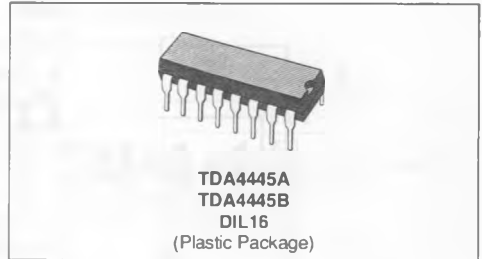


SOUND IF AMPLIFIER

- QUADRATURE INTERCARRIER DEMODULATOR
- VERY HIGH INPUT SENSITIVITY
- GOOD SIGNAL TO NOISE RATIO
- FAST AVERAGING AGC
- IF AMPLIFIER CAN BE SWITCHED OFF FOR VTR MODE
- GOOD AM SUPPRESSION
- OUTPUT SIGNAL STABILIZED AGAINST SUPPLY VOLTAGE VARIATIONS
- VERY FEW EXTERNAL COMPONENTS



DESCRIPTION

TDA4445A :

Sound IF amplifier, with FM processing for quasi parallel sound system.

TDA4445B :

Sound IF amplifier, with FM processing and AM de-

modulator, for multi-standard sound TV appliances.

TDA4445B additional :

Bistandard applications (B/G and L)

No adjustment of the AM demodulator

Low AM distortion

PIN CONNECTIONS

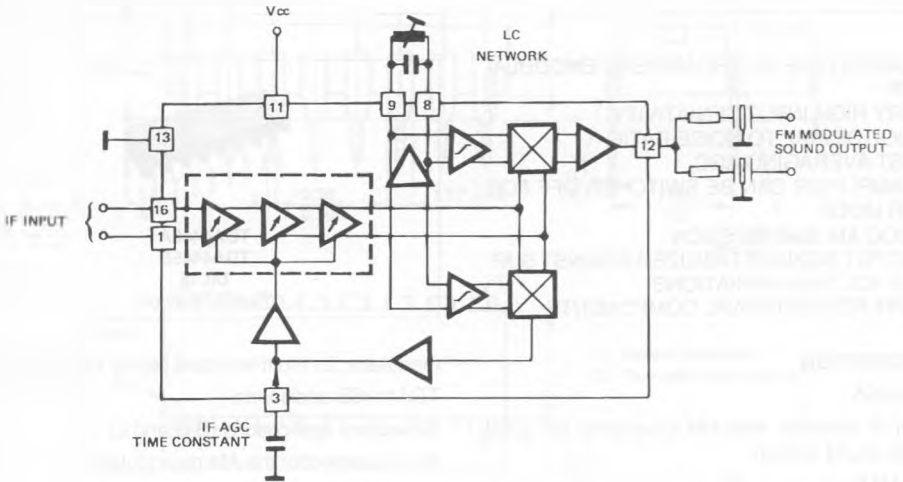
TDA4445A	TDA4445B
1 - IF Input	1 - IF Input
2 - Not to be connected	2 - Not to be connected
3 - IF AGC Time Constant	3 - IF AGC Time Constant
4 - Not to be connected	4 - Not to be connected
5 - Not to be connected	5 - Averaging capacitor
6 - Not to be connected	6 - A.F. Sound Output
7 - Not to be connected	7 - Not to be connected
8 - Reference LC Network	8 - Reference LC Network
9 - Reference LC Network	9 - Reference LC Network
10 - Not to be connected	10 - Not to be connected
11 - Supply Voltage	11 - Supply Voltage
12 - FM modulated sound output	12 - FM modulated sound output
13 - Ground	13 - Ground
14 - Not to be connected	14 - Not to be connected
15 - Not to be connected	15 - Not to be connected
16 - IF Input	16 - IF Input



