

**SOUND IF AMPLIFIER**

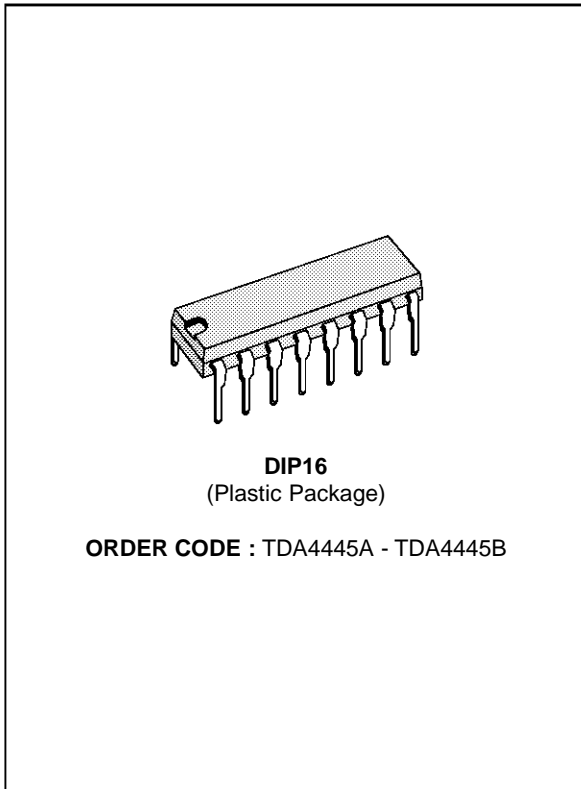
- QUADRATURE INTERCARRIER DEMODULATOR
- VERY HIGH INPUT SENSITIVITY
- GOOD SIGNAL TO NOISE RATIO
- FAST AVERAGING AGC
- IF AMPLIFIER CAN BE SWITCHED OFF FOR VTR MODE
- GOOD AM SUPPRESSION
- OUTPUT SIGNAL STABILIZED AGAINST SUPPLY VOLTAGE VARIATIONS
- VERY FEW EXTERNAL COMPONENTS

**DESCRIPTION**

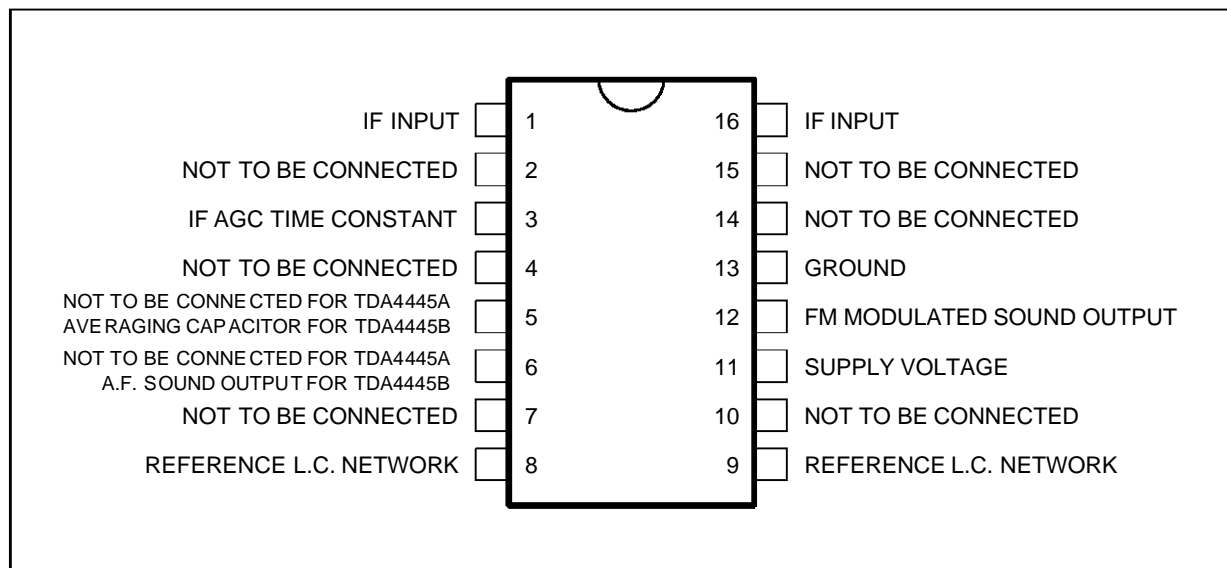
**TDA4445A:**  
Sound IF amplifier, with FM processing for quasi parallel sound system.

