



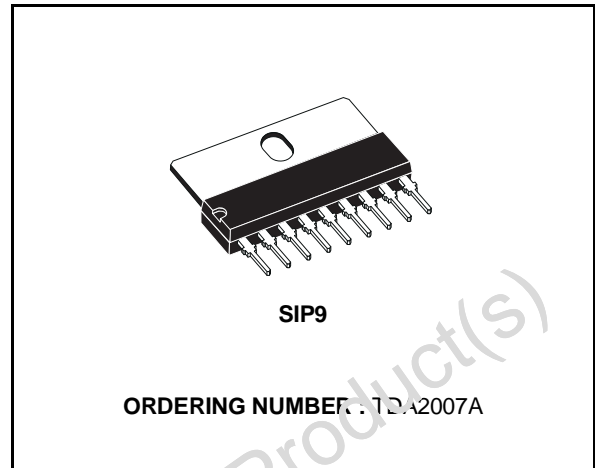
# TDA2007A

## 6 + 6W STEREO AMPLIFIER

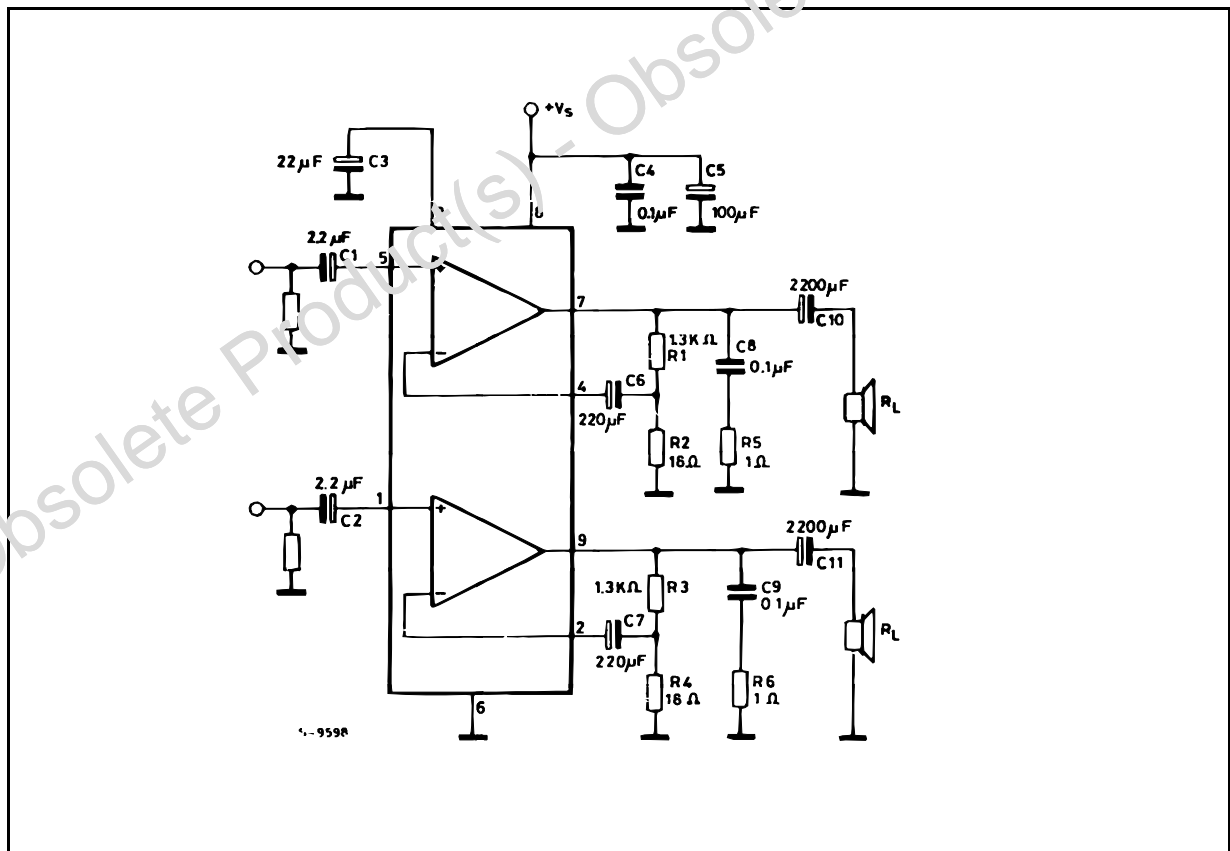
- HIGH OUTPUT POWER
- HIGH CURRENT CAPABILITY
- AC SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION

