

## OUTPUT PENTODE

# EL33

High-sensitivity output pentode for use  
in A.C. mains-operated equipment.

### HEATER

$V_h$	6.3	V
$I_h$	0.9	A

### CAPACITANCE

$C_{a-g_1}$	1.0	$\mu\mu\text{F}$
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### OPERATING CONDITIONS AS CLASS "A" AMPLIFIER

$V_a$	250	V
$V_{g_2}$	250	V
$I_a$	36	mA
$V_{g_1}$	-6.0	V
$I_{g_2}$	4.0	mA
$g_m$	9.0	mA/V
$r_a$	50	K $\Omega$
$\mu_{g_1-g_2}$	23	
$P_{out}$	4.0	W
$R_a$	7	K $\Omega$
$V_{in(r.m.s.)}$	4.2	V
$V_{in(r.m.s.)}$ ( $P_{out}=50\text{ mW}$ )	0.33	V
$D_{tot}$	10	%
$R_k$	150	$\Omega$

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

$V_a$	250	V
$V_{g_2}$	250	V
$I_{a(0)}$	$2 \times 24$	mA
$I_a$ max.	$2 \times 28.5$	mA
$I_{g_2(0)}$	$2 \times 2.8$	mA
$I_{g_2}$ max.	$2 \times 4.6$	mA
$R_k$	140	$\Omega$
$R_{a-a}$	10	K $\Omega$
$P_{out}$	8.2	W
$V_{in(r.m.s.)}$	6.7	V
$D_{tot}$	3.1	%

### OPERATING CONDITIONS AS TRIODE ( $g_2$ connected to a)

$V_a$	250	V
$I_a$	20	mA
$V_g$	-8.5	V
$g_m$	6.5	mA/V
$\mu$	20	
$r_a$	3	K $\Omega$
$R_k$	425	$\Omega$
$R_a$	7	K $\Omega$
$P_{out}$	1.1	W
$D_{tot}$	5.0	%
$V_{in(r.m.s.)}$	5.9	V
$V_{in(r.m.s.)}$ ( $P_{out}=50\text{ mW}$ )	1.1	V



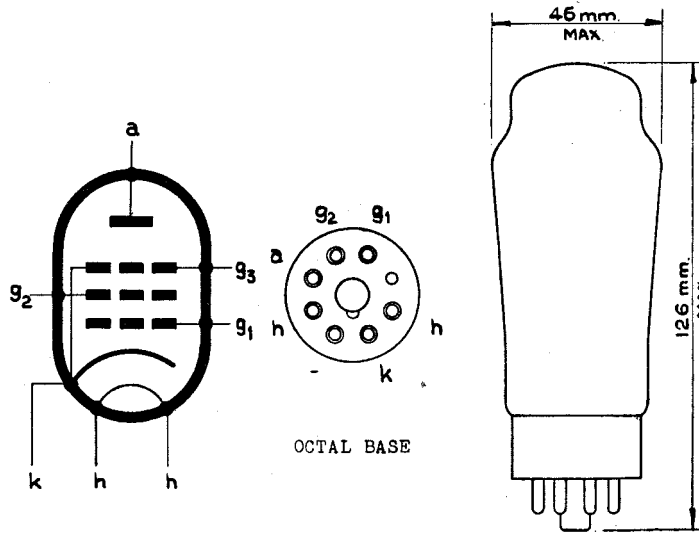
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### LIMITING VALUES

