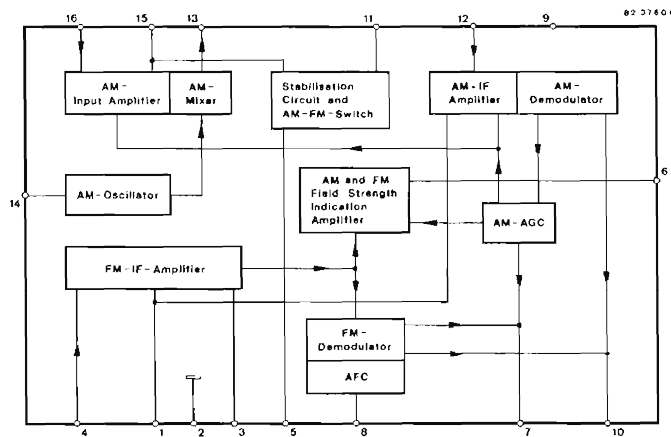


Monolithic Integrated Circuit

Applications: AM/FM-IF-Amplifier for mains and battery operated radios

Features:

- Large supply voltage range
 $V_S = 3 \dots 16 \text{ V}$
- High AM-Sensitivity
- Limiting threshold voltage $V_i = 30 \mu\text{V}$
- AFC-output with reference voltage connection
- AM-Oscillator for LW, MW and SW
- Single output for field strength indication of AM and FM with LED
- Single pole ended AM-FM switch without high frequency voltages



- | | | |
|--------------------------------|----------------------------------------------------|--------------------------|
| 1+3 IF-Decoupling | 7 FM-Demodulator Circuit
and AM-AGC-Capacitance | 12 AM-IF-Input |
| 2 Ground, Reference Point | 8 AFC-Output | 13 AM-Mixer Output |
| 4 FM-IF-Input | 9 + V_S | 14 AM-Oscillator Circuit |
| 5 FM-Reference Voltage | 10 Demodulator Output | 15 AM-Decoupling |
| 6 Field Strength
Indication | 11 AM-Reference Voltage | 16 AM-Input |

Fig. 1 Block diagram and pin connections

Description

The integrated circuit U 2417 B includes, with exception of the FM front end, a complete AM/FM-radio-circuit. To drive a tuning diode for FM, there is a possibility of a AFC-connection (current source) and reference voltage terminal. Field strength for AM and FM can be read on one LED.

U 2417 B

Absolute maximum ratings

Reference point Pin 2, unless otherwise specified

Supply voltage range	Pin 9	V_S	16	V
Ambient temperature		T_{amb}	85	°C
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	-25 ... + 150	°C

Thermal resistance

			Min.	Typ.	Max.	
Junction ambient		R_{thJA}			100	K/W

Electrical characteristics

$V_S = 9\text{ V}$, reference point Pin 2, Fig. 2, $T_{amb} = 25\text{ °C}$, unless otherwise specified

Supply voltage range	Pin 9	V_S	3	16	V
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AM Amplifier

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

Supply quiescent current	Pin 9	I_{SB}	14	mA
Signal to noise ratio $v_i = 1.5\text{ }\mu\text{V}$	Pin 10	$\frac{S+N}{N}$	6	dB
$v_i = 10\text{ }\mu\text{V}$	Pin 10	$\frac{S+N}{N}$	20	dB
$v_i = 15\text{ }\mu\text{V}$	Pin 10	$\frac{S+N}{N}$	26	dB
Regulation range $\Delta V_{oAF}/V_{oAF} = -10\text{ dB}$, $v_i = 100\text{ mV}$	Pin 16	ΔV_i	80	dB
AF voltage at demodulator output $v_i = 1\text{ mV}$	Pin 10	V_{oAF}	70	mV
Distortion $v_i = 1\text{ mV}$	Pin 10	d	0.8	%
Demodulator output voltage	Pin 10	V_o	1.2	V

FM-IF Amplifier

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

Supply quiescent current	Pin 9	I_{SB}	14	mA
Limiting threshold (-3 dB)	Pin 4	V_i	30	μV
Signal to noise ratio $v_i = 10\text{ }\mu\text{V}$	Pin 10	$\frac{S+N}{N}$	6	dB
$v_i = 30\text{ }\mu\text{V}$	Pin 10	$\frac{S+N}{N}$	26	dB
$v_i = 10\text{ mV}$	Pin 10	$\frac{S+N}{N}$	65	dB