### DESCRIPTION

The TDA2007A is a class AB dual Audio power amplifier assembled in single in line 9 pins package, specially designed for stereo application in music centers TV receivers and portable radios.

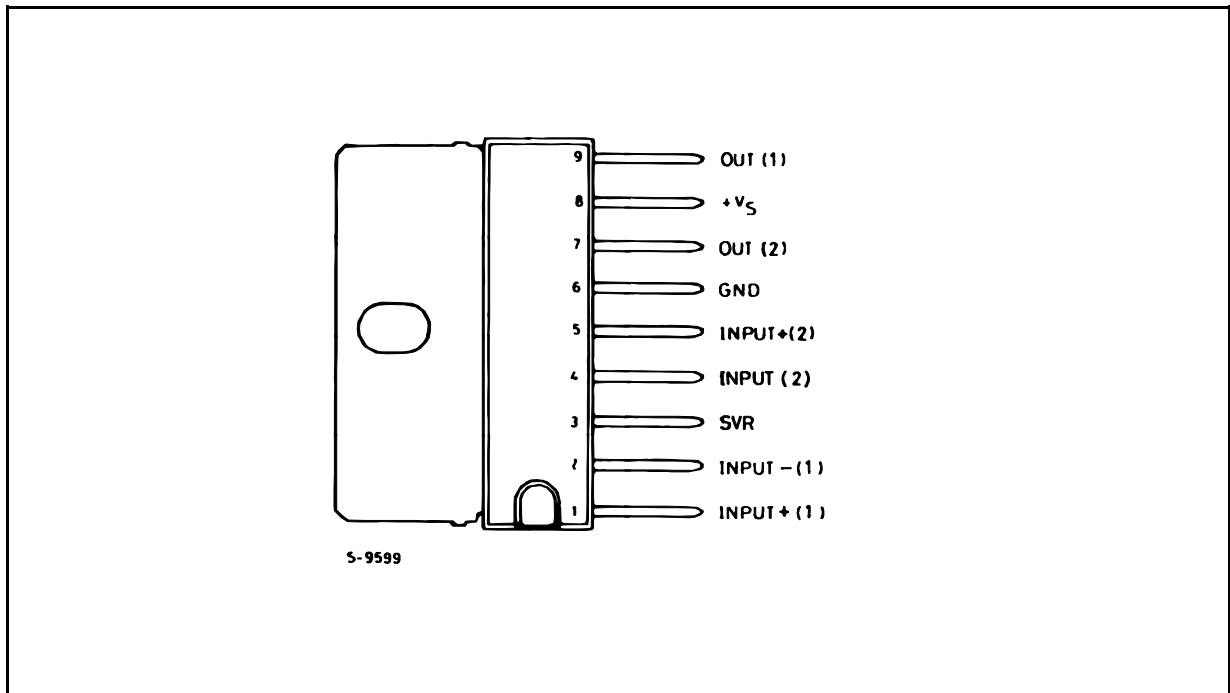


### STEREO TEST CIRCUIT

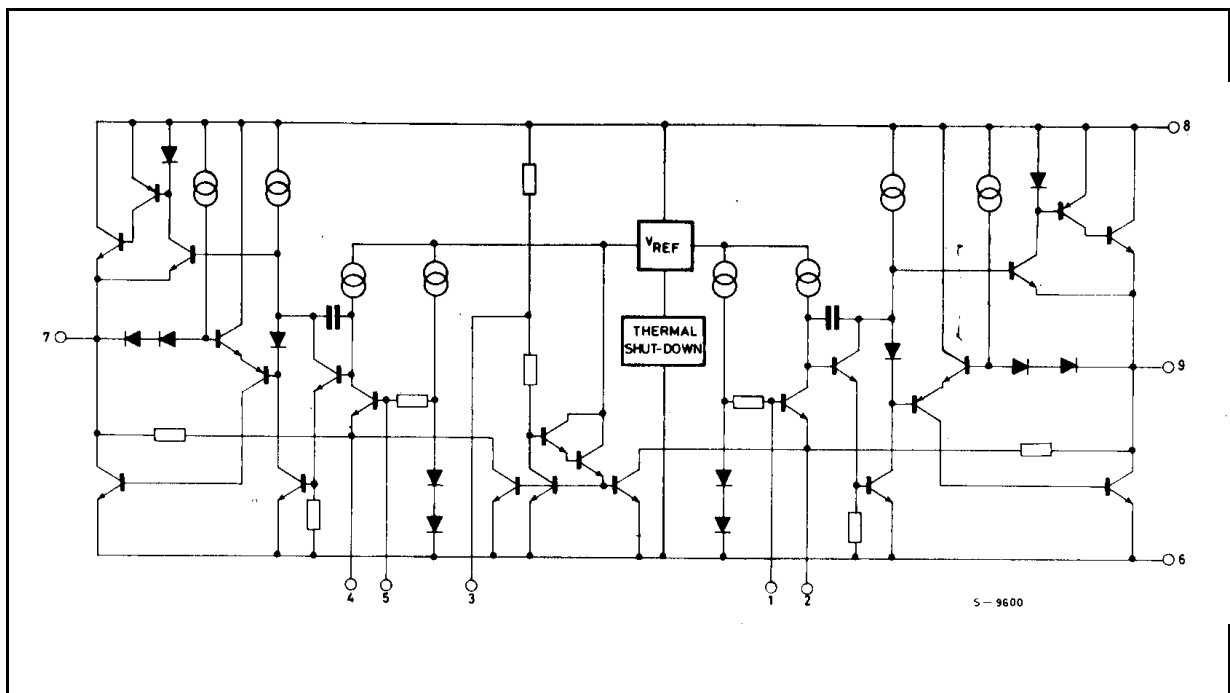


# TDA2007A

## PIN CONNECTION (top view)



## SCHEMATIC DIAGRAM



## THERMAL DATA

Symbol	Parameter		Value	Unit
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max.	8	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max.	70	$^{\circ}C/W$

## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_S$	Supply Voltage	28	V
$I_O$	Output Peak Current (repetitive $f \geq 20\text{Hz}$ )	3	A
$I_O$	Output Peak Current (non repetitive $t = 100\mu\text{s}$ )	3.5	A
$P_{\text{tot}}$	Power Dissipation at $T_{\text{case}} = 70^\circ\text{C}$	10	W
$T_{\text{stg}}, T_j$	Storage and Junction Temperature	-40 to 150	$^\circ\text{C}$

**ELECTRICAL CHARACTERISTICS** (refer to the stereo application circuit,  $T_{\text{amb}} = 25^\circ\text{C}$ ,  $V_S = 18\text{V}$ ,  $G_V = 36\text{dB}$ , unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_S$	Supply Voltage		8		26	V
$V_O$	Quiescent Output Voltage			8.5		V
$I_d$	Total Quiescent Drain Current			50	90	mA
