U 413 B

Monolithic Integrated Circuit

Application

Audio–Amplifier for portable radios, cassette recorders and general purposes.

Features

- Large supply voltage range V_S = 3 ... 16 V
- Low cross–over distortion
- Low harmonic distortion
- Adjustable voltage gain G_v = 34 ... 54 dB
- Audio output power P_o = 1.5 W
- Connection possibility for an external capacitor to suppress hum voltage
- Bootstrap circuit

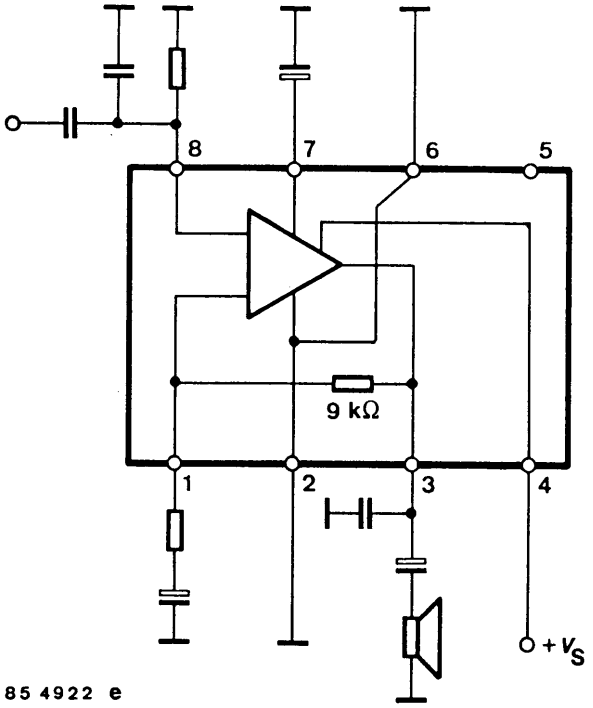


Figure l Block diagram and pin connections

Absolute Maximum Ratings

Reference point Pin 2, Pin 6

Parameters		Symbol	Value	Unit
Supply voltage	Pin 4	V_S	16	V
Peak output current	Pin 3	I_{OM}	850	mA
Power dissipation T_{amb} = 50 °C		P_{tot}	1	W
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	–25 ... +150	°C

Preliminary Information

Thermal Resistance

Parameters	Symbol	Maximum	Unit
Junction ambient	R_{thJA}	100	k/W

Electrical Characteristics

V_S = 9 V, reference point: Pin 2, Pin 6, G_v = 40 dB, f = 1 kHz, R_L = 8 Ω, d = 10 %, T_{amb} = 25 °C, unless otherwise specified

Parameters	Test Conditions / Pin	Symbol	Min	Typ	Max	Unit
Supply voltage range	Pin 4	V_S	3		16	V
Quiescent output voltage	Pin 3	V_{OB}	3.9		4.7	V
Quiescent drain current						
V_S = 3 V	Figure 2 Pin 4	I_{SB}	2	3	6	mA
V_S = 9 V		I_{SB}	3.3	7.5	12	mA
V_S = 16 V		I_{SB}	3.3	7	10	mA
Output power		P_o	0.9	1		W
Supply voltage rejection ratio						
V_{hum} = 0.35 V, C_1 = 47 µF, f_{hum} = 100 Hz		SVR		30		dB
Input resistance	Pin 8	R_i	800			kΩ
Band width (–3 dB)	Figure 2	B		100 ... 28000		Hz
Distortion	Figure 2					
P_o = 50 mW		d		0.4	1	%
Voltage gain, closed loop						
R_1 = 91 Ω		G_v	37	40	43	dB
Output noise voltage						
R_G = 0, B = 22 ... 22000 Hz	Pin 3	V_{no}		250	600	µV

