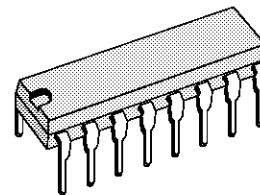


**MULTISTANDARD VIDEO IF AMPLIFIER**

- SWITCHING OFF THE IF AMPLIFIER WHEN OPERATING IN VTR MODE
- DEMODULATION OF NEGATIVE OR POSITIVE IF SIGNALS. THE OUTPUT REMAINS ON THE SAME POLARITY IN EVERY CASE
- IF AGC AUTOMATICALLY ADJUSTED TO THE ACTUAL STANDARD
- TWO AGC POSSIBILITIES FOR B/G MODE :
  1. GATED AGC
  2. UNGATED AGC ON SYNC. LEVEL AND CONTROLLED DISCHARGE DEPENDENT ON THE AVERAGE SIGNAL LEVEL FOR VTR AND PERI TV APPLICATIONS
- FOR STANDARD L : FAST AGC ON PEAK WHITE BY CONTROLLED DISCHARGE
- POSITIVE OR NEGATIVE GATING PULSE
- EXTREMELY HIGH INPUT SENSITIVITY
- LOW DIFFERENTIAL DISTORTION
- CONSTANT INPUT IMPEDANCE
- VERY HIGH SUPPLY VOLTAGE REJECTION
- FEW EXTERNAL COMPONENTS
- LOW IMPEDANCE VIDEO OUTPUT
- SMALL TOLERANCES OF THE FIXED VIDEO SIGNAL AMPLITUDE
- ADJUSTABLE, DELAYED AGC FOR PNP TUNERS

**DESCRIPTION**

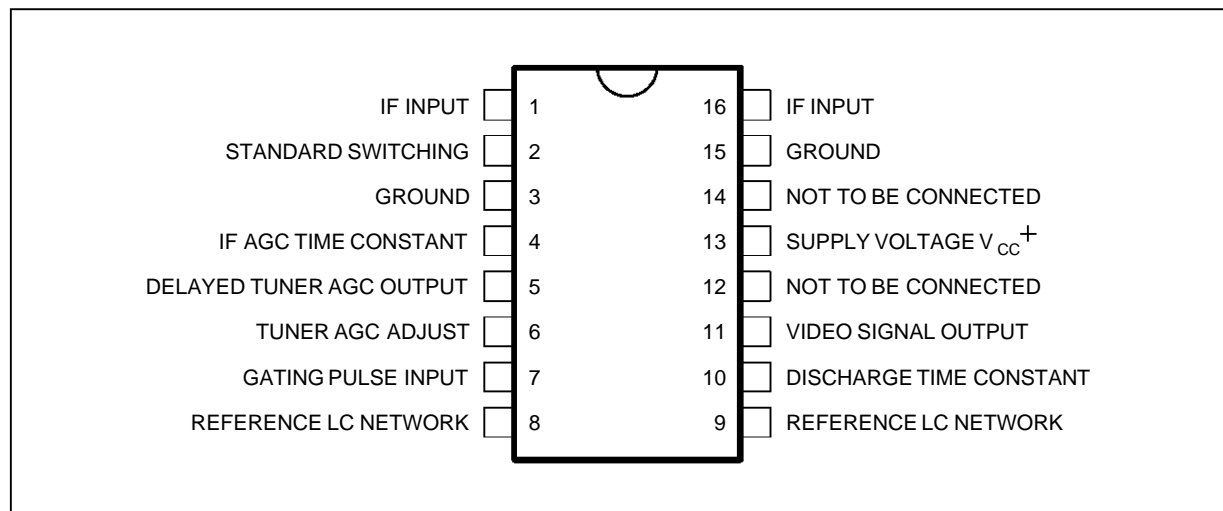
The TDA4443 is a Video IF amplifier with standard switch for multistandard colour or monochrome TV sets, and VTR's.



