AW4	Full-Wave Rectifier	5T	Fil.	5.0	4.0	450[3]	250[3]	1550	750	HV
						550[4]	250[4]			
5R4GY 5R4GYA	Full-Wave Rectifier	5T	Fil.	5.0	2.0	900[3]	150[3]	2800	650	HV
						950[4]	175[4]			
5U4G	Full-Wave Rectifier	5T	Fil.	5.0	3.0	Same as Type 5Z3				HV
5U4GA	Full-Wave Rectifier	5T	Fil.	5.0	3.0	300[3]	275[3]	1550	900	HV
						450[3]	250[3]			
						550[4]	250[4]			
5U4GB 5AS4A	Full-Wave Rectifier	5T	Fil.	5.0	3.0	300[3]	300[3]	1550	1000	HV
						450[3]	275[3]			
						550[4]	275[4]			
5V3A	Full-Wave Rectifier	5T	Htr.	5.0	3.8	425[3] 500[4]	350	1400	1200	HV
5V4GA	Full-Wave Rectifier	5L	Htr.	5.0	2.0	375[3]	175	1400	525	HV
5Y3-G-GT	Full-Wave Rectifier	5T	Fil.	5.0	2.0	Same as Type 80				HV
5Z3	Full-Wave Rectifier	4C	Fil.	5.0	3.0	500	250	1400	—	HV
5Z4	Full-Wave Rectifier	5L	Htr.	5.0	2.0	400	125	1100	—	HV
6AV4	Full-Wave Rectifier	5BS	Htr.	6.3	0.95	—	90	1250	250	HV
6AX5GT	Full-Wave Rectifier	6S	Htr.	6.3	1.2	450	125	1250	375	HV
6BW4	Full-Wave Rectifier	9DJ	Htr.	6.3	0.9	450	100	1275	350	HV
6BX4	Full-Wave Rectifier	5BS	Htr.	6.3	0.6	—	90	1350	270	HV
6BY5G	Full-Wave Rectifier	6CN	Htr.	6.3	1.6	375[3]	175	1400	525	HV
6CA4	Full-Wave Rectifier	9M	Htr.	6.3	1.0	350[3]	150	1000	450	HV
6DE4	Half-Wave Rectifier	4CG	Fil.	6.3	1.6	—	175	5000	1100	HV
6V4	Full-Wave Rectifier	9M	Htr.	6.3	0.6	350	90	—	—	HV
6X4/6063 6X5GT	Full-Wave Rectifier	7CF 6S	Htr.	6.3	0.3	325[3] 450[4]	70	1250	210	HV
6Z3	Half-Wave Rectifier	4G	Fil.	6.3	0.3	350	50	—	—	HV
12X4	Full-Wave Rectifier	5BS	Htr.	12.6	0.3	650[3]	70	1250	210	HV
						900[4]	70	1250	210	
25Z5	Rectifier-Doubler	6E	Htr.	25	0.3	125	100	—	500	HV
35W4	Half-Wave Rectifier	5BQ	Htr.	35[1]	0.15	125	60	330	600	HV
35Z4GT	Half-Wave Rectifier	5AA	Htr.	35	0.15	250	100	700	600	HV
35Z5G	Half-Wave Rectifier	6AD	Htr.	35[1]	0.15	125	60	—	—	HV
36AM3	Half-Wave Rectifier	5BQ	Htr.	36	0.1	117	75	365	530	HV
50DC4	Half-Wave Rectifier	5BQ	Htr.	50	0.15	117	100	330	720	HV
50Y6GT	Full-Wave Rectifier	7Q	Htr.	50	0.15	125	85	—	—	HV
80	Full-Wave Rectifier	4C	Fil.	5.0	2.0	350[3]	125	1400	375	HV
						500[4]	125			
83	Full-Wave Rectifier	4C	Fil.	5.0	3.0	500	250	1400	800	MV
83-V	Full-Wave Rectifier	4AD	Htr.	5.0	2.0	400	200	1100	—	HV
117N7GT	Rectifier-Tetrode	8AV	Htr.	117	0.09	117	75	350	450	HV
117Z3	Half-Wave Rectifier	4CB	Htr.	117	0.04	117	90	500	—	HV
816	Half-Wave Rectifier	4P	Fil.	2.5	2.0	2200	125	7500	500	MV
836	Half-Wave Rectifier	4P	Htr.	2.5	5.0	—	—	5000	1000	HV
866-A-AX	Half-Wave Rectifier	4P	Fil.	2.5	5.0	3500	250	10000	1000	MV
866B	Half-Wave Rectifier	4P	Fil.	5.0	5.0	—	—	8500	1000	MV
866 Jr.	Half-Wave Rectifier	4B	Fil.	2.5	2.5	1250	250[3]	—	—	MV
872A/872	Half-Wave Rectifier	4AT	Fil.	5.0	7.5	—	1250	10000	5000	MV

[1] Tapped for pilot lamps.
[2] Per pair with choke input.
[3] Capacitor input.
[4] Choke input.
[5] Using only one-half of filament.

TABLE VI — TRIODE TRANSMITTING TUBES

Type	Max. Ratings: Plate Dissipation Watts	Max. Ratings: Plate Voltage	Max. Ratings: Plate Current mA	Max. Ratings: DC Grid Current mA	Max. Ratings: Freq. MHz. Full Ratings	Amplification Factor	Cathode: Volts	Cathode: Amperes	Capacitances: C_{in} pF	Capacitances: C_{gp} pF	Capacitances: C_{out} pF	Base	Typical Operation: Class of Service	Plate Voltage	Grid Voltage	Plate Current mA	DC Grid Current mA	Approx. Driving Power Watts	P-to-P Load Ohms	Approx. Output Power Watts
6J6A[2]	1.5	300	30	16	250	32	6.3	0.45	2.2	1.6	0.4	7BF	C-T	150	−10	30	1.6	0.035	—	3.5
6F4	2.0	150	20	8.0	500	17	6.3	0.225	2.0	1.9	0.6	7BR	C-T-O	150	−15 550* 2000[4]	20	7.5	0.2	—	1.8
12AU7A[2]	2.76[6]	350	12[6]	3.5[6]	54	18	6.3	0.3	1.5	1.5	0.5	9A	C-T-O	350	−100	24	7	—	—	6.0
6C4	5.0	350	25	8.0	54	18	6.3	0.15	1.8	1.6	1.3	6BG	C-T-O	300	−27	25	7.0	0.35	—	5.5
5675	5	185	30	8	3000	20	6.3	0.135	2.3	1.3	0.09	Fig. 21	G-G-O	120	−8	25	4	—	—	0.05
6N7GT[2]	5.5[6]	350	30[6]	5.0[6]	10	35	6.3	0.8	—	—	—	8B	C-T-O	350	−100	60	10	—	—	14.5
2C40	6.5	500	25	—	500	36	6.3	0.75	2.1	1.3	0.05	Fig. 11	C-T-O	250	−5	20	0.3	—	—	0.075
[illegible]	8.0	400	40	13	1000	27	6.0	0.33	2.5	1.75	0.07	Fig. 21	C-T	350	−33	35	13	2.4	—	6.5
													C-P	300	−45	30	12	2.0	—	6.5
2C43	12	500	40	—	1250	48	6.3	0.9	2.9	1.7	0.05	Fig. 11	C-T-O	470	—	38[7]	—	—	—	[illegible]
3C24	25	2000	75	7[13]	60	24	6.3	3.0	1.7	1.6	0.2	2D	C-T	2000	−130	63	18	4	—	100
	17	1600	60										C-P	1600	−170	53	11	3.1	—	68
	25	2000	75										AB[2]	1250	−42	24/130	270[8]	3.4[8]	21.4K	112
1623	30	1000	100	25	60	20	6.3	2.5	5.7	6.7	0.9	3G	C-T-O	1000	−90	100	20	3.1	—	75
													C-P	750	−125	100	20	4.0	—	57
													B	1000	−40	30/200	230[8]	4.2[8]	12K	145

