

## FM IF amplifier and detector

**Technology:** Bipolar

### Features

- No selection of volume-input characteristics
- Independent sound output for VTR and headphone
- Additional sound input
- High ripple rejection
- High residual carrier suppression prevents harmonic distortions

**Case:** 14 pin dual inline plastic

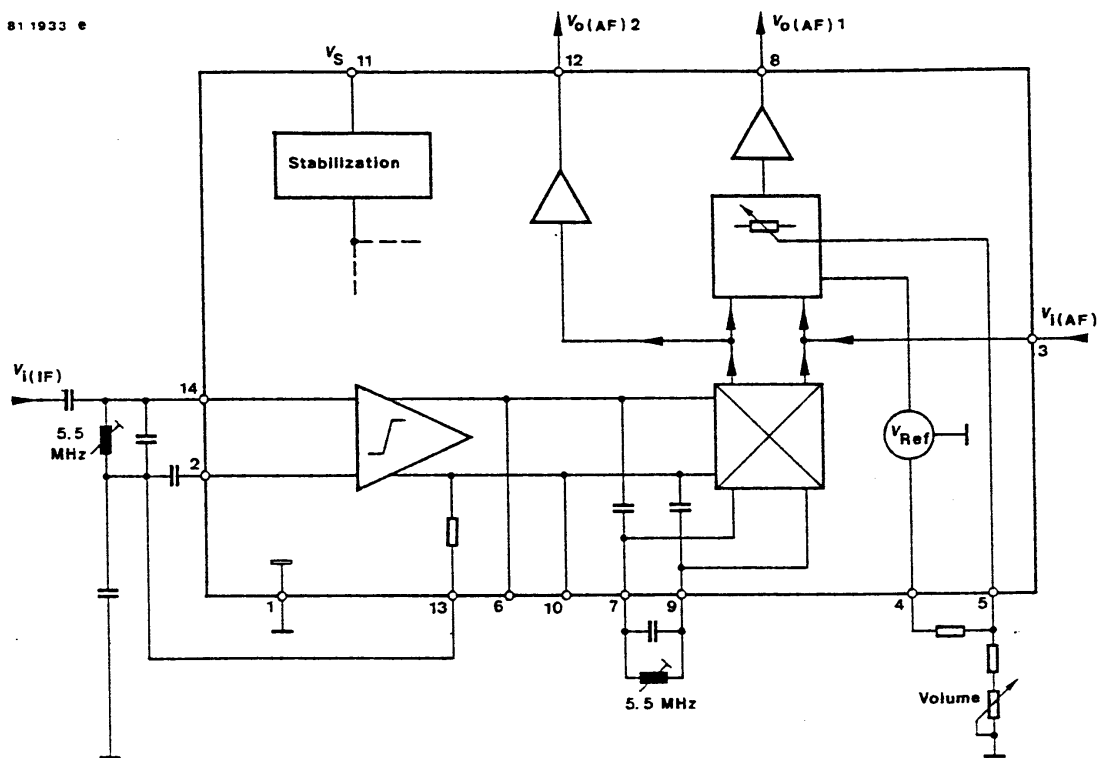


Figure 1 Block diagram

### Absolute Maximum Ratings

Reference point pin 1, unless otherwise specified

Parameters	Symbol	Value	Unit
Supply voltage Pin 11	$V_S$	18	V
Volume setting voltage Pin 5	$V_5$	6	V
Reference supply current Pin 4	$I_{Ref}$	5	mA
Resistor between pin 13 and pin 14	$R_p$	1	k $\Omega$
Power dissipation $T_{amb} = 60^\circ\text{C}$	$P_{tot}$	400	mW
Ambient temperature range	$T_{amb}$	-15 to +70	$^\circ\text{C}$
Storage temperature range	$T_{stg}$	-25 to +125	$^\circ\text{C}$

### Electrical Characteristics

$T_{amb} = +25^{\circ}\text{C}$ ,  $V_S = 12\text{ V}$ ,  $f = 5.5\text{ MHz}$ , figure 3, reference point pin 1, unless otherwise specified