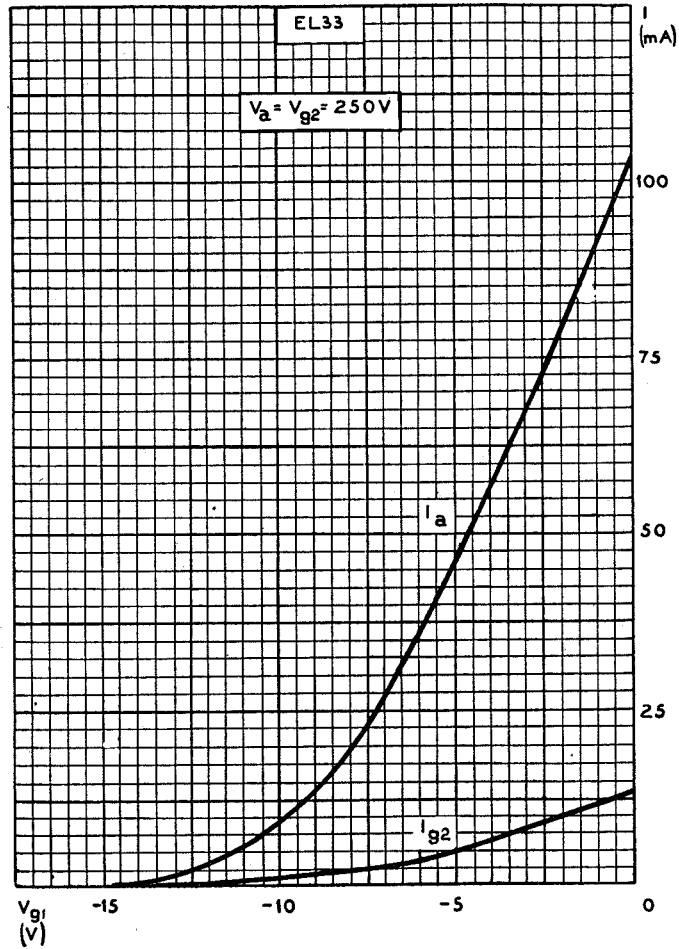
$V_{a(b)}$ max.	550	V
$V_a$ max.	250	V
$P_a$ max.	9	W
$V_{g2(b)}$ max.	550	V
$V_{g2}$ max.	275	V
$P_{g2}$ max. (zero sig.)	1.2	W
$P_{g2}$ max. (max. sig.)	2.5	W
$I_k$ max.	55	mA
$V_{g1}$ max. ( $I_{g1}=0.3\mu\text{A}$ )	-1.3	V
$R_{g1-k}$ max.	1.0	M $\Omega$
$V_{h-k}$ max.	50	V
$R_{h-k}$ max.	5	K $\Omega$



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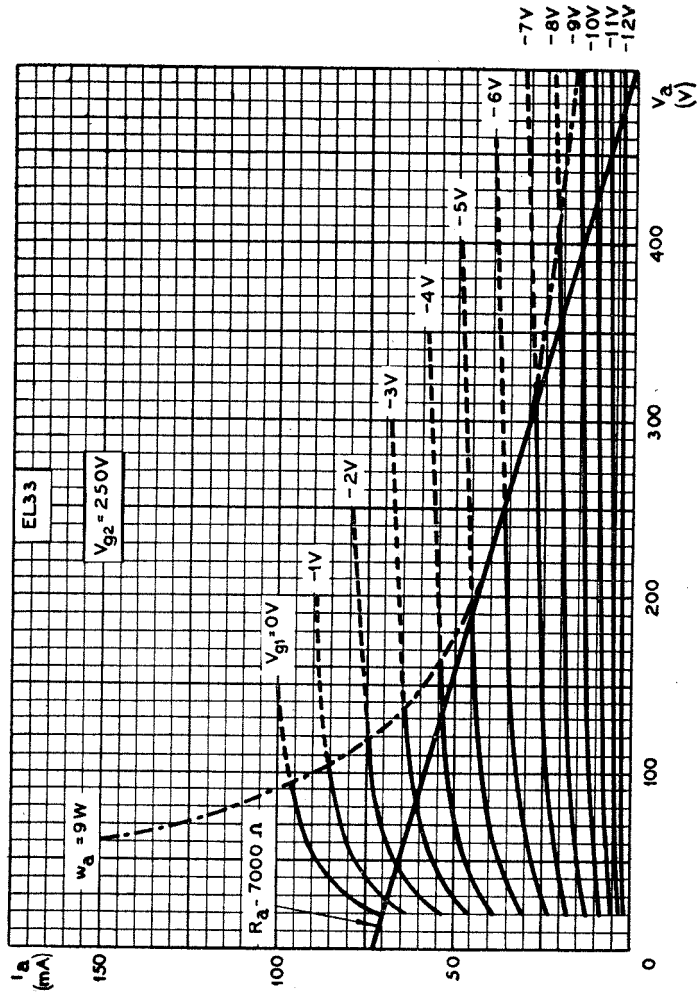