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

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

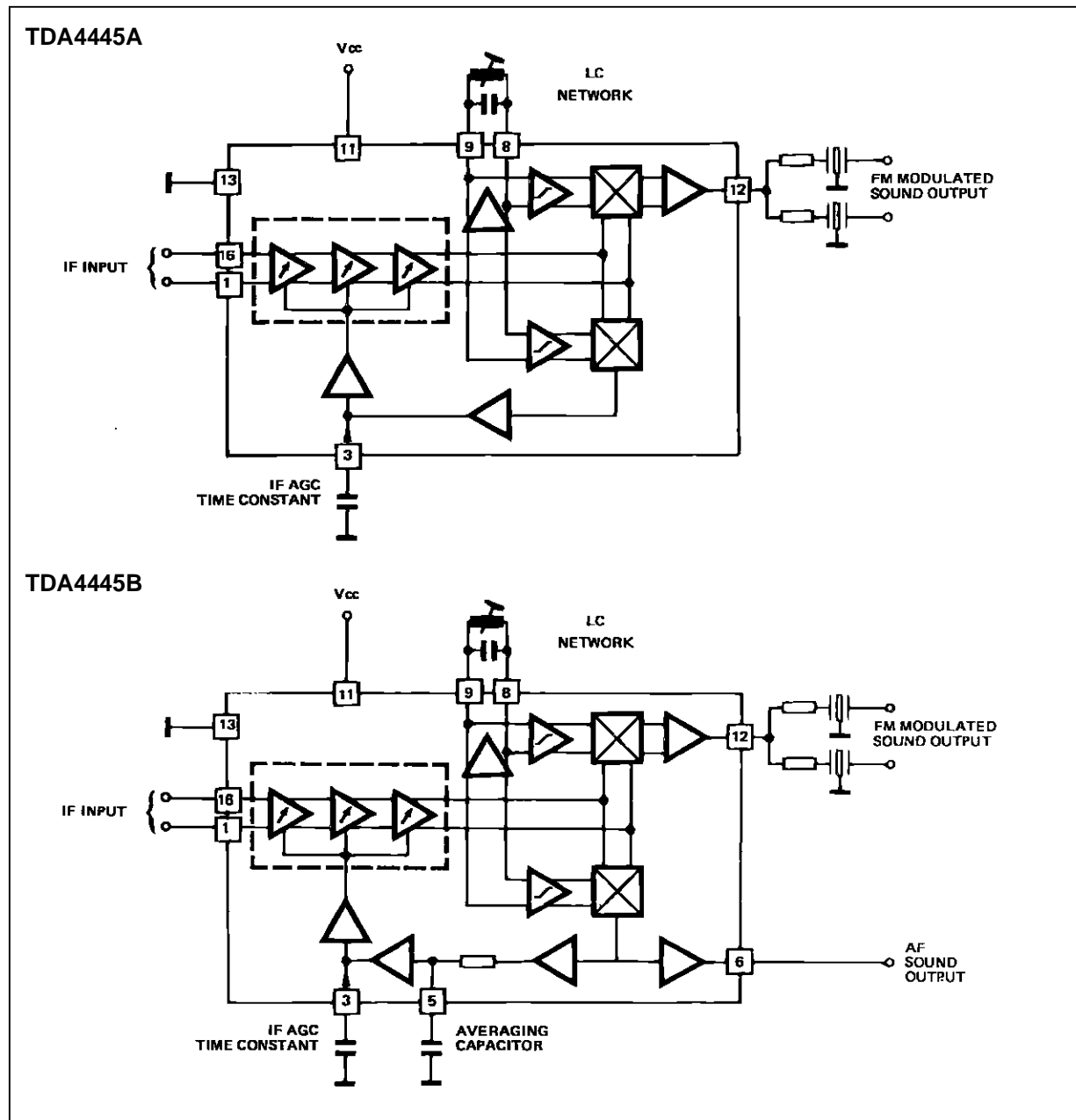


**PIN CONNECTIONS**



4445-01EPS

BLOCK DIAGRAMS



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

essing, 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 <sub>CC</sub>	Supply Voltage Range	Pin 11	15	V	
I <sub>CC</sub>	Supply Current	Pin 11	70	mA	
V <sub>ext</sub>	External Voltages	Pin 3 Pin 12	12 8	V V	
V <sub>ext</sub>	External Voltages	TDA4445A - TDA4445B TDA4445B	Pin 5 Pin 6	8 8	V V
P <sub>tot</sub>	Power Dissipation		1	W	
T <sub>j</sub>	Junction Temperature		125	°C	
T <sub>amb</sub>	Ambient Temperature Range		0, + 70	°C	
T <sub>stg</sub>	Storage Temperature Range		- 25, + 125	°C	

4445-01.TBL

**THERMAL DATA**

Symbol	Parameter	Value	Unit
R <sub>th(j-a)</sub>	Junction-ambient Thermal Resistance	70	°C/W

4445-02.TBL

**ELECTRICAL OPERATING CHARACTERISTICS**

T<sub>amb</sub> = + 25°C, V<sub>CC</sub> = 12V (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit	
<b>DC CHARACTERISTICS</b>						
V <sub>CC</sub>	Supply Voltage	Pin 13	10	12	15	V
I <sub>CC</sub>	Supply Current (V <sub>3</sub> = 3.5V)	Pin 11		45	60	mA
