Triode *Type DET 27*

(HF AMPLIFIER AND OSCILLATOR, AND AF AMPLIFIER)

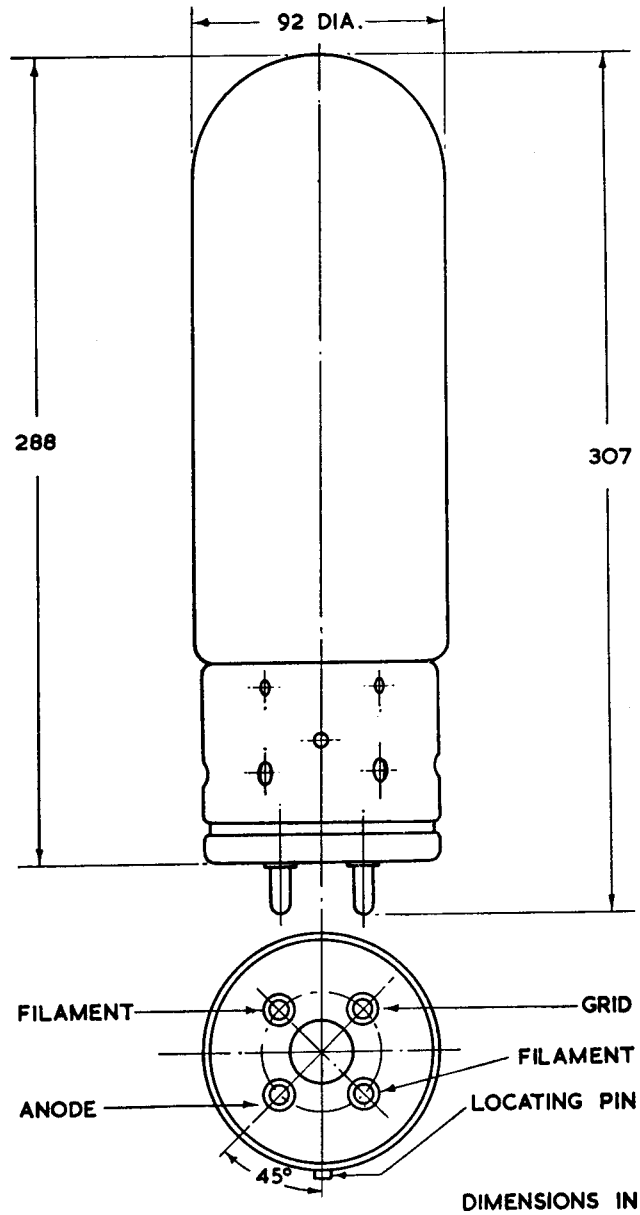
General. The DET 27 is a triode fitted with a thoriated tungsten filament. The valve is suitable for use as a power amplifier or oscillator at frequencies up to 3 Mc/s or as an audio power amplifier.

Cooling. Adequate ventilation must be provided. The temperature at the hottest part of the bulb must not exceed 250°C.

Mounting. The valve must be mounted vertically with the anode uppermost.

APPROXIMATE DATA

V_f			10	V
I_f			10	A
$V_{a(max)}$			2·7	kV
$V_{a(pk)(max)}$			6	kV
$I_{gl(rf)(max)}$			2	A
$p_{a(max)}$			250	W
$p_{gl(max)}$			20	W
$I_{k(pk)(max)}$			4	A
r_a	taken at V_a	700 V	2,450	Ω
μ	taken at V_a	700 V	22	
g_m	taken at I_a	150 V	9	mA/V
g_m (taken at $\frac{1}{2}$ $I_{k(pk)}$)			21	mA/V
$C_{a\text{-}f}$			7·5	pF
$C_{a\text{-}gl}$			24	pF
$C_{gl\text{-}f}$			14	pF



WEIGHT 23 oz. (0·65 kg.)

DIMENSIONS IN MM. MAXIMUM.

MARCONI'S WIRELESS TELEGRAPH COMPANY LIMITED

Head Office: Marconi House, Chelmsford, England. Telephone: Chelmsford 3221. Telegraphic Address: Expanse, Chelmsford

(1) RF POWER AMPLIFIER AND OSCILLATOR. CLASS C TELEGRAPHY

(Unmodulated, one valve, key down conditions)

Maximum Ratings

V_a		2	kV
V_{g1}		−300	V
I_a		500	mA
p_a		250	W
p_{g1}		20	W

Typical Operation

V_a		2	kV
V_{g1}		−190	V
$v_{g1(pk)}$		315	V
I_a		450	mA
I_{g1}	(a)	40	mA
Z_a		2,100	Ω
P_{dr}	(a)	15	W
p_a		250	W
P_{out}		650	W
P_{load}	(b)	550	W

(2) RF POWER AMPLIFIER. CLASS C.

