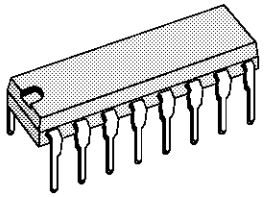
SGS-THOMSON MICROELECTRONICS

TDA4445A
TDA4445B

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



DIP16
(Plastic Package)

ORDER CODE : TDA4445A - TDA4445B

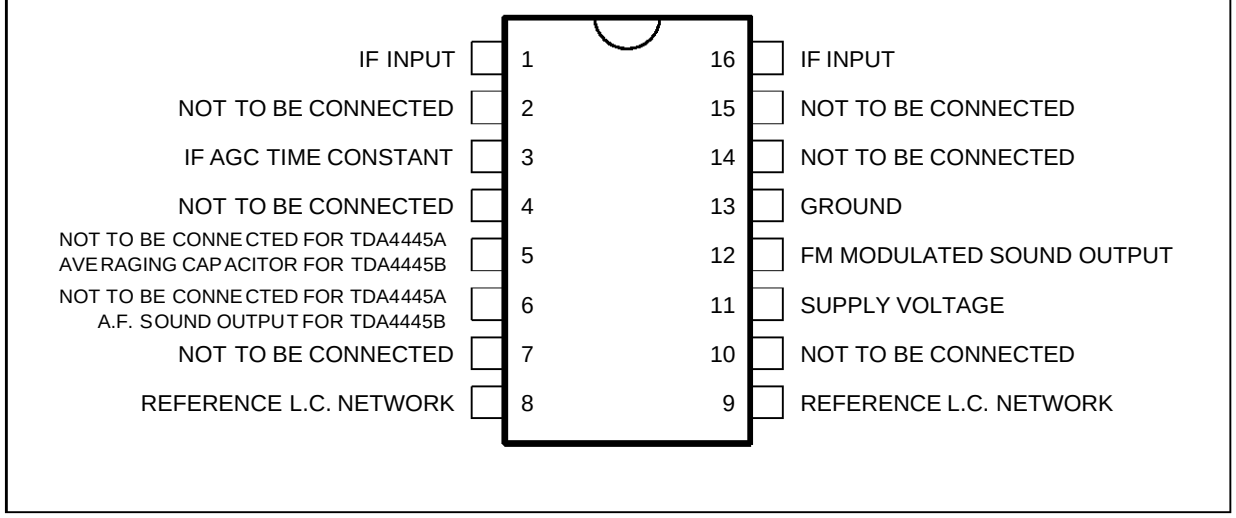
DESCRIPTION

TDA4445A :
Sound IF amplifier, with FM processing for quasi parallel sound system.

TDA4445B :
Sound IF amplifier, with FM processing and AM demodulator, for multi-standard sound TV appliances.

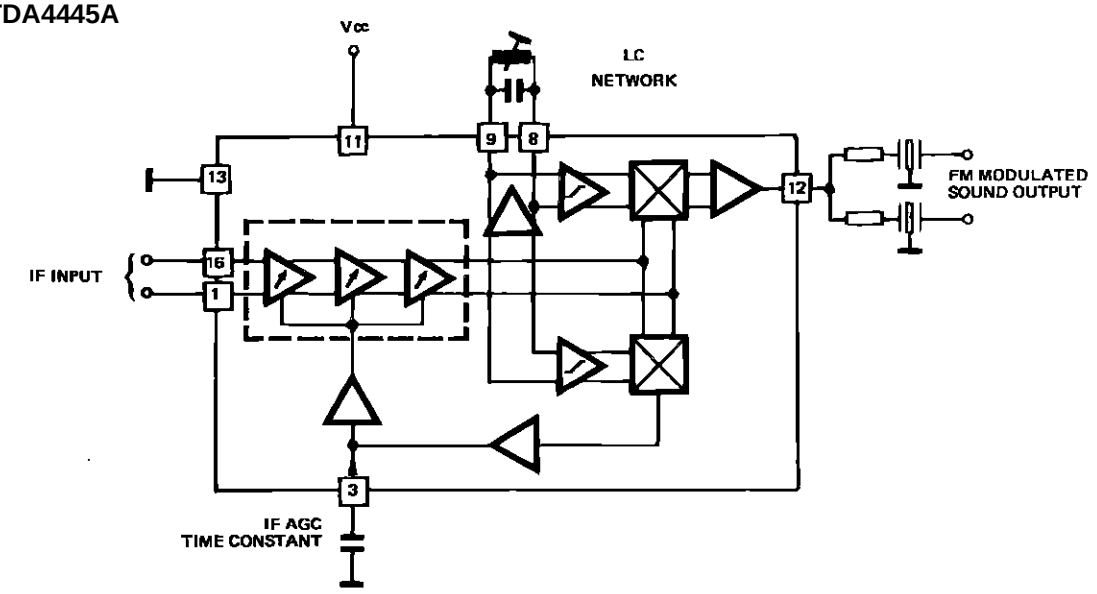
TDA4445B additionnal :
Bistandard applications (B/G and L)
No adjustment of the AM demodulator
Low AM distortion