Parameters	Test Conditions / Pins	Symbol	Min.	Typ.	Max.	Unit
Supply voltage range	Pin 11	$V_S$	10		18	V
Supply current	Pin 11	$I_S$	9.5		17.5	mA
Reference voltage	Pin 4	$V_{oRef}$	4.2	4.8	5.5	V
Output resistance	Pin 4	$r_{Ref}$		12		$\Omega$
Frequency range		$f$		0 to 12		MHz
IF voltage amplification	Pin 6/14	$G_{IF}$		68		dB
IF output voltage	when limited, each output Pin 6/10	$V_{o(IF)pp}$		250		mV
Input limiting voltage	$\Delta f = \pm 50\text{ kHz}$ , $f_{mod} = 1\text{ kHz}$ , $Q \approx 45^{1)}$ Pin 14	$V_{i(IF)}$		30	60	$\mu\text{V}$
Input impedance	Pin 14	$R_i$ $C_i$	15	40 4.5	6	k $\Omega$ pF
AM rejection	$\Delta f = \pm 50\text{ kHz}$ , $Q \approx 45^{1)}$ , $f_{mod} = 1\text{ kHz}$ , $m = 30\%$ , $V_i = 500\ \mu\text{V}$	$k_{AM}$	50	60		dB
DC voltage at AF output	$V_i = 0\text{ V}$ Pin 8 Pin 12	$V_{o(AF)1}$ $V_{o(AF)2}$		4 5.6		V V
Ripple rejection	Pin 11/8 Pin 11/12	$k_{Br}$ $k_{Br}$		35 30		dB dB
IF residual voltage	without de-emphasis capacitor Pin 8 Pin 12	$V_{o(IF)1}$ $V_{o(IF)2}$		20 30		mV mV
AF output voltage	$V_i = 10\text{ mV}$ , $R_5 = 20\text{ k}\Omega$ , $\Delta f = \pm 50\text{ kHz}$ , $f_{mod} = 1\text{ kHz}$ , $Q = 45^{1)}$ , $k = 4\%$ Pin 8 Pin 12 $Q = 20^{1)}$ , $k = 1\%$ Pin 8 Pin 12	$V_{o(AF)1}$ $V_{o(AF)2}$ $V_{o(AF)1}$ $V_{o(AF)2}$		1.3 1.0 0.65 0.5		V V V V
Input resistance	Pin 3	$r_i$		2		k $\Omega$
Output resistance	Pin 8, 12	$r_o$		1.1		k $\Omega$
AF voltage gain	$R_5 = 20\text{ k}\Omega$ Pin 8/3	$G_{v1}$		7.5		dB
AF damping Fig. 3	$R_5 = 13\text{ k}\Omega$ Pin 8	$-G_{v1}$	20	28	36	dB
Volume setting range	Pin 8	$\Delta V_{o(AF)1}$	70	85		dB
<b>Mute function</b>						
Switching current	figure 2	$I_{sw}$			400	$\mu\text{A}$
Switching voltage	Pin 2 or 13	$V_{mute}$	3			V

