



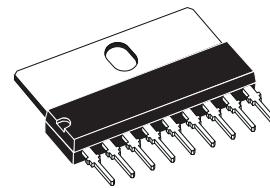
TDA2007A

6 + 6W STEREO AMPLIFIER

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

DESCRIPTION

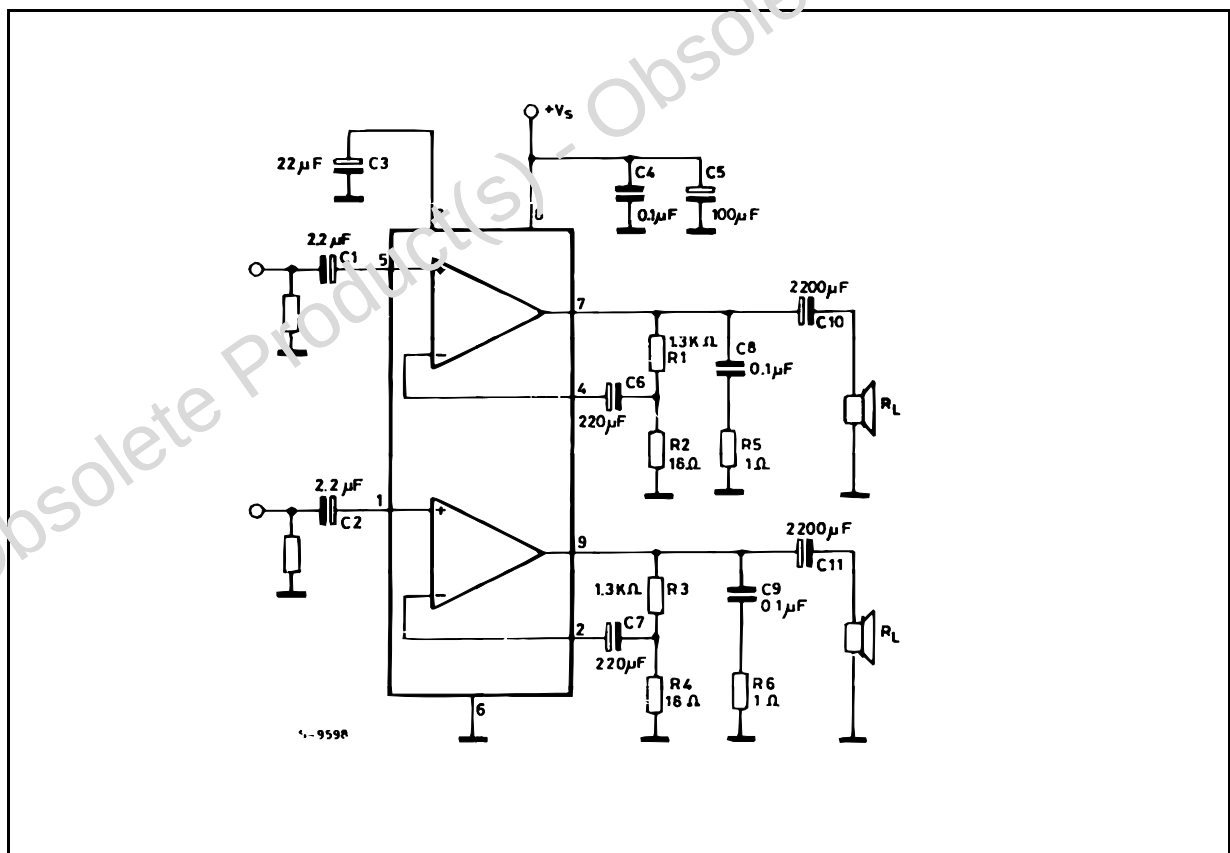
The TDA2007A is a class AB dual Audio power amplifier assembled in single in line 9 pins package, specially designed for stereo application in music centers TV receivers and portable radios.