PIN CONNECTIONS

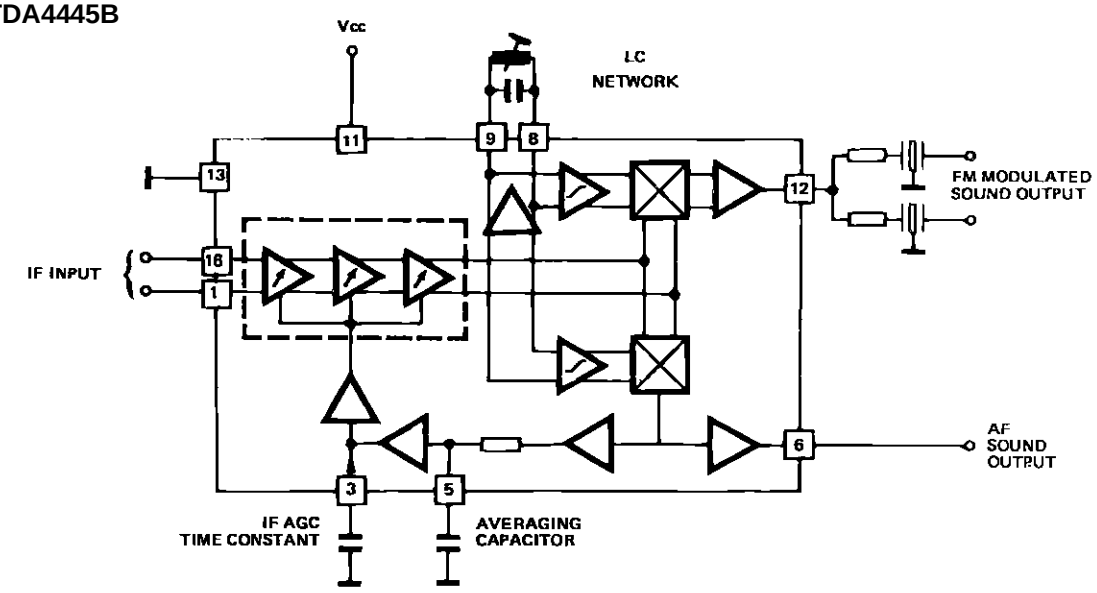


BLOCK DIAGRAMS

TDA4445A



TDA4445B



4445-02.EPS / 4445-03.EPS

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 processing, 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 Pin 12	12 8	V V
V_{ext}	External Voltages TDA4445A - TDA4445B TDA4445B	Pin 5 Pin 6	8 8	V V
P_{tot}	Power Dissipation		1	W
T_j	Junction Temperature		125	°C
T_{amb}	Ambient Temperature Range		0, + 70	°C
T_{stg}	Storage Temperature Range		– 25, + 125	°C

4445-01.TBL

THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th(j-a)}$	Junction-ambient Thermal Resistance	70	°C/W