U 2417 B

			Min.	Typ.	Max.
AF voltage at demodulator output					
$v_i = 10 \text{ mV}$	Pin 10	V_{OAF}		70	mV
AM-rejection					
$V_i = 10 \text{ mV}, m = 0.3$	Pin 10	AMR		40	dB
Reference voltage FM	Pin 5	V_o		2.45	V
Current from Pin 5		I_o		0.2	mA

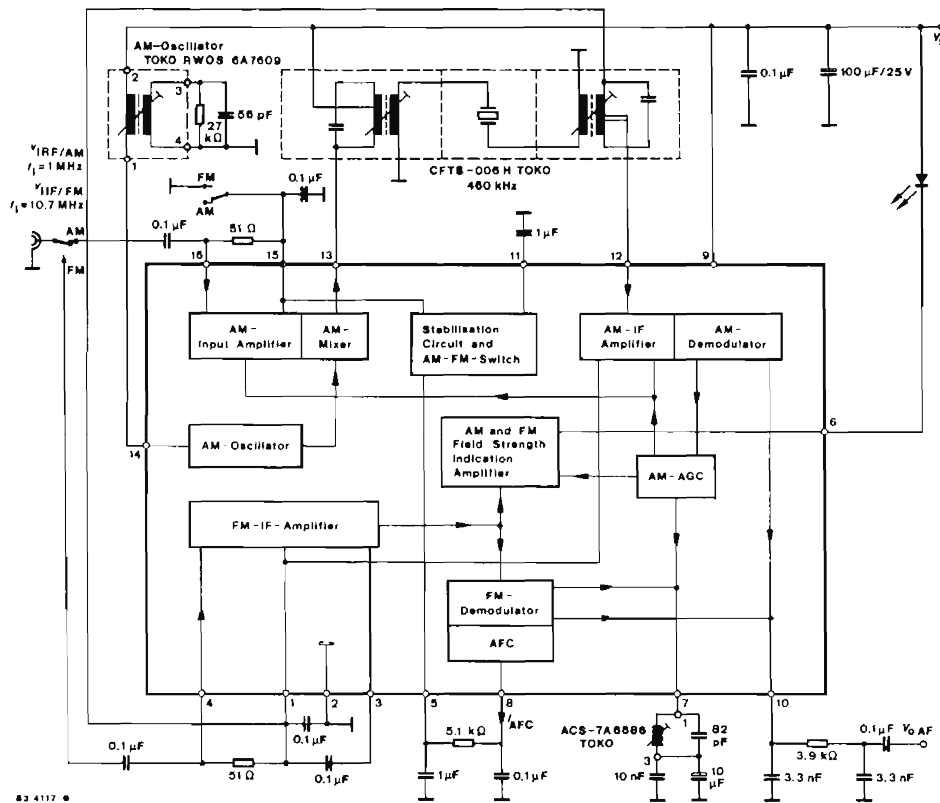
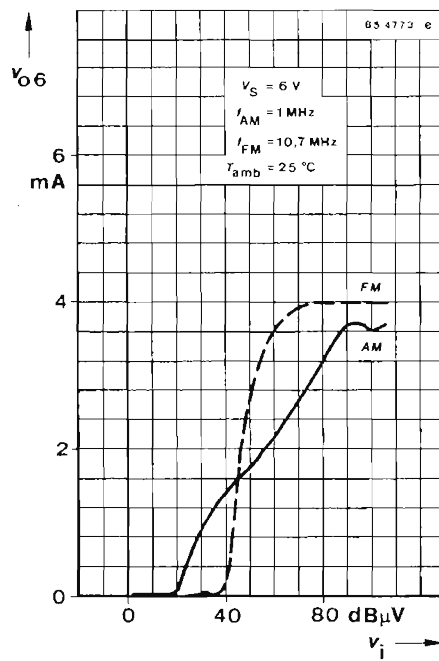
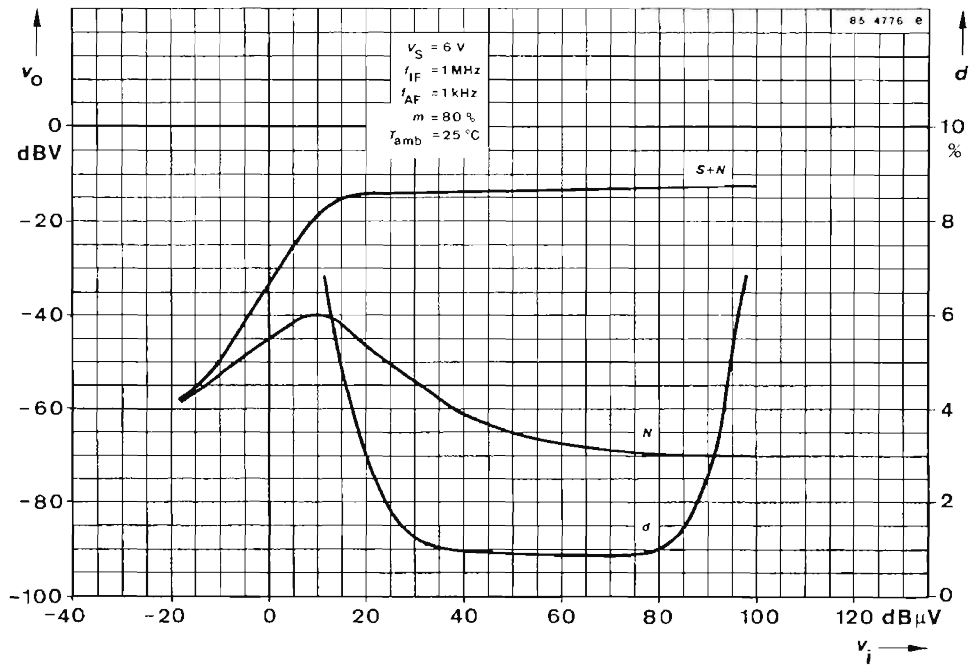
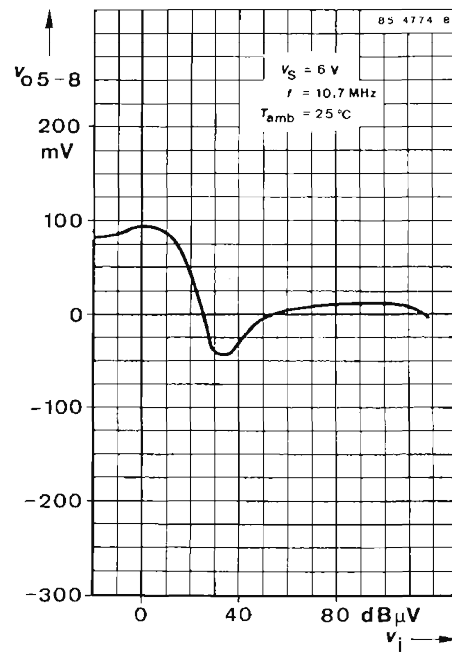
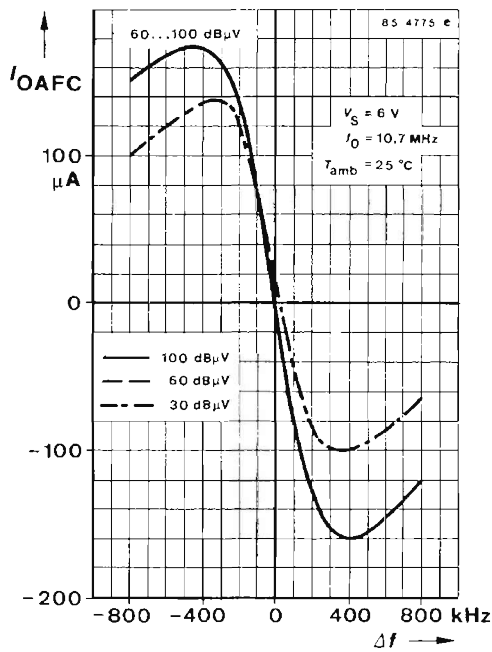
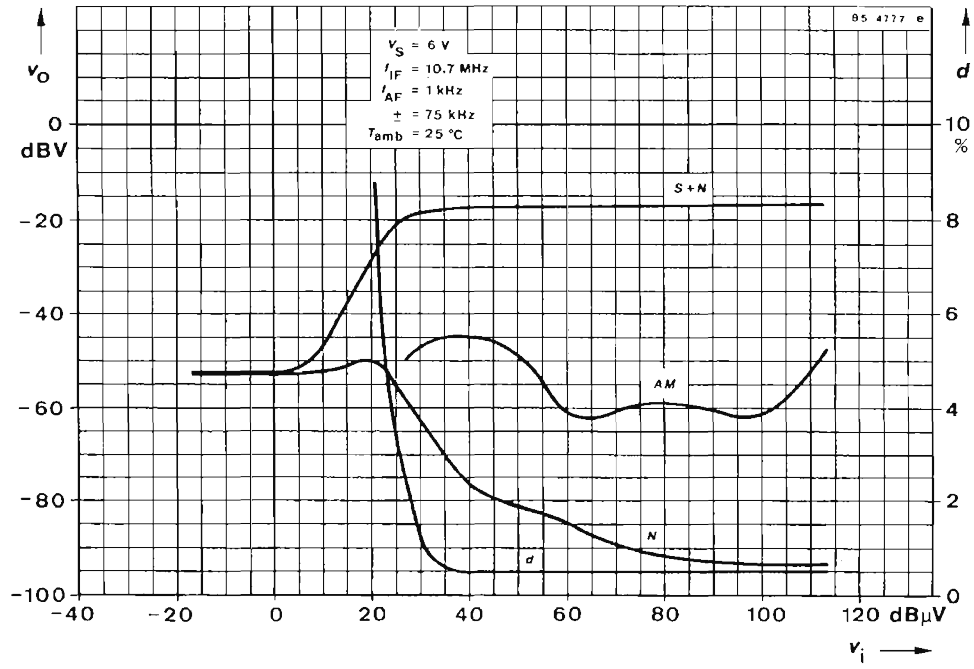