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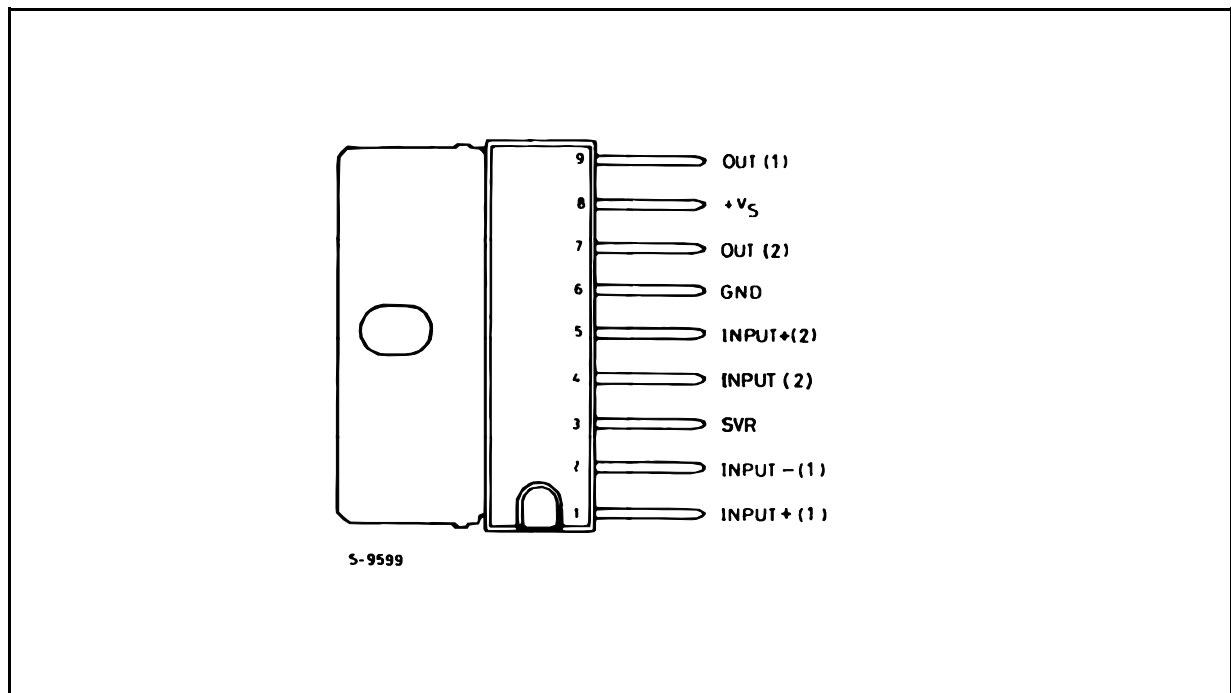
ORDERING NUMBER: TDA2007A

