

Monolithic Integrated Circuit

Applications: AM-/FM-/IF- and Audio-Amplifier

Features:

- Large supply voltage range
 $V_S = 3 \dots 15 \text{ V}$
- High AM-Sensitivity
- Limiting threshold voltage $V_l = 50 \mu\text{V}$
- Audio output power $P_o = 1 \text{ W}$
- AM-Oscillator for LW, MW and SW
- Connection possibility for an external capacitor to suppress hum voltage
- AM-FM switching without high frequency voltages

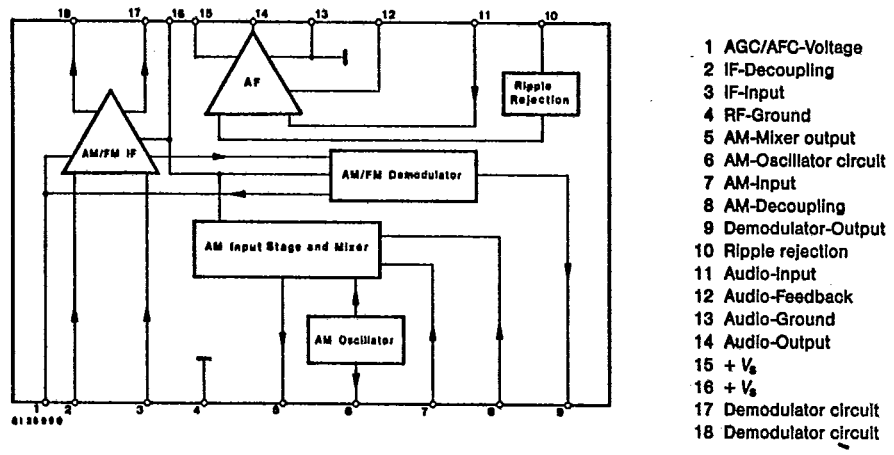


Fig. 1 Block diagram and pin connections

Description

The integrated circuit U 418 B includes, with exception of the FM front end, a complete AM-/FM-radio-circuit with audio power amplifier.

To avoid interference between AF- and RF-section, there are available two leads for supply voltages. An improvement in hum voltage suppression can be attained by using an external capacitor.

Absolute maximum ratings

Reference points Pin 4, 13, unless otherwise specified

Supply voltage range	Pin 15/16	V_S	3...15	V
Power dissipation		P_{tot}	600	mW
$T_{amb} = 65^\circ\text{C}$		T_j	150	$^\circ\text{C}$
Junction temperature		T_{stg}	-25...+150	$^\circ\text{C}$
Storage temperature range				

Thermal resistance

	Min.	Typ.	Max.	
Junction ambient			100	K/W

T1.2/262.0683 E

U 418 B

T-77-05-07

Electrical characteristics

Min. Typ. Max.

 $V_S = 9\text{ V}$, reference points Pin 4 and 13, $T_{amb} = 25^\circ\text{C}$, unless otherwise specified

AF Amplifier

 $R_i = 8\ \Omega$, $d = 10\%$, Fig. 3, 5

Output power	Pin 14	P_o	0.9	1	W	
Supply voltage rejection ratio $V_{hum} = 0.35\text{ V}, C_1 = 47\text{ }\mu\text{F}$ $f_{hum} = 100\text{ Hz}$		SVR		30	dB	
Input resistance	Pin 11	R_i	800		k Ω	
Band width (-3 dB)		B		100...80 000	Hz	
Distortion $P_o = 50\text{ mW}$		d		1	%	
Voltage gain, closed loop	Pin 14	G_v	37	40	43	dB
Output noise voltage $R_G = 0, B = 22...22\,000$	Pin 14	V_{no}		600	μV	

AM-Amplifier

 $f_i = 1\text{ MHz}$, $f_{IF} = 455\text{ kHz}$, $f_{mod} = 1\text{ kHz}$, $m = 0.3$

Supply quiescent current	Pin 15/16	I_{SB}	8	19	mA
Output quiescent voltage	Pin 14	V_{OB}	3.9	4.7	V
AGC-Quiescent voltage	Pin 1	V_{AGCB}	1.4	2.1	V
Regulation range					
$\Delta V_{OAF}/V_{OAF} = -10\text{ dB}$	Pin 7	ΔV_i		70	dB
AF voltage at demodulator output	Pin 9	V_{OAF}		100	mV