4445-02.TBL

ELECTRICAL OPERATING CHARACTERISTICS

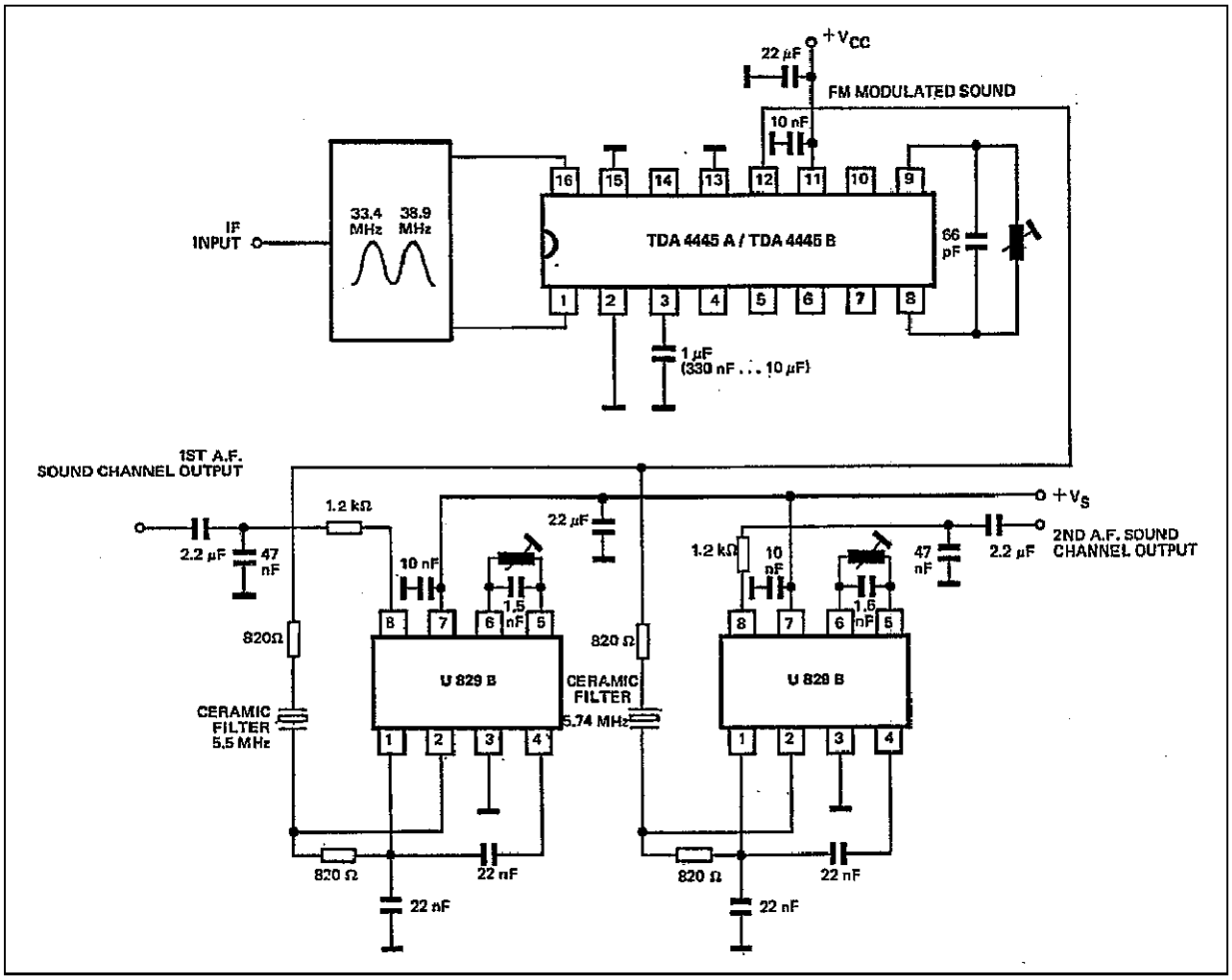
T_{amb} = + 25°C, V_{CC} = 12V (unless otherwise specified)

