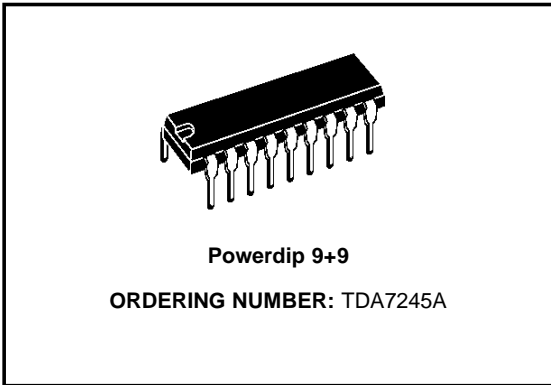


**6W AUDIO AMPLIFIER WITH STAND-BY**

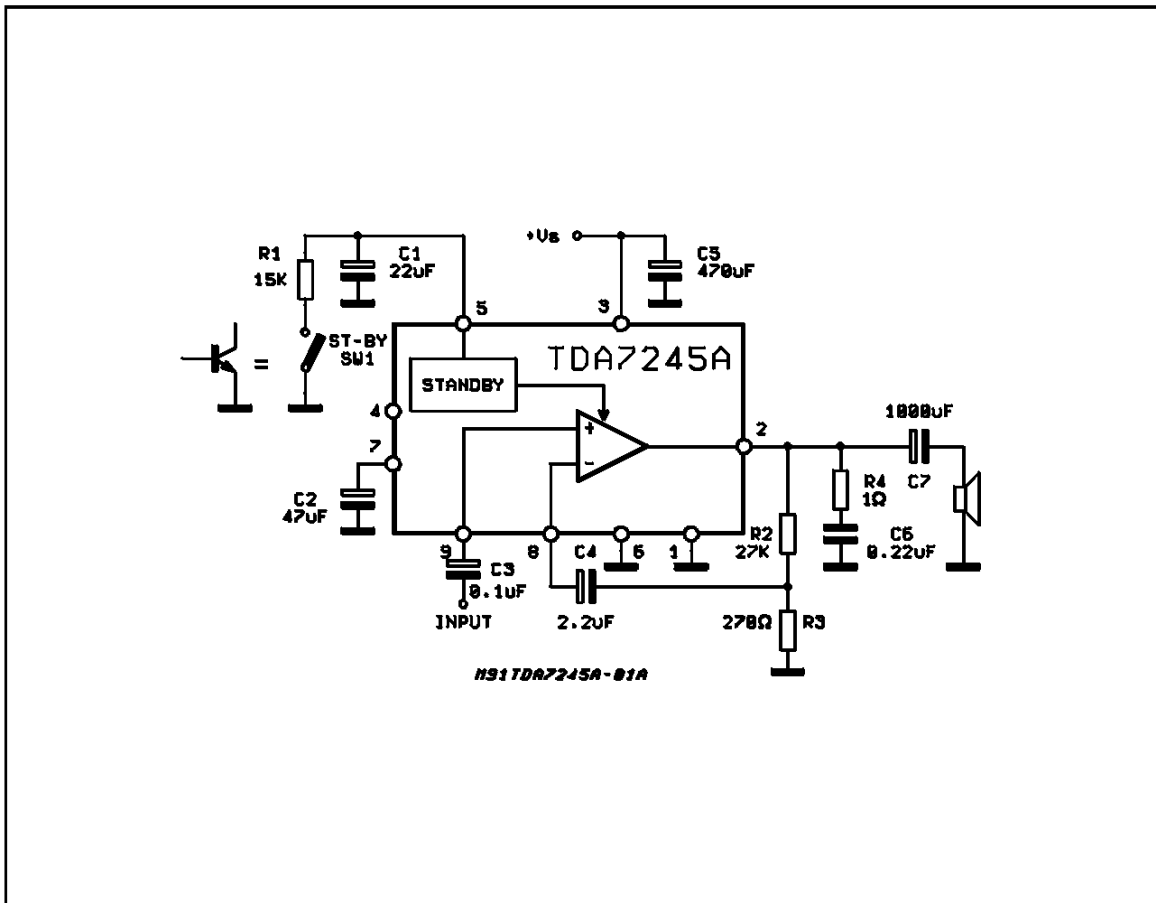
- STAND-BY FUNCTION
- SUPPLY VOLTAGE RANGE UP TO 30V
- MUSIC POWER = 16W ( $R_L = 4\Omega$ ,  $d = 10\%$ )
- THERMAL PROTECTION

**DESCRIPTION**

The TDA7245A is a monolithic integrated circuit in 9+9 POWERDIP package, intended for use as low frequency power amplifier in a wide range of applications in radio and TV sets.



