

TBA 120 T

- Input and demodulator are designed for use with ceramic resonators.
- Additional output before volume control (constant audio signal) for the connection of headphones and video recorders.
- Additional audio input for connection of video recorders (playback).
- Constant audio output voltage between 10 and 18 V supply voltage of the same level as TBA 120S operating at 15 V supply voltage.
- Insensitive against hum from the supply voltage therefore very little need for smoothing capacitors.
- As there is very little residual IF voltage on the audio output, there is no interference of the video-IF due to harmonics of the sound-IF.
- No selection for volume control characteristic is necessary.

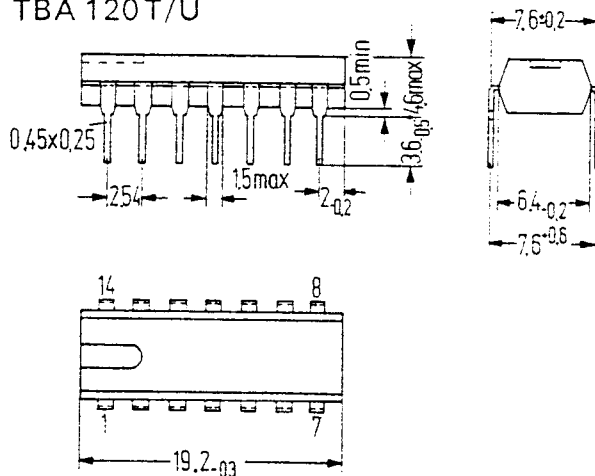
TBA 120 U

- This circuit incorporates all the advantages of TBA 120T but input and demodulator are designed for use in connection with standard LC-circuits.

Type	Ordering codes
TBA 120 T	Q67000-A919
TBA 120 U	Q67000-A920

Package outlines

TBA 120 T/U



Plastic plug-in package
20 A 14 DIN 41866
14 pins, dual-in-line
Weight approx. 1.1 g
Dimensions in mm

PRELIMINARY DATA

Absolute maximum ratings

Supply voltage	V_{CC}	18	V
Ambient temperature in operation	T_{amb}	-15 to +70	°C
Storage temperature	T_s	-40 to +125	°C
Total power dissipation	P_{tot}	400	mW
Voltage	V_5	6	V
Current	I_4	5	mA
Ohmic resistance (TBA 120 U)	R_{13-14}	≤ 1	k Ω
Thermal resistance (system-air)	R_{thSA}	≤ 120	K/W
Range of operation	V_{CC}	10 to 18	V
Frequency range	f	0 to 12	MHz

Electrical characteristics ($V_{CC} = 12\text{ V}$, $T_{amb} = 25\text{ }^{\circ}\text{C}$)

		min	typ	max	
Total current consumption	I_{CC}	9.5	13.5	17.5	mA
IF voltage gain V_6/V_{14} ($f_{IF} = 5.5\text{ MHz}$)	G_V		68		dB
Output voltage with limiting at each output	V_{opp}		250		mV
Output impedance Pin 8	R_{q8}		1.1		k Ω
Pin 12	R_{q12}		1.1		k Ω
Input impedance	R_{i3}		2		k Ω
Internal impedance	R_{i4}		12		Ω
DC level of output signal ($V_i = 0$)	V_8		4		V
	V_{12}		5.6		V
Stabilized voltage	V_4	4.2	4.8	5.3	V
Residual IF voltage without deemphasis	V_8		20		mV
	V_{12}		30		mV
AF gain (AF not regulated)	V_8/V_3		7.5		
Regulation at certain ratio of divider ($R_{4-5} = 5\text{ k}\Omega$, $R_{5-1} = 13\text{ k}\Omega$)	$V_{AF/8}$	20	28	36	dB
Range of volume control (referred to pin 8)	V_{AFmax}	70	85		dB
Resistance	$R_{4-5}^{(1)}$	1		10	k Ω
Input voltage for limitation ($f_{IF} = 5.5\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $f_{mod} = 1\text{ kHz}$)	V_{ilim}		30	60	μV
Hum suppression	V_8/V_{11}		35		dB
	V_{12}/V_{11}		30		dB

TBA 120T only:

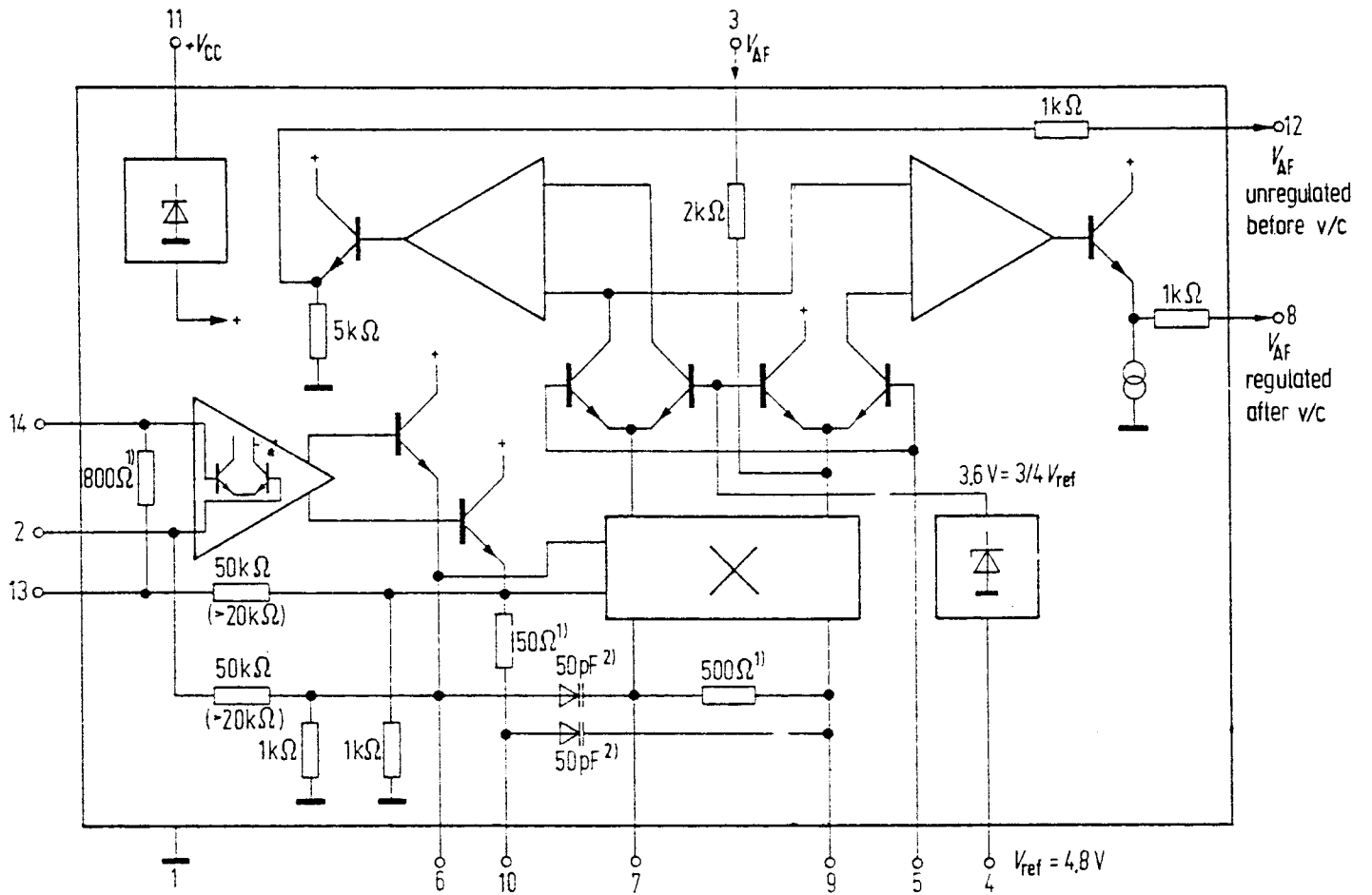
Input impedance ($f_{IF} = 5.5\text{ MHz}$)	Z_i		800/5		Ω/pF
AM suppression ($f_{IF} = 5.5\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $V_i = 500\text{ }\mu\text{V}$, $f_{mod} = 1\text{ kHz}$, $m = 30\%$)	a_{AM}	50	60		dB
AF output voltage ($f_{IF} = 5.5\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $f_{mod} = 1\text{ kHz}$)	V_8	650	900		mV
	V_{12}	400	650		mV

TBA 120U only:

Input impedance ($f_{IF} = 5.5\text{ MHz}$)	Z_i	15/6	40/4.5		k Ω/pF
AM suppression ($f_{IF} = 5.5\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $V_i = 500\text{ }\mu\text{V}$, $f_{mod} = 1\text{ kHz}$, $m = 30\%$)	a_{AM}	50	60		dB
AF output voltage ($f_{IF} = 5.5\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $V_i = 500\text{ }\mu\text{V}$, $f_{mod} = 1\text{ kHz}$, $Q_B \approx 45$, $k = 4\%$)	V_{8eff}	850	1200		mV
	V_{12eff}	600	1000		mV
Harmonic distortion ($f_{IF} = 5.5\text{ MHz}$, $\Delta f = \pm 50\text{ kHz}$, $V_i = 10\text{ mV}$, $f_{mod} = 1\text{ kHz}$, $Q_B \approx 20$)	k		1		%

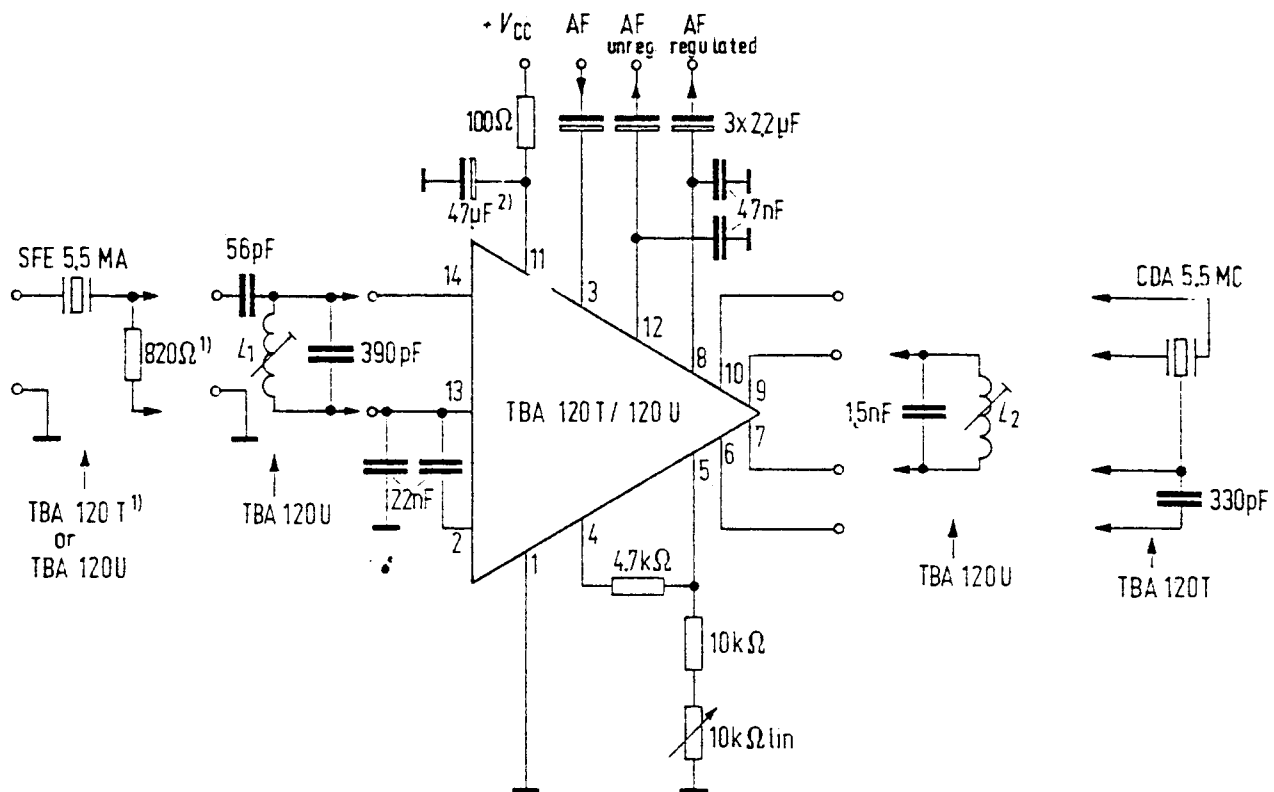
¹⁾ If DC volume control is not used, pin 4 has to be connected directly to pin 5.

Block circuit diagram



¹⁾only TBA 120 T
²⁾only TBA 120 U

Recommended application circuit (5.5 MHz)



L_1 : 20 windings 15×0.05 CuLS; $Q_o \approx 73$

L_2 : 9 windings 0.25 CuLS; $Q_o \approx 40$

Coil Assembly Vogt D41 – 2165 (2438) without gaussian core

1) 820 Ohm is no longer necessary for TBA 120T, as resistance is integrated.

2) Omitting the electrolytic capacitor $47 \mu\text{F}$ on pin 11 changes volume-control range.