

SOUND IF AMPLIFIER

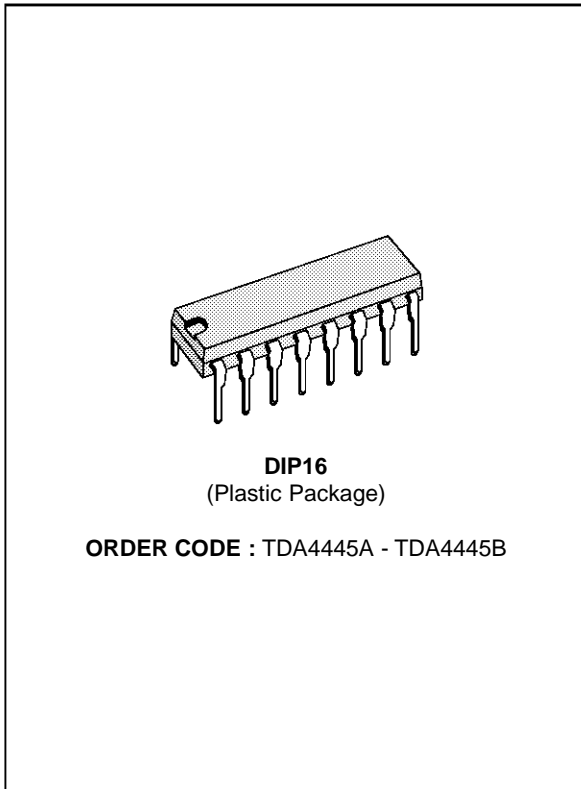
- QUADRATURE INTERCARRIER DEMODULATOR
- VERY HIGH INPUT SENSITIVITY
- GOOD SIGNAL TO NOISE RATIO
- FAST AVERAGING AGC
- IF AMPLIFIER CAN BE SWITCHED OFF FOR VTR MODE
- GOOD AM SUPPRESSION
- OUTPUT SIGNAL STABILIZED AGAINST SUPPLY VOLTAGE VARIATIONS
- VERY FEW EXTERNAL COMPONENTS

DESCRIPTION

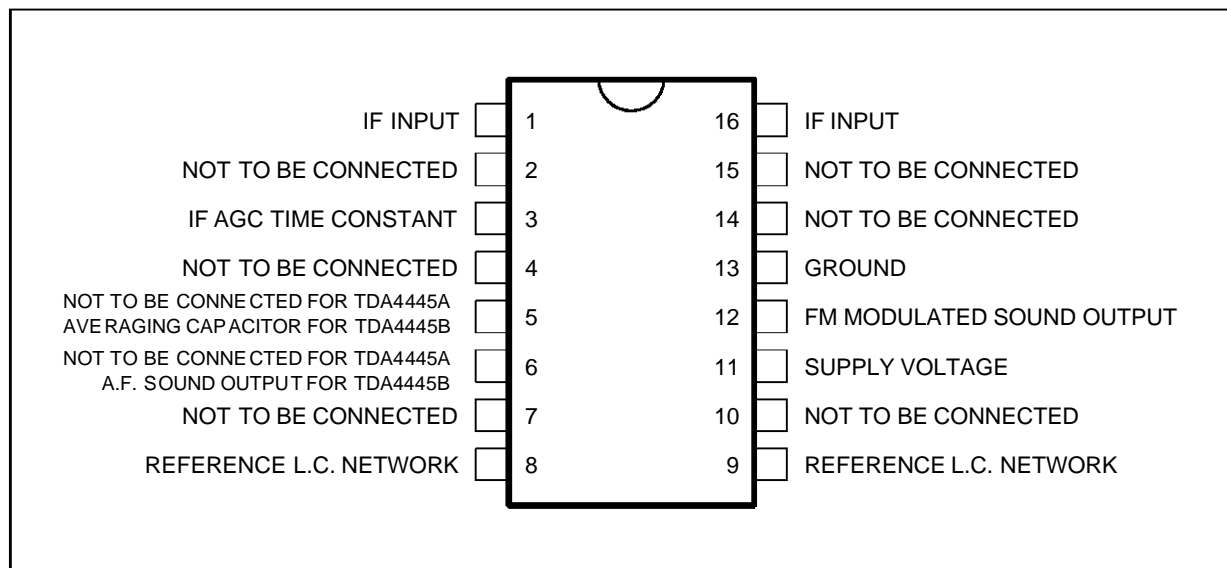
TDA4445A:
Sound IF amplifier, with FM processing for quasi parallel sound system.