V <sub>O</sub>	DC Output Voltage (V <sub>3</sub> = 3.5V)	Pin 12	4.25	5	5.75	V
I	Output DC Current (V <sub>3</sub> = 3.5V, V <sub>11</sub> = 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 <sub>GIF</sub>	IF AGC Range		62		dB
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**QUASI PARALLEL SOUND OPERATION**

(f<sub>PC</sub> = 38.9MHz, f<sub>SC1</sub> = 33.4MHz, f<sub>SC2</sub> = 33.16MHz, PC/SC<sub>1</sub> = 13dB, PC/SC<sub>2</sub> = 20dB, PC unmodulated)

V <sub>I</sub>	Min. Input Voltage (5.5MHz - Output Signal - 3dB)	Pins 1-16		70		μV <sub>eff</sub>
V <sub>I</sub>	Max. Input Voltage (5.5MHz - Output Signal + 1dB)	Pins 1-16		90		mV <sub>eff</sub>
V <sub>O</sub>	Sound-IF-output Voltage (V <sub>1-16</sub> = 20mV <sub>eff</sub> SC unmodulated)	Pin 12				
	5.5MHz Output Voltage		200		400	mV <sub>eff</sub>
	5.74MHz Output Voltage		100		300	mV <sub>eff</sub>
	Signal to noise ratio measured according to CCIR 468-2 Picture Modulation Ratio 90%, Reference signal (V <sub>1-16</sub> = 10mV), FM-frequency deviation 30kHz → Out 1 350mV <sub>RMS</sub> f <sub>mod</sub> = 1kHz, measured at audio-output Out 2 350mV <sub>RMS</sub>	Pin 12				
$\frac{S+N}{N}$	Black Screen (1. Channel/2. Channel)			55/50		dB
	Grid Screen (1. Channel/2. Channel)			45/40		dB

