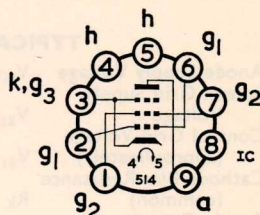


PRELIMINARY DATA

POWER PENTODE



B9D Base

GENERAL

This power pentode is primarily intended for use in the output stages of high-fidelity audio amplifiers.

Heater Voltage	V_h	6.3	V
Heater Current	I_h	0.8	A

RATINGS

(Design Maximum Values)

Maximum Anode Dissipation	$P_a(\text{max})$	19	W
Maximum Screen Grid Dissipation	$P_{g2}(\text{max})$	3.3	W
For Speech and Music		6.0	W
Maximum Anode Voltage	$V_a(\text{max})$	550	V
Maximum Screen Grid Voltage	$V_{g2}(\text{max})$	440	V
Maximum Peak Heater to Cathode Voltage,	$V_h-k(\text{pk})\text{max}$		
Heater Negative		200	V
Heater Positive		200*	V
Maximum Mean Cathode Current	$I_{k(\text{av})}\text{max}$	85	mA
Maximum Control Grid to Cathode Resistance,	$R_{g1-k}(\text{max})$		
Fixed Bias		0.1	MΩ
Self Bias		0.33	MΩ

* D.C. component must not exceed 100 V.

INTER-ELECTRODE CAPACITANCES (approximately)†

Grid 1 to Anode	C_{g1-a}	<0.4	pF
Grid 1 to Cathode, Grid 3, Grid 2 and Heater	$C_{g1-k, g3, g2, h}$	9.0	pF
Anode to Cathode, Grid 3, Grid 2 and Heater	$C_{a-k, g3, g2, h}$	4.0	pF

† Measured without an external shield.

TYPICAL OPERATION—Class A Single-ended

Anode Voltage	V_a	300	V
Screen Grid Voltage	V_{g2}	300	V
Control Grid Voltage (approximate)	V_{g1}	-10‡	V
Anode Current (Quiescent)	$I_{a(o)}$	60	mA
Anode Current (max. sig.: speech and music)	$I_a(\text{max. sig.})$	75	mA
Screen Grid Current (Quiescent)	$I_{g2(o)}$	8.0	mA
Screen Grid Current (max. sig.: speech and music)	$I_{g2}(\text{max. sig.})$	15	mA
Peak A.F. Control Grid Voltage	$V_{g1}(\text{pk})$	10	V
Mutual Conductance	g_m	10.2	mA/V
Valve Anode Resistance ($\delta V_a/\delta I_a$)	r_a	25	kΩ
Anode Load Resistance	R_a	3.0	kΩ
Power Output	P_{out}	10	W
Total Harmonic Distortion	D_{tot}	13	%

‡ The control grid voltage should be adjusted in each case to give $I_{a(o)} = 60$ mA when other voltages are at their nominal values.

TYPICAL OPERATION—Class AB₁ Push-Pull

Anode Supply Voltage	$V_{a(b)}$	300	350	400	450	450	450	V
Screen Grid Supply Voltage	$V_{g2(b)}$	300	350	350	350	400	400	V
Control Grid Voltage (approximately)	V_{g1}	$-12.5\pm$	$-15.5\pm$	$-16\pm$	$-16.5\pm$	$-21\pm$	—	V
Cathode Bias Resistance (common)	R_k	—	—	—	—	—	170	Ω
Anode Current (Quiescent)	$I_{a(o)}$	2×43	2×46	2×42.5	2×38.5	2×33	2×41	mA
Anode Current (maximum signal)	$I_{a(max\ sig)}$	2×58	2×65	2×71.5	2×76.5	2×72	2×47	mA
Screen Grid Current (Quiescent)	$I_{g2(o)}$	2×6.3	2×6.5	2×5.5	2×4.8	2×4.7	2×5.8	mA
Screen Grid Current (max sig)	$I_{g2(max\ sig)}$	2×13	2×14.3	2×13.5	2×13.5	2×15	2×11	mA
Peak A.F. Grid to Grid Voltage	$V_{g1-g1(pk)}$	25	31	32	33	42	31	V
Anode to Anode Load Resistance	R_{a-a}	6.6	6.6	6.6	6.6	6.6	9.0	k Ω
Power Output	P_{out}	23	30	37	43	45	28	W
Total Harmonic Distortion	D_{tot}	2.5	2.0	1.5	1.5	1.5	2.0	%

± The control grid voltage should be adjusted in each valve to give the stated quiescent anode current when other voltages are at their nominal values.