STEREO TEST CIRCUIT

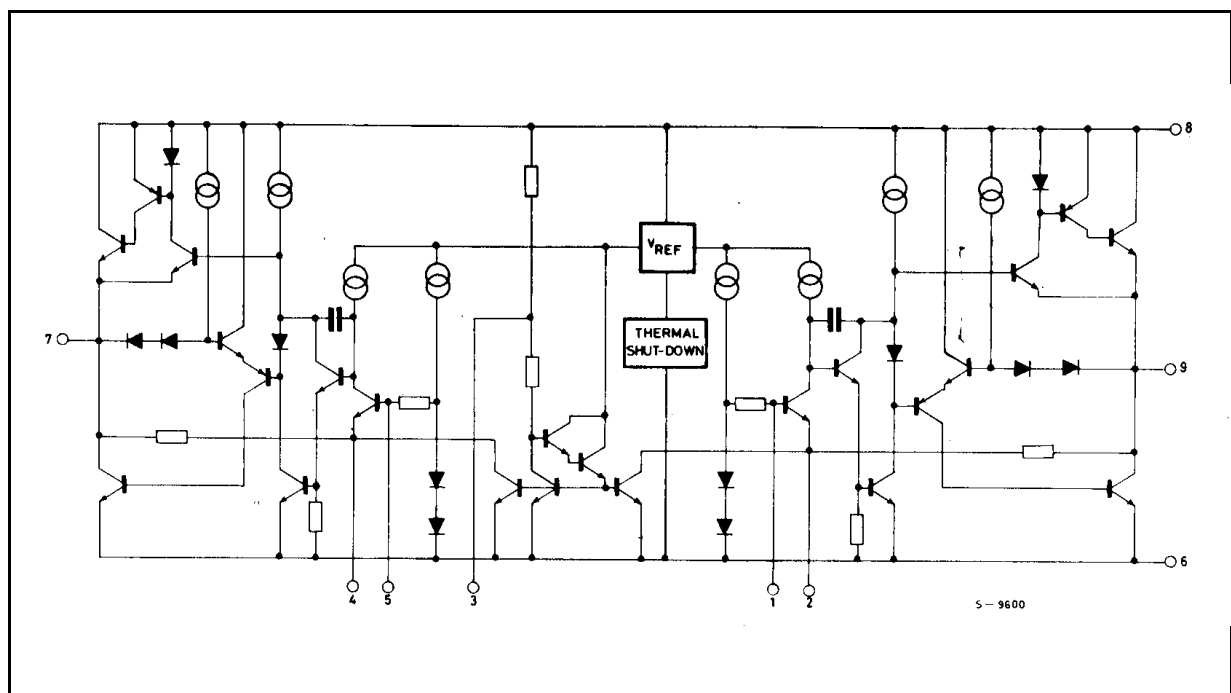


TDA2007A

PIN CONNECTION (top view)



SCHEMATIC DIAGRAM



THERMAL DATA

Symbol	Parameter		Value	Unit
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max.	8	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-to-ambient	Max.	70	°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_{tot}	Power Dissipation at $T_{\text{case}} = 70^\circ\text{C}$	10	W
T_{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
ΔG_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		μV μV
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.