(Anode modulated, carrier conditions, one valve, 100% modulation.)

Maximum Ratings

V_a		1·6	kV
V_{g1}		−300	V
I_a		400	mA
p_a	(c)	165	W
p_{g1}		20	W

Typical Operation

V_a		1·6	kV
V_{g1}		−150	V
$v_{g1(pk)}$		260	V
I_a		325	mA
I_{g1}	(a)	30	mA
Z_a		2,400	Ω
P_{dr}	(a)	9	W
p_a		165	W
P_{out}		355	W
P_{load}	(b)	300	W

(3) AF AMPLIFIER. CLASS AB1

(Conditions per pair of valves unless otherwise stated.)

Note. The power supply impedance should not exceed 400 Ω.

$V_{a(zero\text{-}sig)}$	2·2	2·7	kV
$V_{a(max\text{-}sig)}$	2	2·5	kV
V_{g1}	−80	−115	V
$V_{in(pk)(g_1'\text{-}g_1'')}$	180	230	V
$I_{a\ (zero\text{-}sig)}$	100	120	mA
$I_{a\ (max\text{-}sig)}$	300	360	mA
$p_{a\ (zero\text{-}sig)}$ per valve	110	160	W
$p_{a\ (max\text{-}sig)}$ per valve	190	250	W
R_L	10	12	kΩ
P_{out}	250	400(d)	W
D	< 5	5	%

(4) AF AMPLIFIER. CLASS AB2

(Conditions per pair of valves unless otherwise stated.)

Note. The power supply impedance should not exceed 400 Ω.

$V_{a(zero\text{-}sig)}$	2·2	2·7	kV
$V_{a(max\text{-}sig)}$	2	2·5	kV
V_{g1}	−80	−115	V
$V_{in(pk)(g_1'\text{-}g_1'')}$	350	400	V
$I_{a(zero\text{-}sig)}$	100	120	mA
$I_{a(max\text{-}sig)}$	480	530	mA
$I_{g1(max\text{-}sig)}$	30	30	mA
$p_{a(zero\text{-}sig)}$ per valve	110	160	W
$p_{a(max\text{-}sig)}$ per valve (c)	160	210	W
R_L	10	12	kΩ
P_{out}	650	900(d)	W
D	< 6	6	%

NOTES

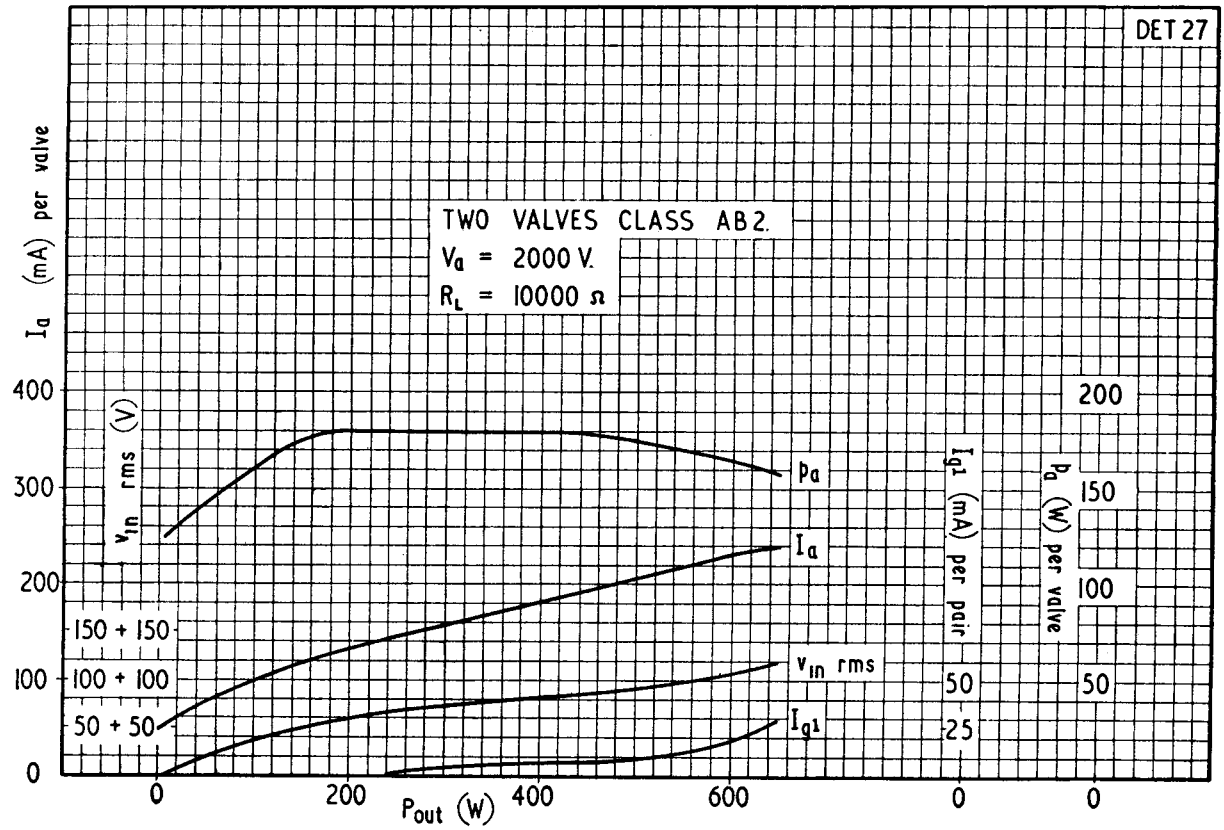
(*a*) Subject to wide variation.

