

TEMIC

TELEFUNKEN Semiconductors

TBA120T

FM IF amplifier and demodulator

Technology: Bipolar

Features

- Input and demodulator provided for operating with ceramic-resonators
- 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

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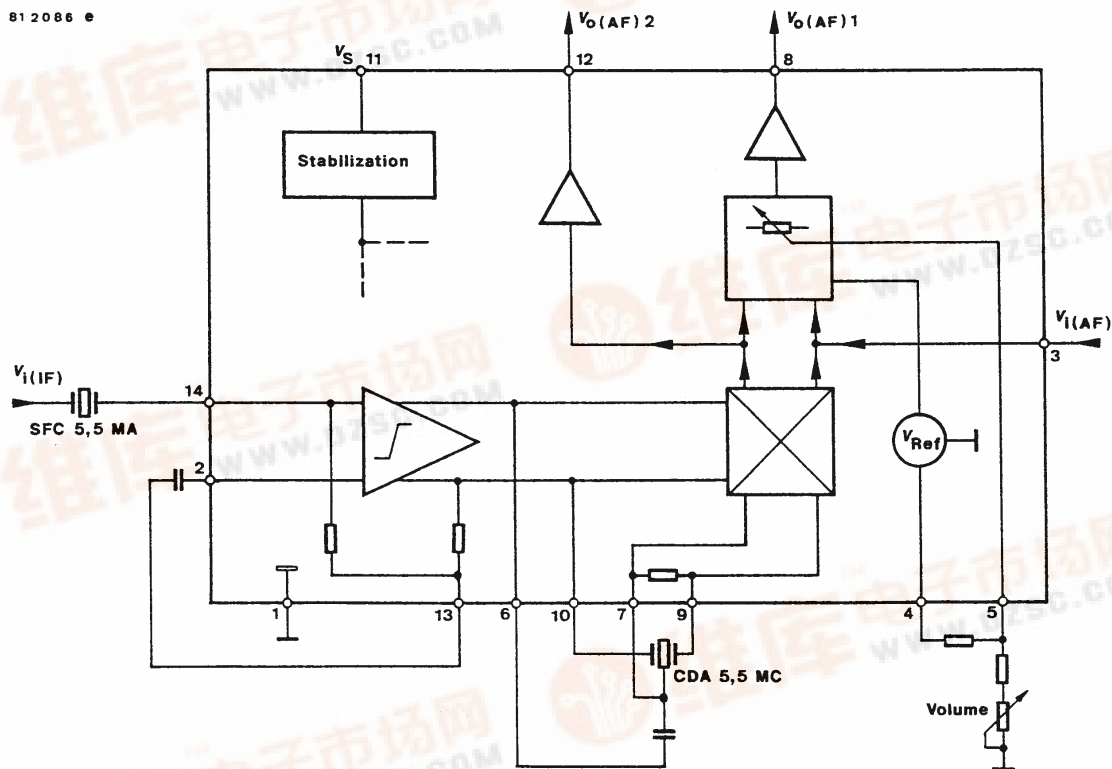


Figure 1 Block diagram

Pin Configuration

Pin	Symbol	Function
1	GND	Ground
2, 13		Feedback
3	$V_{i(AF)}$	AF input – SCART
4	V_{ref}	Reference voltage
5	V_5	Volume control

Pin	Symbol	Function
6,7,9,10		FM demodulator filter
8	$V_{o(AF)1}$	AF output – controlled
11	V_S	Supply voltage
12	$V_{o(AF)2}$	AF output – uncontrolled
14	$V_{i(IF)}$	IF input

