

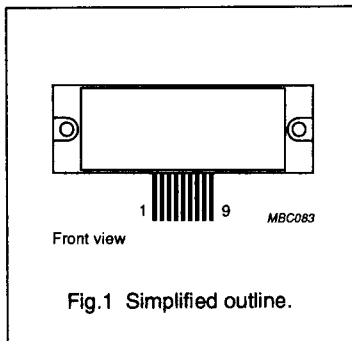
Hybrid integrated circuit hi-fi audio power amplifiers

OM961/OM991

DESCRIPTION

The OM961 and OM991 are thin film hybrid integrated circuit hi-fi audio amplifiers for sinusoidal output power up to 60 W and 120 W respectively. The modules offer maximum design possibilities regarding amplification, ripple rejection, stability for complex loads etc. The amplifiers have built in short-circuit protection (SOAR protected) and are specially designed for low transient and harmonic distortion. All built in resistors are dynamically adjusted for optimum performance over a wide temperature range.

PIN CONFIGURATION



PINNING

PIN	DESCRIPTION
1	supply (-)
2	ground
3	output
4	output
5	driver supply (-)
6	non inverting input
7	inverting input
8	boot strap
9	supply (+)

QUICK REFERENCE DATA

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	UNIT
P_o	sinusoidal output power OM961	$d_{tot} < 0.2\%$; $f = 20 \text{ Hz to } 20 \text{ kHz}$; $R_L = 4 \ \Omega$; $V_S = \pm 31 \text{ V}$	60	—	W
		$d_{tot} < 0.2\%$; $f = 20 \text{ Hz to } 20 \text{ kHz}$; $R_L = 8 \ \Omega$; $V_S = \pm 35 \text{ V}$	60	—	W
	sinusoidal output power OM991	$d_{tot} < 0.2\%$; $f = 20 \text{ Hz to } 20 \text{ kHz}$; $R_L = 4 \ \Omega$; $V_S = \pm 45 \text{ V}$	60	—	W
		$d_{tot} < 0.2\%$; $f = 20 \text{ Hz to } 20 \text{ kHz}$; $R_L = 8 \ \Omega$; $V_S = \pm 50 \text{ V}$	60	—	W
d_{tot}	total harmonic distortion	$P_o = 1 \text{ W}$; $f = 1 \text{ kHz}$	—	0.02	%

LIMITING VALUES

In accordance with the Absolute Maximum System (IEC 134).

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_S	symmetrical supply voltage			
	OM961	—	± 45	V
	OM991	—	± 50	V
T_{stg}	storage temperature range	-30	100	$^{\circ}\text{C}$
T_{mb}	mounting base operating temperature range	—	95	$^{\circ}\text{C}$

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OM961/OM991

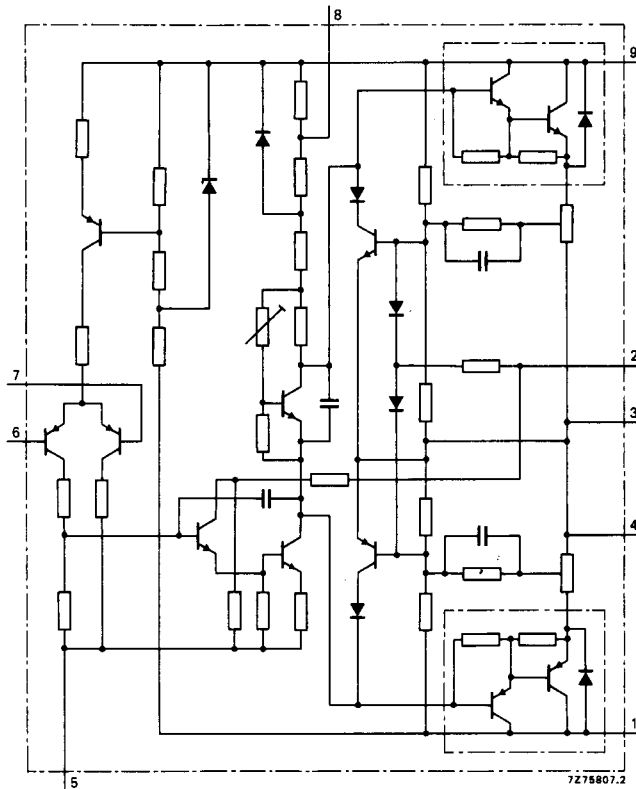


Fig.2 Circuit diagram.