E88TDA4445A-01

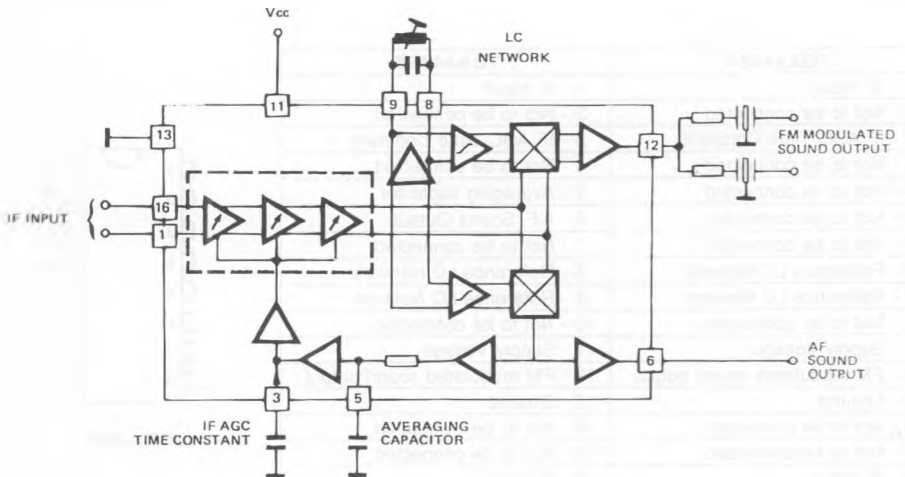
BLOCK DIAGRAMS

TDA4445A



E88TDA4445A-02

TDA4445B



E88TDA4445A-03

GENERAL DESCRIPTION

This circuit includes the following functions :

- Three symmetrical and gain controlled wide band amplifier stages, which are extremely stable by quasi DC coupling without feedback.
- Averaging AGC with discharge control circuit
- AGC voltage generator

Quasi parallel sound operation :

- High phase accuracy of the carrier signal pro-

cessing, independent from AM

- Linear quadrature demodulator
- Sound-IF-amplifier stage with impedance converter

AM-Demodulation (only TDA4445B) :

- Carrier controlled demodulator
- Audio frequency stage with impedance converter
- Averaging low pass AGC

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_{CC}	Supply Voltage Range	Pin 11	15	V
I_{CC}	Supply Current	Pin 11	70	mA
V_{ext}	External Voltages	Pin 3	12	V
V_{ext}	TDA4445A/TDA4445B	Pin 12	8	V
V_{ext}	External Voltages	Pin 5	8	V
V_{ext}	only TDA4445B	Pin 6	8	V
P_{tot}	Power Dissipation		1	W
T_j	Junction Temperature		125	°C
T_{amb}	Ambient Temperature Range		0 to + 70	°C
T_{stg}	Storage Temperature Range		- 25 to + 125	°C

THERMAL DATA

$R_{th(j-a)}$	Junction-ambient Thermal Resistance	70	°C/W
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ELECTRICAL OPERATING CHARACTERISTICS

T_{amb} = + 25°C, V_{CC} = 12V (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit	
V _{CC} I _{CC}	<u>DC CHARACTERISTICS</u>					
	Supply Voltage Supply Current V ₃ = 3.5V	Pin 13 Pin 11	10	12 45	15 60	V mA
V _O	DC Output Voltage V ₃ = 3.5V	Pin 12	4.25	5	5.75	V
I	Output DC Current V ₃ = 3.5V V ₁₁ = 12V	Pin 12	1		2	mA
R C	Input Impedance	Pins 1-16 Pins 1-16		2 2		KΩ pF
V	Switch off Control Voltage for VTR Mode	Pin 3	9		10	V
I	Switch off Control Current for VTR Mode	Pin 3			150	μA
Δ _{GIF}	<u>AGC CHARACTERISTICS</u> IF AGC Range			62		dB
V _I	<u>QUASI PARALLEL SOUND OPERATION</u> (TDA4445A and TDA4445B) f _{PC} = 38.9MHz, f _{SC1} = 33.4MHz, f _{SC2} = 33.16MHz, PC/SC ₁ = 13dB, PC/SC ₂ = 20dB, PC unmodulated					
	Min. Input Voltage 5.5MHz - Output Signal - 3dB	Pins 1-16		70		μV _{eff}
V _I	Max. Input Voltage 5.5MHz - Output Signal + 1dB	Pins 1-16		90		mV _{eff}
V _O V _O	Sound-IF-output Voltage V ₁₋₁₆ = 20mV _{eff} SC unmodulated	Pin 12	200		400	mV _{eff}
	5.5MHz Output Voltage 5.74MHz Output Voltage	Pin 12	100		300	mV _{eff}
S + N N	Signal to noise ratio measured according to CCIR 468-2 Picture Modulation Ratio 90% Reference signal : V ₁₋₁₆ = 10mV, FM-frequency deviation 30kHz → f _{mod} = 1kHz, measured at audio-output Black Screen	Out 1 350mV _{RMS} Out 2 350mV _{RMS}				
	1. Channel/2. Channel Grid Screen		Pin 12		55/50	dB
S + N N	1. Channel/2. Channel	Pin 12		45/40		dB

