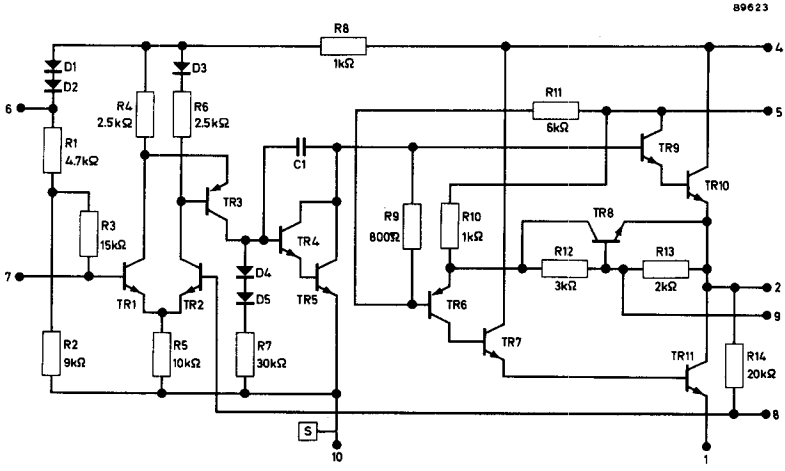
A.F. AMPLIFIER

TAA300

The TAA300 is a monolithic integrated circuit for use as a complete A.F. amplifier. With a supply voltage of 9V, outputs of up to 1W are obtainable into a load impedance of 8Ω. A voltage range of 4.5 to 9V coupled with very low crossover distortion and low current drain makes this circuit ideal for battery operation.

QUICK REFERENCE DATA		
Supply voltage (nom.)	9.0	V
Output power (typ.)	1.0	W
Input signal for P_{out} = 1.0W (typ.)	8.5	mV
Input impedance (typ.)	15	kΩ
Load impedance	8.0	Ω
Total current drain (quiescent) (typ.)	8.0	mA

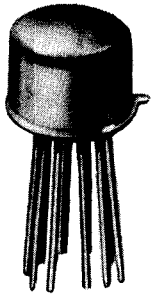
EQUIVALENT CIRCUIT



OUTLINE

Conforms to J.E.D.E.C. TO-74

For details see page 5



RATINGS

Limiting values of operation according to the absolute maximum system.

Electrical

Voltages

Pin	to	Pin		
2		1	10.5	V
4		1		
4		2		
2		9	6.0	V
7		8		
8		7		

Currents

Pin		
1	-600	mA
2	±600	mA
4	+600	mA

Power

P_{tot} (see page 6)	800	mW

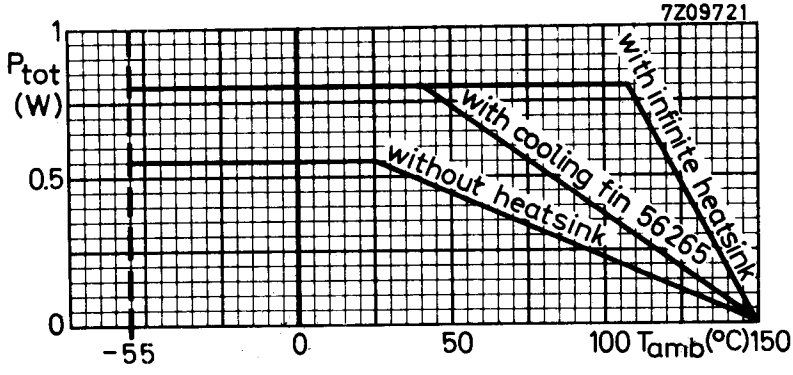
Temperature

T_{stg} min.	-55	°C
T_{stg} max.	150	°C
T_{amb} min. (operating)	-55	°C
T_{amb} max. (operating)	150	°C

ACCESSORIES

Cooling fin type - 56265 (see page 5)

Use mounted on blackened 16s.w.g. aluminium plate 20cm^2.