ANODE CURRENT AND SCREEN-GRID CURRENT PLOTTED  
AGAINST CONTROL-GRID VOLTAGE

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High-sensitivity output pentode for use  
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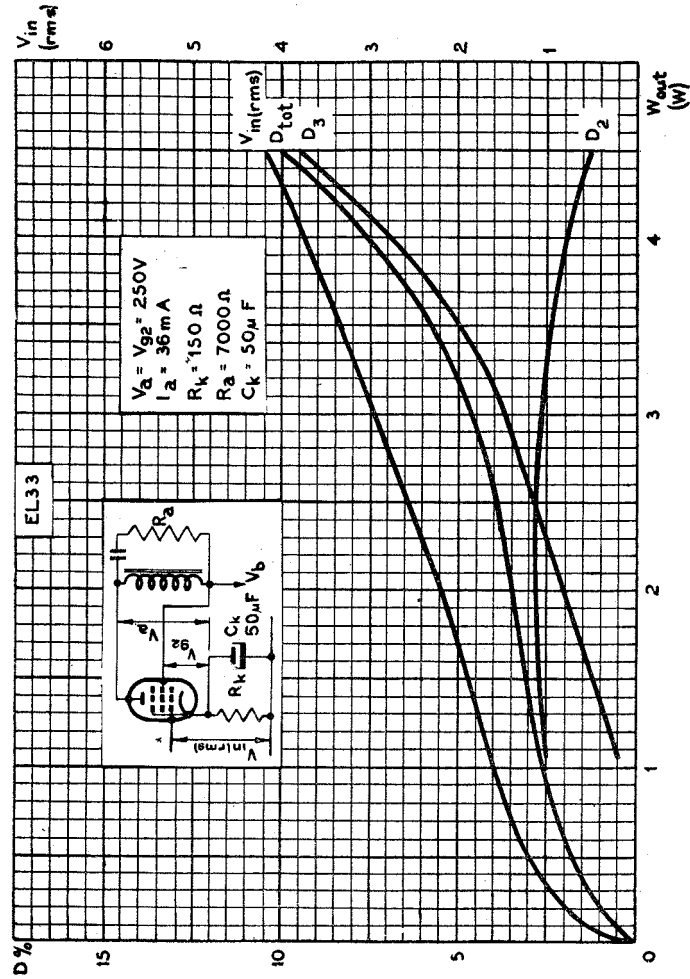
ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH  
CONTROL-GRID VOLTAGE AS PARAMETER



# OUTPUT PENTODE

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High-sensitivity output pentode for use in A.C. mains-operated equipment.