TABLE VI – TRIODE TRANSMITTING TUBES – Continued

Type	Maximum Ratings: Plate Dissipation, Watts	Plate Voltage	Plate Current mA	DC Grid Current mA	Freq. MHz Full Ratings	Amplification Factor	Cathode: Volts	Cathode: Amperes	Capacitances: C_{in} pF	Capacitances: C_{out} pF	Capacitances: C_{gp} pF	Base	Typical Operation: Class of Service	Plate Voltage	Grid Voltage	Plate Current mA	DC Grid Current mA	Approx. Driving Power Watts	Peak-to-Peak Load Ohms	Approx. Output Power Watts
811-A	65	1500	175	50	60	160	6.3	4.0	5.9	5.6	0.7	3G	C-T	1500	−70	173	40	7.1	—	200
													C-P	1250	−120	140	45	10.0	—	135
													G-G-B	1250	0	27/175	28	12	—	165
													AB_1	1250	0	27/175	13	3.0	—	165
812-A	65	1500	175	35	60	29	6.3	4.0	5.4	5.5	0.77	3G	C-T	1500	−120	173	30	6.5	—	190
													C-P	1250	−115	140	35	7.6	—	130
													B[7]	1500	−48	28/310	270[9]	5.0	13.2K	340
100TH	160	3000	225	60	40	40	5.0	6.3	2.9	2.0	0.4	2D	C-T	3000	−200	165	51	18	—	400
													C-P							
													B[7]	3000	−65	40/215	335[9]	5.0[9]	31K	650
3-100A2 100TL	100	3000	225	50	40	14	5.0	6.3	2.3	2.0	0.4	2D	C-T	3000	−400	165	30	20	—	400
													C-P							
													G-M-A	3000	−560	60	2.0	7.0	—	90
													B[7]	3000	−185	40/215	640[9]	6.0[9]	30K	450
3CX100A5[15]	100	1000	125[14]	50	2500	100	6.0	1.05	7.0	2.15	0.035	—	G-G-A	800	−20	80	30	6	—	27
	70	600	100[14]										C-P	600	−15	75	40	6	—	18
2C39	100	1000	60	40	500	100	6.3	1.1	6.5	1.95	0.03	—	G-I-C	600	−35	60	40	5.0	—	20
													C-T-O	900	−40	90	30	—	—	40
													C-P	600	−150	100[14]	50	—	—	—
AX9900/ 8806[18]	135	2500	200	40	130	25	6.3	5.4	5.6	5.5	0.1	Fig. 3	C-T	2500	−200	200	40	16	—	390
													C-P	2000	−225	127	40	16	—	204
													B[7]	2500	−90	80/330	350[9]	14[9]	15.68K	560
572B/T160L	160	2750	275	—	—	170	6.3	4.0	—	—	—	3Q	C-T	1650	−70	165	32	6	—	205
													G-G-B[7]	2400	−2.0	90/500	—	100	—	660
810	175	2500	300	75	30	35	10	4.5	8.7	4.8	12	2N	C-T	2500	−180	300	60	19	—	575
													C-P	2000	−350	250	70	35	—	380
													G-M-A	2250	−140	100	2.0	4	—	75
													B[7]	2250	−60	70/450	380[9]	13[9]	11.6K	725
8875	200	2200	250	—	500	160	6.3	3.2	19.5	7.0	0.03	Fig. 87	AB_2	2000	—	22/500	98[8]	27[9]	—	505
250TH	250	4000	350	40[13]	40	37	5.0	10.5	4.6	2.9	0.5	2N	C-T-O	2000	−100	357	94	29	—	464
														3000	−150	333	90	32	—	750
													C-P	2000	−160	250	60	22	—	335
														2500	−180	225	45	17	—	400
														3000	−200	200	38	14	—	435
													AB_2[7]	1500	0	220/700	460[9]	46[9]	4.2K	630
250TL	250	4000	350	35[13]	40	14	5.6	10.5	3.7	3.0	0.7	2N	C-T-O	2000	−200	350	45	22	—	455
														3000	−350	335	45	29	—	750
													C-P	2000	−520	250	29	24	—	335
														2500	−520	225	20	16	—	400
														3000	−520	200	14	11	—	435
													AB_2[7]	1500	−40	200/700	780[9]	38[9]	3.8K	560
PL-8560	250	4000	300	120	30	45	5.0	14.6	7.6	3.7	0.1	Fig. 3	G-G-A	2500	−70	300	85	75[11]	—	935
														3000	−95	300	110	85[11]	—	710
														3500	−110	285	90	85[11]	—	885
														4000	−120	250	50	70[11]	—	820
8875	300	2200	250	—	500	160	6.3	3.2	19.5	7.0	0.03	—	AB_2	2000	—	22/500	98[8]	27[9]	—	505
304TH	300	3000	900	60[13]	40	20	5.0	25	13.5	10.2	0.7	4BC	C-T-O	1500	−125	665	115	25	—	700
														2000	−200	600	125	39	—	900
													C-P	1500	−200	420	55	16	—	500
														2000	−300	440	60	26	—	680
														2500	−350	400	60	28	—	800
							10	12.5					AB_2[7]	1500	−65	1065[9]	330[9]	25[9]	2.84K	1000
304TL	300	3000	900	50[13]	40	12	5.0	25	12.1	8.6	0.8	4BC	C-T-O	1500	−250	665	90	33	—	700
														2000	−300	800	85	36	—	900
													C-P	2000	−500	250	30	18	—	410
														2000	−500	500	75	52	—	810
														2500	−525	200	18	11	—	425
														2500	−500	400	50	35	—	830
							10	12.5					AB_1[7]	1500	−118	270/572	236[9]	0	2.64K	256
														2500	−230	160/483	460[9]	0	8.5K	610
													AB_2[7]	1500	−118	1140[9]	490[9]	39[9]	2.75K	1100
833A	350	3300	500	100	30	35	10	10	12.3	0.3	8.5	Fig. 41	C-T-O	2250	−125	445	85	23	—	780
														3000	−160	335	70	20	—	800
	450[15]	4000[15]			20[15]								C-P	2500	−300	335	75	30	—	935
														3000	−240	335	70	26	—	980
													B[7]	3000	−70	100/750	400[9]	20[9]	9.5K	1650
8874	400	2200	250	—	500	160	6.3	3.2	18.5	7.0	0.03	—	AB_2	2000	—	22/500	98[8]	27[9]	—	505
3-400Z	400	3000	400	—	110	200	5	14.5	7.4	4.1	0.07	Fig. 3	G-G-B	3000	0	100/333	120	32	—	855
PL-8580	400	4000[15]	350	120	—	45	5.0	14.5	7.6	3.9	0.1	5BK	G-G-A	4000	−110	350	92	105[11]	—	1080
														2500	−70	350	95	65	—	660
8163	400	3000	400	20[13]	30	350	5.0	14.1	8.0	5.0	0.3	Fig. 3	G-G-B	2500	0	72/400	140	35	—	640
3-500Z	500	4000	400	—	110	160	5	14.5	7.4	4.1	0.07	Fig. 3	G-G-B	3000	—	370	115	30	9K	750
													C-T	3500	−75	300	115	22	—	850
3-1000Z	1000	3000	600	—	110	200	7.5	21.3	17	6.9	0.12	Fig. 3	G-G-B	3000	0	180/670	300	65	—	1385
8877	1500	4000	1000	—	260	200	5.0	10	42	10	0.1	—	AB_2	2500	−8.2	1000	—	57	—	1820

[9] Peak af grid-to-grid volts.
[10] Plate-pulsed 1000-MHz. osc.
[11] Includes bias loss, grid dissipaties, and feed-through power.
[12] 1000-MHz. cw osc.
[13] Max. grid dissipation in watts.
[14] Max. cathode current in mA.
[15] Forced-air cooling required.
[16] Plate-pulsed 3300-MHz. osc.
[17] 1900-MHz. cw osc.
[18] No Class-B data available.

[6] Cathode resistor in ohms.

[1] KEY TO CLASS-OF-SERVICE ABBREVIATIONS
A_1 = Class-A_1 af modulator.
AB_1 = Class-AB_1 push-pull af modulator.
AB_2 = Class-AB_2 push-pull af modulator.
B = Class-B push-pull af modulator.
C-M = Frequency multiplier.
C-P = Class-C plate-modulated telephone.
C-T = Class-C telegraph.
C-T-O = Class-C amplifier-osc.
C-G-A = Grounded-grid-class-C amp.
C-G-B = Grounded-grid class-B amp. (Single Tone).
G-G-O = Grounded-grid osc.
G-I-C = Grid-isolation circuit.
G-M-A = Grid-modulated amp.

[2] Twin triode. Values, except interelectrode capacitances, are for both sections in push-pull.
[3] Output at 112 MHz.
[4] Grid leak resistor in ohms.
[5] Peak values.
[6] Per section.
[7] Values are for two tubes in push-pull.
[8] Max. signal value.