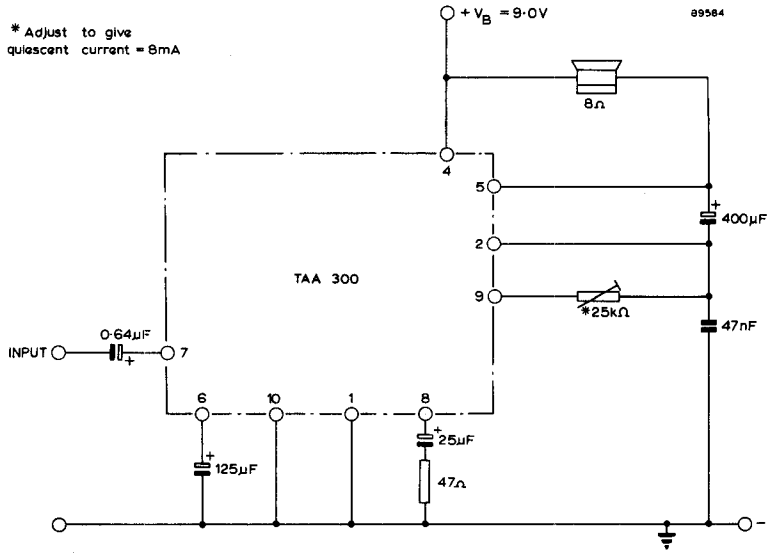


ELECTRICAL CHARACTERISTICS (T_{amb} = 25°C unless otherwise stated).

Measured in test circuit Fig. 2

Supply voltage = 9.0V		Min.	Typ.	Max.	
P_{out}	Output power d_{tot} = 10%	-	1.0	-	W
B	Bandwidth (-3dB)	-	25	-	kHz
	Total current drain (no signal and excluding output transistors)	-	4.0	-	mA
	Total d.c. drain at P_{out} = 1.0W	-	180	-	mA
d_{tot}	Total distortion P_{out} = 0.5W	-	0.7	3	%
V_{in}	Input signal P_{out} = 1.0W	-	8.5	-	mV
	= 0.5W	-	-	8.5	mV
Z_{in}	Input impedance	10	15	-	kΩ
η	Efficiency	-	60	-	%
S/N	Signal-to-noise ratio related to P_{out} = 1.0W				
	R_{source} = 2.0kΩ, B = 30Hz to 15kHz	70	75	-	dB
P_N	Noise output power input short-circuited, B = 30Hz to 15Hz	-	10	20	nW
	Preset resistor for I_{tot} = 8.0mA (see test circuit page 4)	4.0	-	25	kΩ

TEST CIRCUIT



To present high-frequency instability, the following precautions must be taken.

a. Keep the lead inductance from the positive voltage supply to pin 4 to a minimum.

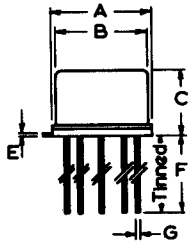
b. Because of the high internal resistance of batteries (especially at end of life) a large capacitance should be connected between pin 4 and ground.

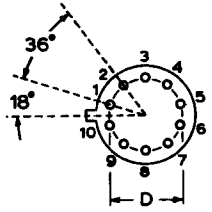
c. A capacitor of at least 47nF should be connected between pin 2 and ground to prevent instability of the lower Darlington output transistor (see also test circuit).

d. Avoid coupling between output and input leads (especially those carrying signals from a high-impedance source). This coupling can be reduced by using short leads, shielded input cable or by limiting the upper frequency to 15kHz by means of a capacitor of 560pF between pin 7 and ground.

