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

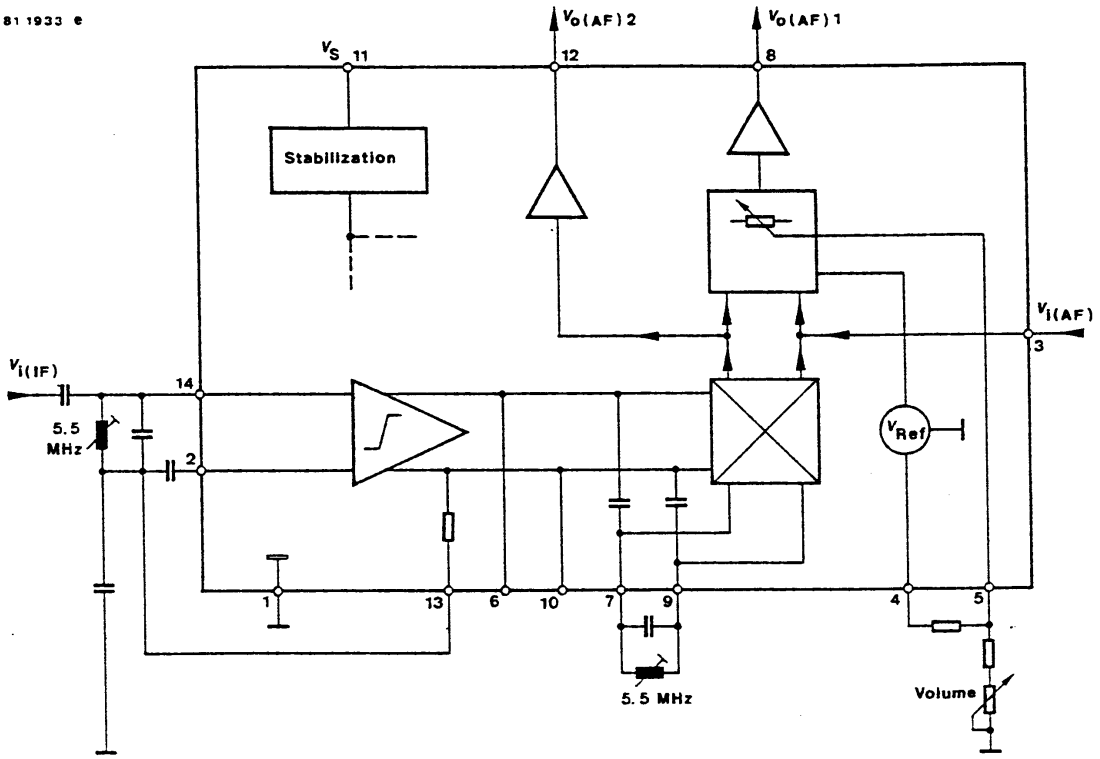


Figure 1 Block diagram

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	kΩ
Power dissipation	T_{amb} = 60°C	P_{tot}	400	mW
Ambient temperature range		T_{amb}	–15 to +70	°C
Storage temperature range		T_{stg}	–25 to +125	°C

Electrical Characteristics

T_{amb} = +25°C, V_S = 12 V, f = 5.5 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		Ω
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	Δf= ± 50 kHz, f_{mod}= 1 kHz, Q≈45 [1] Pin 14	$V_{i(IF)}$		30	60	µV
Input impedance	Pin 14	R_i C_i	15	40 4.5	6	kΩ pF
AM rejection	Δf = ± 50 kHz, Q≈45 [1], f_{mod} = 1 kHz, m = 30 %, V_i = 500 µV	k_{AM}	50	60		dB
DC voltage at AF output	V_i = 0 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 mV, R_5 = 20 kΩ, Δf= ± 50 kHz, f_{mod} = 1 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		kΩ
Output resistance	Pin 8, 12	r_o		1.1		kΩ
AF voltage gain	R_5 = 20 kΩ Pin 8/3	G_{v1}		7.5		dB
AF damping Fig. 3	R_5= 13 kΩ Pin 8	$-G_{v1}$	20	28	36	dB
Volume setting range	Pin 8	$\Delta V_{o(AF)1}$	70	85		dB
Mute function						
Switching current	figure 2	I_{sw}			400	µA
Switching voltage	Pin 2 or 13	V_{mute}	3			V

