

When operated in a single-ended output stage, the EL84 can deliver an output of up to 5.7 watts at 10% total harmonic distortion, and two EL84's in pentode push-pull yield an output of up to 17 watts at 4% distortion. As these figures suggest, this tube makes available the higher peak powers and low distortion required in medium power amplifiers used as present day high-fidelity phonograph components.

The true pentode characteristics of this tube reduce distortion at low instantaneous plate voltages which allow larger A.C. swings and increased undistorted output as compared with beam power tubes in the same power class.

#### HEATER

Filament Voltage	6.3	V
Filament Current	0.76	A

#### CHARACTERISTICS

Plate Voltage	250	V
Grid No. 2 Voltage	250	V
Plate Current	48	mA
Grid No. 2 Current	5.5	mA
Grid No. 1 Voltage	-7.3	V
Transconductance	11,300	micromhos
Plate Resistance	38	K $\Omega$
Amplification Factor (Grid No. 1 to Grid No. 2)	19	

#### DESIGN CENTER MAXIMUM

Plate Voltage	300	V
Plate Dissipation	12	W
Grid No. 2 Voltage	300	V
Grid No. 2 Dissipation (zero signal)	2.0	W
Grid No. 2 Dissipation (max. signal)	4.0	W
Cathode Current	65	mA
Grid Resistance (cathode bias)	1.0	M $\Omega$
Grid Resistance (fixed bias)	300	K $\Omega$
Filament to Cathode Voltage	100	V

#### TYPICAL OPERATING CONDITIONS

Operating conditions as single tube Class "A" Amplifier

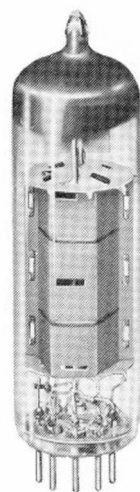
Plate Voltage	250	250	V
Grid No. 2 Voltage	250	250	V
Plate Load Resistance	5.2	4.5	K $\Omega$
Cathode Resistor	135	135	$\Omega$
Grid No. 1 Voltage	-7.3	-7.3	V
Plate Current	48	48	mA
Grid No. 2 Current	5.5	5.5	mA
Input (rms) Signal Voltage (output power = 50 mW)	0.3	0.3	V
Output Power ( $d_{tot}=10\%$ ) $\ddagger$	5.7	5.7	W
Input (rms) Signal Voltage ( $d_{tot}=10\%$ )	4.3	4.4	V
Percent 3rd Harmonic Distortion	9.5	8.0	%
Percent 2nd Harmonic Distortion	2.0	5.0	%

$\ddagger$ Output power and  $d_{tot}$  are measured at fixed bias and therefore represent the power output available during the reproduction of speech and music. When a sustained sine wave is applied to the control grid, the bias across the cathode resistor will readjust itself as a result of the increased plate and screen-grid currents. This will result in approximately 10% reduction in power output.

Operating conditions for two tubes in class "AB" Push-Pull

(See Figs. 2 and 3)

Plate Voltage	250	300	V
Grid No. 2 Voltage	250	300	V
Common Cathode Resistance	130	130	$\Omega$
Plate to Plate Load Resistance	8.0	8.0	K $\Omega$
Zero Signal Plate Current	2 x 31	2 x 36	mA
Max. Signal Plate Current	2 x 37.5	2 x 46	mA
Zero Signal Grid No. 2 Current	2 x 3.5	2 x 4.0	mA
Max. Signal Grid No. 2 Current	2 x 7.5	2 x 11	mA
Input Signal Voltage (rms)	8	10	V
Power Output	11	17	W
Percent Distortion	3.0	4.0	%



# EL84

(6BQ5)