OUTLINE AND DIMENSIONS

Conforms to B.S. 3934 SO-44B/SB10-1
J.E.D.E.C. TO-74





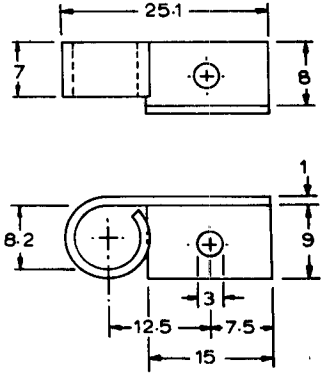
	Millimetres		
	Min.	Nom.	Max.
A	8.64	8.90	9.40
B	7.75	8.15	8.50
C	-	-	5.33
D	-	5.08	-
E	-	0.40	-
F	12.7	-	21
G	-	0.43	-

Pin No. 10 connected to envelope

10 pins on 360° spaced equally

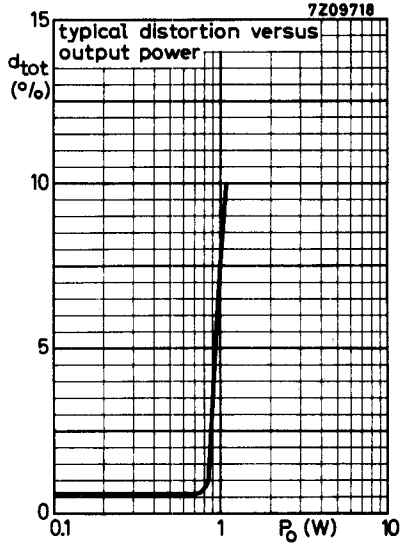
ACCESSORY - Part No. 56265

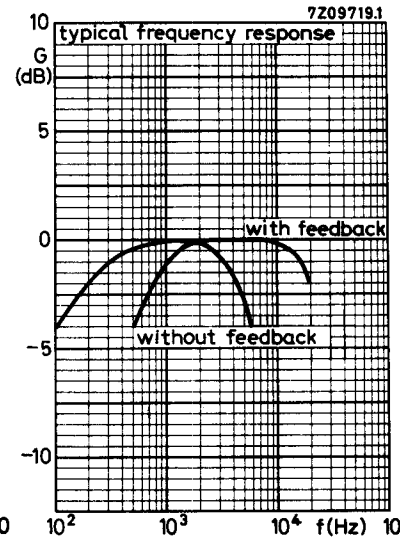
B7485

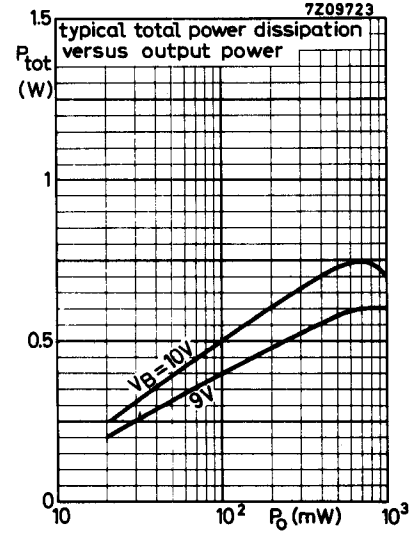


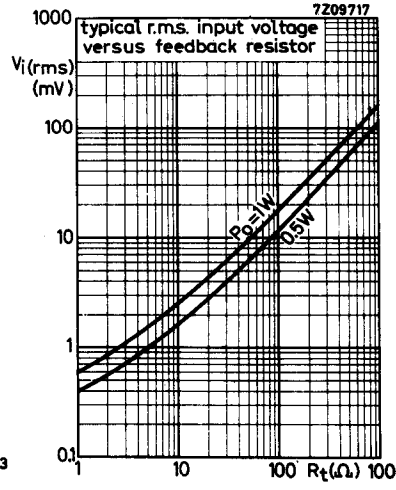
Material
blackened aluminium

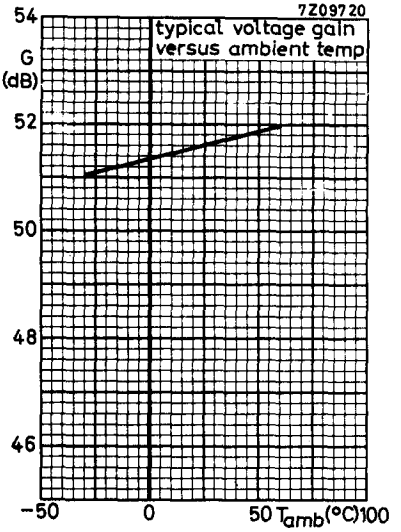
Dimensions in mm.