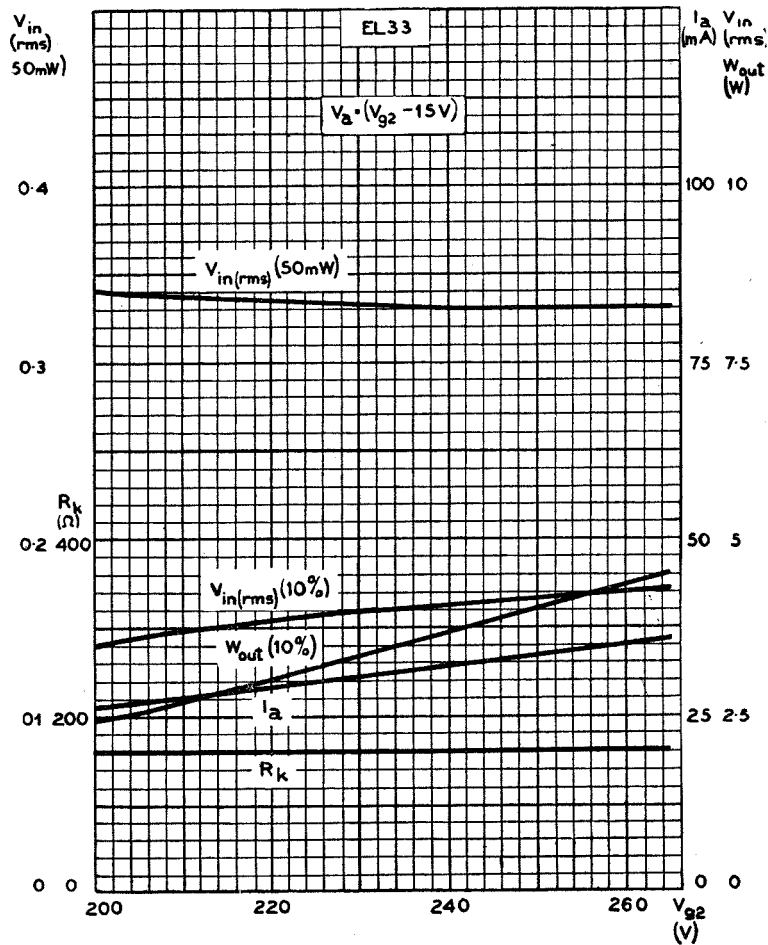


INPUT VOLTAGE AND TOTAL DISTORTION PLOTTED AGAINST OUTPUT POWER

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High-sensitivity output pentode for use  
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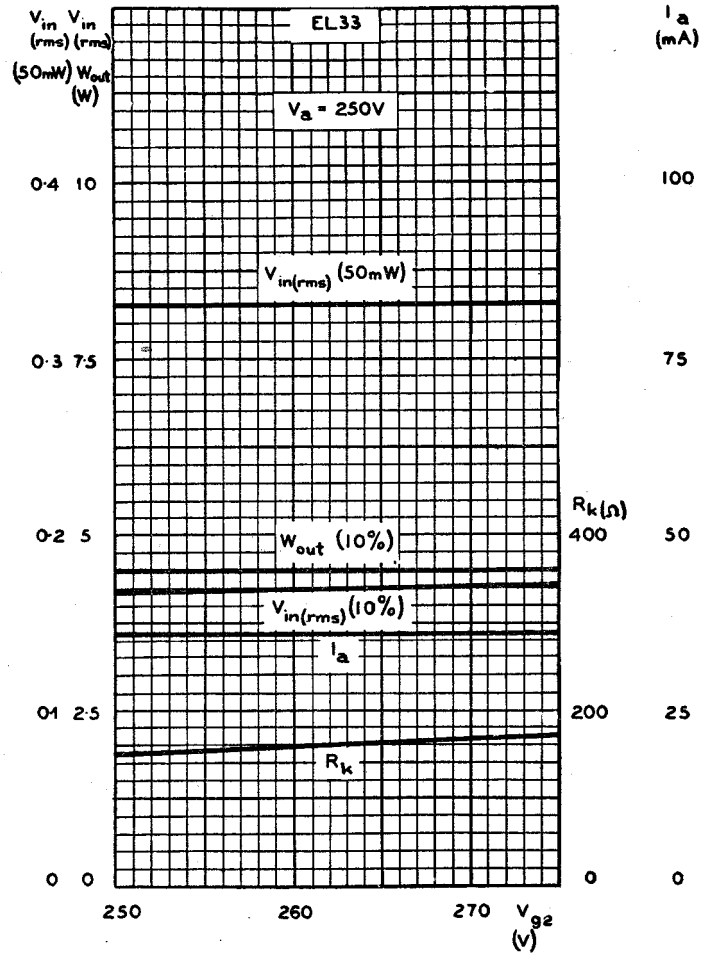


ANODE CURRENT, INPUT VOLTAGE, OUTPUT POWER AND CATHODE RESISTANCE PLOTTED AGAINST SCREEN-GRID VOLTAGE FOR APPLICATIONS IN WHICH THE SCREEN-GRID VOLTAGE EXCEEDS THE ANODE VOLTAGE BY 15V

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High-sensitivity output pentode for use in A.C. mains-operated equipment.