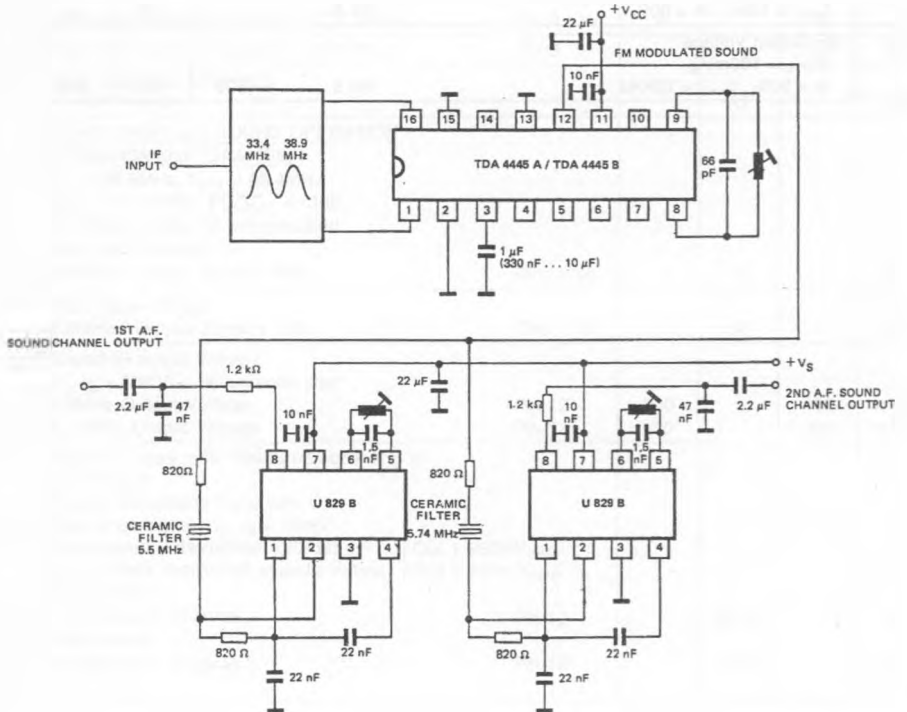
ELECTRICAL OPERATING CHARACTERISTICS (cont'd)

$T_{amb} = +25^{\circ}\text{C}$, $V_{CC} = 12\text{V}$ (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit
V_i	AM DEMODULATION (TDA4445B only) $f_{SC} = 39.2\text{MHz}$, $m = 80\%$, $f_{mod} = 1\text{kHz}$ Min. Input Voltage Audio Output Signal - 3dB Pins 1-16		70		μV_{eff}
V_o	Output DC Voltage $V_{1-16} = 10\text{mV}_{eff}$ unmodulated Pin 6	3.3		4.5	V
I	Output DC Current $V_6 = 7.5\text{V}$, $V_3 = 3.5\text{V}$ Pin 6	0.3		1.2	mA
d	Distortion $V_{1-16} = 10\text{mV}$ $f_{mod} = 1\text{kHz}$, $m = 80\%$ Pin 6		2.5	4	%
V_o	AF Output Voltage $V_{1-16} = 100\text{mV}_{eff}$ $m = 50\%$, $f_{mod} = 10\text{KHz}$ Pin 6	500	700	900	mV_{eff}