**DIP16**  
(Plastic Package)

**ORDER CODE : TDA4443**

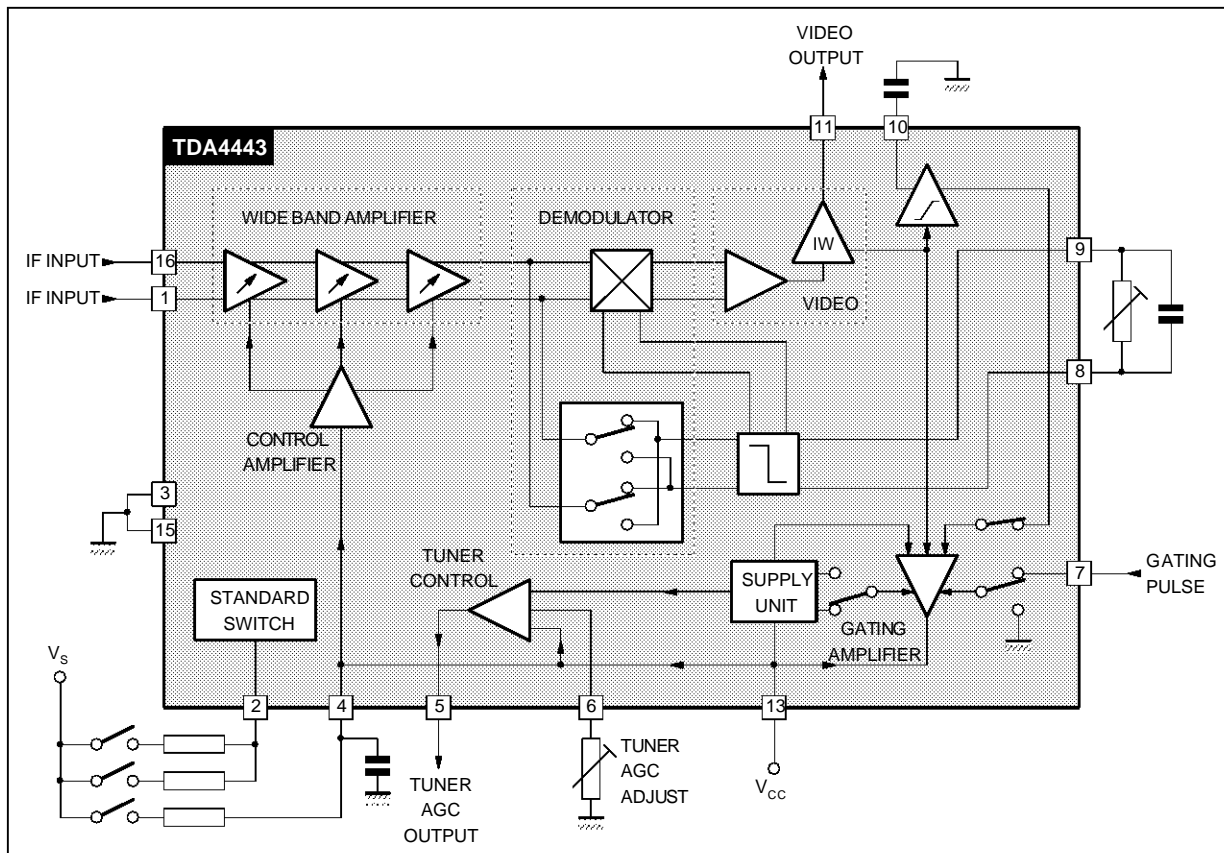
**PIN CONNECTIONS**



4443-01.EPS

# TDA4443

## BLOCK DIAGRAM



## GENERAL DESCRIPTION

This video IF processing circuit integrates the following functional blocks :

- Three symmetrical, very stable, gain controlled wideband amplifier stages - without feedback by a quasi-galvanic coupling.
- Demodulator controlled by the picture carrier
- Video output amplifier with high supply voltage rejection
- Polarity switch for the video output signal
- AGC on peak white level
- Gated AGC
- Discharge control
- Delayed tuner AGC
- At VTR Reading mode the video output signal is at ultra white level

## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	Supply Voltage Range Pin 13	15	V
V <sub>0</sub>	Open Loop Voltage Pin 5	max. V <sub>CC</sub>	V
V <sub>ext</sub>	External Voltage Pin 4	12	V
I <sub>4</sub>	Control Current for VTR Mode Pin 4	0.3	mA
I <sub>2</sub>	Control Current for Standard Mode Pin 2	0.5	mA
I <sub>0</sub>	Max. Video Output Current Pin 11	5	mA
I <sub>0</sub>	Short Circuit Current (t ≤ 1sec) Pin 11	30	mA
P <sub>tot</sub>	Power Dissipation	1	W
T <sub>j</sub>	Junction Temperature	125	°C
T <sub>AMB</sub>	Ambient Temperature Range	0 to +70	°C
T <sub>stg</sub>	Storage Temperature Range	-25 to +125	°C

4443-01.TBL

## THERMAL DATA

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

4443-02.TBL

## ELECTRICAL OPERATING CHARACTERISTICS

T<sub>AMB</sub> = 25°C, V<sub>CC</sub> = 12V, unless otherwise specified. Test Circuit Page 5.

Symbol	Parameter	Pin	Min.	Typ.	Max.	Unit
V <sub>CC</sub>	Supply Voltage	13	10	12	15	V
I <sub>CC</sub>	Supply Current (V <sub>CC</sub> = 12V, V <sub>4</sub> = 3.5V, V <sub>IN</sub> = 0) Pin 6, Pin 7, Pin 2 open	13		55	75	mA
V <sub>11</sub>	Ultra White Level at Standard B/G V <sub>CC</sub> = 15V, V <sub>4</sub> = 3.5V	11	4.8	5.1	5.6	V
V <sub>AA</sub>	Ultra Black Clamping Level at Standard B/G SIGNAL 1	11	1.70	1.85	2.10	V
V <sub>O</sub>	Picture to sync. output voltage of the video signal without load in standard B/G (residual carrier 10%) SIGNAL 1	11	2.6	2.9	3.3	V <sub>PP</sub>
V <sub>O</sub>	Picture to blanking level output voltage of the video signal without load in standard L (blanking level at 28% of carrier amplitude) SIGNAL 2 (residual carrier 5%)	11	1.80	2.1	2.40	V <sub>PP</sub>
$\frac{\Delta(V_p - V_{blank})}{V_p - V_{blank}}$	Output voltage change of the picture to blanking level from standard L to standard B/G (mode BG : signal 1, mode L : signal 2)	11			10	%
ΔV <sub>black</sub>	Supply voltage influence on the ultra black level in standard B/G	11		0.5		%V
ΔV <sub>white</sub>	Supply voltage influence on the ultra white level in standard B/G	11		1		%V
ΔV <sub>video</sub>	Video Bandwidth Video Signal Attenuation with V <sub>IN</sub> at 4.43MHz	11		1	1.5	dB
B <sub>video</sub>	Video Bandwidth at -3dB	11	6			MHz
ΔV <sub>video</sub>	Video frequency response changes within the AGC range	11		0.5	2.0	dB
I <sub>0</sub>	DC Output Current (V <sub>11</sub> = 10V, V <sub>CC</sub> = 15V)	11		1.5	2	mA
I <sub>7</sub>	Gating Pulse Current	7	0.30		1.0	mA
V <sub>7</sub>	DC Voltage at Gating Input	7		1.3	1.6	V
V <sub>1</sub>	Input Voltage Sensitivity V <sub>IN</sub> (with V <sub>OUT</sub> = V <sub>O</sub> - 3dB) Standard B/G SIGNAL 1	1-16		120		μV <sub>RMS</sub>
I	Control Current for Status B (see status of mode switching) V <sub>2</sub> = 5V	2		10	40	μA