TABLE VII – TETRODE AND PENTODE TRANSMITTING TUBES

Type	Maximum Ratings: Plate Dissipation Watts	Plate Voltage	Screen Dissipation Watts	Screen Voltage	Freq. MHz. Full Ratings	Cathode: Volts	Cathode: Amperes	Capacitances: C_{in} pF	Capacitances: C_{gp} pF	Capacitances: C_{out} pF	Base	Typical Operation[1]: Class of Service[14]	Plate Voltage	Screen Voltage	Suppressor Voltage	Grid Voltage	Plate Current mA	Screen Current mA	Grid Current mA	Approx. Driving Power Watts	P-to-P Load Ohms	Approx. Output Power Watts
813	1.8	400	—	—	250	6.3	0.16	4.2	2.2	1.6	12AQ	C-P/C-T	155	—	—	14/2700[1]	21	—	5	0.4	—	1.55
8030[2]	7.5	275	3	200	500	6.3	0.75	6.6	0.15	1.55	Fig. 13	C-T	200	200	—	−20	60	13	2	1.0	—	7.5
						12.6	0.375					C-P	180	180	—	−20	55	11.5	1.7	1.0	—	6
												C-M	200	190	—	68K[1]	46	10	2.2	0.9	—	—
7351	12	300	2	250	175	12.6	0.38	10	0.15	5.5	9LK	C-T	300	250	—	−55	80	5.1	1.6	1.5	—	10
8358						6.3	0.8					C-P	250	250	—	−75	70	3.0	2.3	1.0	—	7.5
5763	13.5	350	2	250	50	6.3	0.75	9.5	0.3	4.5	9K	C-T	350	250	—	−28.5	48.5	6.2	1.6	0.1	—	12
6417						12.6	0.375					C-P	300	250	—	−42.5	50	6	2.4	0.15	—	10
												C-M[2]	300	250	—	−75	40	4	1	0.6	—	2.1
												C-M[4]	300	235	—	−100	35	5	1	0.6	—	1.3
2E26	13.5	600	2.5	200	125	6.3	0.8	12.5	0.2	7	7CK	C-T	600	185	—	−45	66	10	3	0.17	—	27
5933						12.6	0.4					C-P	500	180	—	−50	54	9	2.5	0.15	—	18
												AB_1	500	200	—	−25	9/45	10[7]	0	0	—	15
												C-T	300	200	—	−45	100	3	3	0.2	—	18.5
8560[3]	14	300	2	200	200	6.3	0.82	6.2	0.1	2.6	Fig. 13	C-P	200	100	—	15K[1]	86	3.1	3.3	0.2	—	9.8
						12.6	0.41					C-M[11]	300	150	—	−100	65	3.5	3.8	0.45	—	4.8
												AB_2	300	200	—	−21.5	30/100	1/11.4	64[9]	0.04	6.5K	17.5
												C-T-O	450	250	—	−45	75	15	3	0.4	—	24
3E25	15	450	4	250	125	6	0.8	8.5	0.15	6.7	5BJ	C-P	400	200	—	−45	60	12	3	0.4	—	16
												AB_2[8]	450	250	—	−30	44/150	10/40	3	0.9[7]	6K	40
832A[3]	15	750	5	250	200	6.3	1.6	8	0.07	3.8	7BP	C-T	750	200	—	−65	48	15	2.8	0.19	—	26
						12.6	0.8					C-P	600	200	—	−65	36	16	2.6	0.16	—	17
8162/ AX9910[3]	20	750	4	300	300	6.3	1.3	6.5	—	2.5	Fig. 7	C-T	600	250	—	−80	140	14	4	2.0	—	—
						12.6	0.65					C-P	500	250	—	−80	100	12	3	4.0	—	—
												B	500	250	—	−26	25/73	0.7/16	52[9]	—	20K	28.5
1614	25	450	3.5	300	80	6.3	0.9	10	0.4	12.5	7AC	C-T	450	250	—	−45	100	8	2	0.15	—	31
												C-P	375	250	—	−50	93	7	2	0.15	—	24.5
												AB_2[6]	530	340	—	−36	60/180	20[7]	—	—	7.2K	50
815[3]	25	500	4	200	125	6.3	1.6	13.3	0.2	8.5	8BY	C-T-O	500	200	—	−45	150	17	2.5	0.13	—	56
						12.6	0.8					AB_2	500	125	—	−15	22/150	32[7]	—	0.36[7]	8K	54
8748												C-T	500	170	—	−66	135	9	2.5	0.2	—	48
8146A						6.3	1.25						750	160	—	−62	120	11	3.1	0.2	—	70
8932												C-T[12]	400	190	—	−54	150	10.4	2.2	3.0	—	35
8933	25	750	3	250	80	12.6	0.585	13	0.24	8.5	7CK	C-P	400	150	—	−87	112	7.8	3.4	0.4	—	32
													600	150	—	−87	112	7.8	3.4	0.4	—	52
8150B						26.5	0.3					AB_2[6]	600	190	—	−48	28/270	1.2/20	2[7]	0.3	5K	113
													750	165	—	−46	22/240	0.3/20	2.6[7]	0.4	7.4K	131
												AB_1[6]	750	195	—	−50	23/220	1/26	100[9]	0	8K	120
6524[3]	25	600	—	300	100	6.3	1.25	7	0.11	3.4	Fig. 76	C-T	600	200	—	−44	120	8	3.7	0.2	—	56
8950						12.6	0.625					C-P	500	200	—	−61	100	7	2.5	0.2	—	40
												AB_2	500	200	—	−26	20/116	0.1/10	2.6	0.1	11.1K	40
807	30	750	3.5	300	60	6.3	0.9	12	0.2	7	5AW	C-T	750	250	—	−45	100	6	3.5	0.22	—	50
8012W												C-P	600	275	—	−90	100	6.5	4	0.4	—	42.5
5823												AB_1	750	300	—	−35	15/70	3/8	75[9]	0	—	72
1625						12.6	0.45				5AZ	B^{10}	750	—	—	0	15/240	—	555[9]	5.3[7]	6.65K	120
2E32	30	750	10	250	—	6.3	1.5	13	0.2	8	5J	C-T-O	750	250	22.5	−60	100	16	6	0.55	—	53
8148/ 8298A	35	750	3	250	60	6.3	1.125	13	0.22	8.5	7CK	C-T	750	260	—	−77	160	10	2.7	0.3	—	85
												C-P	600	175	—	−92	140	9.5	3.4	0.5	—	62
												AB_1	750	200	—	−48	25/125	6.3	—	—	3.6K	61
XR-8083[3]	40	600	7	250	250	6.3	1.8	6.7	0.08	2.1	Fig. 7	C-T	600	250	—	−80	200	16	2	0.2	—	80
8298A						12.6	0.9															
829B[3]	40	750	7	240	200	6.3	2.25	14.5	0.12	7	7BP	C-T	500	200	—	−45	240	32	12	0.7	—	83
8E29[3]						12.6	1.125					C-P	425	200	—	−60	212	35	11	0.8	—	63
												B	500	200	—	−18	27/230	—	55[9]	0.39	4.8K	76
3D24	46	2000	10	400	125	6.3	3	6.5	0.2	2.4	Fig. 75	C-T-O	2000	375	—	−300	90	20	10	4.0	—	140
													1500	375	—	−300	90	22	10	4.0	—	105
4D22	50	750	14	350	60	12.6	1.6	28	0.27	13	Fig. 26	C-T	750	300	—	−100	240	26	12	1.5	—	135
						25.2	0.8						600	300	—	−100	215	30	10	1.25	—	100
4D32											Fig. 27	C-P	600	—	—	−100	220	28	10	1.25	—	100
						6.3	3.75						550	—	—	−100	175	17	6	0.6	—	70
												AB_2[6]	600	250	—	−25	100/365	26[7]	70[9]	0.45[7]	3K	125
8117[3]	60	750	7	300	175	6.3	1.8	11.8	3.7	0.09	Fig. 7	AB_1	600	250	—	−32.5	60/212	1.9/25	—	—	1410	76
						12.6	0.9															
814	65	1500	10	300	30	10	3.25	13.5	0.1	13.5	Fig. 64	C-T	1500	300	—	−90	150	24	10	1.5	—	160
												C-P	1250	300	—	−150	145	20	10	3.2	—	130
4-65A	65	3000	10	600	150	6	3.5	8	0.08	2.1	Fig. 25	C-T-O	1500	250	—	−85	150	40	18	3.2	—	165
													3000	250	—	−100	115	22	10	1.7	—	280
												C-P	1500	250	—	−125	120	40	16	3.5	—	140
													2500	250	—	−135	110	25	12	2.6	—	230
												AB_1	2500	400	—	−85	15/66	3[7]	—	—	—	100
7854[3]	68	1000	8	300	175	6.3	1.8	6.7	2.1	0.09	Fig. 7	C-T	750	260	—	−75	240	12.7	5.5	3.5	—	123
						12.6	0.9					C-P	600	225	—	−75	200	7.8	5.5	3.5	—	85
4E27/ 8001	75	4000	30	750	75	5	7.5	12	0.06	6.5	7BM	C-T	2000	500	60	−200	150	11	6	1.4	—	230
												C-P	1800	400	60	−130	135	11	8	1.7	—	178
													2000	400	0	−125	150	12	5	0.8	—	220
PL-177A	75	2000	10	600	175	6	3.2	7.5	0.06	4.2	Fig. 14	C-T-C-P	1000	400	0	−105	150	16	5	0.7	—	100
												AB_1	2000	600	—	−115	25/175	0/7	0	0	—	210
7216	80	1350	—	425	175	6.3	3.1	8	0.4	0.14	Fig. 84	C-T	850	400	—	−100	275	15	8	10	—	135
7211						13.5	1.25					AB_1	865	400	—	−119	220	15	6	10	—	85
8072	100	2200	8	400	500	13.5	1.3	16	0.13	0.011	Fig. 85	C-T-O	700	200	—	−30	300	10	20	5	—	85