**Figure 1: Test and Application Circuit**



# TDA7245A

## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_S$	Supply Voltage	30	V
$I_O$	Output Peak Current (non repetitive $t = 100\mu s$ )	3	A
$I_O$	Output Peak Current (repetitive, $f > 20Hz$ )	2.5	A
$P_{tot}$	Power Dissipation at $T_{amb} = 80^\circ C$	1	W
	at $T_{case} = 70^\circ C$	6	W
$T_{stg}, T_j$	Storage and junction Temperature	-40 to 150	$^\circ C$

## PIN CONNECTION (Top view)

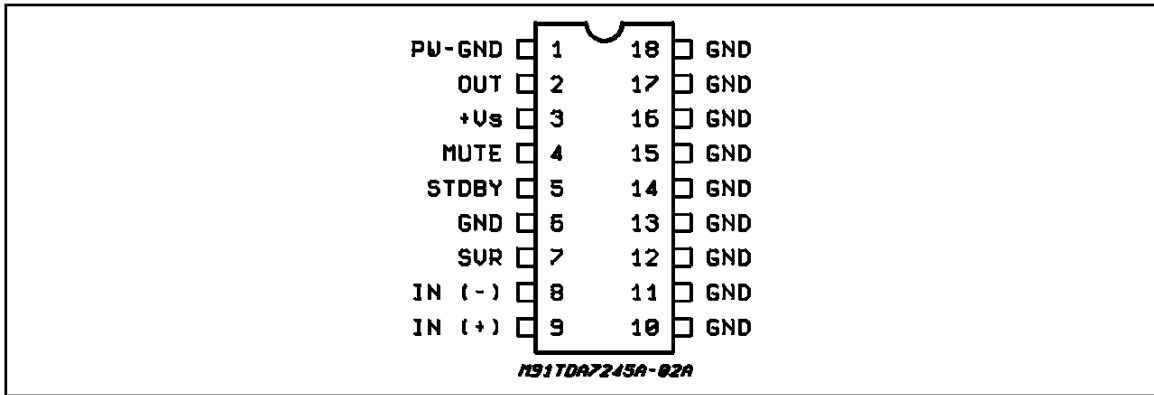
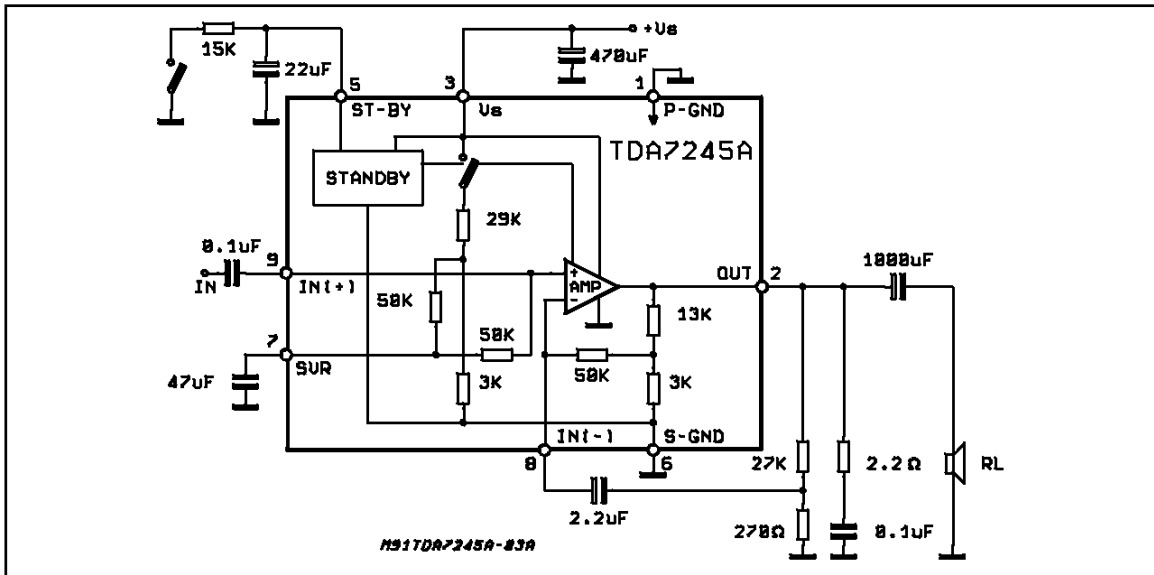


Figure 2: Schematic Diagram



## THERMAL DATA

Symbol	Description	Value	Unit
$R_{th\ j-case}$	Thermal Resistance junction-case	Max 15	$^\circ C/W$
$R_{th\ j-amb}$	Thermal Resistance junction-ambient	Max 70	$^\circ C/W$

**ELECTRICAL CHARACTERISTICS** (Refer to the test circuit,  $T_{amb} = 25^{\circ}\text{C}$ ,  $V_S = 16.5\text{V}$ ,  $R_L = 4\Omega$ ,  $f = 1\text{kHz}$ ; unless otherwise specified).

