

AC/DC AND 13-V CAR-RADIO VALVES WITH SIDE CONTACT BASES

Type Number	Valve type	Maximum dimensions mm	Base (Connection reference in brackets) ¹⁵⁾	Application (see p. 2)	Filament data			Anode voltage V_a Volts	Anode current I_a mA	Neg. grid bias V_{g1} Volts	Screen-grid voltage V_{g2} Volts	Screen-grid current I_{g2} mA	Voltage on grids 3 (and 5) $V_{g3(5)}$ Volts	Voltage on grid 4 V_{g4} Volts	Mutual conduct. S mA/V	Amplification factor μ	Internal resistance R_i Ohms	External anode resist. or optimum matching imped. R_a Ohm	Output at 10% distortion W_o Watts	Grid A.C. voltage at the indicated output $V_{R.M.S.}$ V_i	Max. anode dissipation $W_{a,max}$ Watts	Grid anode capacity C_{ag1} μF	Type Number
					Heating	Voltage Volts	Current Amps.																
CK1	Octode	116 × 46	P35 (38)	4	indir.	13	0,200	200	1,6 ¹⁾ <0,015	—1,5	90	2 ²⁾	70	—1,5 —25	0,6 <0,002	—	1,5·10 ⁶ >10 ⁷	—	—	—	—	<0,06 ³⁾	CK1
								100	1,6 ¹⁾ <0,015	—2	90	2 ²⁾	70	—1,5 —25	0,55 <0,002	—	1,0·10 ⁶ >10 ⁷	—	—	—	—	—	
CH1	Variable-Mu Hexode	110 × 46	P35 (35)	5	indir.	13	0,200	200	2,2 ⁴⁾ <0,15	—2 —24	100	4 ⁵⁾	—12 ⁴⁾ or $R_{g3} = 0,5 M\Omega$	50	0,55 <0,002	—	2,0·10 ⁶ >10 ⁷	—	—	—	—	<0,003	CH1
				1, 2	indir.	13	0,200	200	4,0 <0,015	—2 —24	100	2,0 ⁷⁾	—2 —24	50	2,0 <0,002	—	2,0·10 ⁶ >10 ⁷	—	—	—	—	—	
CF3	Variable-Mu Pentode	106 × 43	P30 (34)	1, 2	indir.	13	0,200	200	8,0 <0,015	—3 —55	100	2,6	0	—	1,8 <0,002	1600	0,9·10 ⁶ >10 ⁷	—	—	—	—	<0,003	CF3
								100	8,0 <0,015	—3 —55	100	2,6	0	—	1,8 <0,002	450	0,25·10 ⁶ >10 ⁷	—	—	—	—	—	
CF2	Variable-Mu Pentode	109 × 43	P30 (34)	1, 2	indir.	13	0,200	200	4,5 <0,015	—2 —22	100	1,4	0	—	2,2 <0,002	3000	1,4·10 ⁶ >10 ⁷	—	—	—	—	<0,003	CF2
								100	4,5 <0,015	—2 —22	100	1,4	0	—	2,2 <0,002	800	0,4·10 ⁶ >10 ⁷	—	—	—	—	—	
CF7	H.F. Pentode	106 × 43	P30 (34)	1, 2, 7, 8, 11	indir.	13	0,200	200	3	—2	100	1,1	0	—	2,1	4200	2,0·10 ⁶	—	—	—	—	<0,003	CF7
								100	3	—2	100	1,1	0	—	2,1	1500	0,7·10 ⁶	—	—	—	—	—	
CF1	H.F. Pentode	109 × 43	P30 (34)	1, 2, 7, 8, 11	indir.	13	0,200	200	3	—2	100	0,9	0	—	2,3	4000	1,7·10 ⁶	—	—	—	—	<0,003	CF1
								100	3	—2	100	0,9	0	—	2,3	1400	0,6·10 ⁶	—	—	—	—	—	
CB1	Duodiode	89 × 29	V24 (54)	13	indir.	13	0,200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	CB1
CB2	Duodiode	81 × 29	V24 (53)	13	indir.	13	0,200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	CB2
CBC1	Duodiode-Triode	100 × 37	P30 (28)	9	indir.	13	0,200	200	4,0	—5	—	—	—	—	2,0	27	13.500	—	—	—	—	—	CBC1
								100	2,0	—2,5	—	—	—	—	1,8	27	15.000	—	—	—	—	—	
CC2	Triode	100 × 37	P30 (26)	3, 6, 10, 11	indir.	13	0,200	200	6,0	—1,5	—	—	—	—	2,5	30	12.000	—	—	—	—	1,7	CC2