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OM961/OM991

CHARACTERISTICS

Measured in circuit shown in Fig.3; $T_{mb} = 25\text{ }^{\circ}\text{C}$.

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT	
V_s	symmetrical supply voltage						
	OM961		± 31	–	± 35	V	
	OM991		± 40	–	± 45	V	
I_{tot}	total supply current	zero signal	–	100	–	mA	
P_o	sinusoidal output power OM961	$d_{tot} < 0.2\%$; $f = 20\text{ Hz to } 20\text{ kHz}$; $R_L = 4\ \Omega$; note 1 note 2	60	–	–	W	
		$d_{tot} < 0.2\%$; $f = 20\text{ Hz to } 20\text{ kHz}$; $R_L = 8\ \Omega$ note 2	–	–	60	W	
	sinusoidal output power OM991	$d_{tot} < 0.2\%$; $f = 20\text{ Hz to } 20\text{ kHz}$; $R_L = 4\ \Omega$	120	–	–	W	
		$d_{tot} < 0.2\%$; $f = 20\text{ Hz to } 20\text{ kHz}$; $R_L = 8\ \Omega$	–	–	90	W	
	clipping level	$d_{tot} = 0.7\%$; $f = 1\text{ kHz}$; $R_L = 4\ \Omega$					
		OM961	–	75	–	W	
	OM991	100	–	135	W		
d_{tot}	total harmonic distortion	$P_o = 1\text{ W}$; $f = 1\text{ kHz}$	–	0.02	–	%	
d_{im}	intermodulation distortion	$f_1 = 250\text{ Hz}$; $f_2 = 8\text{ kHz}$ amplitude ratio $V_{f1}/V_{f2} = 4/1$ $P_o = 1\text{ W}$	–	0.05	–	%	
		$P_o = \text{rated value}$	–	0.1	–	%	
V_i	input sensitivity	$P_o = \text{rated value}$					
		OM961	1	–	1.4	V	
	OM991	1.4	–	1.7	V		
R_i	input impedance	determined by input circuitry	–	10	–	$k\Omega$	
G_o	open loop gain		–	80	–	dB	

Notes

1. Federal trade commission U.S.A.
2. P_o is stated as rated value.

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OM961/OM991

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
G_c	closed loop gain		–	24	–	dB
f	frequency response	$P_o = \text{rated value} -10 \text{ dB} (-1 \text{ dB})$	30	–	40000	Hz
f_p	power bandwidth	–3 dB	20	–	40000	Hz
S/N	signal to noise ratio	wide band; $P_o = 50 \text{ mW};$ unweighted	–	75	–	dB
		A-curve; $P_o = 50 \text{ mW};$ weighted	–	87	–	dB
V_{off}	DC output offset voltage		–	± 20	–	mV
RR	ripple rejection		65	–	–	dB
Z_o	output impedance		–	0.05	–	Ω

THERMAL CHARACTERISTICS

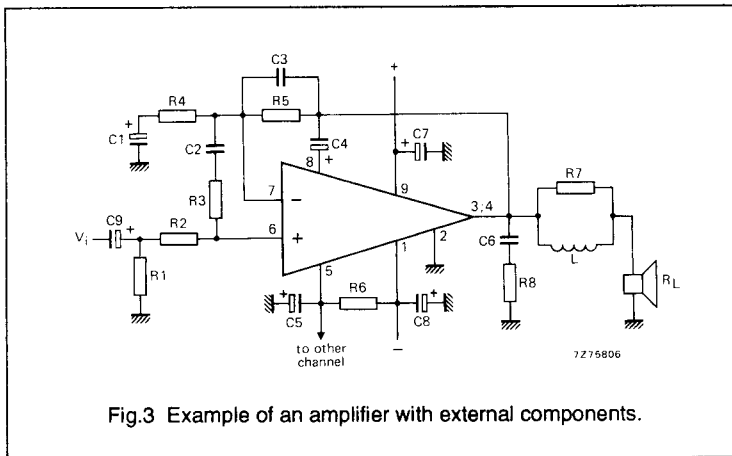
SYMBOL	PARAMETER	CONDITIONS	NOM.	UNIT
$R_{th \text{ h-a}}$	from heatsink to ambient	heatsink length a = 50 mm (note 1)	1.0	K/W
$R_{th \text{ h-a}}$	from heatsink to ambient	heatsink length a = 75 mm (note 1)	0.7	K/W
$R_{th \text{ h-a}}$	from heatsink to ambient	heatsink length a = 100 mm (note 1)	0.6	K/W
$R_{th \text{ h-a}}$	from heatsink to ambient	heatsink length a = 150 mm (note 1)	0.4	K/W
$R_{th \text{ mb-h}}$	from mounting base to heatsink	using heatsink compound	0.2	K/W