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

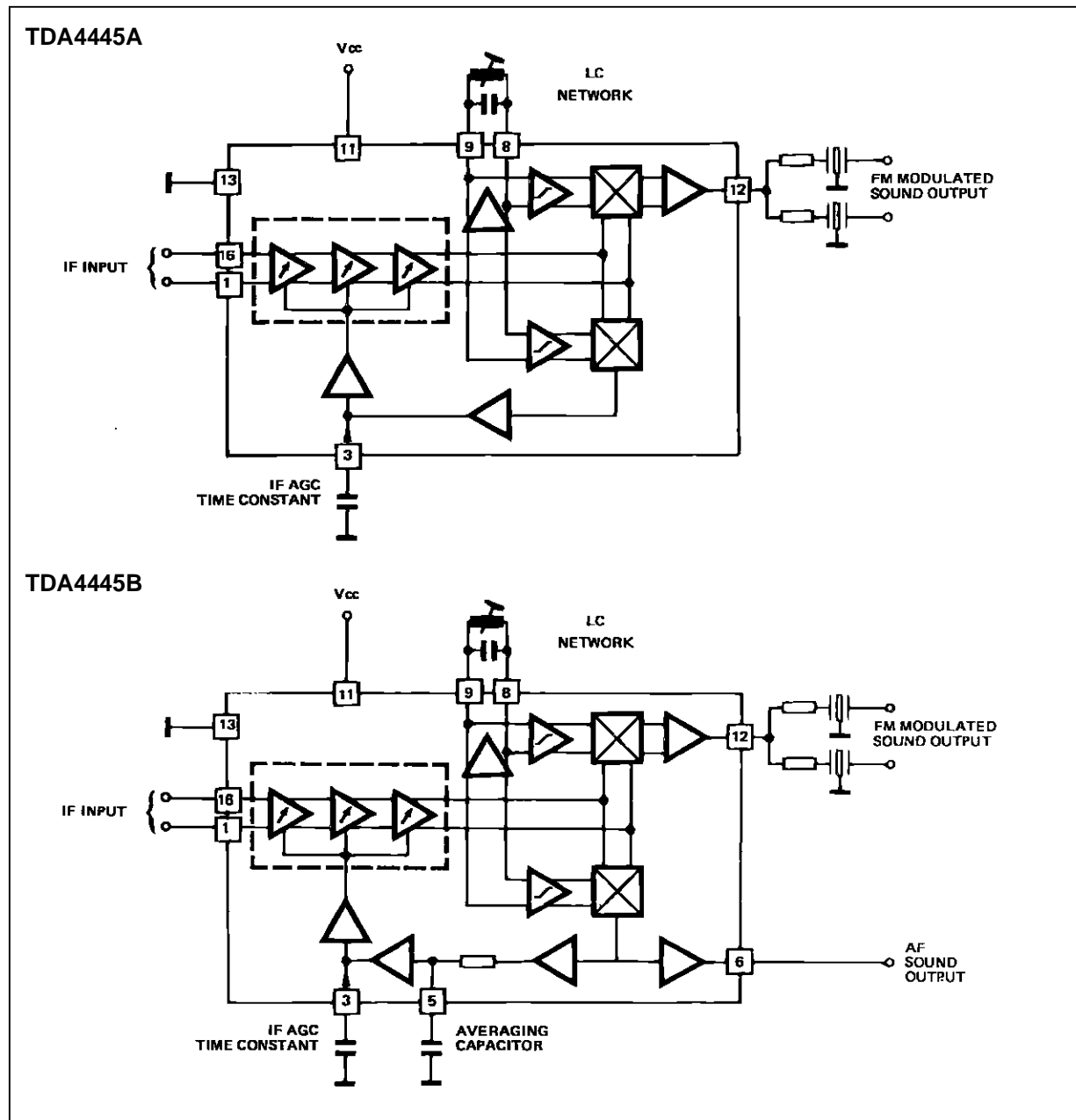


PIN CONNECTIONS



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 _{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
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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 = 3.5V, V 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
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QUASI PARALLEL SOUND OPERATION