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_S$	Supply Voltage		12		30	V
$V_O$	Quiescent Output Voltage	$V_S = 24\text{V}$		11.6		V
$I_d$	Quiescent Drain Current	$V_S = 28\text{V}$		24	35	mA
$P_O$	Output Power	$d = 1\%$ $V_S = 16.5\text{V}$ , $R_L = 4\Omega$ $V_S = 20\text{V}$ , $R_L = 8\Omega$ $d = 10\%$ $V_S = 16.5\text{V}$ , $R_L = 4\Omega$ $V_S = 20\text{V}$ , $R_L = 8\Omega$ Music Power (*) $V_S = 24\text{V}$ , $d = 10\%$ , $R_L = 4\Omega$	6.5	6 5 7.5 6.5 16		W W W W W
$d$	Harmonic Distortion	$P_O = 50\text{mW}$ to $4\text{W}$ $f = 1\text{KHz}$ $f = 10\text{KHz}$  $V_S = 20\text{V}$ , $R_L = 8\Omega$ , $P_O = 50\text{mW}$ to $3.5\text{W}$ $f = 1\text{KHz}$ $f = 10\text{KHz}$		0.15 0.8  0.12 0.5	0.5	% %  % %
$R_I$	Input Impedance	$f = 1\text{kHz}$	30			$\text{K}\Omega$
BW	Small signal bandwidth (-3dB)	$P_O = 1\text{W}$	20 to 40,000			Hz
$G_V$	Voltage Gain (open loop)	$f = 1\text{KHz}$		75		dB
$G_V$	Voltage Gain (closed loop)	$f = 1\text{KHz}$	39	40	41	dB
$e_N$	Total Input Noise	$B = 22 - 22,000\text{Hz}$ $R_s = 50\Omega$ $R_s = 1\text{k}\Omega$ $R_s = 10\text{k}\Omega$		1.7 2 3	6	mV $\mu\text{V}$ $\mu\text{V}$
S/N	Signal to Noise Ratio	$P_O = 5\text{W}$ ; $R_s = 10\text{K}\Omega$		86		dB
SVR	Supply Voltage Rejection	$V_S = 16.5\text{V}$ ; $R_L = 8\Omega$ ; $f = 100\text{Hz}$ $R_s = 10\text{k}\Omega$ ; $V_r = 0.5\text{Vrms}$	38	45		dB
$T_{sd}$	Thermal shut-down Junction Temperature			150		$^{\circ}\text{C}$

#### STAND-BY FUNCTION

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_{st-by}$	Pin 5 DC Voltage	SW1 Open (play)		6.4		V
$I_{st-by}$	Pin 5 Current	SW1 Closed (st-by)		160	280	$\mu\text{A}$
$ATT_{st-by}$	Stand-by Attenuation	$f = 1\text{kHz}$	70	90		dB
$V_t$	Stand-by Threshold (pin 5)			3.8		V
$I_{d\ st-by}$	Quiescent Current @ Stand-by			2	4	mA

#### Note (\*):

##### MUSIC POWER CONCEPT

MUSIC POWER is ( according to the IEC clauses n.268-3 of Jan 83) the maximal power which the amplifier is capable of producing across the rated load resistance ( regardless of non linearity) 1 sec after the application of a sinusoidal input signal of frequency 1KHz.

According to this definition our method of measurement comprises the following steps:

- 1) Set the voltage supply at the maximum operating value -20%
- 2) Apply a input signal in the form of a 1KHz tone burst of 1 sec duration; the repetition period of the signal pulses is > 60 sec
- 3) The output voltage is measured 1 sec from the start of the pulse
- 4) Increase the input voltage until the output signal show a THD = 10%
- 5) The music power is then  $V_{out}^2/R1$ , where  $V_{out}$  is the output voltage measured in the condition of point 4) and R1 is the rated load impedance

The target of this method is to avoid excessive dissipation in the amplifier.