$P_O$	Output Power (each channel)	$f = 100\text{Hz to } 6\text{KHz}$ $d = 0.5\%$ $V_S = 18\text{V } R_L = 4\Omega$ $V_S = 22\text{V } R_L = 8\Omega$	5.5 5.5	6 6		W W
$d$	Distortion (each channel)	$f = 1\text{KHz}, V_S = 18\text{V}, R_L = 4\Omega$ $P_O = 100\text{mW to } 3\text{W}$ $f = 1\text{KHz}, V_S = 22\text{V}, R_L = 8\Omega$ $P_O = 100\text{mW to } 3\text{W}$		0.1 0.05		% %
CT	Cross Talk ( $^{\circ\circ\circ}$ )	$R_L = \infty, R_g = 10\text{K}\Omega$ $f = 1\text{KHz}$ $f = 10\text{KHz}$	50 40	60 50		dB dB
$V_i$	Input Saturation Voltage (rms)		300			mV
$R_i$	Input Resistance	$f = 1\text{KHz}$	70	200		$\text{K}\Omega$
$f_L$	Low Frequency Roll Off (-3dB)	$R_L = 4\Omega, C_{10} = C_{11} = 2200\mu\text{F}$		40		Hz
$f_H$	Low Frequency Roll Off (-3dB)			80		KHz
$G_V$	Voltage Gain (closed loop)	$f = 1\text{KHz}$	35.5	36	36.5	dB
$\Delta G_V$	Closed Loop Gain Matching			0.5		dB
$e_N$	Total Input Noise Voltage	$R_g = 10\text{k}\Omega$ ( $^{\circ}$ ) $R_g = 10\text{k}\Omega$ ( $^{\circ\circ}$ )		1.5 2.5		$\mu\text{V}$ $\mu\text{V}$
SVR	Supply Voltage Rejection (each channel)	$R_g = 10\text{K}\Omega$ $f_{\text{ripple}} = 100\text{Hz}, V_{\text{ripple}} = 0.5\text{V}$		55		dB
$T_j$	Thermal Shut-down Junction Temperature			145		$^\circ\text{C}$