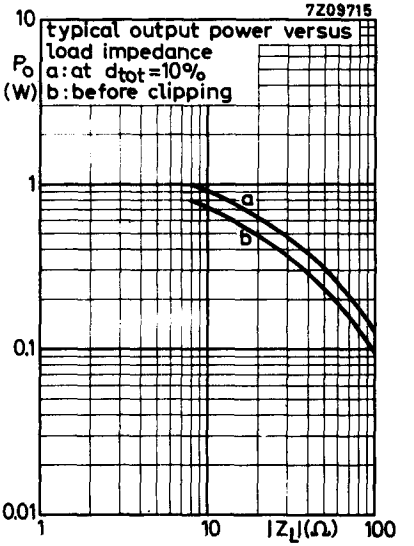

7Z09718
typical distortion versus output power
d_{tot} (%)
15
10
5
0
0.1
1
P_o (W)
10

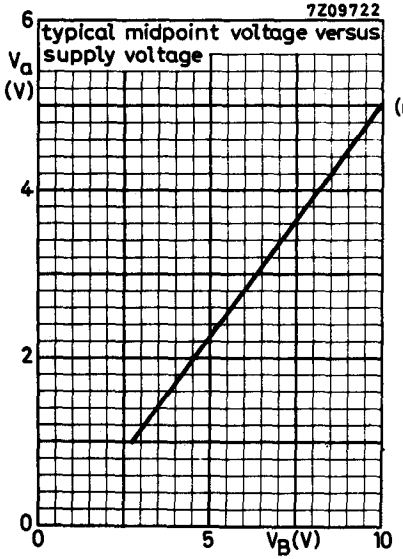

7Z09719.1
typical frequency response
G (dB)
10
5
0
−5
−10
with feedback
without feedback
10^2
10^3
10^4
f(Hz)
10^5

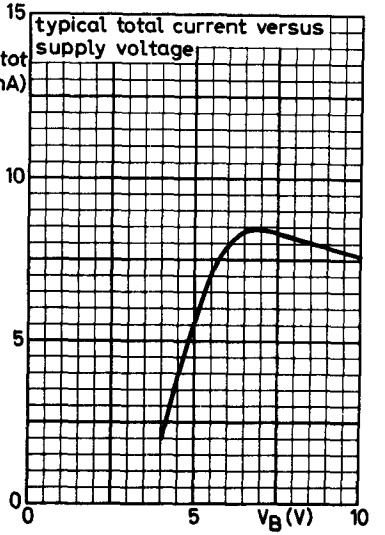

7Z09723
typical total power dissipation versus output power
P_{tot} (W)
1.5
1
0.5
0
V_B=10V
9V
10
10^2
P_o (mW)
10^3


7Z09717
typical r.m.s. input voltage versus feedback resistor
V_i(rms) (mV)
1000
100
10
1
0.1
P_o=1W
0.5W
1
10
100
R_t(Ω)
1000


7Z09720
typical voltage gain versus ambient temp
G (dB)
54
52
50
48
46
−50
0
50
T_{amb}(°C)
100


7Z09715
typical output power versus load impedance
a: at d_{tot}=10%
b: before clipping
P_o (W)
10
1
0.1
0.01
a
b
1
10
$|Z_L|$(Ω)
100


7Z09722
typical midpoint voltage versus supply voltage
V_a (V)
6
4
2
0
0
5
V_B(V)
10


typical total current versus supply voltage
I_{tot} (mA)
15
10
5
0
0
5
V_B(V)
10