1) Operation quality factor

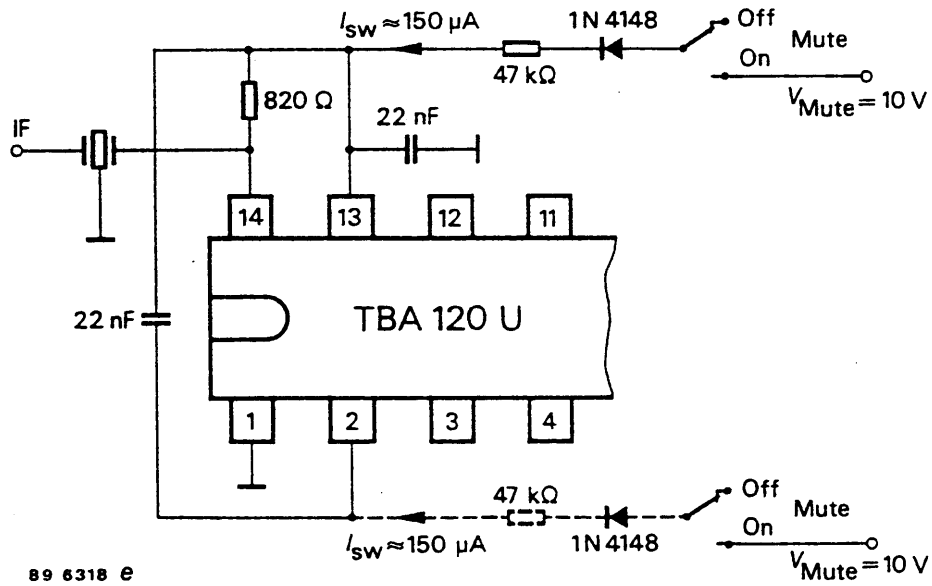


Figure 2

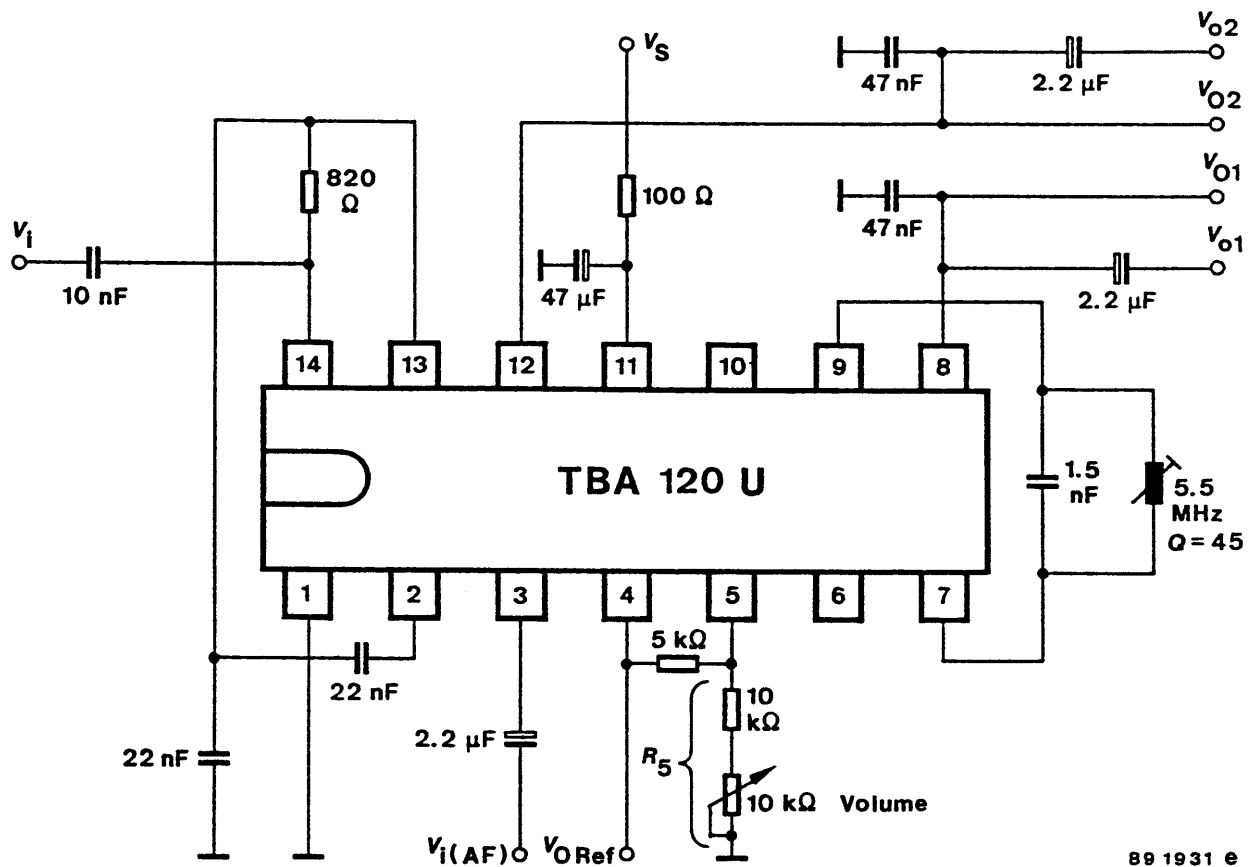
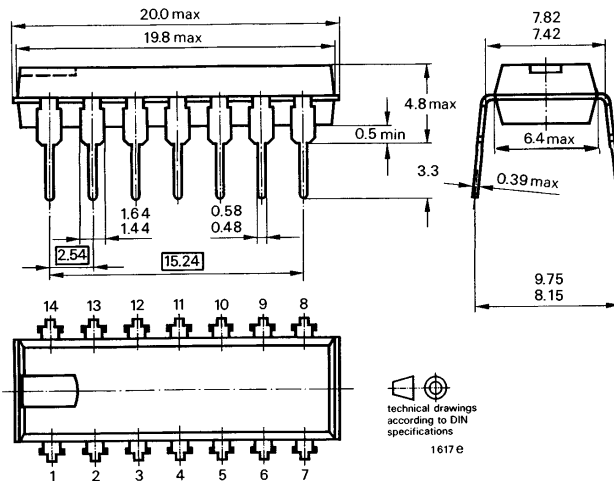


Figure 3 Test circuit

## TBA120U

### Dimensions in mm

Package: JEDEC MO 001, DIP 14



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