TABLE VII — TETRODE AND PENTODE TRANSMITTING TUBES — Continued

Type	Maximum Ratings: Plate Dissipation Watts	Plate Voltage	Screen Dissipation Watts	Screen Voltage	Freq. MHz, Full Rating	Cathode: Volts	Cathode: Amperes	Capacitances: C_{in} pF	Capacitances: C_{pg} pF	Capacitances: C_{out} pF	Base	Typical Operation: Class of Service[14]	Plate Voltage	Screen Voltage	Suppressor Voltage	Grid Voltage	Plate Current mA	Screen Current mA	Grid Current mA	Approx. Driving Power Watts	P-to-P Load Ohms	Approx. Output Power, Watts
6810[2] 6864	115	1000	4.5	300	400	6.3	2.1	14	0.085	0.015	Fig. 77	C-T-O	900	300	—	−30	170	1	10	3	—	80
												C-P	700	250	—	−50	130	10	10	3	—	45
						26.5	0.52					AB_1[6]	850	300	—	−15	80/200	0/20	30[8]	0	7K	80
												AB_2[6]	850	300	—	−15	80/335	0/25	46[8]	0.3	3.96K	140
813[13]	125	2500	20	800	30	10	5	16.3	0.25	14	5BA	C-T-O	1250	300	0	−75	180	35	12	1.7	—	170
													2250	400	0	−155	220	40	15	4	—	375
												AB_1	2500	750	0	−95	25/145	27[7]	0	0	—	245
												AB_2[6]	2000	750	0	−90	40/315	1.5/58	230[8]	0.1[7]	16K	455
													2500	750	0	−95	35/360	1.2/55	235[8]	0.35[7]	17K	650
4-125A 4D21 6155	125	3000	20	600	120	5	6.5	10.8	0.07	3.1	5BK	C-T-O	2000	350	—	−100	200	50	12	2.8	—	275
													3000	350	—	−150	167	30	9	2.5	—	375
												AB_1[6]	2500	350	—	−43	93/260	0/6	178[8]	1.0[7]	22K	400
												AB_2[6]	2500	600	—	−96	50/232	0.3/8.5	192[8]	0	20.3K	330
												GG	2000	0	—	0	10/105[17]	30[17]	55[17]	16[17]	10.5K	145
4E27A/ 5-125B	125	4000	20	750	75	5	7.5	10.5	0.08	4.7	7BM	C-	3000	500	80	−200	167	5	6	1.6	—	375
													1000	750	0	−170	160	21	3	0.6	—	115
803	125	2000	30	600	20	10	5	17.5	0.15	29	5J	C-T	2000	500	40	−90	180	45	12	2	—	210
												C-P	1600	400	100	−80	150	45	25	5	—	155
7094	125	2000	20	400	60	6.3	3.2	9.0	0.5	1.8	Fig. 82	C-T	1500	400	—	−100	330	20	5	4	—	340
												C-P	1200	400	—	−130	275	20	5	5	—	240
												AB_1	2000	400	—	−65	30/200	35[7]	60[8]	0	12K	250
4X150A 4X150G[15]	150[9]	2000	12	400	500	6	2.6	15.5	0.03	4.5	Fig. 75	C-T-O	1250	250	—	−90	200	20	10	0.8	—	195
												C-P	1000	250	—	−105	200	20	15	2	—	140
						2.5	6.25	27	0.035	4.5	—	AB_2[6]	1250	300	—	−44	475[7]	0/65	100[8]	0.15[7]	5.6K	425
8121	150	2200	8	400	500	13.5	1.3	16	0.13	0.011	Fig. 5	C-T-O	1000	200	—	−30	300	10	30	5	—	165
4-250A 5D22 6156	250[9]	4000	35	600	110	5	14.5	12.7	0.12	4.5	5BK	C-T-O	2500	500	—	−150	300	80	9	1.7	—	575
													3000	500	—	−180	345	80	10	2.6	—	800
												C-P	2500	400	—	−200	200	30	9	2.2	—	375
													3000	400	—	−310	225	30	9	3.2	—	514
												AB_2[6]	2000	300	—	−48	510[7]	0/26	198[8]	5.5[7]	8K	690
												AB_2[6]	2500	600	—	−110	430[7]	0.3/13	180[8]	0	11.4K	623
4X250B	250[9]	2000	12	400	175	6	2.1	18.5	0.04	4.7	Fig. 75	C-T-O	2000	250	—	−90	250	25	27	2.8	—	410
												C-P	1500	250	—	−100	200	25	17	2.1	—	250
												AB_1[6]	2000	350	—	−50	500[7]	30[7]	100[8]	0	8.26K	650
7034[9] 4X150A	250	2000	12	300	150	6	2.6	16	0.03	4.4	Fig. 75	C-T-O	2000	250	—	−88	250	24	8	2.5	—	370
												C-P	1600	250	—	−118	200	23	5	3	—	230
7035/ 4X150D	250	2000	12	400		26.5	0.58					AB_2[6]	2000	300	—	−50	100/500	0/36	106[8]	0.2	8.1K	630
												AB_1[6]	2000	300	—	−50	100/470	0/36	100[8]	0	8.76K	580
4CX-300A	300[9]	2000	12	400	500	6	2.75	29.5	0.04	4.8	—	C-T	2000	250	—	−90	250	25	27	2.8	—	410
												C-P	1500	250	—	−100	200	25	17	2.1	—	250
												AB_1[6]	2000	350	—	−50	500[7]	30[7]	100[8]	0	8.26K	650
175A	400	4000	25	600	—	5	14.5	15.1	0.06	9.8	Fig. 86	C-T-C-P	4000	600	0	−200	350	29	6	1.4	—	980
													2500	600	0	−180	350	40	7	1.6	—	600
												AB_1	2500	750	—	−143	100/350	1/35	0	0	—	570
4-400A	400[9]	4000	35	600	110	5	14.5	12.5	0.12	4.7	5BK	C-T-C-P	4000	300	—	−170	270	22.5	10	10	—	720
												GG	2500	0	—	0	80/270[17]	55[17]	100[17]	38[17]	4.0K	325
8122	400	2200	8	400	500	13.5	1.3	16	0.13	0.011	Fig. 86	AB_1	2500	750	—	−130	95/317	0/14	0	0	—	425
5-500A	500	4000	35	600	30	10	10.2	19	0.10	12	—	C-T-O	2000	200	—	−30	300	5	30	5	—	300
												C-T	3000	500	0	−220	432	65	35	12	—	805
												C-T	3100	470	0	−310	280	50	15	6	—	980
												AB_1	3000	750	0	−112	320	26	—	—	—	612
810A/ 4-1000A	1000	6000	75	1000	—	7.5	21	27.2	.24	7.6	—	C-T	3000	500	—	−150	700	146	38	11	—	1430
												C-P	3000	500	—	−200	600	145	36	12	—	1390
												AB_2	4000	500	—	−80	300/1200	0/95	—	11	7K	3000
												GG	3000	0	—	0	100/700[17]	105[17]	170[17]	130[17]	2.5K	1475
4CX1000A	1000	3000	12	400	400	6	12.5	35	.005	12	—	AB_1[6]	2000	325	—	−55	500/2000	−4/80	—	—	2.8K	2150
													2500	325	—	−55	500/2000	−4/60	—	—	3.1K	2920
													3000	325	—	−55	500/1800	−4/60	—	—	3.89K	3380
8295/ 172	1000	3000	50	600	—	6	8.2	38	.09	18	—	C-T	2000	500	35	−175	850	42	10	1.9	—	1155
													2500	500	35	−200	840	40	10	2.1	—	1440
													3000	500	35	−200	820	42	10	2.1	—	1770
												AB_1	2000	500	35	−110	200/800	12/43	110[9]	—	2.65K	1040
													2500	500	35	−110	200/800	11/40	115[9]	—	3.5K	1200
													3000	500	35	−115	220/800	11/39	115[9]	—	4.6K	1590

[1] Grid-resistor.
[2] Doubler to 175 MHz.
[3] Duel tube. Values for both sections, in push-pull. Interelectrode capacitances, however, are for each section.
[4] Tripler to 175 MHz.
[5] Filament limited to intermittent operation.
[6] Values are for two tubes
[7] Max.-signal value.
[8] Peak grid-to-grid volts.
[9] Forced-air cooling required.
[10] Two tubes triode connected, G_2 to G_1 through 20K Ω. Input to G_2.
[11] Tripler in 200 MHz.
[12] Typical Operation at 175 MHz.
[13] ± 1.5 volts.

