

# OUTPUT PENTODE

# EL86

Low impedance output pentode suitable for use in single-ended push-pull output stages and series regulators.

## HEATER

$V_h$	6.3	V
$I_h$	760	mA

## CAPACITANCES (measured without an external shield)

$C_{in}$	13	pF
$C_{out}$	6.8	pF
$C_{a-g1}$	< 600	mpF
$C_{h-g1}$	< 250	mpF

## CHARACTERISTICS

### Pentode connection

$V_a$	100	170	V
$V_{g2}$	100	170	V
$V_{g1}$	-5.0	-12.5	V
$I_a$	57	70	mA
$I_{g2}$	3	3.5	mA
$g_m$	13	11	mA/V
$\mu_{g1-g2}$	9	8	
$r_a$	23	26	k $\Omega$
$V_{g1 \text{ max.}}$		-1.3	V

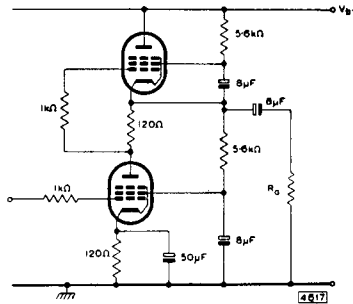
### Triode connection ( $g_2$ connected to a)

$V_a$	100	170	V
$V_{g1}$	-5.0	-12.5	V
$I_a$	60	74	mA
$g_m$	14	12	mA/V
$\mu$	9	8	
$r_a$	645	665	$\Omega$

## OPERATING CONDITIONS AS SINGLE VALVE CLASS 'A' AMPLIFIER

$V_{a(b)}$	200	V
$V_{g2(b)}$	200	V
$R_k$	215	$\Omega$
$R_a$	2.5	k $\Omega$
$R_{g2}$ (unbypassed)	470	$\Omega$
$I_a$	64	mA
$I_{g2(o)}$	3.2	mA
$V_{in(r.m.s.)}$ ( $P_{out} = 50mW$ )	520	mV
$V_{in(r.m.s.)}$	7.0	V
$P_{out}$	5.3	W
$D_{tot}$	10	%
$I_{g2}$ (max. sig.)	11.4	mA

### OPERATING CONDITIONS FOR TWO VALVES IN SINGLE ENDED PUSH-PULL



$V_b$	300	V
$R_a$	1.0	k $\Omega$
$I_b(o)$	66	mA
$I_b$ (max. sig.)	64	mA
$V_{in}(r.m.s.)$	5.4	V
$P_{out}$	4.5	W
$D_{tot}$	9.3	%

### OPERATING CONDITIONS FOR TWO VALVES IN CLASS 'AB' PUSH-PULL

#### Speech and music

$V_{a-k}$	250	V
$V_{g2-k}$	200	V
$R_k$ (per valve)	300	$\Omega$
$R_{a-a}$	5.5	k $\Omega$
$I_a(o)$	2 × 50	mA
$I_a$ (max. sig.)	2 × 55	mA
$I_{g2(o)}$	2 × 2.0	mA
$I_{g2}$ (max. sig.)	2 × 13	mA
$V_{in}(g1-g1)r.m.s.$	26	V
$P_{out}$	18.5	W
$D_{tot}$	4.5	%

#### Continuous sine wave drive

$V_{a-e}$	190	220	250	V
$V_{g2(b)}$	190	220	250	V
$R_k$ (per valve)	220	270	390	$\Omega$
$R_{g2}$ (common)	330	1000	1800	$\Omega$
$I_a(o)$	2 × 61	2 × 59	2 × 51	mA
$I_{g2(o)}$	2 × 2.8	2 × 2.7	2 × 2.4	mA
$R_{a-a}$	2.6	3.0	3.5	k $\Omega$
$P_{out}$	13.3	15.7	17.4	W
$V_{in}(g1-g1)r.m.s.$	24	29	39	V
$D_{tot}$	2.3	3.3	4.2	%
$I_a$ (max. sig.)	2 × 69	2 × 69	2 × 64	mA
$I_{g2}$ (max. sig.)	2 × 10	2 × 9.7	2 × 8.7	mA
$V_{in}(g1-g1)r.m.s.$ ( $P_{out} = 50mW$ )	930	920	960	mV

LIMITING VALUES

$V_{a(b)}$ max.	550	V
$V_a$ max.	250	V
$V_{a+g2}$ max.	250	V
$p_a$ max.	12	W
$p_{a+g2}$ max.	13	W
$V_{g2(b)}$ max.	550	V
$V_{g2}$ max.	250	V
$p_{g2}$ max.	1.75	W
$I_k$ max.	100	mA
$R_{g1-k}$ max.	500	$k\Omega$
$V_{h-k}$ max.	200	V
$R_{h-k}$ max.	20	$k\Omega$

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