Symbol	Parameter		Min.	Typ.	Max.	Unit
DC CHARACTERISTICS						
V_{CC}	Supply Voltage	Pin 13	10	12	15	V
I_{CC}	Supply Current (V_3 = 3.5V)	Pin 11		45	60	mA
V_O	DC Output Voltage (V_3 = 3.5V)	Pin 12	4.25	5	5.75	V
I	Output DC Current (V_3 = 3.5VV_{11} = 12V)	Pin 12	1		2	mA
R	Input Impedance	Pins 1-16		2		kΩ
C	Input Impedance	Pins 1-16		2		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
AGC CHARACTERISTICS						
Δ_{GIF}	IF AGC Range			62		dB
QUASI PARALLEL SOUND OPERATION (f_{PC} = 38.9MHz, f_{SC1} = 33.4MHz, f_{SC2} = 33.16MHz, PC/SC_1 = 13dB, PC/SC2 = 20dB, PC unmodulated)						
V_I	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	Sound-IF-output Voltage (V_{1-16} = 20mV_{eff} SC unmodulated) 5.5MHz Output Voltage 5.74MHz Output Voltage	Pin 12	 200 100		 400 300	 mV_{eff} mV_{eff}
$\frac{S+N}{N}$	Signal to noise ratio measured according to CCIR 468-2 Picture Modulation Ratio 90%, Reference signal (V_{1-16} = 10mV), FM-frequency deviation30kHz → Out 1 350mV_{RMS} f_{mod} = 1kHz, measured at audio-output Out 2 350mV_{RMS} Black Screen (1. Channel/2. Channel) Grid Screen (1. Channel/2. Channel)	Pin 12		 55/50 45/40		 dB dB
AM DEMODULATI0N (TDA4445B only) (f_{SC} = 39.2MHz, m = 80%, f_{mod} = 1kHz)						
V_I	Min. Input Voltage (Audio Output Signal - 3dB)	Pins 1-16		70		μV_{eff}
V_O	Output DC Voltage (V_{1-16} = 10mV_{eff} unmodulated)	Pin 6	3.3		4.5	V
I	Output DC Current (V_6 = 7.5V, V_3 = 3.5V)	Pin 6	0.3		1.2	mA
d	Distortion (V_{1-16} = 10mV, f_{mod} = 1kHz , m = 80%)	Pin 6		2.5	4	%
V_O	AF Output Voltage (V_{1-16} = 100mV_{eff}, m = 50% , f_{mod} = 10kHz)	Pin 6	500	700	900	mV_{eff}