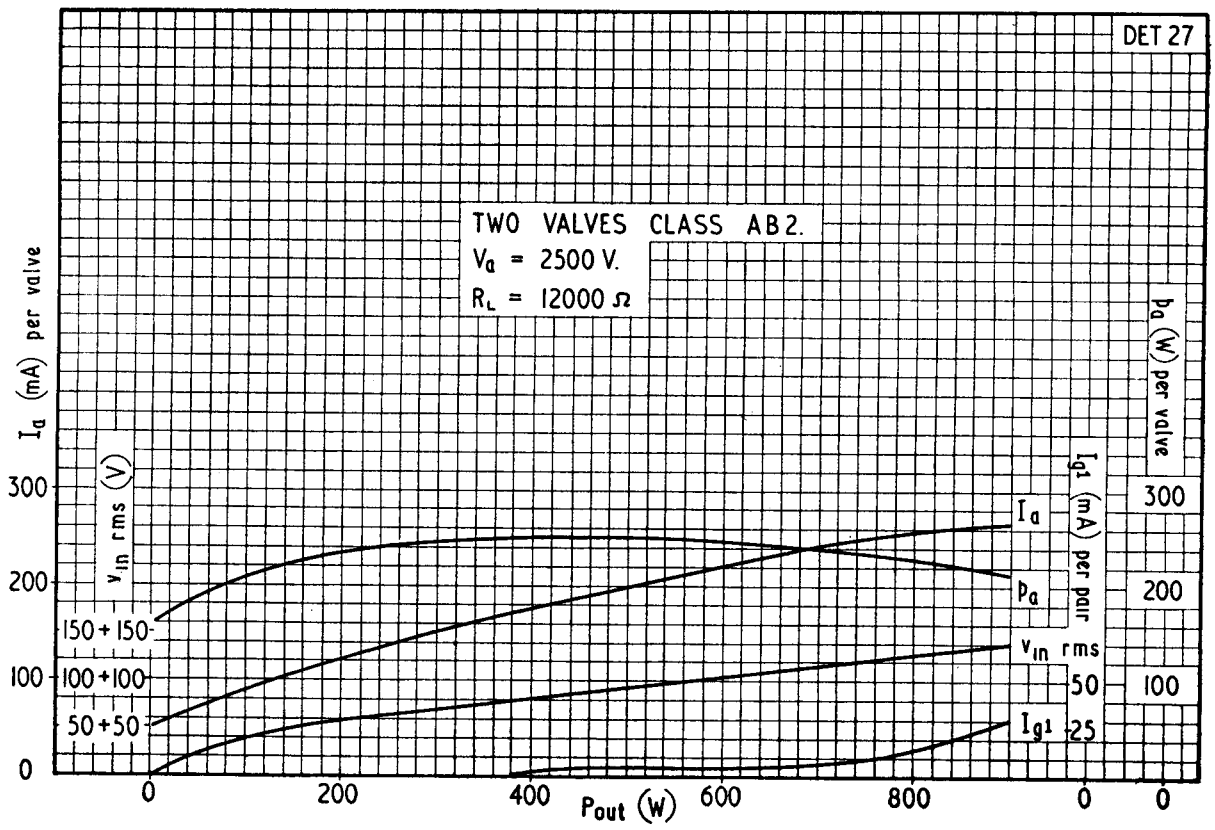
(*b*) Assuming a circuit transfer efficiency of 85%.