[14] KEY TO CLASS-OF-SERVICE ABBREVIATIONS
AB_1 = Class-AB_1.
AB_2 = Class-AB_2.
B = Class-B push-pull af modulator.
C-M = Frequency multiplier.
C-P = Class-C plate-modulated telephone.
C-T = Class-C telegraph.
C-T-O = Class-C amplifier-osc.
GG = Grounded-grid (grid and screen connected together).
[15] No Class B data available.
[16] HK257B 120 MHz. full rating.
[17] Single tone.

TABLE VIII—SEMICONDUCTOR DIODES[1]

This list contains but a small percentage of the available diode types. A complete listing would be impractical.

Small-Signal General-Purpose Diodes

Type	Material[2]	Use	Peak Reverse Volts	Max. Forward Voltage at Max. mA	Max. Forward mA at Max. V	Max. Reverse Current
1N34A	G	General Purpose	75	50	5.0	30
1N38	G	General Purpose	50	—	—	2000
1N54A	G	General Purpose	85	50	5.0	100
1N60	G	Viden Detector	25	50	5.0	40
1N67A	G	General Purpose	100	1	4.0	5
1N90	G	General Purpose	100	1.0	4.0	5
1N95	S	High-Speed	75	1.0	10.0	5
1N270	G	General Purpose	100	90	—	100
1N456A	S	Signal Diode	125	1	100	25
1N463	G	60-Volt Very Low Z	120	—	50.0	45
1N645A	S	Signal Diode	225	1	400	.05
1N914	S	Fast Logic/HF Det.	75	1	75	.025
1N3754	S	Rectifier	100	1.2	150	300
1N4001	S	Rectifier	50	1.1	1000	30
1N4002	S	Rectifier	100	1.1	1000	30
1N4004	S	Rectifier	400	1.1	1000	30
1N4719	S	Rectifier	50	1.0	3000	1500
1N5000	S	Dual Series Diode	100	1.1	200	100

Microwave Mixer and UHF Diodes

Type	Material[2]	Use	Average Freq.	Noise Figure
1N21[3]	G	Mixer	3060 MHz	6dB
1N23A	S	Mixer	1000 MHz	14dB
1N5101	S	Mixer (V_R = .4v)	1000 MHz (C_T = 1pF @ 0V)	7dB

[1] A bar, plus sign, or color dot usually denotes the cathode end of crystal diodes.
Diode color code rings are grouped toward the cathode end.

[2] S — Silicon. G — Germanium.

[3] Polarity is such that the base is the anode and the tip is the cathode, R-types have opposite polarity.

TABLE IX—SEMICONDUCTORS

SMALL-SIGNAL TYPES

No.	Type	Maximum Ratings: Material[1]	Dis. (Watts)	V_{CEO} (Volts)	I_C (dc)	Characteristics: h_{FE} (Min.)	f_T (Typ.)	Noise Fig. (dB)	Use (Typ.)	Other Data: Case Style	Base Conn.	Manufacturer[2]	Application
2N35	PNP	G	0.15	—18	—	34	0.65 MHz	—	Gen. Purpose	TO-1	7	R	Gen. Purpose
2N56A	NPN	S	0.3*	20	50 mA	20	400 MHz	—	rf	TO-18	8	M	rf, Switching
2N91A	NPN	S	0.5	50	150 mA	40	60 MHz	—	—	TO-18	8	R	Switching
2N112	PNP	G	0.080*	—30	—10 mA	100	—	—	hf Amp.	TO-45	5	R	rf Mixer
2N332	NPN	G	0.15	25	0.3A	20	—	—	Computer	TO-5	8	R	Osc., Amp.
2N338	NPN	G	0.15	25	0.3A	60	—	—	Computer	TO-5	8	R	Osc., Amp.
2N2222	NPN	S	1.8	30	800 mA	35	250 MHz	—	Gen. Purpose	TO-18	8	M	vhf Amp., Osc.
2N2605	NPN	S	0.2*	25	100 mA	170	150 MHz	2.8	Gen. Purpose	—	1	GE	Osc., rf, i-f, af
2N2613A	NPN	S	0.2*	25	100 mA	250	160 MHz	1.9	Audio	—	1	GE	Low-noise Preamps.
2N3053A	NPN	S	0.31	25	100 mA	55	—	—	Gen. Purpose	TO-92	2	M	Audio Amp.
2N3565	NPN	S	0.2	25	50 mA	150	—	—	—	TO-106	7	—	—
2N3646	NPN	S	0.3	60	500 mA	120	60 MHz	—	—	TO-105	—	—	—
2N3638	PNP	S	0.3	—25	—500 mA	100	150 MHz	—	—	TO-105	—	—	Switching
2N3683	NPN	S	0.12*	12	25 mA	20	900 MHz	4	rf	—	1	GE	vhf/uhf Osc., Amp., Mix.
2N3724	PNP	S	0.31	—25	—200 mA	60	100 MHz	—	Gen. Purpose	TO-92	2	M	vhf Osc., Amp.
2N3866	NPN	S	5	3	400 mA	5	800 MHz	—	Gen. Purpose	TO-39	8	M	uhf Amp., Osc.
2N3904	NPN	S	0.21	40	200 mA	40	300 MHz	—	Gen. Purpose	TO-92	2	M	vhf Amp., Osc.
2N3905	NPN	G	0.15	25	300 mA	50	—	—	Computer	TO-5	8	R	Osc., Amp.
2N4123	NPN	S	0.21	30	200 mA	50	250 MHz	—	Gen. Purpose	TO-92	2	M	vhf Amp., Osc.
2N4124	NPN	S	0.3	25	200 mA	120	250 MHz	5	Audio-rf	—	2	M	—
2N4126	PNP	S	0.3	—25	200 mA	120	250 MHz	4	Audio-rf	—	2	M	—
2N4275	NPN	S	0.28	15	—	18	—	—	—	—	—	—	Switching
2N4401	NPN	S	0.31*	40	600 mA	20	250 MHz	—	Gen. Purpose	TO-92	2	M	Osc., rf, i-f, af
2N4410	NPN	S	0.31*	80	250 mA	60	250 MHz	—	Gen. Purpose	TO-92	2	M	Osc., rf, i-f, af
2N4957	PNP	S	.2	30	30 mA	20	1600 MHz	2.6	rf Amp.	TO-72	9	M	rf Amp., Mix., Osc.
2N4958	PNP	S	.2	30	30 mA	20	1500 MHz	3.2	rf Amp.	TO-72	9	M	rf Amp., Mix., Osc.
2N5032	NPN	S	.2	10	20 mA	25	2000 MHz	3.0	rf Amp.	TO-72	9	M	Low-noise rf Amp.
2N5086	PNP	S	0.310*	—50	—50 mA	200	150 MHz	1	rf Amp.	TO-92	2	M	Low-noise rf Amp.
2N5087	PNP	S	0.310*	—25	—50 mA	450	175 MHz	2	rf Amp.	TO-92	2	M	Low-noise rf Amp.
2N5109	NPN	S	3.5*	40	0.4 A	70	—	3	vhf Amp.	TO-39	8	R	Wide-band Amp.
2N5179	NPN	S	0.200*	12	50 mA	25	900 MHz	4.5	rf Amp.	TO-72	9	M	uhf Amp., Osc., Mix.
2N5185	NPN	S	0.5	18	1 A	120	200 MHz	—	Gen. Purpose	TO-104	8	R	vhf Osc., Amp.
2N5322	PNP	S	0.310*	—15	—50 mA	20	450 MHz	—	rf Amp.	TO-92	18	M	rf Amp., Mix., Video i-f
2N5358	PNP	S	.2	30	30 mA	20	1600 MHz	2.3	rf Amp.	TO-72	9	M	rf Amp., Mix., Osc.
2N5401	NPN	S	0.5*	18	100 mA	55	60 MHz	2.8	Audio	TO-104	7	R	Preamps. and Drivers
2N5551	NPN	S	0.18*	30	50 mA	40	1200 MHz	3.3	rf	TO-104	9	R	vhf/uhf Amp., Osc., Mix.
2N5771	PNP	S	0.6	—25	—600 mA	60	150 MHz	—	—	TO-5	8	M	rf Amp.
2N5769	NPN	S	0.6	30	600 mA	85	200 MH	—	—	TO-5	8	M	rf Amp.
2N5794	NPN	S	0.31	20	100 mA	70	750 MHz	—	—	TO-92	18	M	uhf Osc.
2N5818	NPN	S	0.310*	15	—	20	200 MHz	6	Amp. Osc.	TO-92	2	M	uhf Amp., Osc.
2N5829	NPN	S	0.31	18	100 mA	35	300 MHz	—	Gen. Purpose	TO-92	2	M	vhf Osc., Amp.
2N5830	NPN	S	0.31	25	100 mA	55	—	—	Gen. Purpose	TO-92	2	M	Audio Amp.
2N5835	NPN	S	0.310*	12	—	20	200 MHz	—	Amp. Osc.	TO-92	2	M	uhf Amp., Osc.
2N5836	NPN	S	0.310*	45	—	40	200 MHz	4	rf Amp.	TO-92	2	M	50 MHz Amp.
2N5837	NPN	S	0.310*	45	—	100	200 MHz	4	rf Amp.	TO-92	2	M	50 MHz Amp.
2N5770	PNP	S	0.31	—25	—200 mA	60	150 MHz	—	Gen. Purpose	TO-92	2	M	vhf Osc., Amp.
2N5770	NPN	S	0.310*	20	600 mA	600	100 MHz	—	af Amp.	TO-92	2	M	Audio Amp.