**AM DEMODULATION (TDA4445B only) (f<sub>SC</sub> = 39.2MHz, m = 80%, f<sub>mod</sub> = 1kHz)**

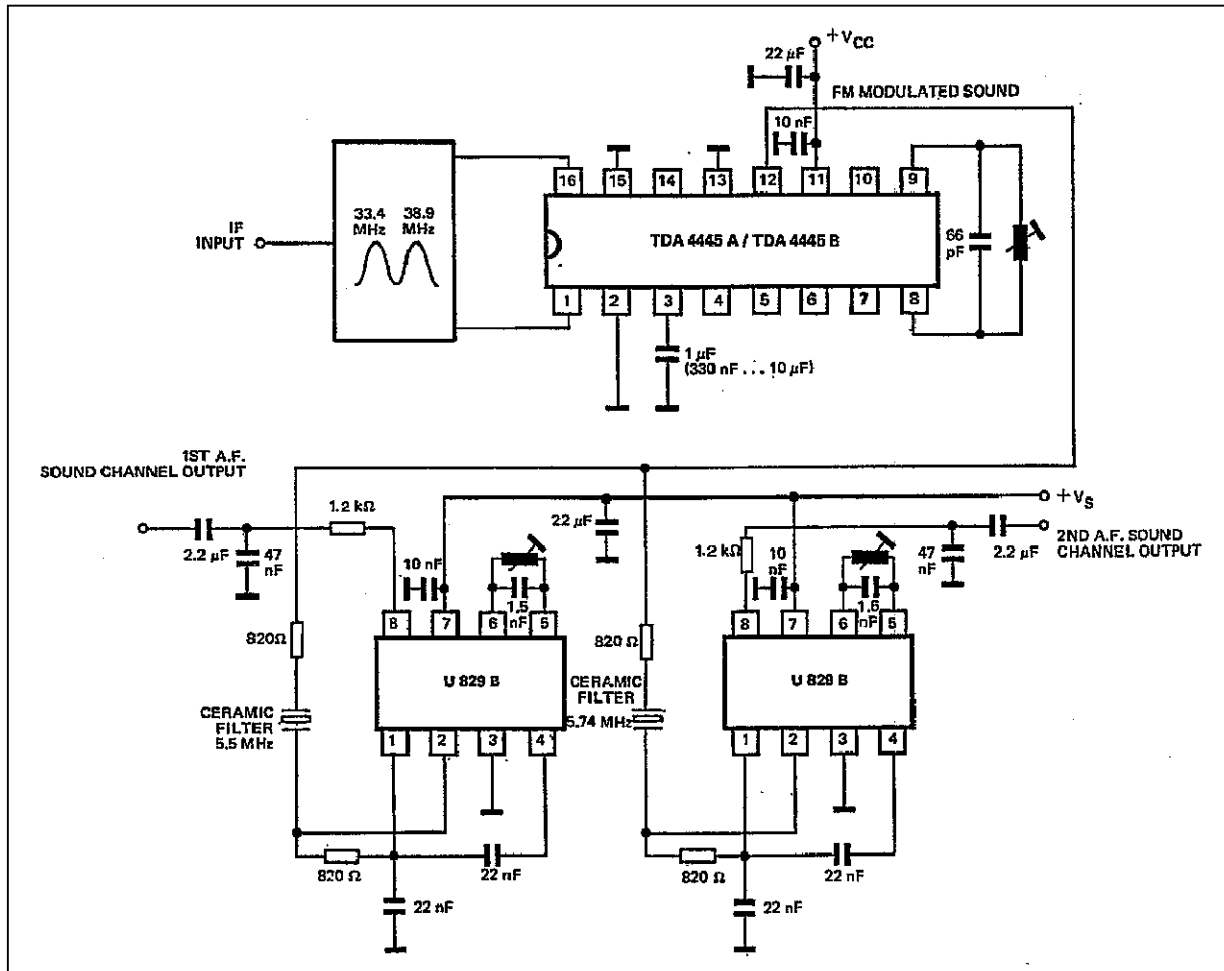
V <sub>I</sub>	Min. Input Voltage (Audio Output Signal - 3dB)	Pins 1-16		70		μV <sub>eff</sub>
V <sub>O</sub>	Output DC Voltage (V <sub>1-16</sub> = 10mV <sub>eff</sub> unmodulated)	Pin 6	3.3		4.5	V
I	Output DC Current (V <sub>6</sub> = 7.5V, V <sub>3</sub> = 3.5V)	Pin 6	0.3		1.2	mA
d	Distortion (V <sub>1-16</sub> = 10mV, f <sub>mod</sub> = 1kHz, m = 80%)	Pin 6		2.5	4	%
V <sub>O</sub>	AF Output Voltage (V <sub>1-16</sub> = 100mV <sub>eff</sub> , m = 50%, f <sub>mod</sub> = 10kHz)	Pin 6	500	700	900	mV <sub>eff</sub>