Note

1. See Fig.5

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OM961/OM991



List of components

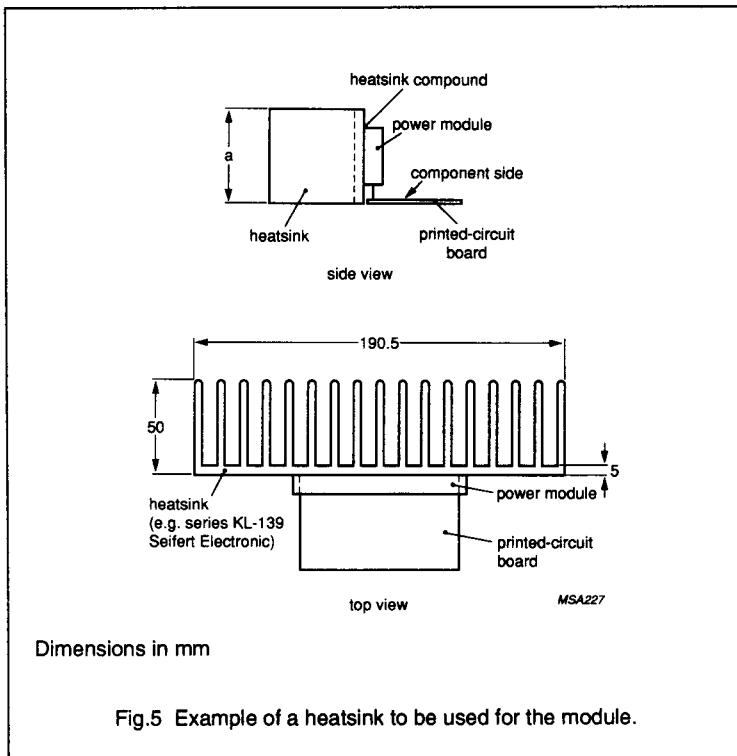
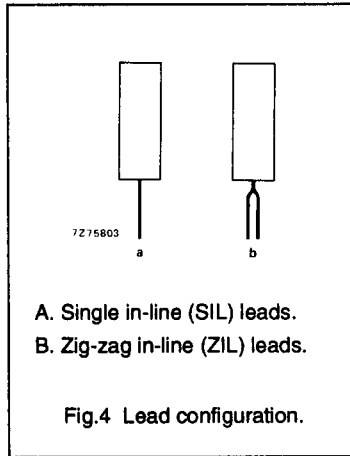
COMPONENT	DESCRIPTION	VALUE
R1	0.25 W resistor	10 k Ω
R2	0.25 W resistor	4.7 k Ω
R3	0.25 W resistor	300 Ω
R4	0.25 W resistor	680 Ω
R5	0.25 W resistor	10 k Ω
R6	0.5 W resistor	22 Ω
R7	0.25 W resistor	2.2 Ω
R8	0.5 W resistor	10 Ω
C1	10 V capacitor	47 μ F
C2	capacitor (10%)	270 pF
C3	capacitor (10%)	120 pF
C4	100 V capacitor	100 μ F
C5	63 V capacitor	470 μ F
C6	100 V capacitor	100 nF
C7	63 V capacitor	10 μ F
C8	63 V capacitor	10 μ F
C9	63 V capacitor	1 μ F
L	inductor	4 μ H
RL	load resistance	4 or 8 Ω

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OM961/OM991

MOUNTING RECOMMENDATIONS

The modules are delivered with SIL (single in-line) leads but may also be bent to ZIL (zig-zag in-line) configuration.