Fig. 2 Test circuit

U 2417 B



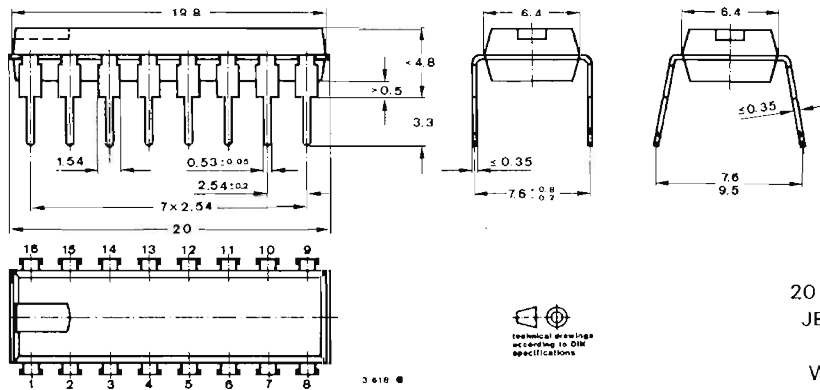
U 2417 B



U 2417 B

Typical		D. C. voltages for $V_S = 6\text{ V}$		
Pin No:		AM	FM	Unit
1	HF-input decoupling	1.0	1.4	V
2	Ground	0	0	V
3	IF-input decoder	1.0	1.4	V
4	FM-IF input	1.0	1.4	V
5	FM stabilised voltage	—	2.45	V
6	Field strength indication	6	6	V
7	FM-IF/AM-AGC	0.5	0	V
8	FM-AFC	—	2.3	V
9	Supply voltage, $+V_S$	6	6	V
10	Demodulator output	1.7	1.8	V
11	AM-stabilised voltage	2.45	—	V
12	AM-IF input	6	6	V
13	AM-mixer output	6	6	V
14	AM-oscillator	6	6	V
15	AM input decoder	1.65	—	V
16	AM input	1.65	—	V

Dimensions in mm



Case
 20 A 16 DIN 41 866
 JEDEC MO 015 AH
 DIP 16
 Weight max. 1.5 g