TBA120T

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
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		Ω
Frequency range		f		0 to 12		MHz
IF voltage gain	Pin 6/14	G_{IF}		68		dB
Limited IF output voltage	Pin 6 – 10	$V_{o(IF)pp}$		250		mV
Input limiting voltage	$\Delta f = \pm 50\text{ kHz}$, $f_{mod} = 1\text{ kHz}$ Pin 14	$V_{i(IF)}$		30	60	μV
Input impedance	Pin 14	R_i C_i		800 5		Ω pF
AM rejection	$m = 30\%$, $\Delta f = \pm 50\text{ kHz}$, $V_i = 500\ \mu\text{V}$, $f_{mod} = 1\text{ kHz}$	k_{AM}	50	60		dB
DC voltage at AF output	$V_i = 0$ 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
IF residual voltage	without de-emphasis capacitor Pin 8 Pin 12	$V_{o(IF)1}$ $V_{o(IF)2}$		20 30		mV
AF output voltage	$V_i = 10\text{ mV}$, $\Delta f = \pm 50\text{ kHz}$, $f_{mod} = 1\text{ kHz}$, $R_5 = 20\text{ k}\Omega$ Pin 8 Pin 12	$V_{o(AF)1}$ $V_{o(AF)2}$	650 400	900 650		mV mV
Output resistance	Pin 8, 12	r_o		1.1		k Ω
AF voltage amplification	$R_5 = 20\text{ k}\Omega$, Pin 8/3	G_{v1}		7.5		dB
AF damping	$R_5 = 13\text{ k}\Omega$, Fig. 3 Pin 8	$-G_{v1}$	24	30	34	dB
Volume setting range	Pin 8	$\Delta V_{o(AF)1}$	70	85		dB
Input resistance	Pin 3	r_i		2		k Ω
Mute function						
Switching current	Pin 2 or 13	I_{sw}			400	μA
Switching voltage	Figure 2	V_{mute}	3			V