( $^{\circ}$ ) Curve A. ( $^{\circ\circ}$ ) 22Hz to 22KHz.

# TDA2007A

Figure 1 : Stereo Test Circuit ( $G_v = 36 \text{ dB}$ ).

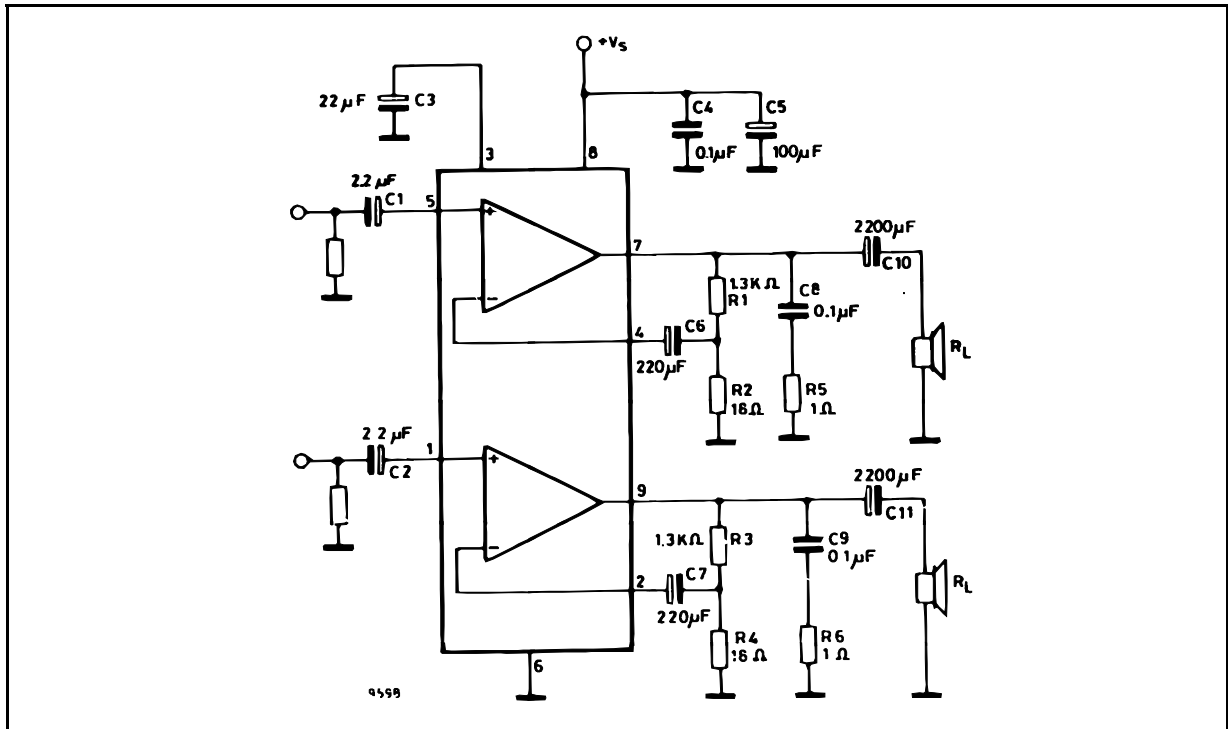
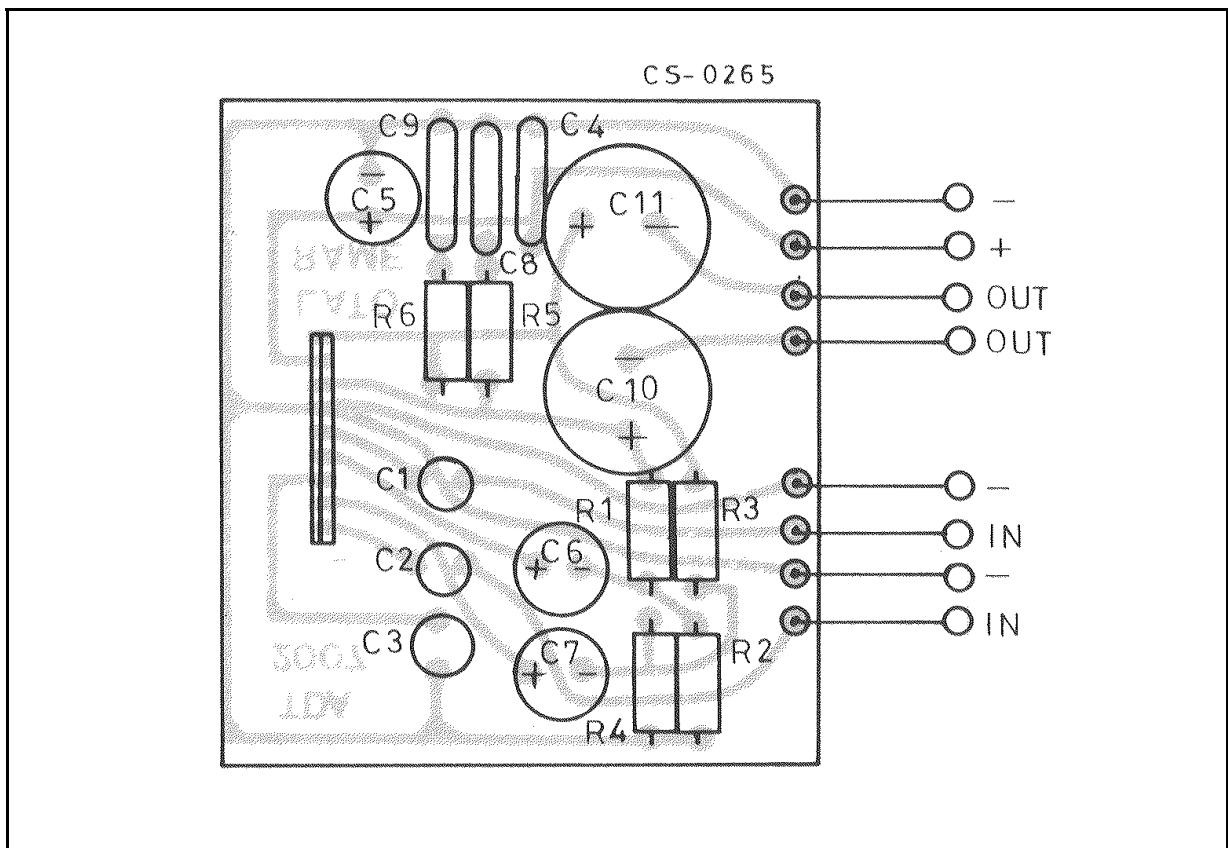


Figure 2 : P.C. Board and Components layout of the Circuit of Fig.1 (1 : 1 scale).