[1] Operation quality factor

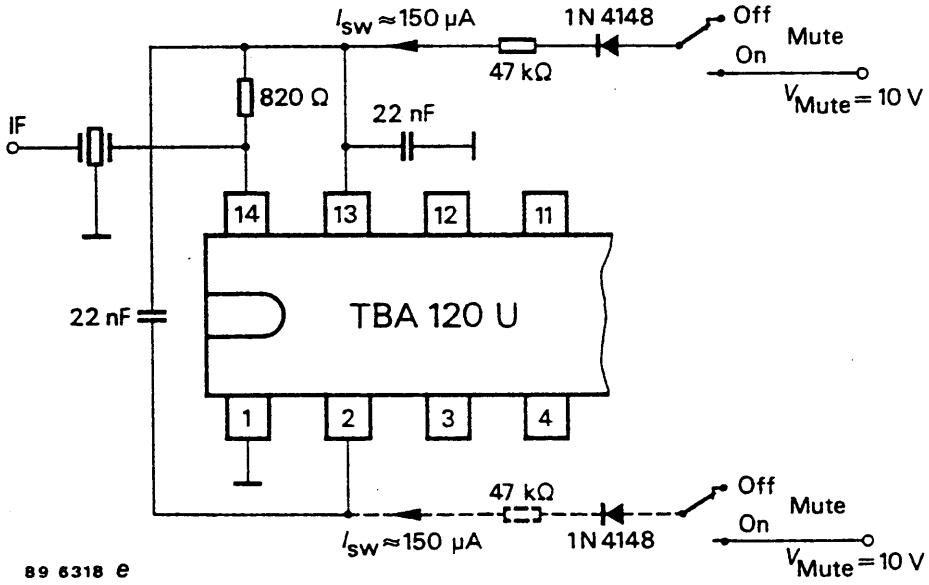


Figure 2

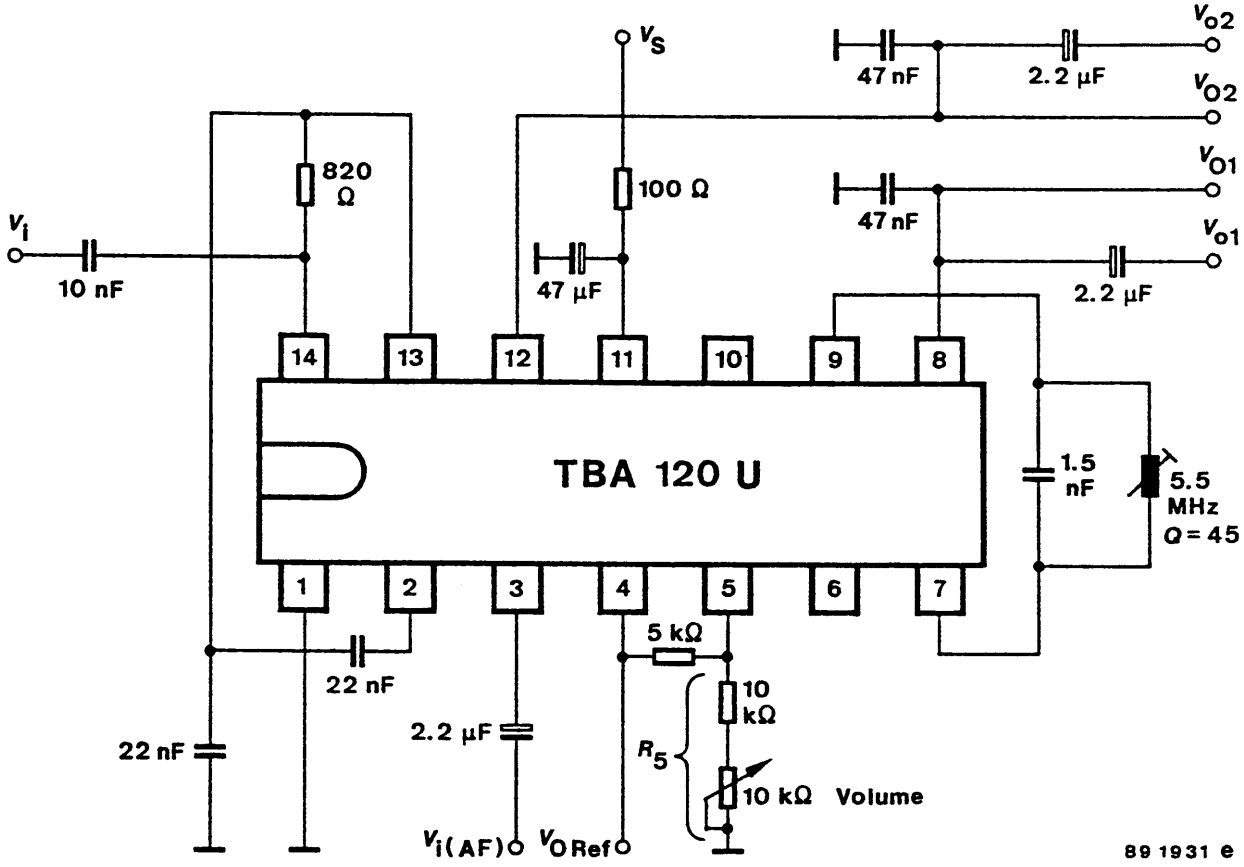
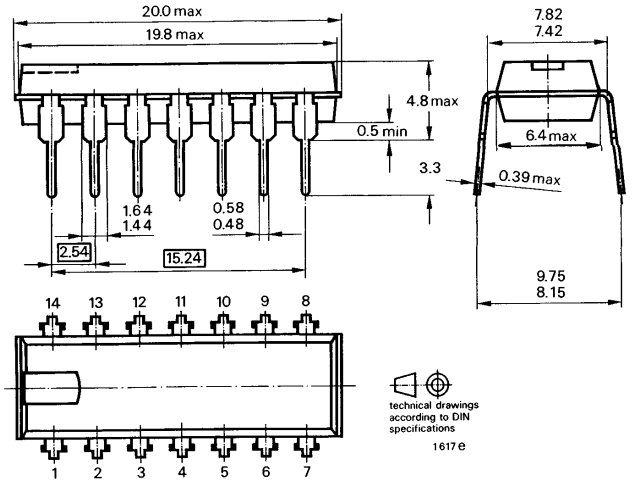


Figure 3 Test circuit

Dimensions in mm

Package: JEDEC MO 001, DIP 14



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