FM-IF Amplifier

 $f_{IF} = 10.7\text{ MHz}$, $\Delta f = \pm 22.5\text{ kHz}$, $f_{mod} = 1\text{ kHz}$

Supply quiescent current	Pin 15/16	I_{SB}	10	20	mA
Output quiescent voltage	Pin 14	V_{OB}	3.9	4.7	V
AFC-Quiescent voltage	Pin 1	V_{AFCB}	1.8	2.8	V
Limiting threshold (-3 dB)	Pin 3	V_i		50	μV
AF voltage at demodulator output	Pin 9	V_{OAF}		100	mV

Different dc voltages are developed at Pin 1 due to gain spread of AM-IF-amplifier. To determine the value of parallel resistance R_9 at the output of the demodulator Pin 9 for $V_S = 9\text{ V}$, AM mode without signal, dc voltage should be selected at Pin 1.

Voltage groups designation:

Group	1	2	3
V_i	1.4...1.7 V	1.7...1.9 V	1.9...2.1 V
R_9	∞	47 k Ω	33 k Ω

T-77-05-07

U 418 B

Example:

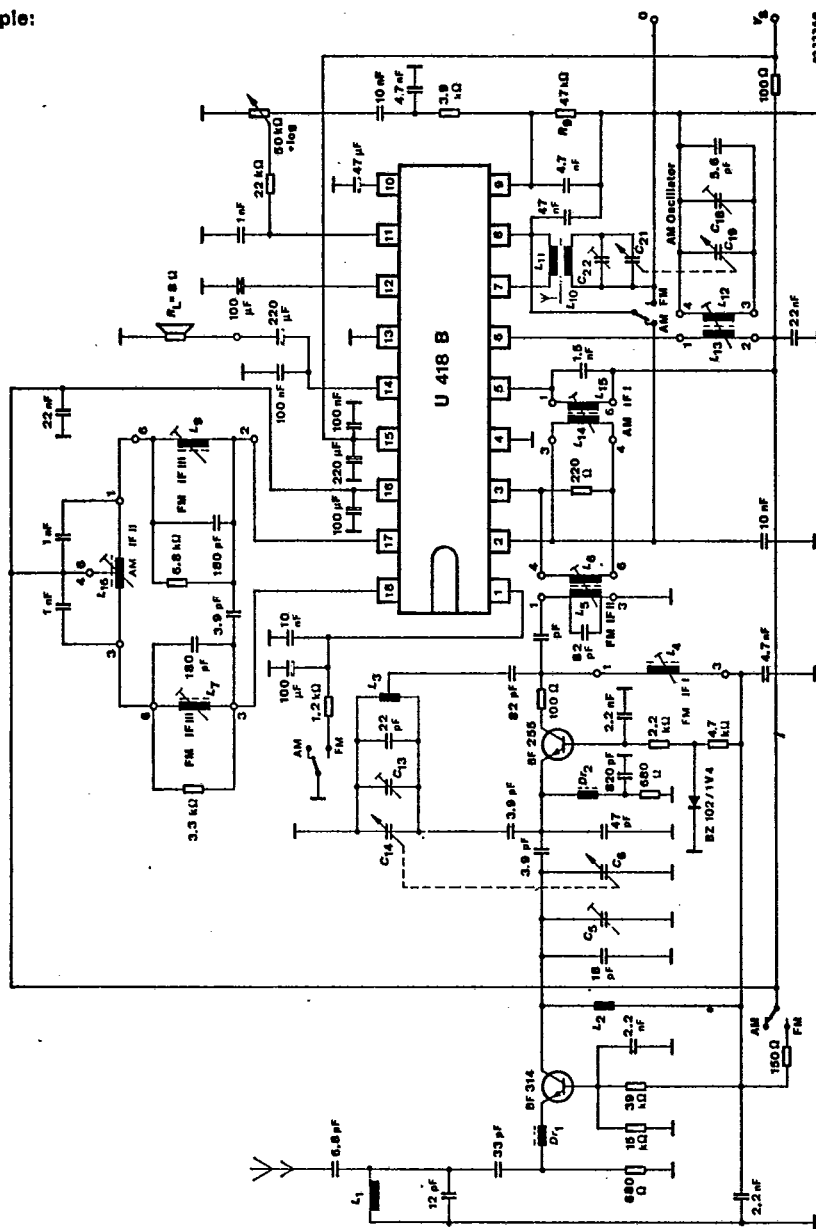
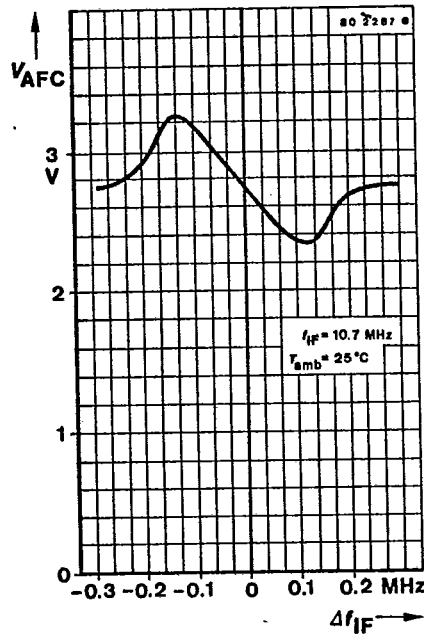
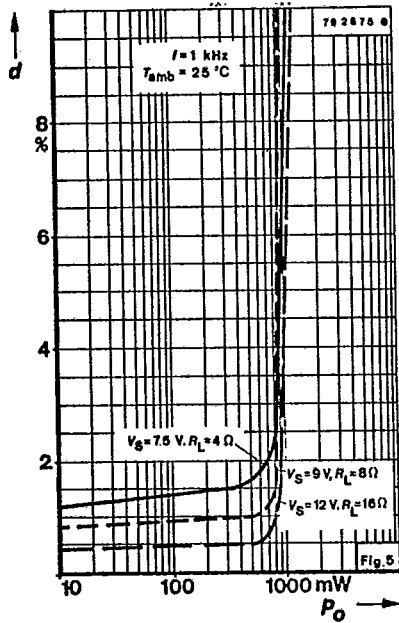
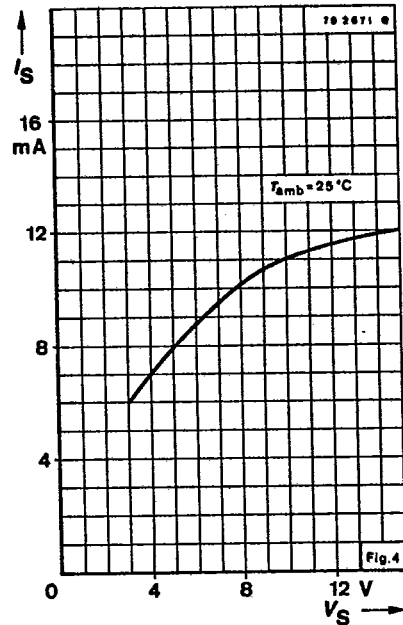
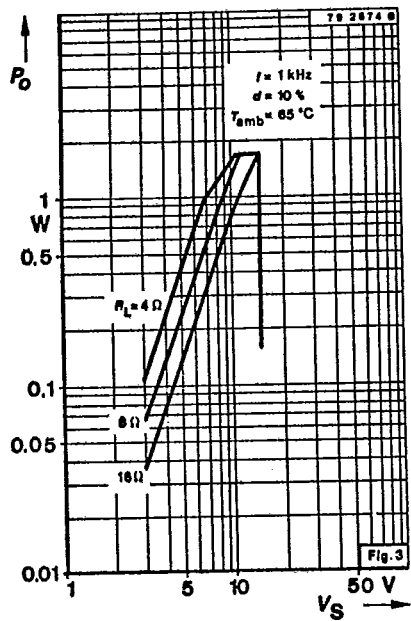