**APPLICATION SUGGESTION**

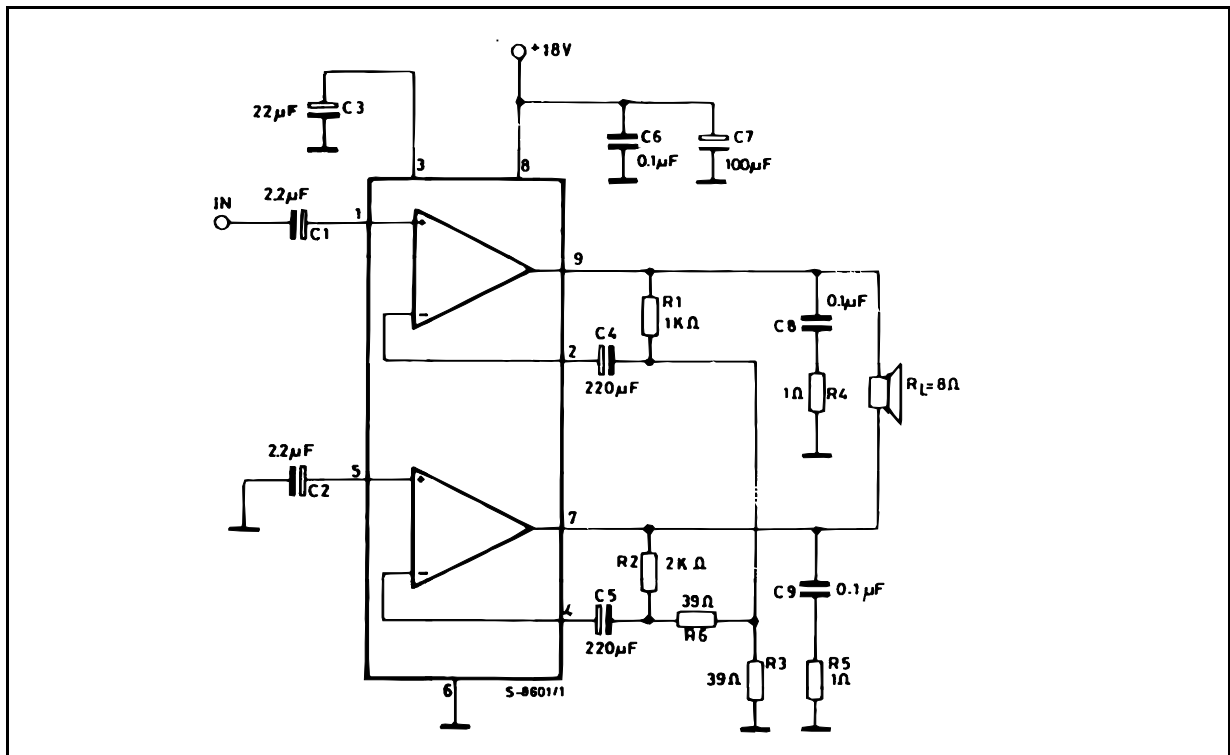
The recommended values of the components are those shown on application circuit of fig.1. Different values can be used ; the following table can help the designer.

Component	Recommended value	Purpose	Larger Than	Smaller Than
R1, R3	1.3K $\Omega$	Close Loop Gain Setting (*)	Increase of Gain	Decrease of Gain
R2 and R4	18 $\Omega$		Decrease of Gain	Increase of gain
R5 and R6	1 $\Omega$	Frequency stability	Danger of Oscillation at High Frequency with Inductive Load	
C1 and C2	2.2 $\mu$ F	Input DC Decoupling	High Turn-on Delay	High Turn-on Pop Higher Low Frequency Cutoff. Increase of Noise
C3	22 $\mu$ F	Ripple Rejection	Better SVR Increase of the Switch-on Time	Degradation of SVR
C6 and C7	220 $\mu$ F	Feedback Input DC Decoupling		
C8 and C9	0.1 $\mu$ F	Frequency Stability		Danger of Oscillation
C10 and C11	1000 $\mu$ F to 2200 $\mu$ F	Output DC Decoupling		Higher Low-frequency Cut-off

(\*) The closed loop gain must be higher than 26 dB.