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

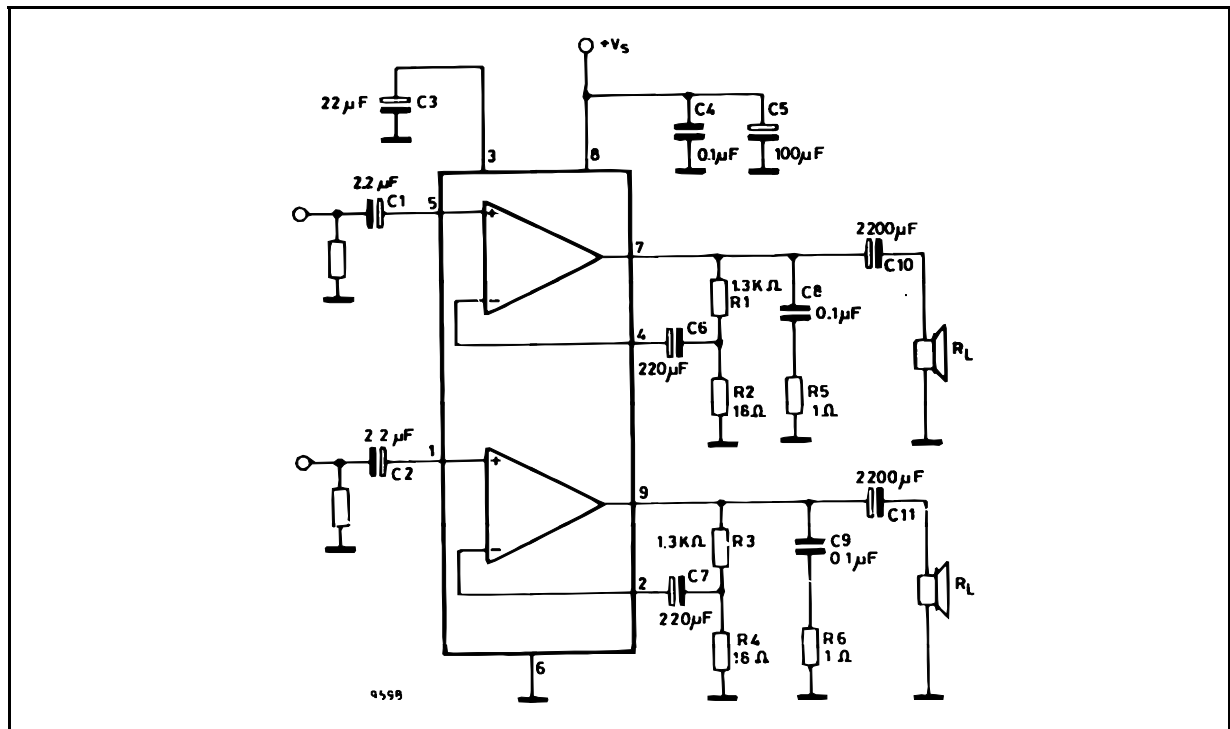
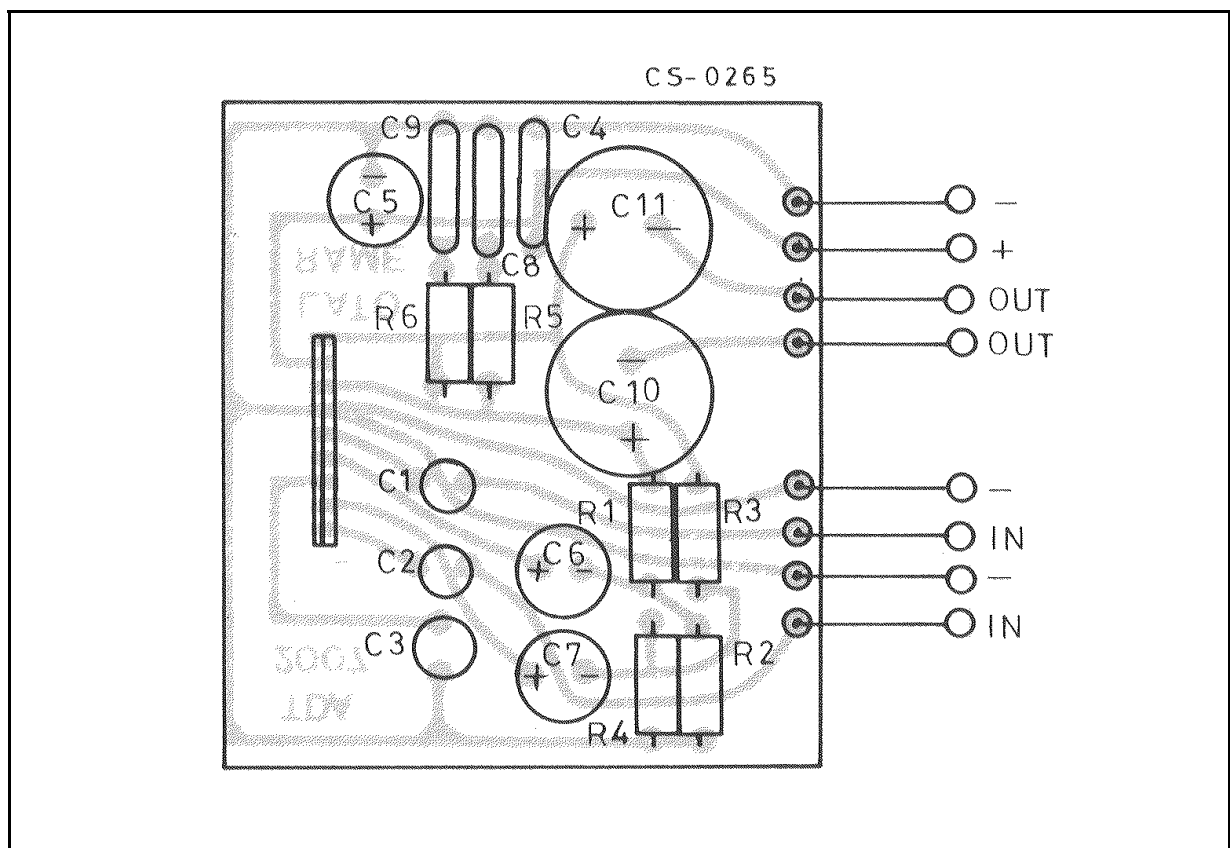