4443-03.TBL

# TDA4443

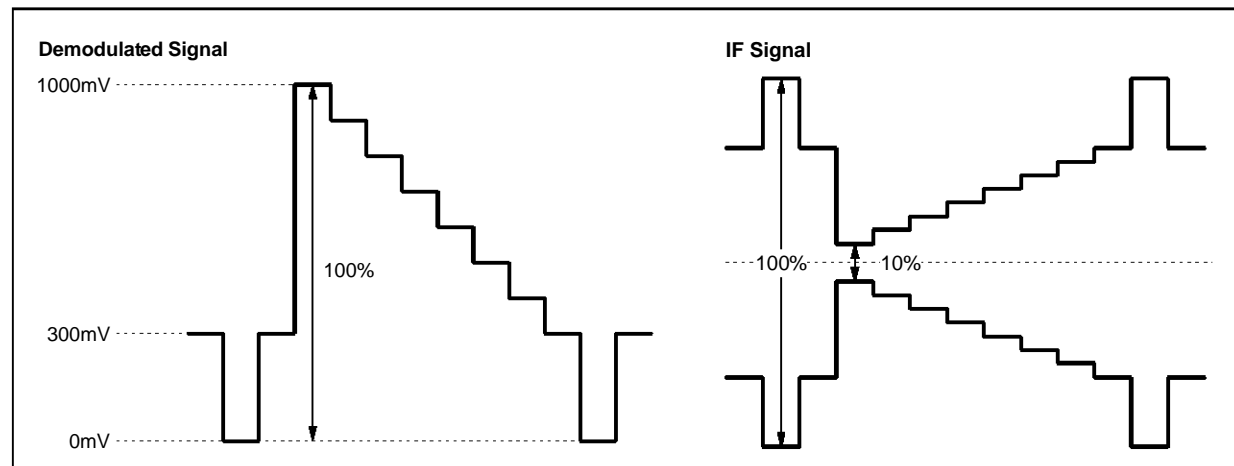
## ELECTRICAL OPERATING CHARACTERISTICS (continued)

T<sub>AMB</sub> = 25°C, V<sub>CC</sub> = 12V, unless otherwise specified. Test Circuit Page 5.

Symbol	Parameter	Pin	Min.	Typ.	Max.	Unit
I	Control Current Status C (see status of mode switching) - V <sub>2</sub> = 6.3V	2		60	400	μA
ΔG <sub>IF</sub>	IF AGC Range			60		dB
I <sub>AGC</sub>	Available Tuner AGC Current (10dB above the AGC starting point)	5	8	12		mA
ΔAGC	Delay Between Tuner AGC and IF AGC (pin 6 not connected)	5		50		dB
V <sub>IF</sub> V <sub>2IF</sub>	IF residual carrier at the video o/p withing the AGC range 38.9MHz 77.8MHz	11 11		20 50		mV <sub>RMS</sub> mV <sub>RMS</sub>
d	Differential Distortion on Composite Video Signal Amplitude SIGNAL 3	11			5	%
aM	Attenuation of sound to color carrier intermodulation signal (1.07MHz) referred to the demodulated color carrier : Picture Carrier = 0dB, Color Carrier = -6dB, Sound Carrier = -24dB	11		50		dB
$\frac{\Delta \text{Sync}}{\text{Sync}}$	Sync. Pulse Compression within the IF AGC Range			3		%
RI CI	Input Impedance : Resistance Capacitance	1-16 1-16		2.5 2		kΩ pF
V	Switch off Control Voltage for VTR Mode	4	9		10	V
I	Switch off Current for VTR Mode	4			150	μA