4445-03.TBL

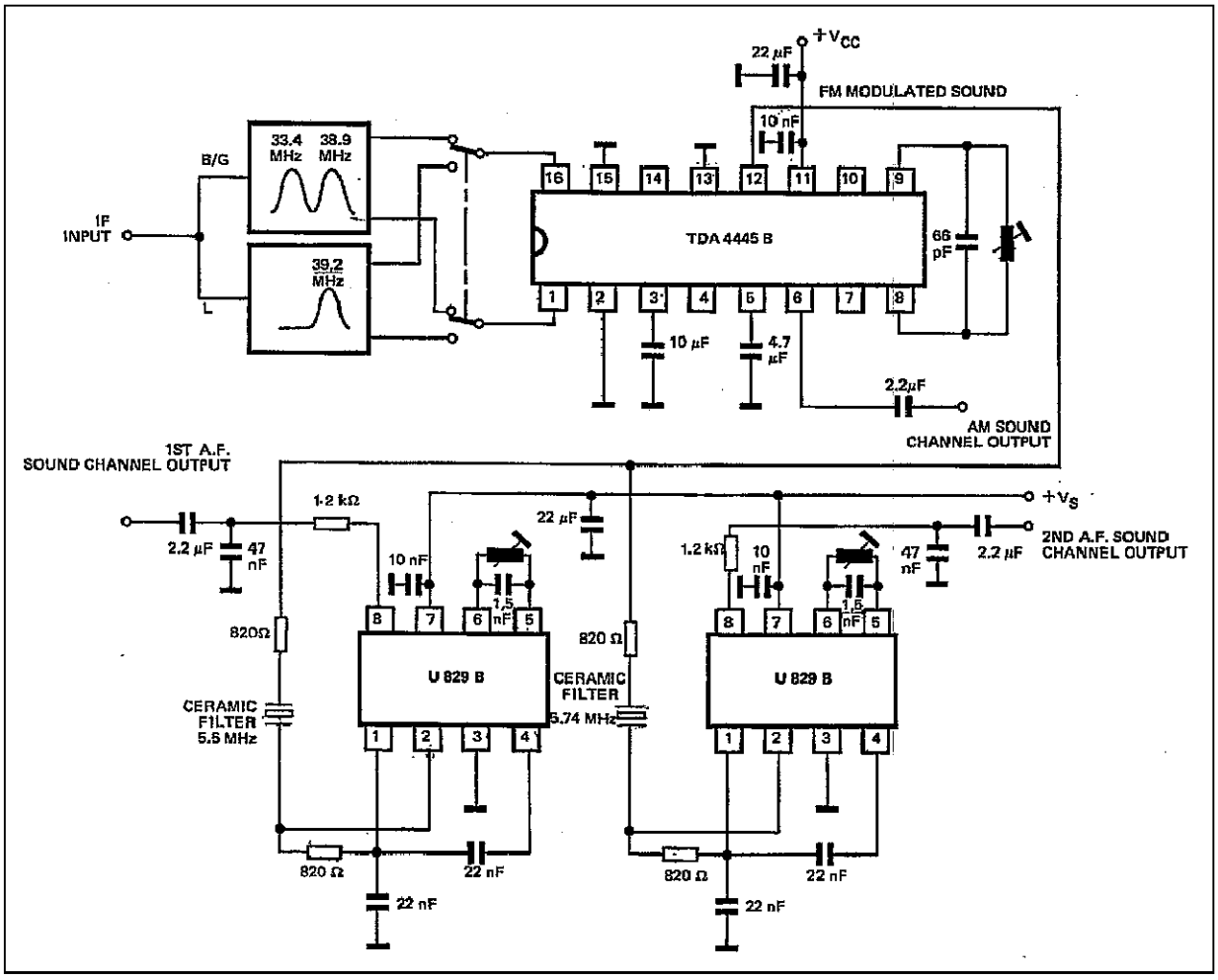
TYPICAL APPLICATION

Figure 1 : Quasi Parallel Sound Operation



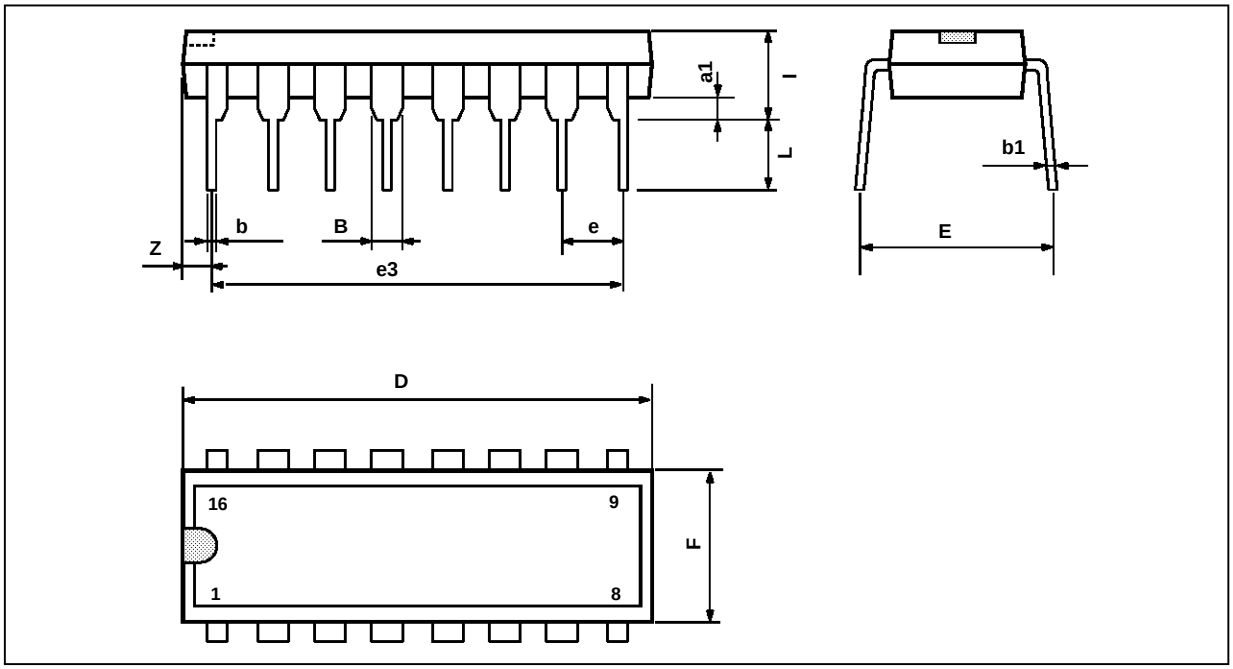
TYPICAL APPLICATION

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



PACKAGE MECHANICAL DATA

16 PINS - PLASTIC DIP



PM-DIP16.EPS

Dimensions	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
a1	0.51			0.020		
B	0.77		1.65	0.030		0.065
b		0.5			0.020	
b1		0.25			0.010	
D			20			0.787
E		8.5			0.335	
e		2.54			0.100	
e3		17.78			0.700	
F			7.1			0.280
i			5.1			0.201
L		3.3			0.130	
Z			1.27			0.050

DIP16.TBL

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