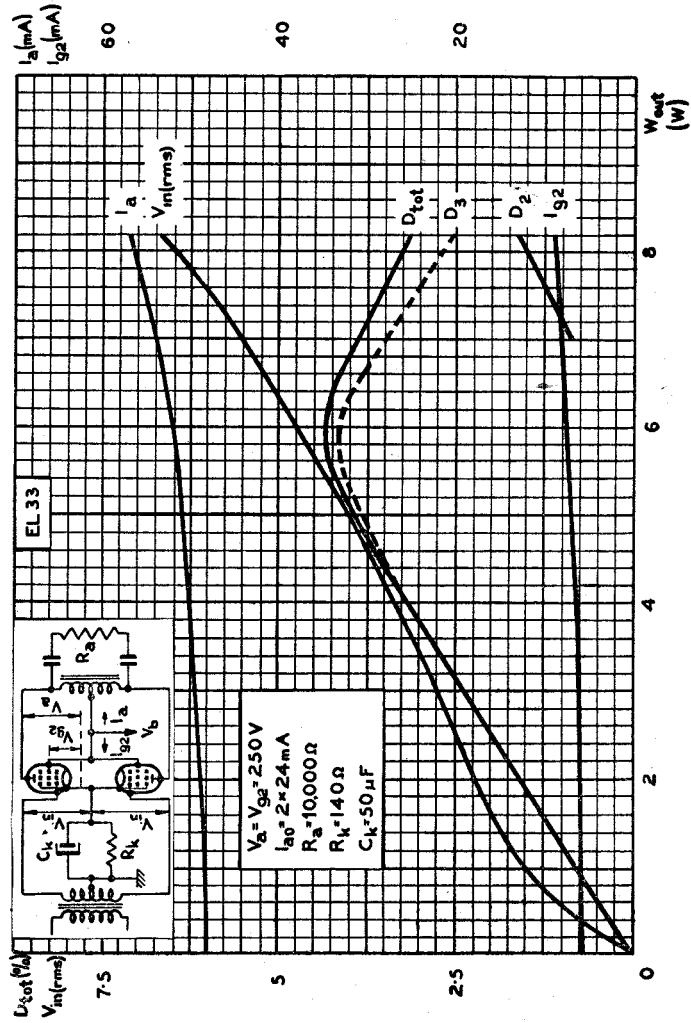


ANODE CURRENT, INPUT VOLTAGE, OUTPUT POWER AND CATHODE RESISTANCE PLOTTED AGAINST SCREEN-GRID VOLTAGE FOR  $V_a = 250V$

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High-sensitivity output pentode for use in A.C. mains-operated equipment.