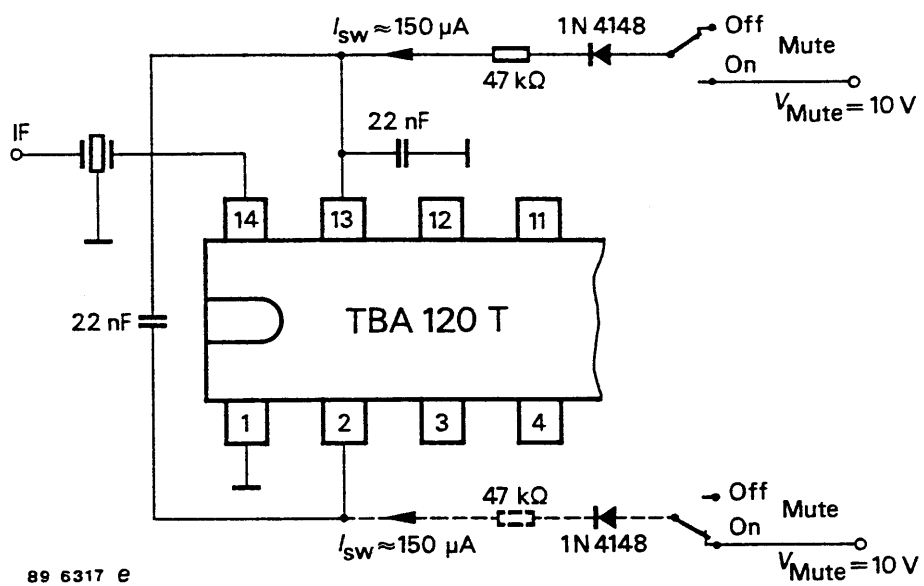


Figure 2

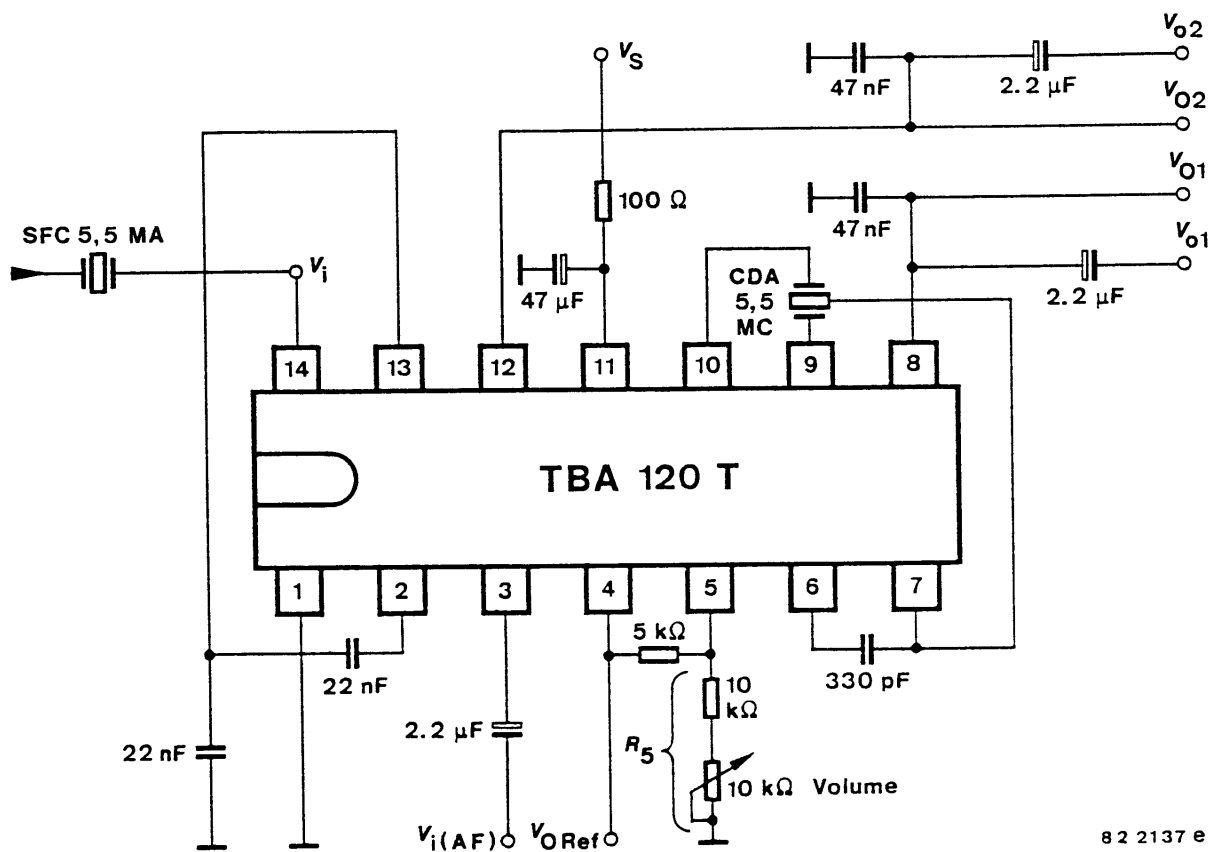
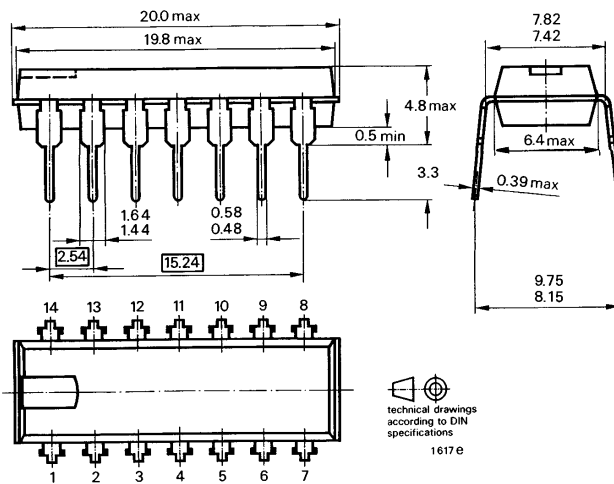


Figure 3 Test circuit

TBA120T

Dimensions in mm

Package: JEDEC MO 001, DIP 14-leads



We reserve the right to make changes to improve technical design without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use TEMIC products for any unintended or unauthorized application, the buyer shall indemnify TEMIC against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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