**APPLICATION INFORMATION**

**Figure 3 : 12 W Bridge Amplifier (d = 0.5%, G<sub>v</sub> = 40 dB).**

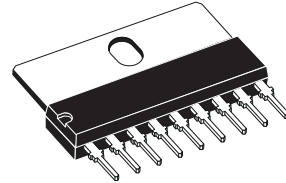


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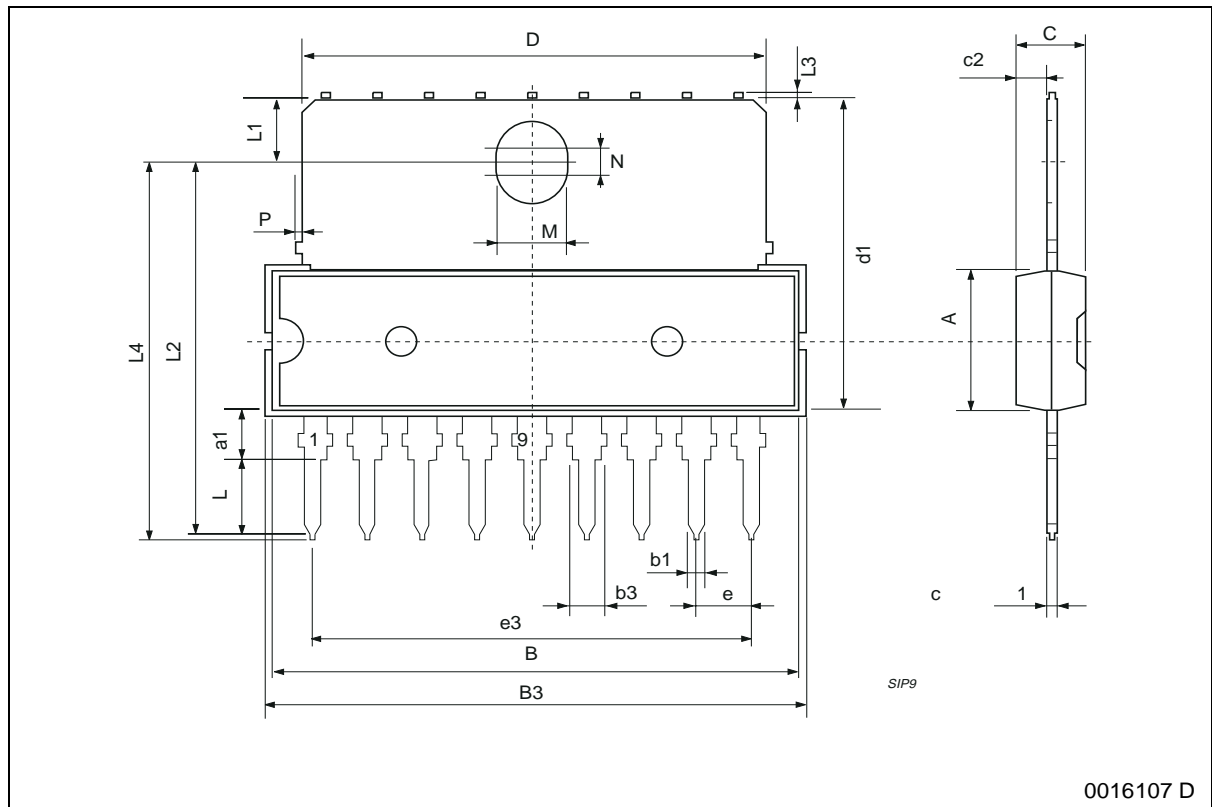
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			7.1			0.280
a1	2.7		3	0.106		0.118
B			23			0.90
B3			24.8			0.976
b1		0.5			0.020	
b3	0.85		1.6	0.033		0.063
C		3.3			0.130	
c1		0.43			0.017	
c2		1.32			0.052	
D			21.2			0.835
d1		14.5			0.571	
e		2.54			0.100	
e3		20.32			0.800	
L	3.1			0.122		
L1		3			0.118	
L2		17.6			0.693	
L3			0.25		0.010	
L4	17.4		17.85	0.685		0.702
M		3.2			0.126	
N		1			0.039	
P			0.15			0.006

## OUTLINE AND MECHANICAL DATA

Weight: 1.87gr



## SIP9



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