(f_{PC} = 38.9MHz, f_{SC1} = 33.4MHz, f_{SC2} = 33.16MHz, PC/SC₁ = 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)	Pin 12				
	5.5MHz Output Voltage		200		400	mV _{eff}
	5.74MHz Output Voltage		100		300	mV _{eff}
	Signal to noise ratio measured according to CCIR 468-2 Picture Modulation Ratio 90%, Reference signal (V ₁₋₁₆ = 10mV), FM-frequency deviation 30kHz → Out 1 350mV _{RMS} f _{mod} = 1kHz, measured at audio-output Out 2 350mV _{RMS}	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_{SC} = 39.2MHz, m = 80%, f_{mod} = 1kHz)

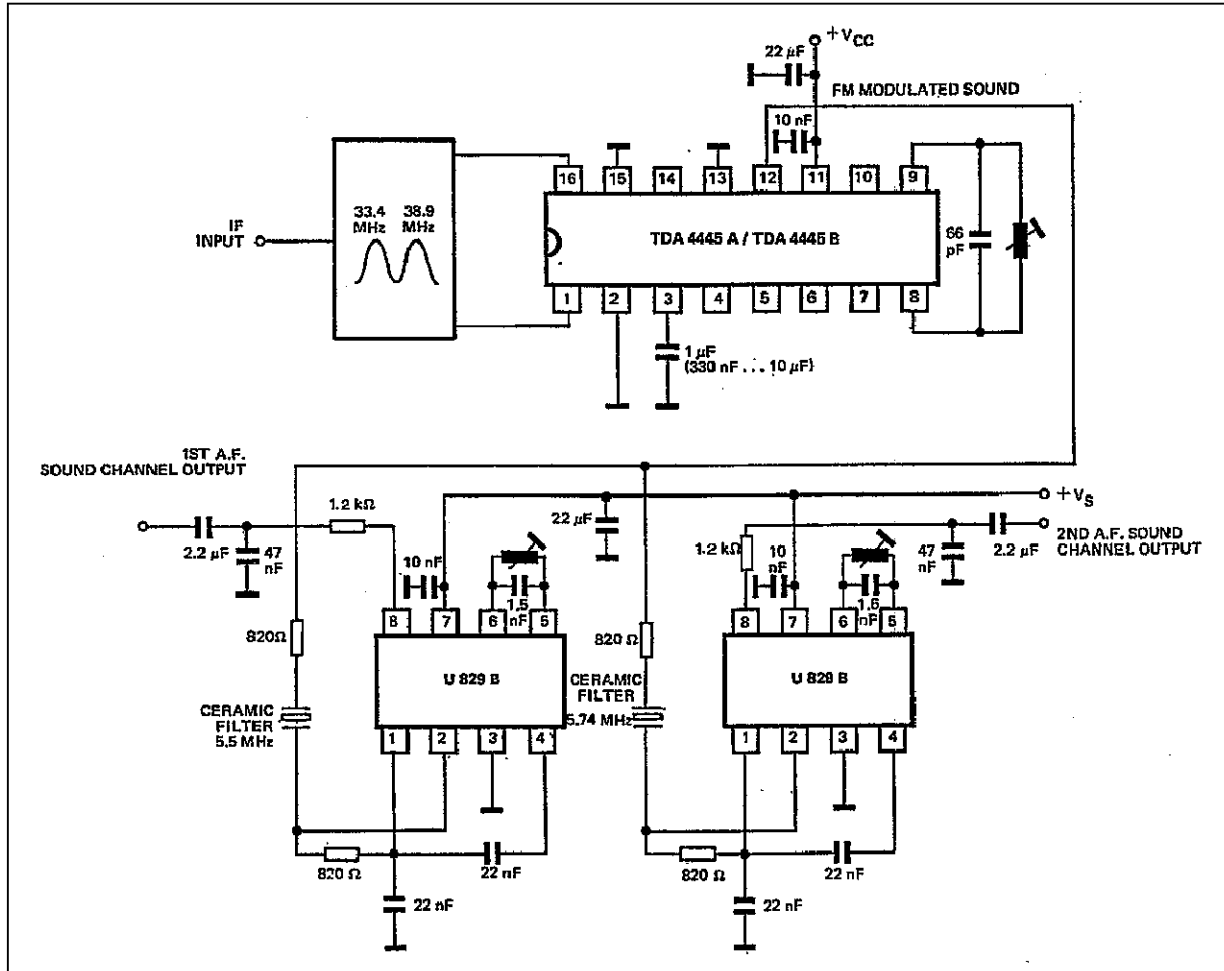
V _I	Min. Input Voltage (Audio Output Signal - 3dB)	Pins 1-16		70		μV _{eff}
V _O	Output DC Voltage (V ₁₋₁₆ = 10mV _{eff} unmodulated)	Pin 6	3.3		4.5	V
I	Output DC Current (V ₆ = 7.5V, V ₃ = 3.5V)	Pin 6	0.3		1.2	mA
d	Distortion (V ₁₋₁₆ = 10mV, f _{mod} = 1kHz, m = 80%)	Pin 6		2.5	4	%
V _O	AF Output Voltage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