SMALL-SIGNAL TYPES — Continued

No.	Type	Maximum Ratings: Material[1]	Diss. (Watts)	V_{CEO} (Volts)	I_C (dc)	Characteristics: h_{FE} (Min.)	f_T (Typ.)	Noise Fig. (dB)	Use (Typ.)	Other Data: Case Style	Base Conn.	Manufacturer[2]	Application
MPS6514	NPN	S	.3	25	100 mA	150	480 MHz	2.0	Audio-rf	TO-92	2	M	af-rf Amp.
MPS6530	NPN	S	0.310*	40	600 mA	30	390 MHz	—	Amp.	TO-92	2	M	Complementary Amp
MPS6534	PNP	S	0.310*	–40	–600 mA	60	260 MHz	—	μhf Amp.	TO-92	2	M	Complementary Amp.
MPS6543	NPN	S	0.310*	25	—	25	760 MHz	—	Osc.	TO-92	2	M	uhf Osc.
MPS6568	NPN	S	0.310*	20	—	20	300 MHz	6	i-f Amp.	TO-92	18	M	vhf Amp., Video i-f
MPSA12	NPN	S	0.310*	20	—	35	—	—	Audio Amp.	TO-92	2	M	High-Z Pre-amp.
MPSA65	PNP	S	0.5	–60	–500 mA	50	50 MHz	—	Audio Amp.	TO-92	2	M	Audio Amp.
TIS48	NPN	—	1.2*	40	500 mA	40	500 MHz	—	rf	TO-92	3	TI	rf, Switching
TIS54	PNP	—	0.25*	–12	–60 mA	30	300 MHz	—	rf	TO-92	3	TI	rf, Switching
TIXM10	PNP	—	0.075*	–20	–30 mA	20	630 MHz	4	rf	TO-72	4	TI	rf, Preamp., vhf/uhf

LARGE-SIGNAL TYPES

No.	Type	Maximum Ratings: Material[1]	Diss. (Watts)	V_{CEO} (Volts)	I_C (dc)	Characteristics: h_{FE} (Min.)	f_T (Typ.)	Noise Fig. (dB)	Use (Typ.)	Other Data: Case Style	Base Conn.	Manufacturer[2]	Application
2N441	PNP	G	150	–40	–15 A	20	—	—	Gen. Purpose	TO-36	13	M	Switch, Amp.
2N1491	NPN	S	3.0*	30	100 mA	15	300 MHz	—	rf Amp.	TO-39	8	R	vhf Amp., Mix.
2N1970	PNP	G	170	–50	–15 A	17	—	—	Gen. Purpose	TO-36	13	M	Switch, Amp.
2N2102	NPN	S	5†	65	1 A	20	100 MHz	6	Gen. Purpose	TO-5	8	R	af, rf Amps. (Linear)
2N2157	PNP	—	170†	–60	–30 A	40	100 kHz	—	af	TO-36	13	M	af, dc Amp., Switch.
2N2270	NPN	S	5†	—	1 A	10	—	6	Amp.	TO-5	9	R	Low-noise Amp.
2N2631	NPN	S	8.75†	60	1.5 A	—	200 MHz	—	rf	TO-39	8	R	Class C rf Amp., Osc.
2N2869	PNP	—	30†	–50	–10 A	50	200 kHz	—	Gen. Purpose	TO-3	11	R	af, Osc., Amp., Switch.
2N2876	NPN	S	17.5†	60	1.5 A	—	200 MHz	—	rf	TO-60	12	R	vhf Class-C Amp.
2N3053	NPN	S	5	60	700 mA	50	—	—	—	TO-5	8	R	Pwr. Switch
2N3055	NPN	S	115	60	15 A	20–70	—	—	Gen. Purpose	TO-3	11	R	Switch, Reg., Amp.
2N3119	NPN	S	4†	80	500 mA	50	450 MHz	—	Amp.	TO-5	8	R	Switch, Pulse Amp.
2N3512	NPN	—	4	35	500 mA	10	250 MHz	—	Audio-rf	—	7	R	—
2N3583	NPN	S	7†	40	1 A	10	500 MHz	—	rf	TO-39	8	M	Class A, B, C rf Mult., Amp., Osc.
2N3585	NPN	S	35†	175	2 A	10	15 MHz	—	hV Gen. Purp.	TO-66	11	R	rf, af Osc., Amp. dc Amp.
2N3632	NPN	S	23*	65	3 A	—	400 MHz	—	rf Amp.	TO-60	12	R	uhf Pwr. Amp., Osc.
2N3733	NPN	S	23*	65	3 A	—	400 MHz	—	rf Amp.	TO-60	12	R	uhf Pwr. Amp., Osc.
2N3772	NPN	S	150	60	20 A	15–60	800 kHz	—	Pwr. Amp.	TO-3	11	R	Pwr. Amp.
2N3866	NPN	S	5†	30	0.4 A	—	800 MHz	—	rf	TO-39	8	R	Class A, B, C rf Mult., Amp., Osc.
2N3924	NPN	S	7*	18	500 mA	—	350 MHz	—	rf Amp.	TO-39	8	M	uhf Pwr. Amp., Osc.
2N3948	NPN	S	1*	20	400 mA	15	700 MHz	—	rf Amp.	TO-39	8	M	uhf Pwr. Amp., Osc.
2N4012	NPN	S	11.6*	40	1.5 A	—	500 MHz	—	rf Amp.	TO-60	12	R	uhf Pwr. Amp., Osc.
2N4037	PNP	S	7†	–40	–1 A	50	60 MHz	—	Gen. Purpose	TO-5	8	R	Amp., Switching
2N4396	NPN	S	62†	60	5 A	60	4 MHz	—	Gen. Purpose	TO-3	11	R	rf, af Osc., Amp. dc Amp.
2N4427	NPN	S	3.5*	20	400 mA	—	500 MHz	—	rf Amp.	TO-39	8	R	uhf Amp.
2N5016	NPN	S	30*	65	4.5 A	—	600 MHz	—	rf Amp.	TO-60	12	R	uhf Pwr., rf Amp.
2N5070	NPN	S	70†	65	3.3 A	—	30 MHz	—	Amp.	TO-60	12	R	30 MHz Amp.
2N5071	NPN	S	70†	65	3.3 A	—	76 MHz	—	Amp.	TO-60	12	R	50 MHz Amp.
2N5470	NPN	S	3.5†	55	200 mA	—	2GHz	—	uhf Amp.	—	—	R	Microwave Osc., Amp.
2N5635	NPN	S	7.5*	35	1 A	5	—	—	rf Amp.	—	23	M	400 MHz, rf Amp.
2N5636	NPN	S	15*	35	1.5 A	5	—	—	rf Amp.	—	23	M	400 MHz, rf Amp.
2N5637	NPN	S	30*	35	3 A	5	—	—	rf Amp.	—	23	M	400 MHz rf Amp.
2N5641	NPN	S	15*	35	1 A	5	—	—	rf Amp.	—	23	M	400 MHz, rf Amp.
2N5642	NPN	S	30*	35	3 A	5	—	—	rf Amp.	—	23	M	400 MHz, rf Amp.
2N5643	NPN	S	60*	35	5 A	5	—	—	rf Amp.	—	23	M	400 MHz, rf Amp.
2N5913	NPN	S	3.5†	14	330 mA	—	900 MHz	—	uhf Amp.	TO-39	8	R	432 MHz Amp.
2N5914	NPN	S	10.7†	14	1.5 A	—	900 MHz	—	uhf Amp.	—	—	R	432 MHz Amp.
2N5915	NPN	S	10.7†	14	1.5 A	—	800 MHz	—	uhf Amp.	—	—	R	432 MHz Amp.
2N5919	NPN	S	25†	30	4.5 A	—	400 MHz	—	uhf Amp.	—	—	R	220 MHz Amp.
2N5921	NPN	S	8.3†	50	700 mA	—	2.3 GHz	—	uhf Amp.	—	—	R	Microwave Osc., Amp.
2N5941	NPN	S	80	35	6.0A	10	50 MHz	—	rf Amp.	—	25	M	30 MHz rf Amp.
2N5942	NPN	S	140	35	12 A	10	50 MHz	—	rf Amp.	—	26	M	30 MHz rf Amp.
2N5944	NPN	S	5	16	0.4A	20	470 MHz	—	uhf Amp.	—	27	M	432 MHz rf Amp.
2N5945	NPN	S	15	16	0.8 A	20	470 MHz	—	uhf Amp.	—	27	M	432 MHz rf Amp.
2N5946	NPN	S	37.5	16	2.0 A	20	470 MHz	—	uhf Amp.	—	27	M	432 MHz rf Amp.
2N5995	NPN	S	10.7	14	1.5 A	—	175 MHz	—	vhf Amp.	—	23	R	vhf rf Amp.
2N5996	NPN	S	35.7	18	5.0 A	—	175 MHz	—	vhf Amp.	—	23	R	vhf rf Amp.
2N6136	NPN	S	60	18	6.0 A	20	470 MHz	—	uhf Amp.	—	27	M	432 MHz rf Amp.
MJ480	NPN	S	87†	40	1 A	30	4 MHz	—	Gen. Purpose	TO-3	11	M	af, rf Amp., Osc.
MPS-U01	NPN	S	1.0*	30	1.5 A	70	50 MHz	—	af Amp.	—	20	M	Audio Amp.
MPS-U51	PNP	S	1.0*	–30	–1.5 A	70	50 MHz	—	Gen. Purpose	—	20	M	af Amp.