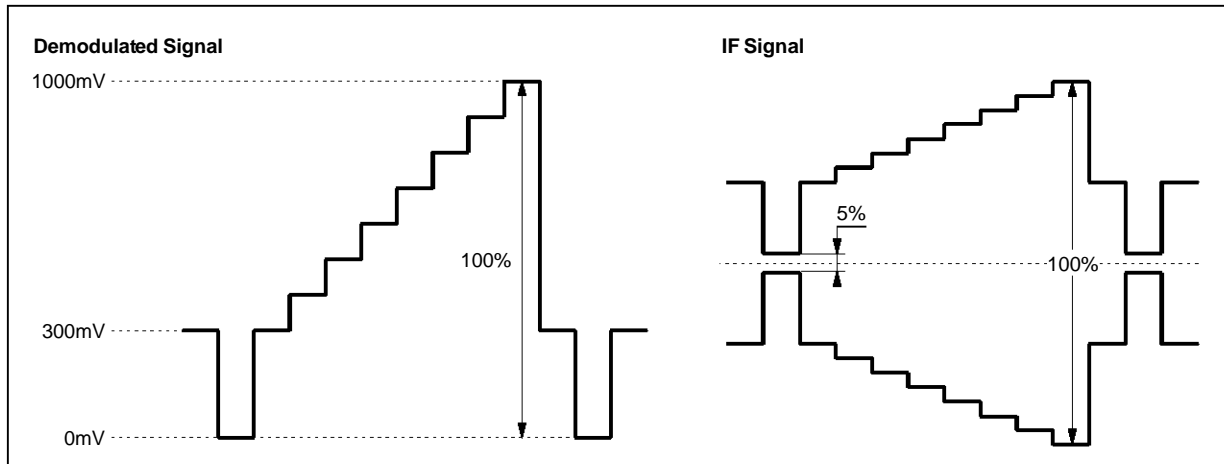
4443-04.TBL

## SIGNAL 1 (standard B/G)



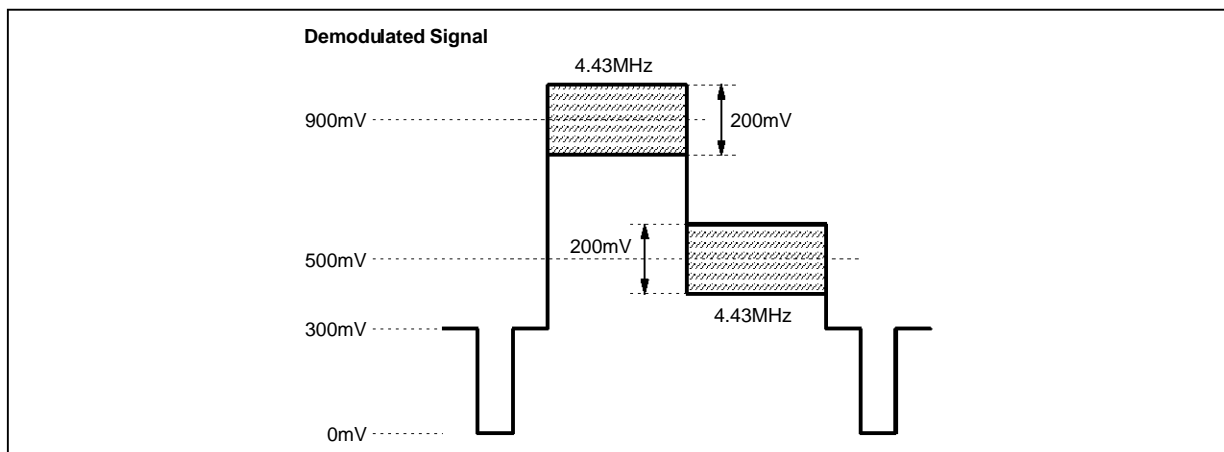
4443-03.EPS / 4443-04.EPS

**SIGNAL 2 (standard L)**



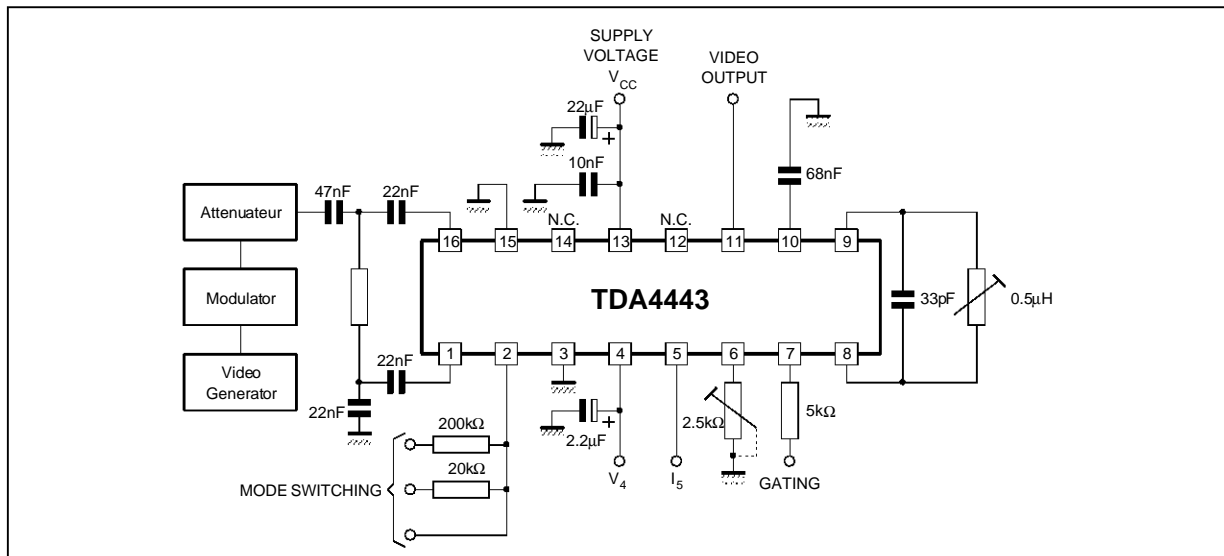
4443-05.EPS / 4443-06.EPS

**SIGNAL 3**



4443-07.EPS

**TEST CIRCUIT**



4443-08.EPS

**DEFINITION OF MODE SWITCHING**

Status	Pin 2	Pin 4	Function
A	Not connected	No External Voltage	Standard B/G mode, gated charge and discharge.
B	12V High Impedance	No External Voltage	Standard B/G, ungated, charging up to sync. level, discharging dependant from average signal (peri operation).