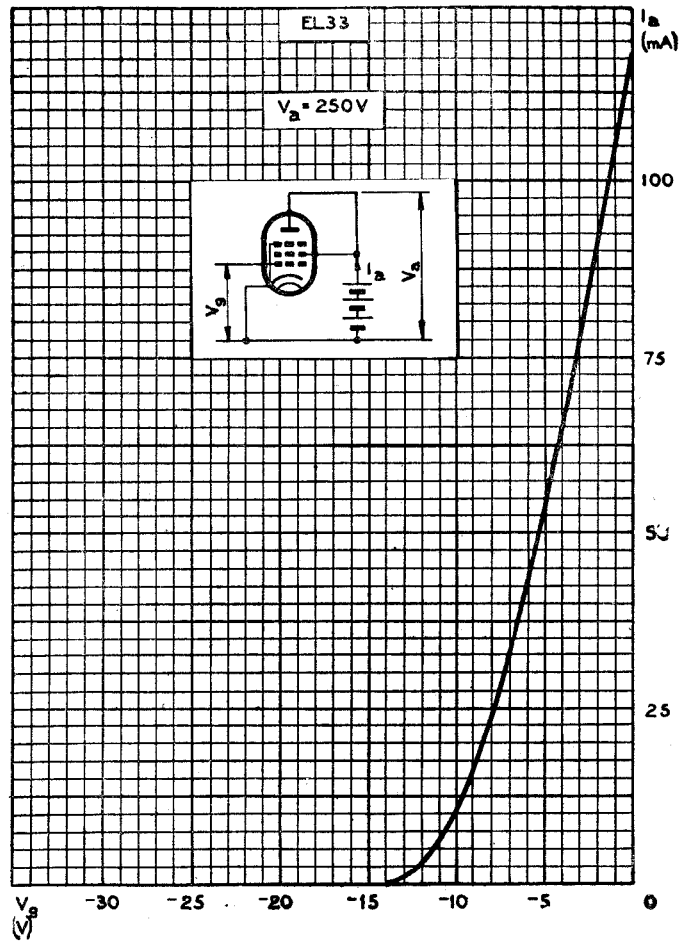
ANODE CURRENT, SCREEN-GRID CURRENT, INPUT VOLTAGE AND TOTAL DISTORTION PLOTTED AGAINST OUTPUT POWER



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High-sensitivity output pentode for use  
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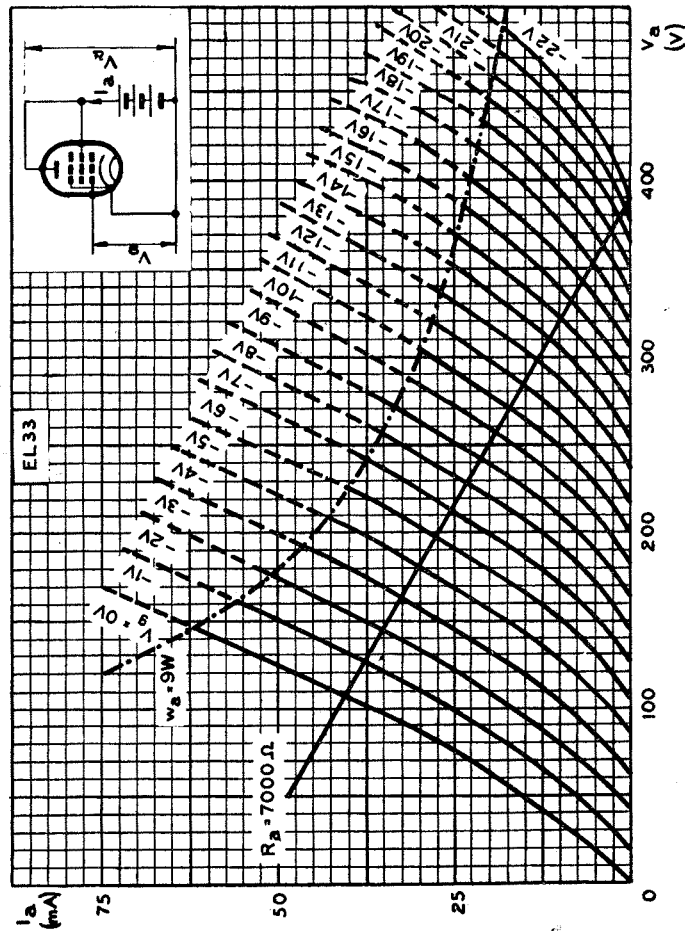


ANODE CURRENT PLOTTED AGAINST CONTROL-GRID VOLTAGE  
WHEN CONNECTED AS A TRIODE

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ANODE CURRENT PLOTTED AGAINST ANODE VOLTAGE WITH  
CONTROL-GRID VOLTAGE AS PARAMETER  
WHEN CONNECTED AS A TRIODE