Figure 2 : P.C. Board and Components layout of the Circuit of Fig.1 (1 : 1 scale).



APPLICATION SUGGESTION

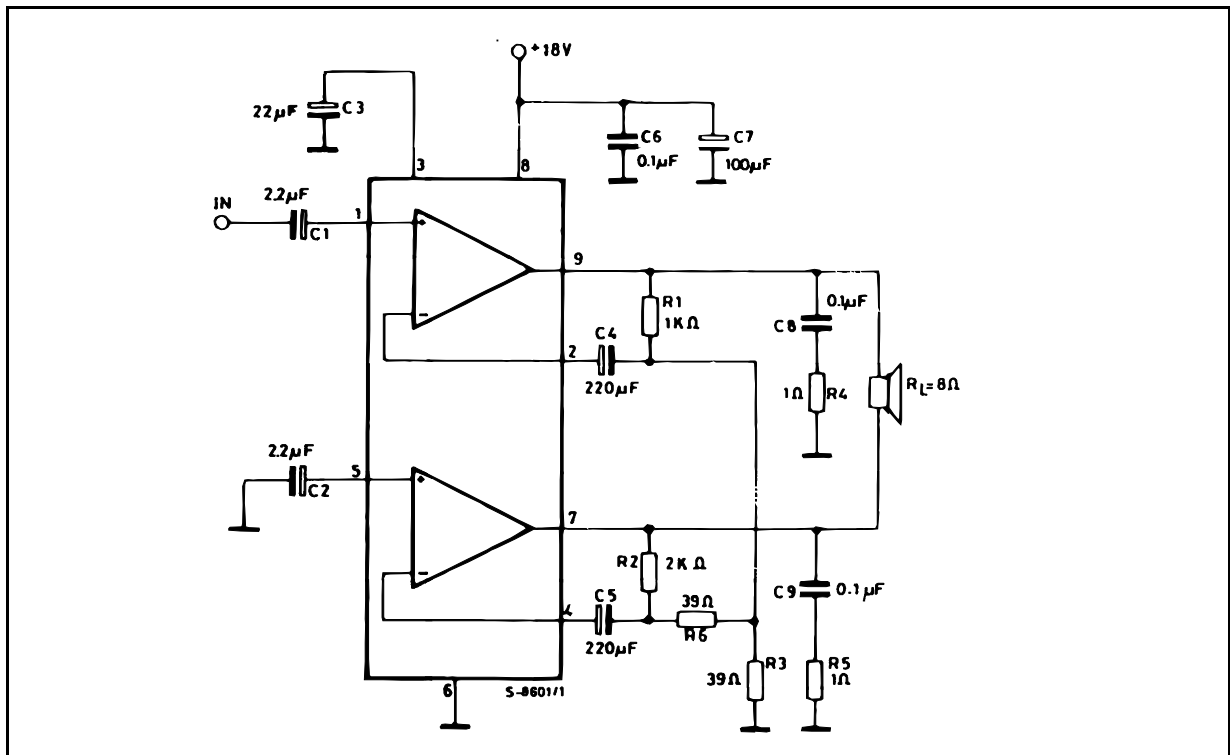
The recommended values of the components are those shown on application circuit of fig.1. Different values can be used ; the following table can help the designer.