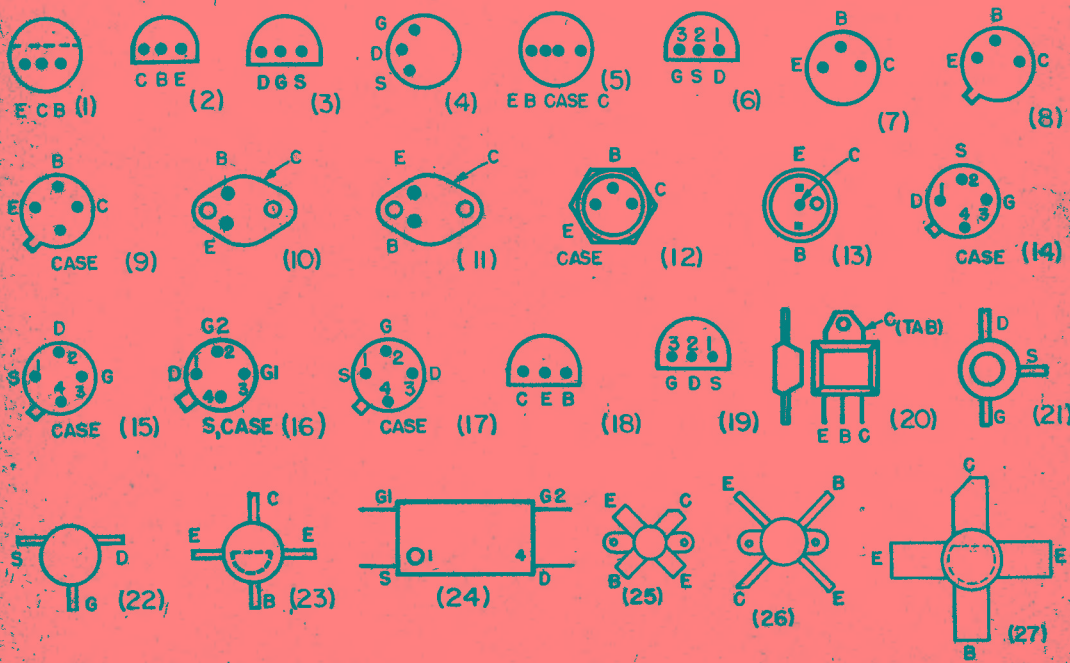
FIELD-EFFECT TRANSISTORS

No.	Type	Diss. (mW)	V_{DS}	V_{GS}	MIN. μ MHOS	C_{iss} (pF)	MAX. I_{DSS} (mA)	Top Freq. (MHz)	Case Style	Base Conn.	Manufacturer	Application
2N4416	N JFET	175	30	–6.0	4000	4	15	450	TO-72	15	M	vhf/uhf rf Amp., Mix., Osc.
2N4417	N FET	175	30	–30	4500	3.5	15	400	—	22	UC	vhf uhf Amp.
2N5460	P JFET	310	—	40	1000	5	5	—	TO-92	19	M	Gen. Purpose Audio

FIELD-EFFECT TRANSISTORS — Continued

No.	Type	Diss. (mW)	V_{DS}	V_{GS}	MIN. μMHOS	C_{iss} (pF)	MAX. I_{DSS} (mA)	Top Freq. (MHz)	Case Style	Base Conn.	Manufacturer	Application
2N5461	P JFET	310	—	40	1500	5	9	—	TO-92	19	M	Gen. Purpose Audio
2N5463	P JFET	310	—	40	1000	5	5	—	TO-92	19	M	Gen. Purpose Audio
2N5465	P FET	310	—	60	2000	5	16	—	TO-92	19	M	Gen. Purpose Amp.
2N5669	N JFET	310	25	1.0	1600	4.7	4	—	TO-92	6	M	Amp. Switching
2N5670	N JFET	310	25	2.0	2500	4.7	8	—	TO-92	6	M	Amp. Switching
3N128	N IGFET	100	20	—	5000	5.8	—	200	TO-72	14	R	af, rf, Amp., Mix., Osc.
3N187	MOS n-channel Depletion type	330	20	−6+6	7000	4	8.5	300	TO-72	16	R	—
3N200	MOS n-channel Depletion type	330	20	−6+6	10,000	8.5	—	500	TO-72	16	R	uhf rf Amp.
40600	N Dual-Gate FET	400	20	−8	10,000	5.5	18	250	TO-72	16	R	uhf rf Amp.
40601	N Dual-Gate FET	400	20	−8	10,000	5.5	18	250	TO-72	16	R	vhf Mixer
40602	N Dual-Gate FET	400	20	−8	10,000	5.5	18	250	TO-72	16	R	vhf Amp.
40603	N Dual-Gate FET	400	20	−8	10,000	5.5	18	—	TO-72	16	R	rf Amp.
40604	N Dual-Gate FET	400	20	−8	10,000	5.5	18	—	TO-72	16	R	rf Mix.
40673	N Dual-Gate FET	330	20	−6	12,000	6	35	400	TO-72	16	R	rf Amp.
E300	N JFET	250	—	1	9000	5.5	30	100	—	4	SI	vhf Amp.
HEP802	N JFET	200	20	—	3000	—	9	—	TO-72	14	M	af Amp.
HEP802	N JFET	200	25	—	2000	—	20	—	TO-92	6	M	rf Amp.
HMT3823	N JFET	225	30	−30	3000	4.0	20	—	—	21	M	rf Amp., Mix.
MPF102	N JFET	200	25	−2.5	2000	4.5	20	200	TO-92	6	M	af, rf Amp., Mix., Osc.
MPF103/ 2N5457	N JFET	310	25	−25	1000	4.5	5	—	TO-92	6	M	Gen. Purpose Audio
MPF104/ 2N5458	N JFET	310	25	−25	1500	4.5	9	—	TO-92	6	M	Gen Purpose Audio
MPF105/ 2N5459	N JFET	200	25	−4.5	2000	4.5	16	100	TO-92	6	M	af, rf Amp., Mix., Osc.
MPF106/ 2N5484	N JFET	200	25	−25	2500	5	30	432	TO-92	6	M	af, rf Amp., Mix., Osc.
MPF107/ 2N5486	N JFET	310	—	−25	1000	5	20	400	TO-92	6	M	vhf-uhf rf Amp.
MPF120	N Dual-Gate MOS FET	500	25	±20	8000	4.5	18	105	—	24	M	rf Amp.
MPF121	N Dual-Gate MOS FET	500	25	±20	10,000	4.5	30	200	—	24	M	rf Amp.
MPF122	N Dual-Gate MOS FET	500	25	±20	8000	4.5	20	200	—	24	M	rf Mix.