C	12V Low Impedance	No External Voltage	At standard L ungated, charging up to peak white level, discharge dependant from average signal level, inverted polarity of the video output.
D	No specifications	≥ 7.5V	In VTR reading mode the IF amplifier is blocked, turned gain controlled down : the video output signal is fixed at constant ultra white level for standard B/G mode.

4443-05.TBL

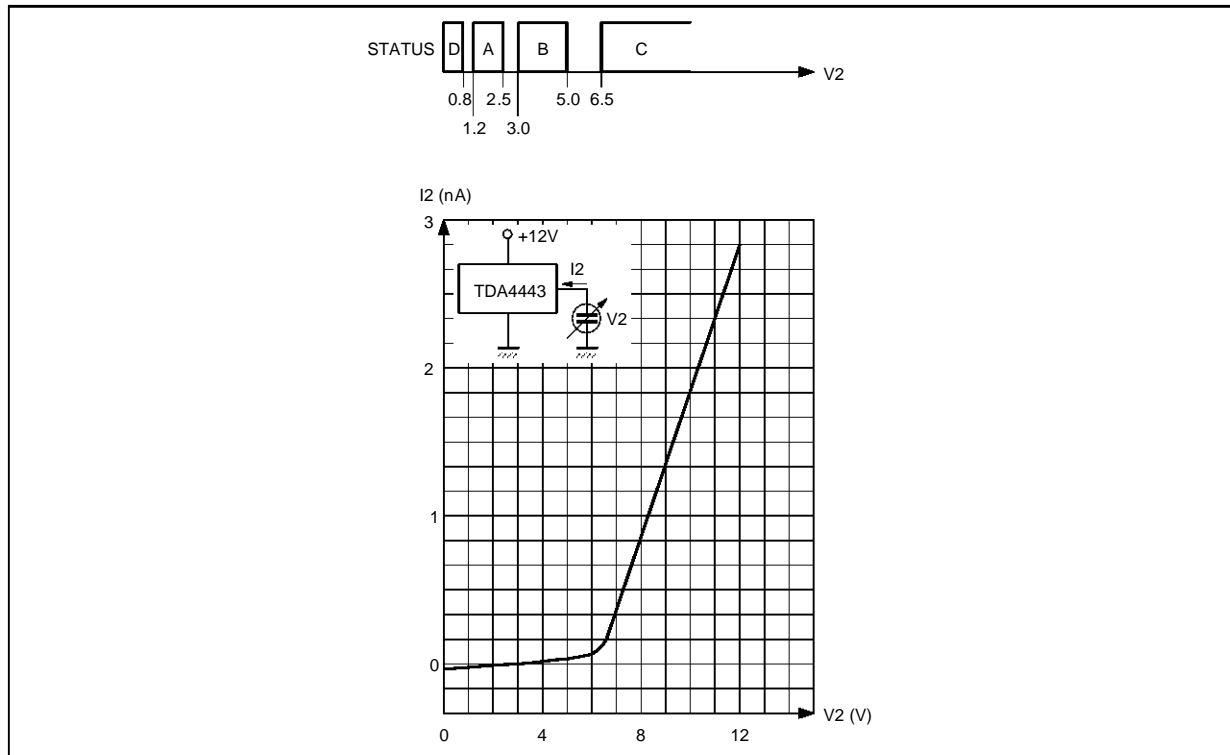
The gating pulse at Pin 7 is internally switched off.