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TDA4445A - TDA4445B

TYPICAL APPLICATION

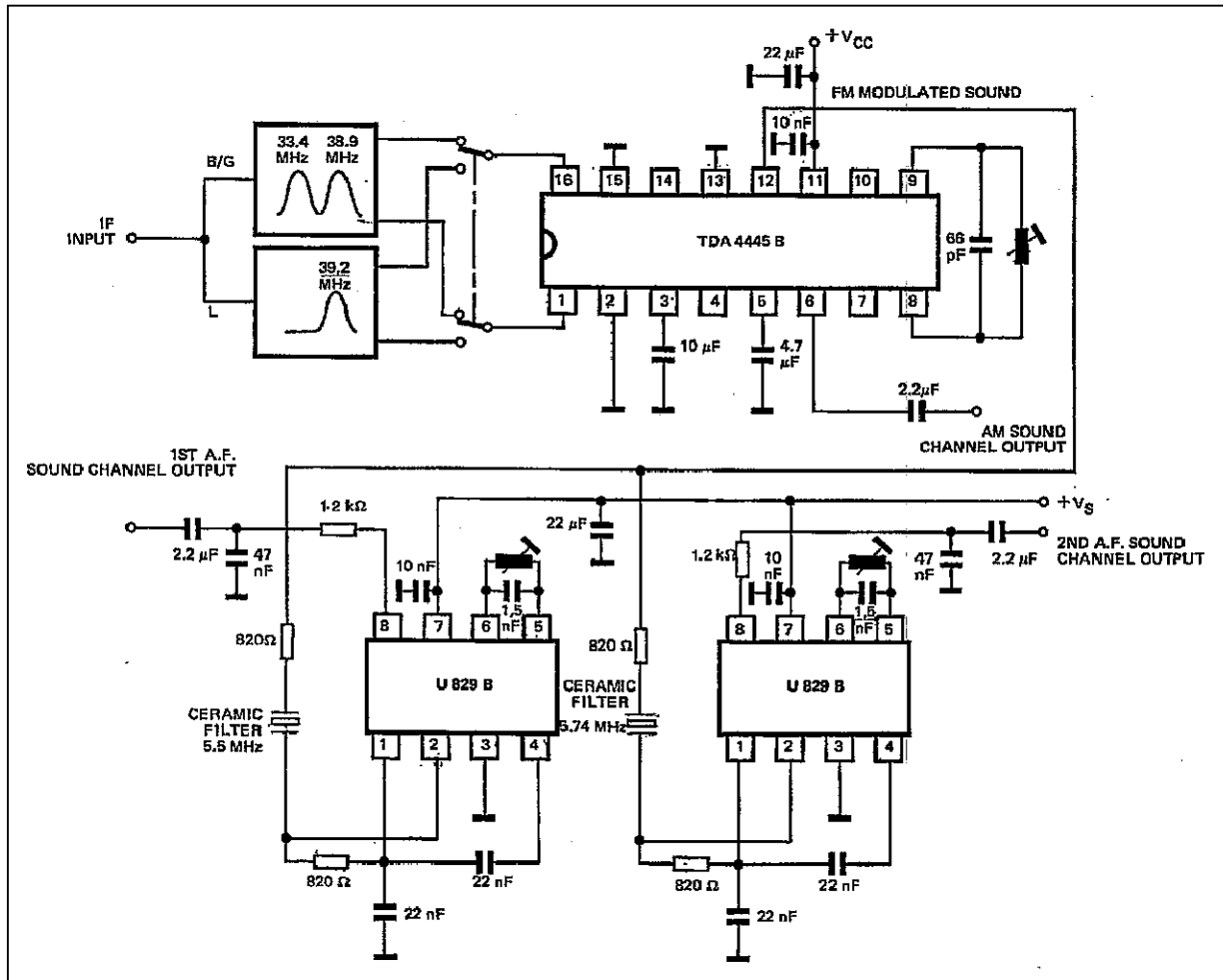
Figure 1 : Quasi Parallel Sound Operation