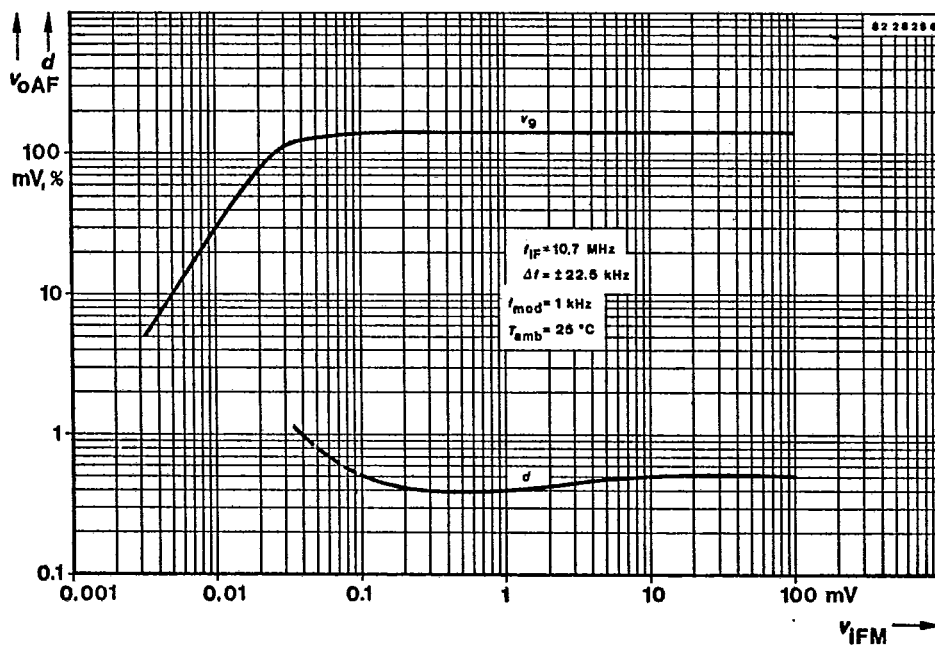
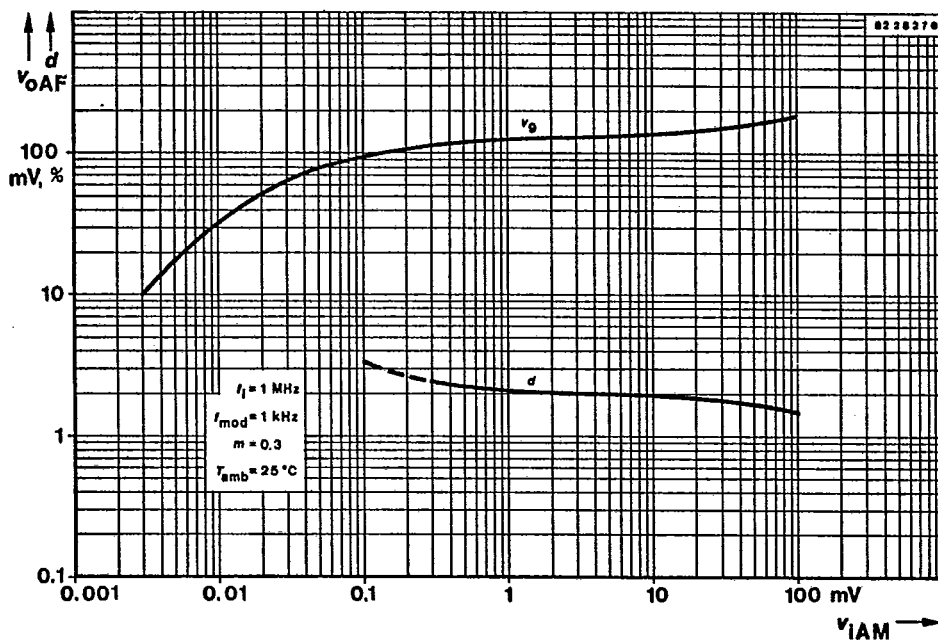
Fig. 2 FM-/AM-receiver circuit

T-77-05-07

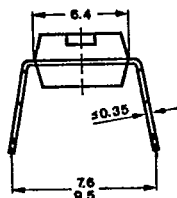
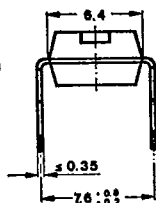


U 418 B

T-77-05-07



T-77-05-07



technical drawing
according to DIN
specifications

Case
20 A 18 DIN 41 866
JEDEC MO 015 AH
Weight max. 1.5 g