Figure 3: Output Power vs. Supply Voltage

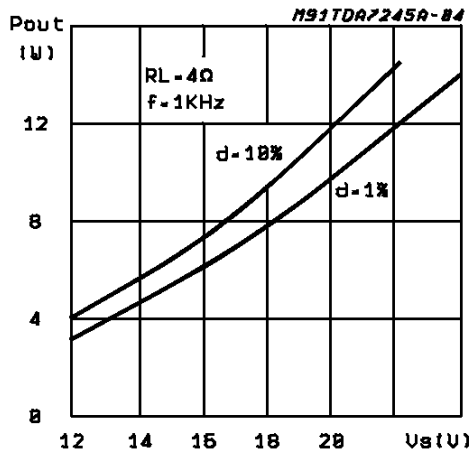
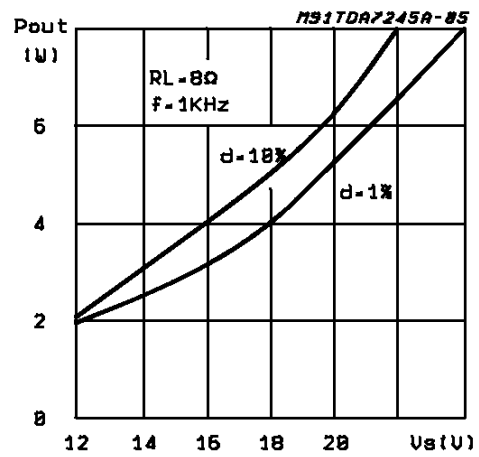
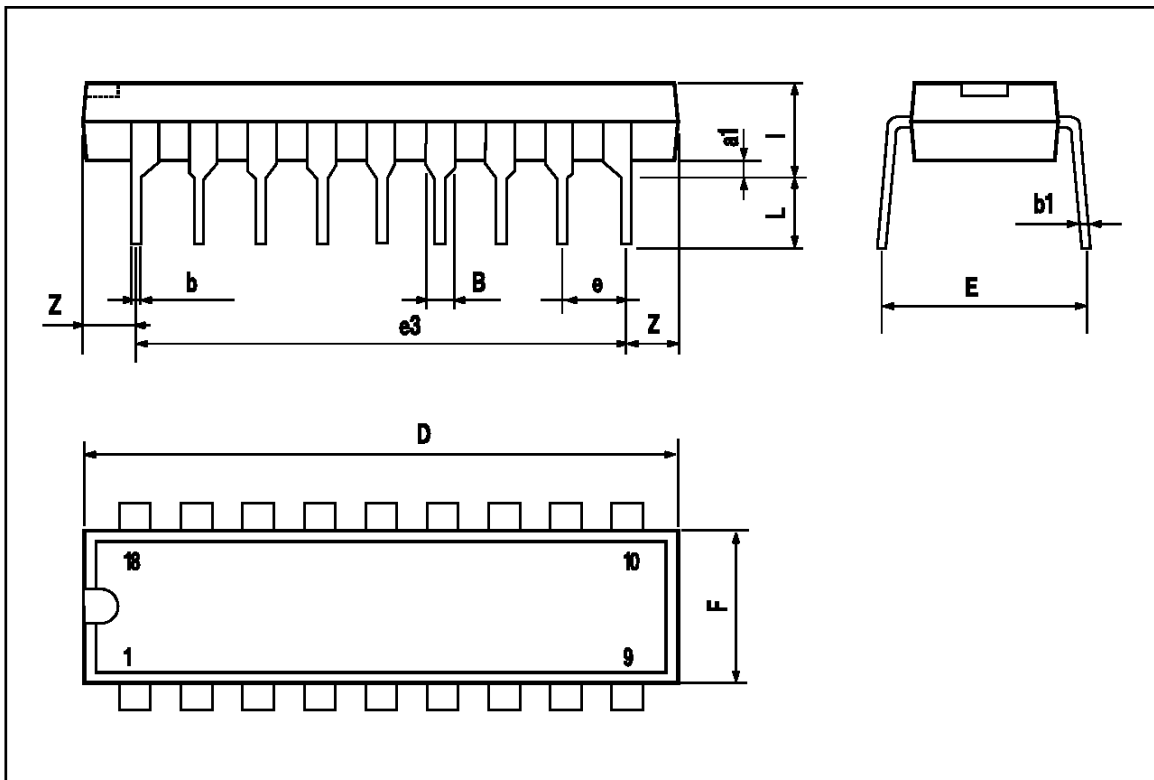


Figure 4: Output Power vs. Supply Voltage



POWERDIP 18 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
a1	0.51			0.020		
B	0.85		1.40	0.033		0.055
b		0.50			0.020	
b1	0.38		0.50	0.015		0.020
D			24.80			0.976
E		8.80			0.346	
e		2.54			0.100	
e3		20.32			0.800	
F			7.10			0.280
l			5.10			0.201
L		3.30			0.130	
Z			2.54			0.100



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