								100	2,0	—1,5	—	—	—	—	1,8	30	16.000	—	—	—	—	—	
CL1	Power Pentode	109 × 43	P30 (32)	12	indir.	13	0,200	200	25	—14	200	—	—	—	2,5	—	50.000	8.000	1,7	9	5	—	CL1
CL2 ⁸⁾	Power Pentode	123 × 46	P35 (32)	12	indir.	24	0,200	200	40	—19	100	—	—	—	3,1	—	23.000	5.000	3,0	8,8	8	—	CL2
								200	40	—11	75	—	—	—	3,7	—	19.000	5.000	2,5	6,9	8	—	
								100	50	—15	100	—	—	—	3,8	—	16.000	2.000	1,7	9,7	5	—	
CL4 ⁸⁾	High-sensitivity Power Pentode	127 × 50	P35 (32)	12	indir.	33	0,200	200	45	—8,5 ¹⁰⁾	200	6,0	—	—	8,0	—	35.000	4.500	4	5	9	—	CL4
CBL1 ⁸⁾	Duodiode and high-sensitivity Power Pentode	130 × 52	P35 (33)	13, 12	indir.	44	0,200	200	45	—8,5 ¹⁰⁾	200	6,0	—	—	8,0	—	35.000	4.500	4	5	9	—	CBL1
EM1	Tuning Cross ¹²⁾	75 × 27	P26 (39)	14	indir.	6,3	0,200	200 ¹⁴⁾	0,075 0,020	0 —4	—	$I_s = 0,13$ $I_s = 0,14$	—	$\phi = 10^{\circ 14}$ $\phi = 90^{\circ 14}$	—	—	—	2,0·10 ⁶	—	—	—	—	EM1
C/EM2	Electron ray Tuning Indicator	75 × 31	P30 (40)	14	indir.	6,3	0,200	200 ¹¹⁾	—	—	$V_{s1} = 200$ $V_{s2} = 200$ $V_{s3} = 200$	—	$V_{g1}' = +3$ $V_{g2}' = 0$ $V_{g3}' = -4,5$	$\phi = 160^{\circ}$ $\phi = 150^{\circ}$ $\phi = 5^{\circ 14}$	—	—	—	—	—	—	—	—	C/EM2
								200 ¹¹⁾	—	—	$V_{s1} = 200$ $V_{s2} = 200$	—	$V_{g1}' = 0$ $V_{g2}' = 0$	$\phi = 150^{\circ}$ $\phi = 90^{\circ 14}$	—	—	—	—	—	—	—	—	
								200 ¹¹⁾	—	—	$V_{s1} = 200$ $V_{s2} = 200$	—	$V_{g1}' = 0$ $V_{g2}' = 0$	$\phi = 150^{\circ}$ $\phi = 90^{\circ 14}$	—	—	—	—	—	—	—	—	
								200 ¹²⁾	3	—2,5	—	—	—	—	2,0	50	25.000	—	—	—	—	—	

1) The data of this horizontal column apply for the oscillating condition at $V_{osc} = 8,5 V_{R.M.S.}$ ($I_{g1} = 190 \mu A$) and for all-wave receivers. The valve must not be controlled by A.V.C. in the short wave range. The grid leak resistance amounts to 50,000 ohms and is connected to the neutral. The figure given in column Mutual Conductance indicates the conversion conductance.

2) Screen-grid current $I_{g2} + I_{g3} = 3,8 \text{ mA}$.

3) Capacity between anode and grid 4.

4) The data of this horizontal column apply for the oscillating condition at $V_{osc} = 9 V_{R.M.S.}$. The figure in column Mutual Conductance gives the conversion conductance.

5) $I_{g4} = 0,1 \text{ mA}$.
With fixed bias.

6) $I_{g4} = 0,25 \text{ mA}$.

7) Not for car-radio.

8) Only for high anode voltages.

9) Only for automatic grid bias ($R_k = 167 \text{ ohms}$).

11) Voltage on the triode anode.

12) Data for using the triode section for other amplifier purposes.

13) Electron ray tuning indicator.

14) Light sector, measured at the edge of the screen.

15) See page 15.