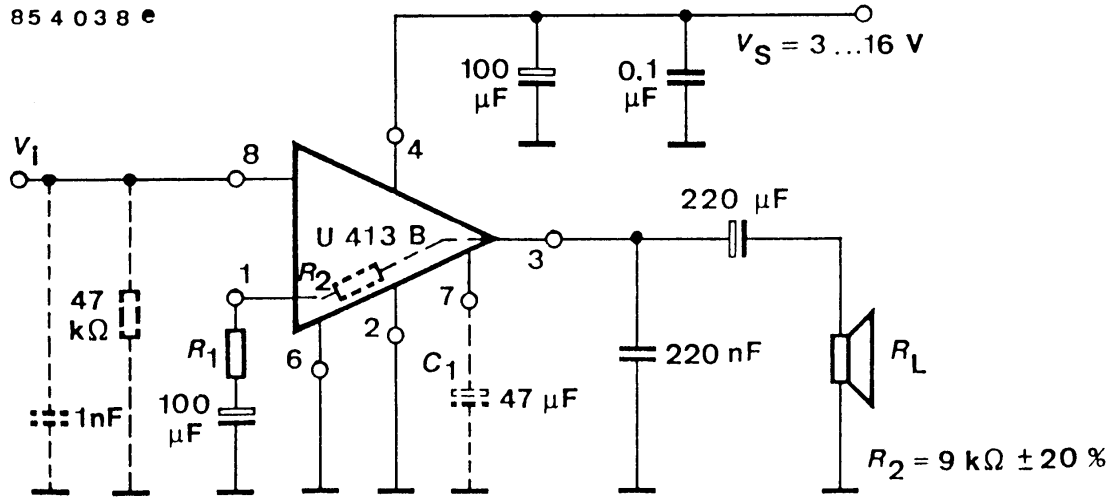
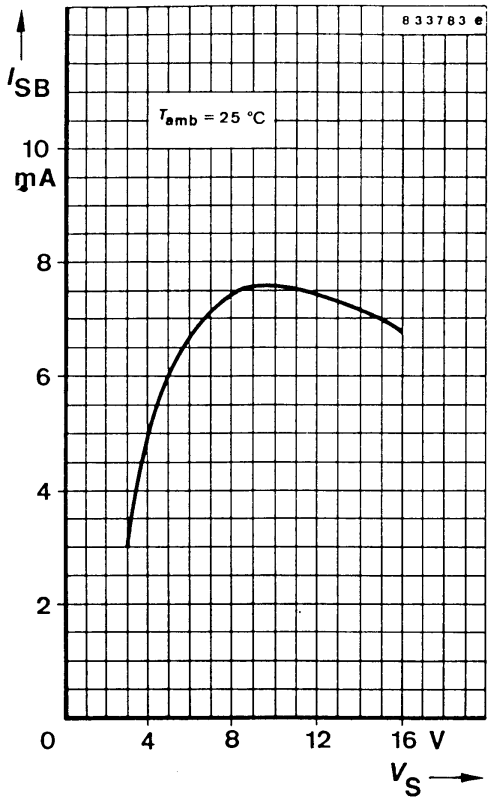
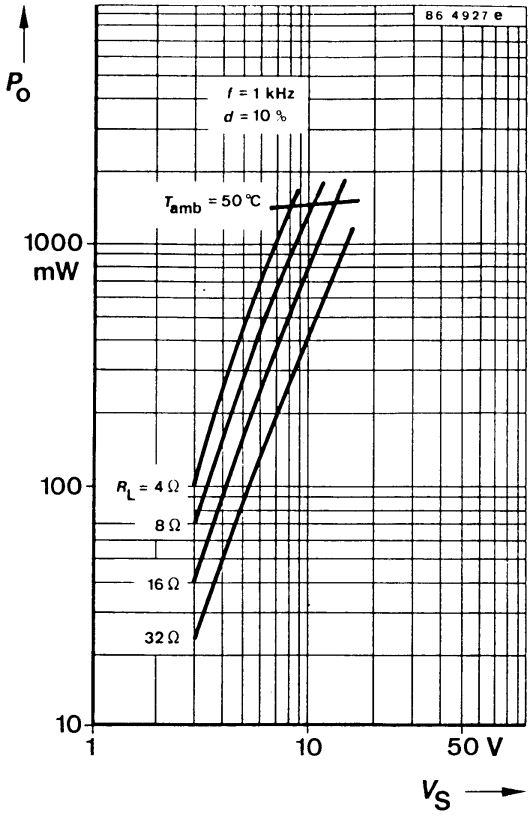
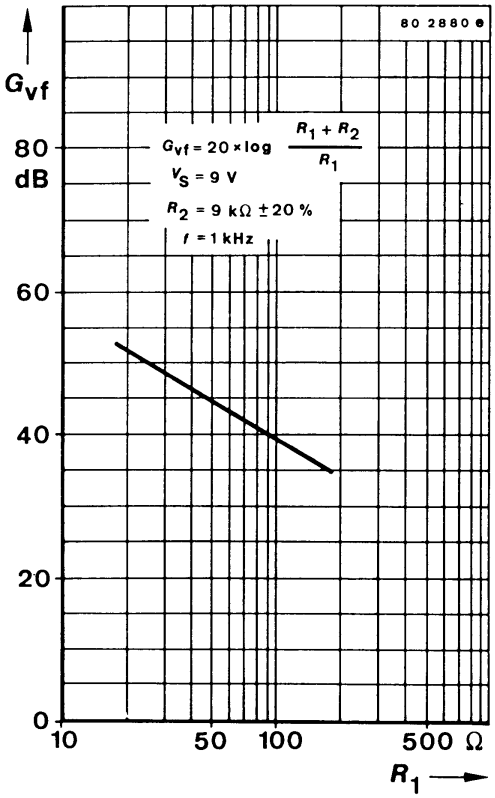
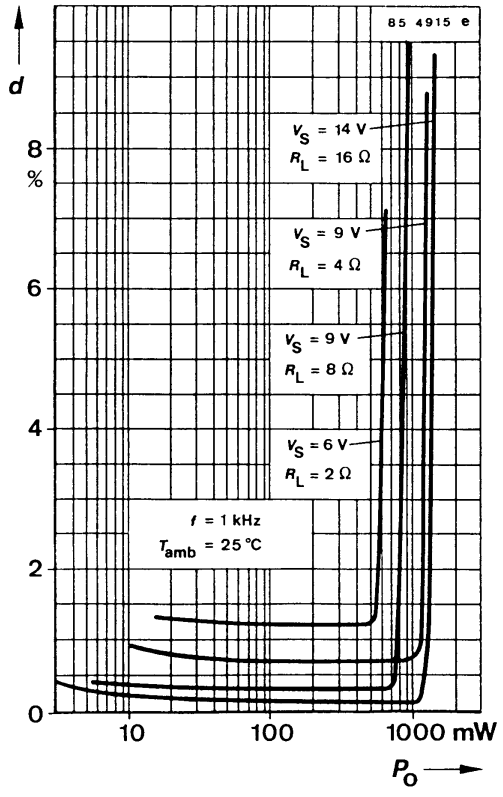