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# TDA4445A - TDA4445B

## TYPICAL APPLICATION

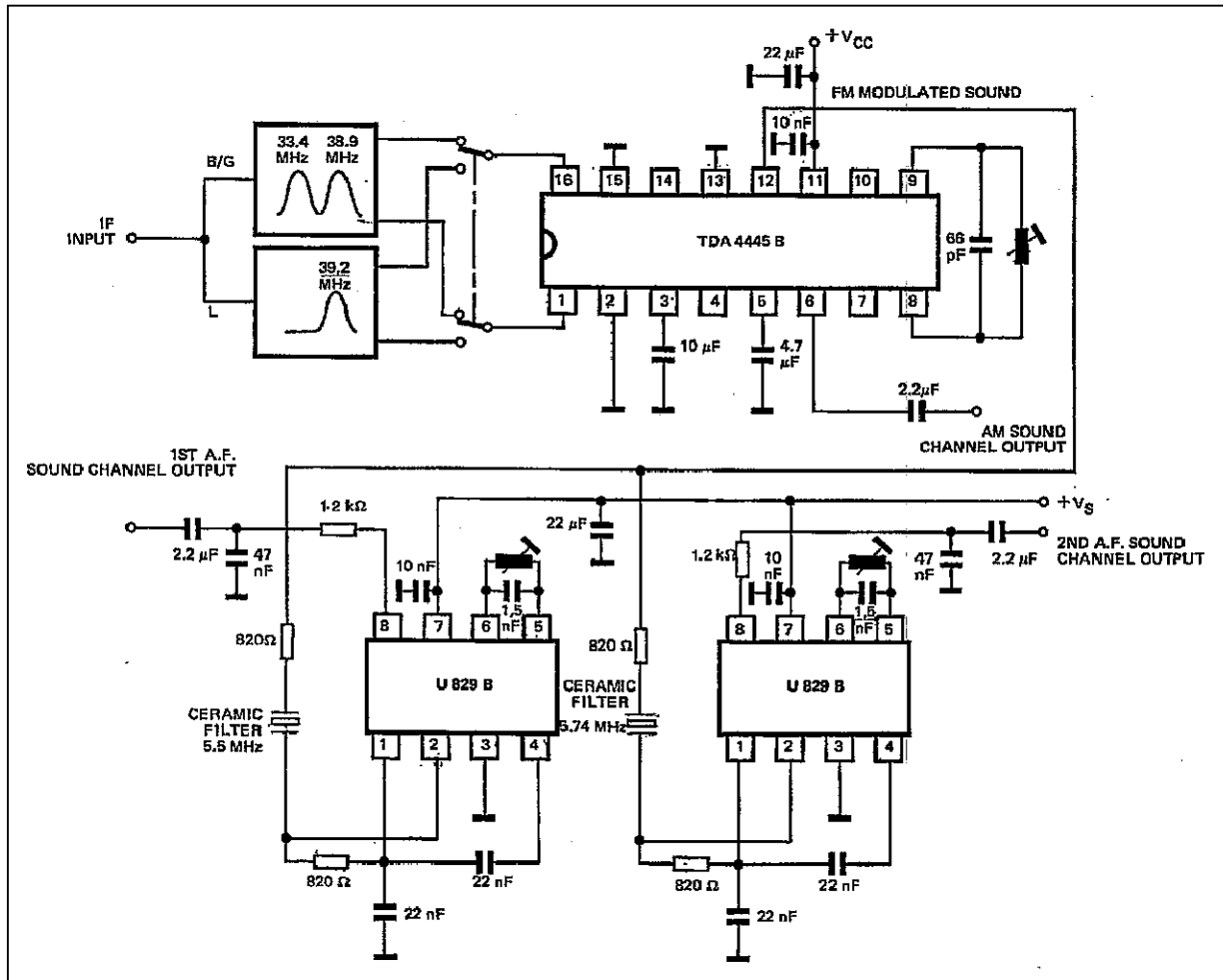
Figure 1 : Quasi Parallel Sound Operation