* = Ambient Temp. of 25°C (No heat sink). † = Case Temp. of 25°C (with heat sink).
[1] S = Silicon. G = Germanium. [2] GE = General Electric. M = Motorola. R = RCA. SI = Siliconix. TI = Texas Instruments. UC = Union Carbide.



The leads are marked C - collector, B - base, E - emitter, G - gate, D - drain, and S - source.

Some Abbreviations used in Text and Drawings

A – ampere
ac – alternating current
A/D – analog-to-digital
af – audio frequency
afc – automatic frequency control
afsk – audio frequency-shift keying
agc – automatic gain control
alc – automatic load (or level) control
a-m – amplitude modulation
anl – automatic noise limiter
ARC – amateur radio club
AREC – Amateur Radio Emergency Corps
ARPSC – Amateur Radio Public Service Corps
ATV – amateur television
avc – automatic volume control
bc – broadcast
BCD – binary-coded decimal
bci – broadcast interference
bcl – broadcast listener
BFO – beat-frequency oscillator
BPL – Brass Pounders League
CB – Citizens band
CCIR – International Radio Consultative Committee
ccw – counterclockwise
c.d. – civil defense
CD – Communications Department (ARRL)
CMOS or COSMOS – complimentary-symmetry metal-oxide semiconductor
coax – coaxial cable, connector
COR – carrier-operated relay
CP – Code Proficiency (award)
CR – cathode ray
CRT – cathode-ray tube
ct – center tap
CTCSS – continuous tone-controlled squelch system
cw – continuous wave (code), clockwise
D/A – digital-to-analog
dB – decibel
dc – direct current
DF – direction finder
DOC – Department of Communications (Canadian)
dpdt – double-pole double-throw
dpst – double-pole single-throw
dsb – double sideband
DTL – diode-transistor logic
DX – long distance
DXCC – DX Century Club
EC – Emergency Coordinator
ECO – electron-coupled oscillator
ECL – emitter-coupled logic
EME – earth-moon-earth
emf – electromotive force (voltage)
FAX – facsimile
FCC – Federal Communications Commission
FD – Field Day
FET – field-effect transistor
FF – flip-flop
fm – frequency modulation
FMT – frequency measuring test
fsk – frequency-shift keying
GDO – grid-dip oscillator
GHz – gigahertz
GMT – Greenwich Mean Time
gnd – ground
H – henry
hf – high frequency
HFO – heterodyne frequency oscillator
Hz – hertz
IARU – International Amateur Radio Union
IC – integrated circuit
ID – inside diameter
i-f – intermediate frequency
in./s – inch per second
IRC – International Reply Coupon
ITU – International Telecommunication Union
IW – Intruder Watch
JFET – junction field-effect transistor
k – kilo
kc – kilocycle
kHz – kilohertz
kW – kilowatt
LED – light-emitting diode
lf – low frequency
LMO – linear master oscillator
LO – local oscillator
lsb – lower sideband
LSB – least-significant bit
LSD – least-significant digit
LSI – large-scale integration
luf – lowest usable frequency
mA – milliampere
MARS – Military Affiliate Radio System
Mc – Megacycle
mf – medium frequency
MG – motor-generator
mH – millihenry
MHz – Megahertz
mic – microphone
mix – mixer
MO – master oscillator
MOSFET – metal-oxide semiconductor field-effect transistor
MOX – manually-operated switching
ms – millisecond
m.s. – meteor scatter
MSB – most-significant bit
MSD – most-significant digit
MSI – medium-scale integration
muf – maximum usable frequency
MUX – multiplex
mV – millivolt
mW – milliwatt
nbfm – narrow-band frequency modulation
n.c. – no connection
NC – normally closed
NCS – net control station
NO – normally open
npn – negative-positive-negative
NTS – National Traffic System (ARRL)
OBS – Official Bulletin Station
OD – outside diameter
OO – Official Observer
op amp – operational amplifier
OPS – Official Phone Station
ORS – Official Relay Station
osc – oscillator
OVS – Official VHF Station
oz – ounce
PA – power amplifier
pc – printed or etched circuit board
PEP – peak-envelope power
PEV – peak-envelope voltage
pF – picofarad
PIV – peak-inverse voltage
pk – peak
pk-pk – peak-to-peak
PL – private line
PLL – phase-locked loop
pm – phase modulation
pnp – positive-negative-positive
pot – potentiometer
PRV – peak-reverse voltage
PSHR – Public Service Honor Roll
PTO – permeability-tuned oscillator
PTT – push-to-talk
RACES – Radio Amateur Civil Emergency Service
RCC – Rag Chewers Club
rcvr – receiver
rf – radio frequency
rfc – radio-frequency choke
RFI – radio-frequency interference
RM – Route Manager
RM-(number) – FCC rulemaking
rms – root-mean-square
RO – Radio Officer (c.d.)
RST – readability-strength-tone
RTL – resistor-transistor logic
RTTY – radio teletype
s.a.e. – self-addressed envelope
s.a.s.e. – stamped s.a.e.
SCM – Section Communications Manager
SCR – silicon-controlled rectifier
SEC – Section Emergency Coordinator
SET – simulated emergency test
S.M. – silver mica (capacitor)
SNR – signal-to-noise ratio
spdt – single-pole double-throw
spst – single-pole single-throw
SS – Sweepstakes (contest)
ssb – single sideband
SSTV – slow-scan TV
SWL – short-wave listener
SWR – standing wave ratio
sync – synchronous, synchronizing
TCC – Transcontinental Corps
TD – transmitting distributor
TE – transequatorial (propagation)
tfc – traffic
tpi – turns per inch
T-R – transmit-receive
TTL or T^2L – transistor-transistor logic
TTY – Teletype
TV – television
TVI – television interference
UJT – unijunction transistor
usb – upper sideband
uhf – ultra-high frequency
V – volt
VCO – voltage-controlled oscillator
VCXO – voltage-controlled crystal oscillator
VFO – variable frequency oscillator
vhf – very high frequency
vlf – very low frequency
VOM – volt-ohm-milliammeter
VOX – voice-operated break-in
VR – voltage regulator
VTVM – vacuum-tube voltmeter
VXO – variable crystal oscillator
W – watt
WAC – Worked All Continents
WAS – Worked All States
wbfm – wide-band fm
wpm – words per minute
ww – wire wound
wv – working voltage
xtal – crystal
μ – micro (10^{-6})

Application for Membership

AMERICAN RADIO RELAY LEAGUE

Administrative Headquarters: Newington, Connecticut, U. S. A. 06111

.....19....

AMERICAN RADIO RELAY LEAGUE,
Newington, Conn., U. S. A. 06111

Being genuinely interested in Amateur Radio, I hereby apply for membership* in the American Radio Relay League. I enclose remittance ($9.00 in the U. S., $10.00 in Canada, $10.50 elsewhere, U. S. funds) in payment of dues for..... .....year(s), including subscription to *QST* for the same period. Please begin *QST* with the..... issue. Amount enclosed: $.....

The call of my station is.....

The class of my operator's license is.....

I belong to the following radio societies.....

.....

Send Membership Certificate ☐ or Membership Card ☐

.....
Name

.....
Address

.....
City, State, Zip Code

A bona fide interest in amateur radio is the only essential requirement, but full voting membership is granted only to licensed radio amateurs of the United States and Canada. Therefore, if you have a license, please be sure to indicate it above.

*Membership is available only to individuals. Life Membership is granted to Full Members for $180 ($200 Canada, $210 elsewhere). Write the Secretary for details.

Any member of the immediate family, living at the same address, may also become a League member, without QST, at the special rate of $2.00 per year. Such family membership must run concurrently with that of the member receiving QST.

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