Figure 2 Test circuit for: P_o, P_{tot}, d, V_{no}, B, G_v and application note

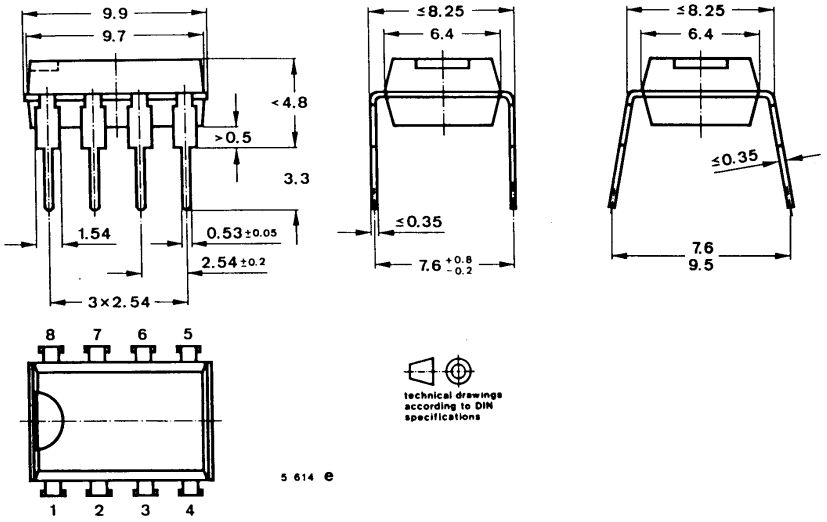

833783 e
I_{SB}
T_{amb} = 25 °C
10 mA
8
6
4
2
0
4
8
12
16 V
V_S


86 4927 e
P_o
f = 1 kHz
d = 10 %
T_{amb} = 50 °C
1000 mW
100
10
R_L = 4 Ω
8 Ω
16 Ω
32 Ω
1
10
50 V
V_S


80 2880 e
G_{vf}
80 dB
$G_{vf} = 20 \times \log \frac{R_1 + R_2}{R_1}$
V_S = 9 V
R_2 = 9 kΩ ±20 %
f = 1 kHz
60
40
20
0
10
50
100
500 Ω
R_1


85 4915 e
d
8 %
6
4
2
0
V_S = 14 V
R_L = 16 Ω
V_S = 9 V
R_L = 4 Ω
V_S = 9 V
R_L = 8 Ω
V_S = 6 V
R_L = 2 Ω
f = 1 kHz
T_{amb} = 25 °C
10
100
1000 mW
P_o

Dimensions in mm



Case
20 A 8 DIN 41866
DIP 8

OZONE DEPLETING SUBSTANCES POLICY STATEMENT

It is the policy of **TEMIC TELEFUNKEN microelectronic GmbH** to

1. Meet all present and future national and international statutory requirements and

2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

Of particular concern is the control or elimination of releases into the atmosphere of those substances which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) will soon severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division has been able to use its policy of continuous improvements to eliminate the use of any ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively

2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA and

3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC can certify that our semiconductors are not manufactured with and do not contain ozone depleting substances.

We reserve the right to make changes without further notice to improve technical design.
Parameters can vary in different applications. All operating parameters must be validated for each customer application by customer. Should Buyer use TEMIC products for any unintended or unauthorized application, Buyer shall indemnify TEMIC against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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