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TYPICAL APPLICATION

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

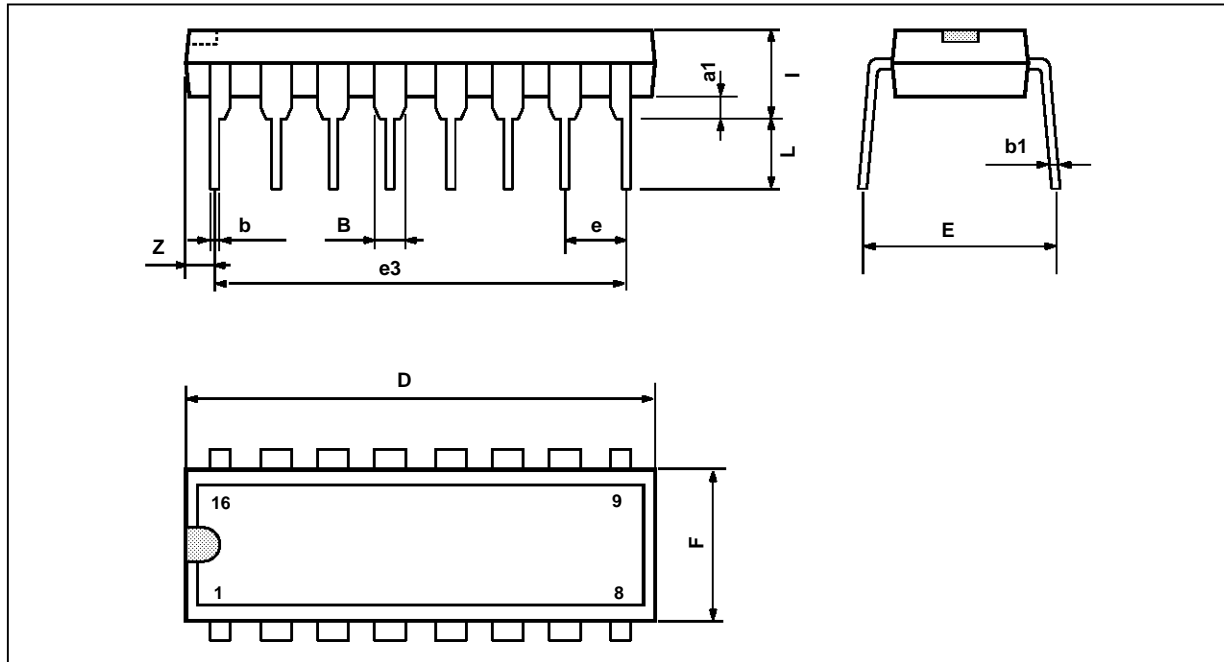


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# TDA4445A - TDA4445B

## 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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