TYPICAL APPLICATION

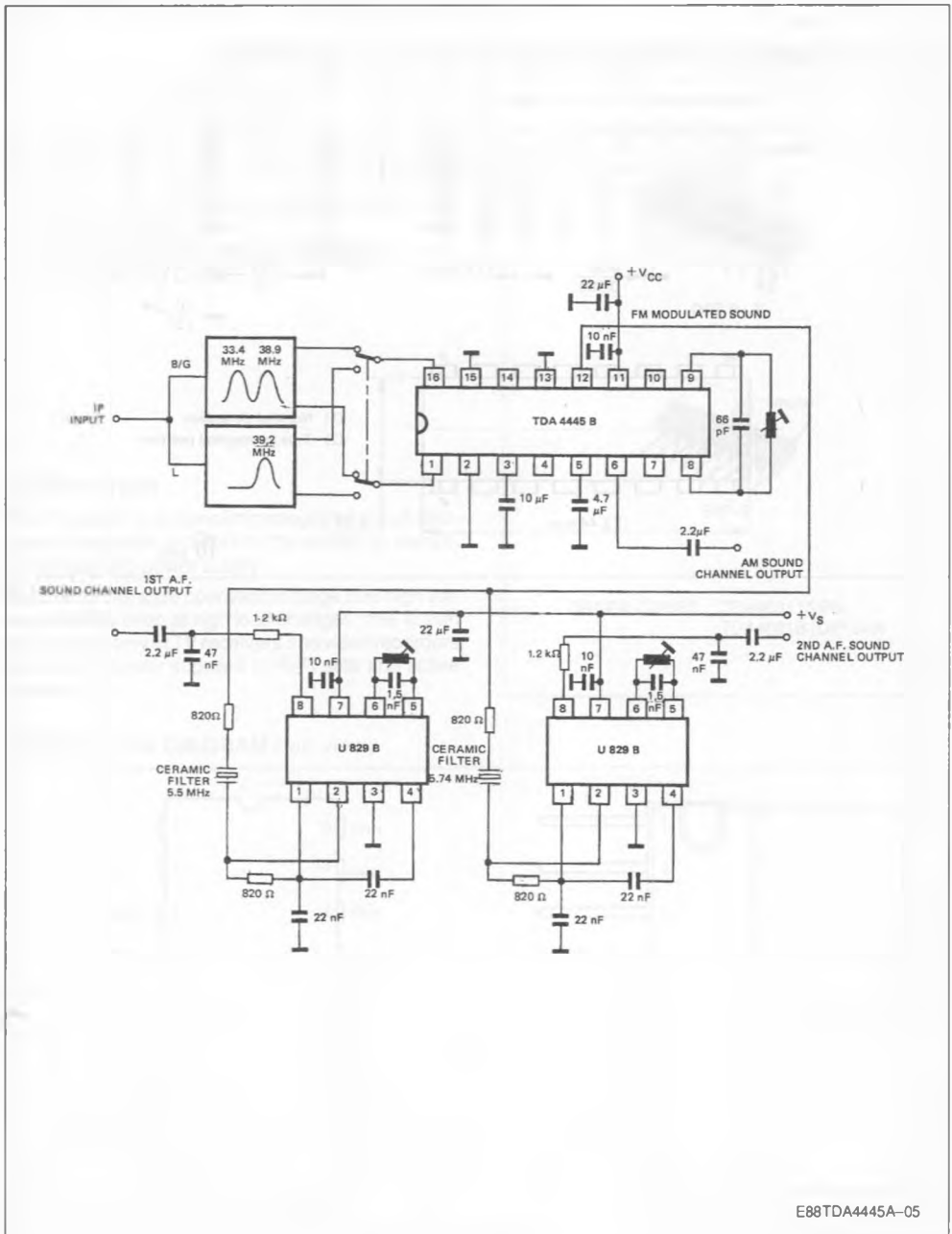
Figure 1 : Quasi Parallel Sound Operation.



E88TDA4445A-04

TYPICAL APPLICATION

Figure 2 : Bistandard Operation (FM stereo sound + AM sound).



PACKAGE MECHANICAL DATA

16 PINS-PLASTIC DIP