**STATUS OF MODE SWITCHING, REFERRING TO CONTROL VOLTAGE PIN 2**

Control Voltage Pin 2	Connections of Pin 2	Status	Function
1.2 to 2.5V*	Open	A	Standard B/G gated sync. operation
3.0 to 5.0V	High Impedance	B	Standard B/G, no sync., operation
> 6.5V	Low Impedance	C	Standard L
0.0 to 0.8V	Ground	D	Standard L

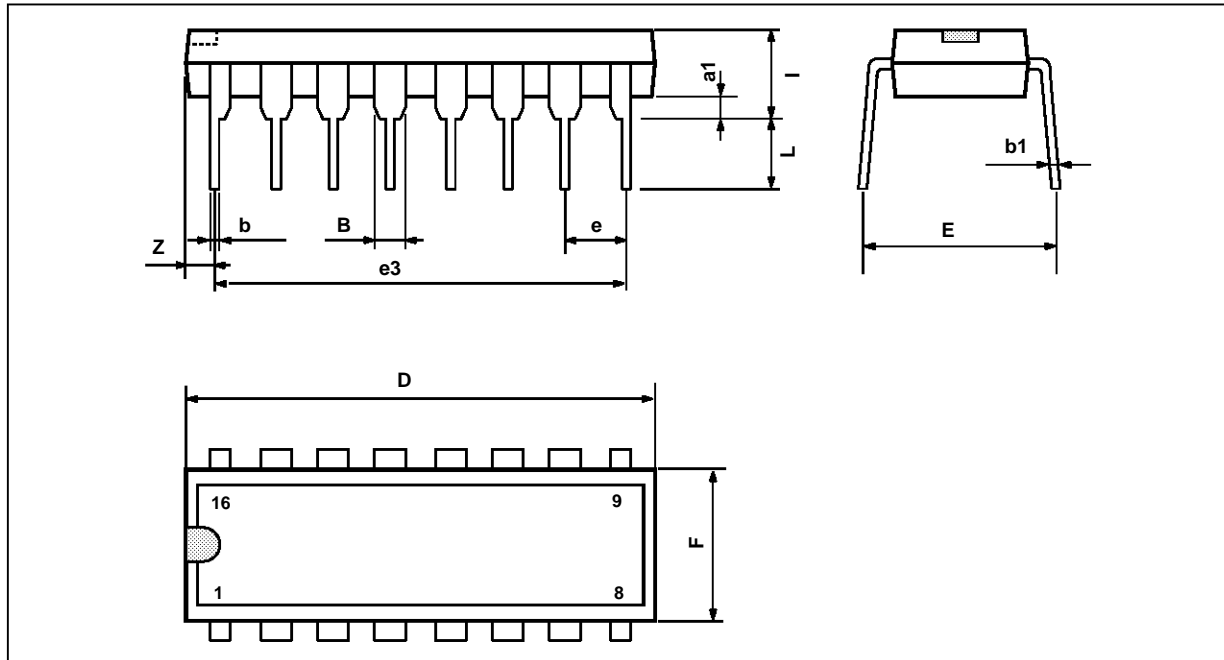
4443-06.TBL

\* Voltage measured on Pin 2.



4443-09.EPS

**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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