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OM961/OM991

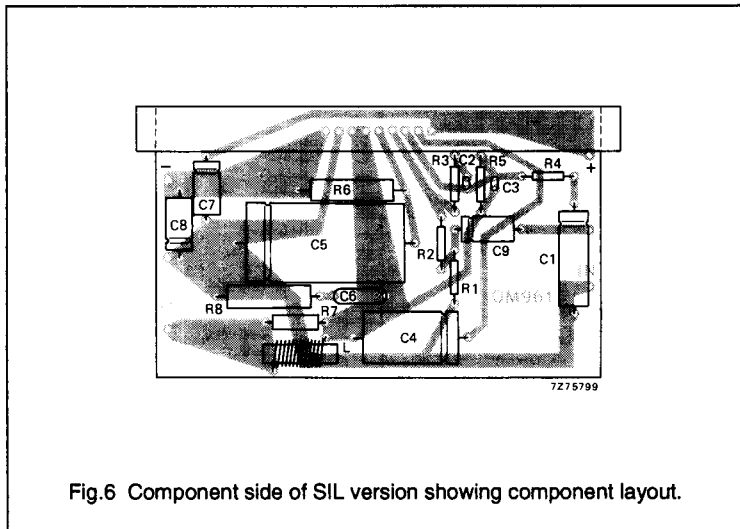


Fig.6 Component side of SIL version showing component layout.

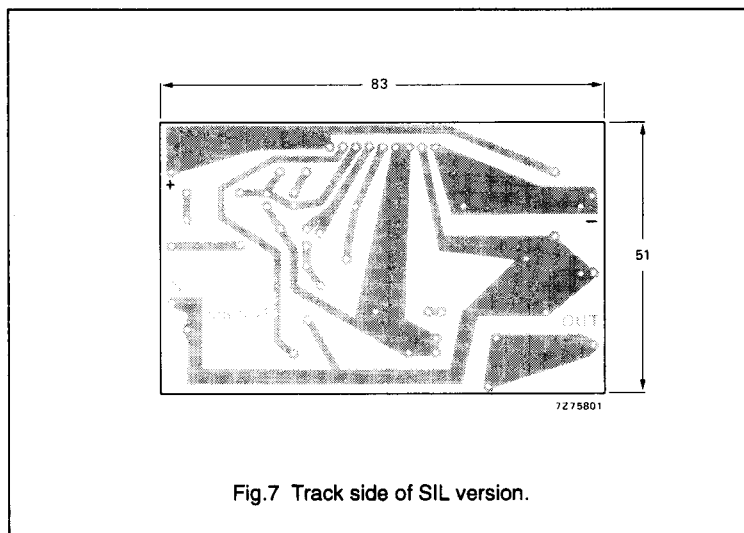
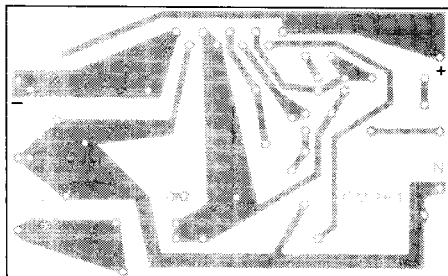


Fig.7 Track side of SIL version.

Hybrid integrated circuit hi-fi audio power amplifiers

OM961/OM991



For component layout see Fig.6.

Fig.8 Component side of ZIL version.

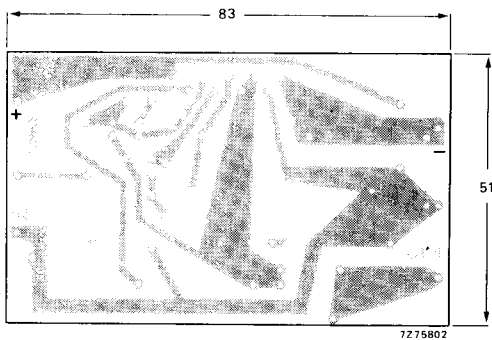


Fig.9 Track side of ZIL version.

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OM961/OM991

PACKAGE OUTLINE