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

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

APPLICATION INFORMATION

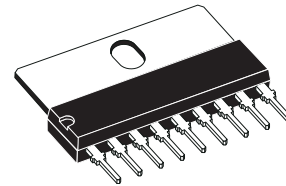
Figure 3 : 12 W Bridge Amplifier (d = 0.5%, G_v = 40 dB).



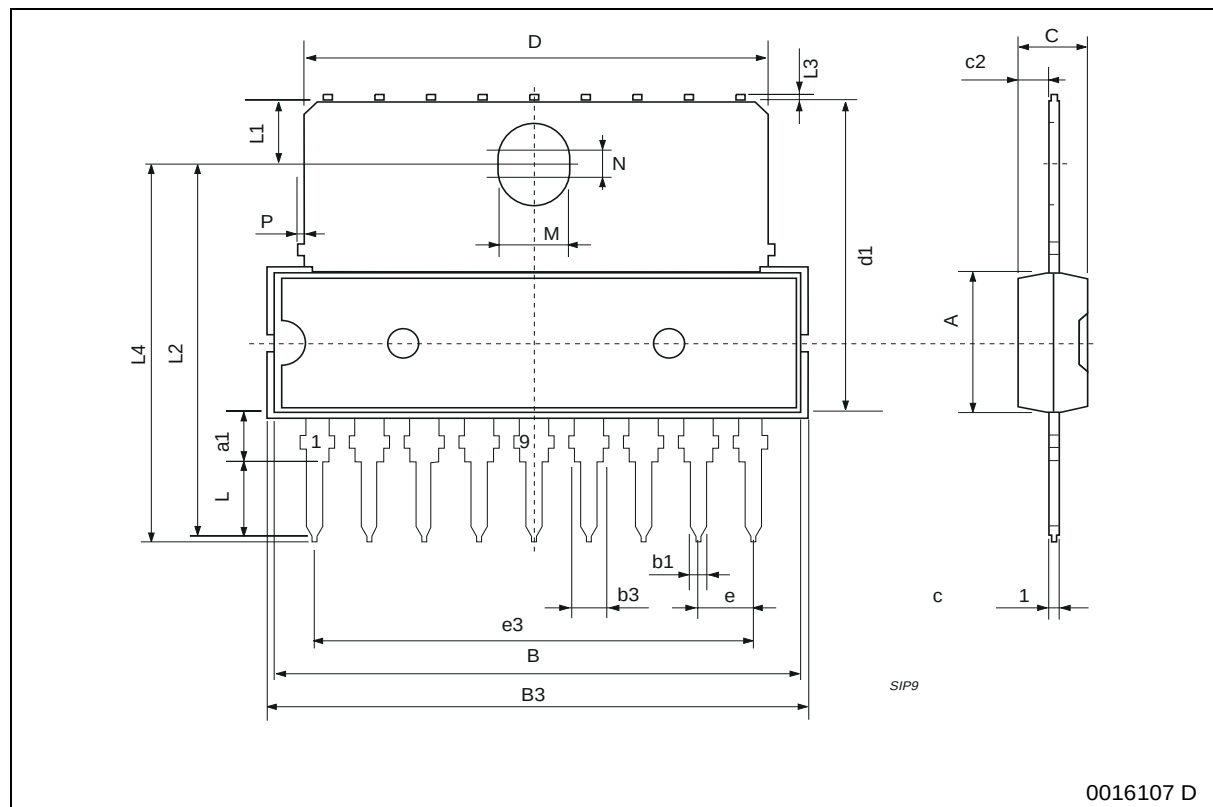
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			7.1			0.280
a1	2.7		3	0.106		0.118
B			23			0.90
B3			24.8			0.976
b1		0.5			0.020	
b3	0.85		1.6	0.033		0.063
C		3.3			0.130	
c1		0.43			0.017	
c2		1.32			0.052	
D			21.2			0.835
d1		14.5			0.571	
e		2.54			0.100	
e3		20.32			0.800	
L	3.1			0.122		
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



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