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TYPICAL APPLICATION

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

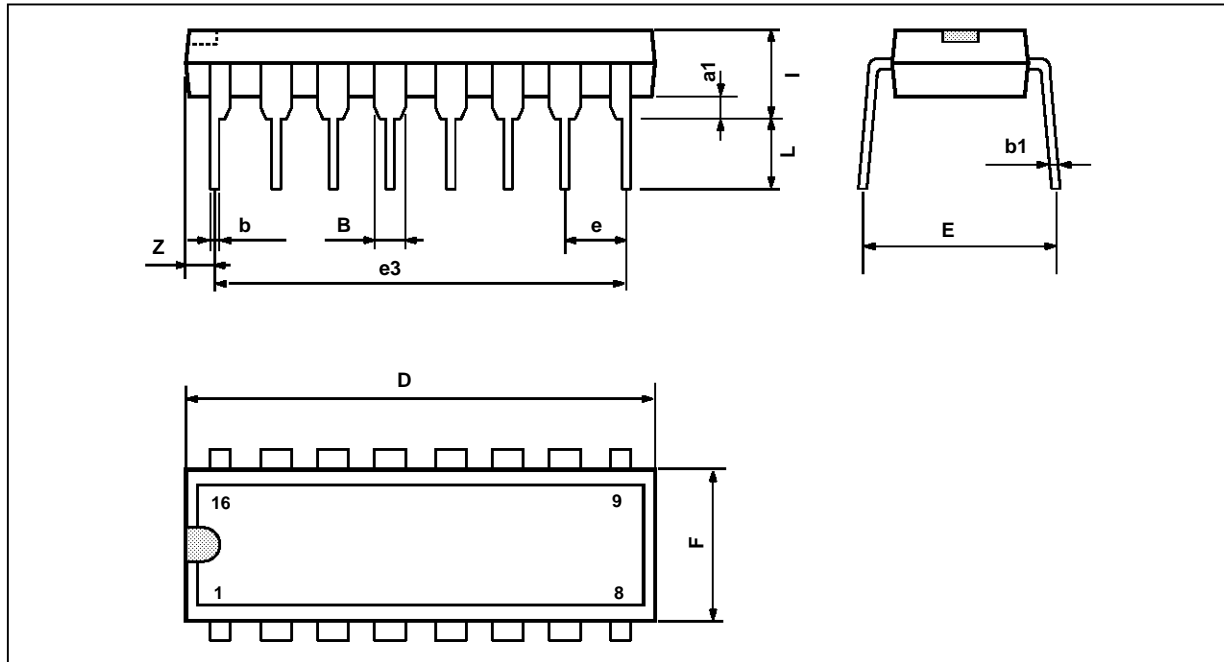


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TDA4445A - TDA4445B

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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