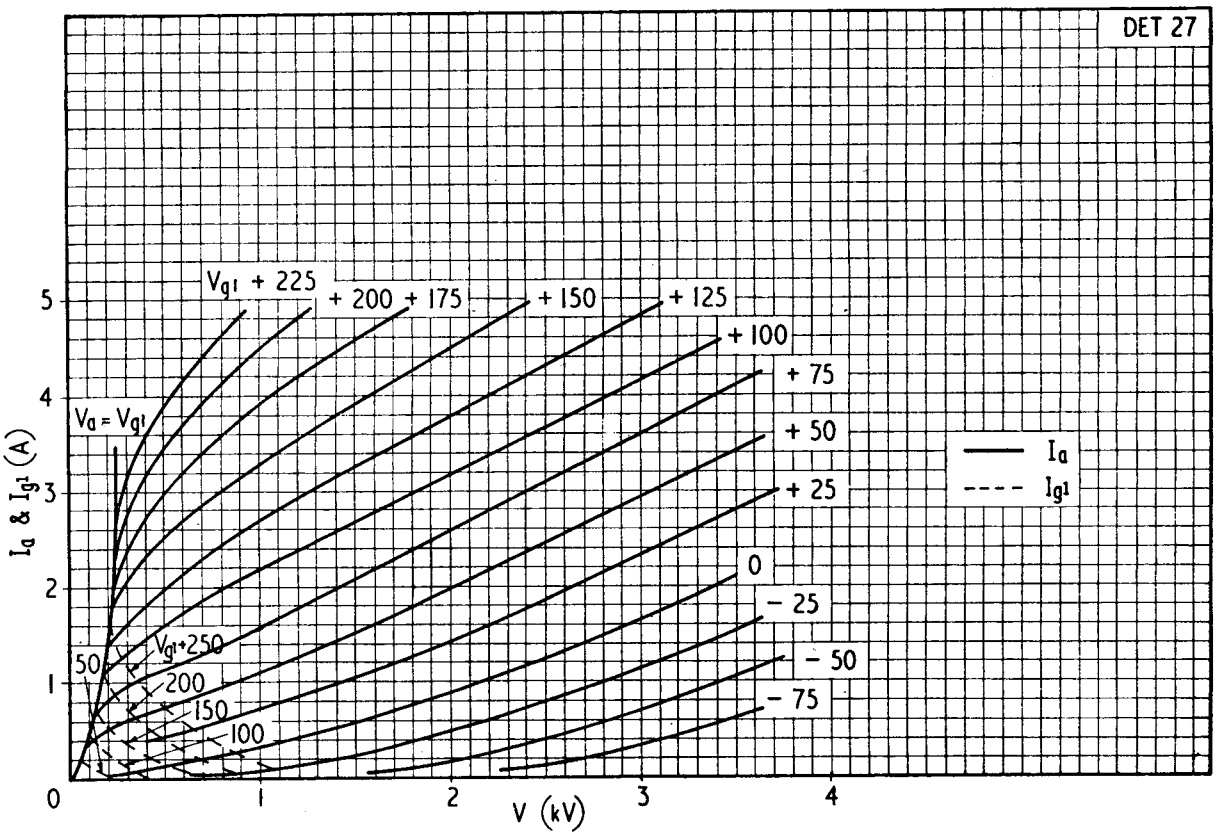
(*c*) If the mean depth of modulation is low, higher values of p_a may be permissible. The value of p_a under modulated conditions, must never exceed 250 W.

(*d*) This valve may vary by ±6%.

(*e*) $p_{a(max)}$, under class AB2 push-pull conditions, occurs at approximately half full output.


DET 27
TWO VALVES CLASS AB2.
V_a = 2000 V.
R_L = 10000 Ω
I_a (mA) per valve
V_{in} rms (V)
150 + 150
100 + 100
50 + 50
p_a
I_a
V_{in} rms
I_{g1}
I_{g1} (mA) per pair
p_a (W) per valve
P_{out} (W)
0
200
400
600
800
25
50
100
150


DET 27
TWO VALVES CLASS AB2.
V_a = 2500 V.
R_L = 12000 Ω
I_a (mA) per valve
V_{in} rms (V)
150 + 150
100 + 100
50 + 50
I_a
p_a
V_{in} rms
I_{g1}
I_{g1} (mA) per pair
p_a (W) per valve
P_{out} (W)
0
200
400
600
800
25
50
100
200
300



PRINTED IN ENGLAND