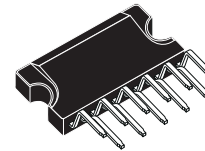


## 12 +12W STEREO AMPLIFIER WITH MUTING

- WIDE SUPPLY VOLTAGE RANGE
- HIGH OUTPUT POWER  
12+12W @  $V_S=28V$ ,  $R_L = 8\Omega$ , THD=10%
- MUTE FACILITY (POP FREE) WITH LOW CONSUMPTION
- AC SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION

### DESCRIPTION

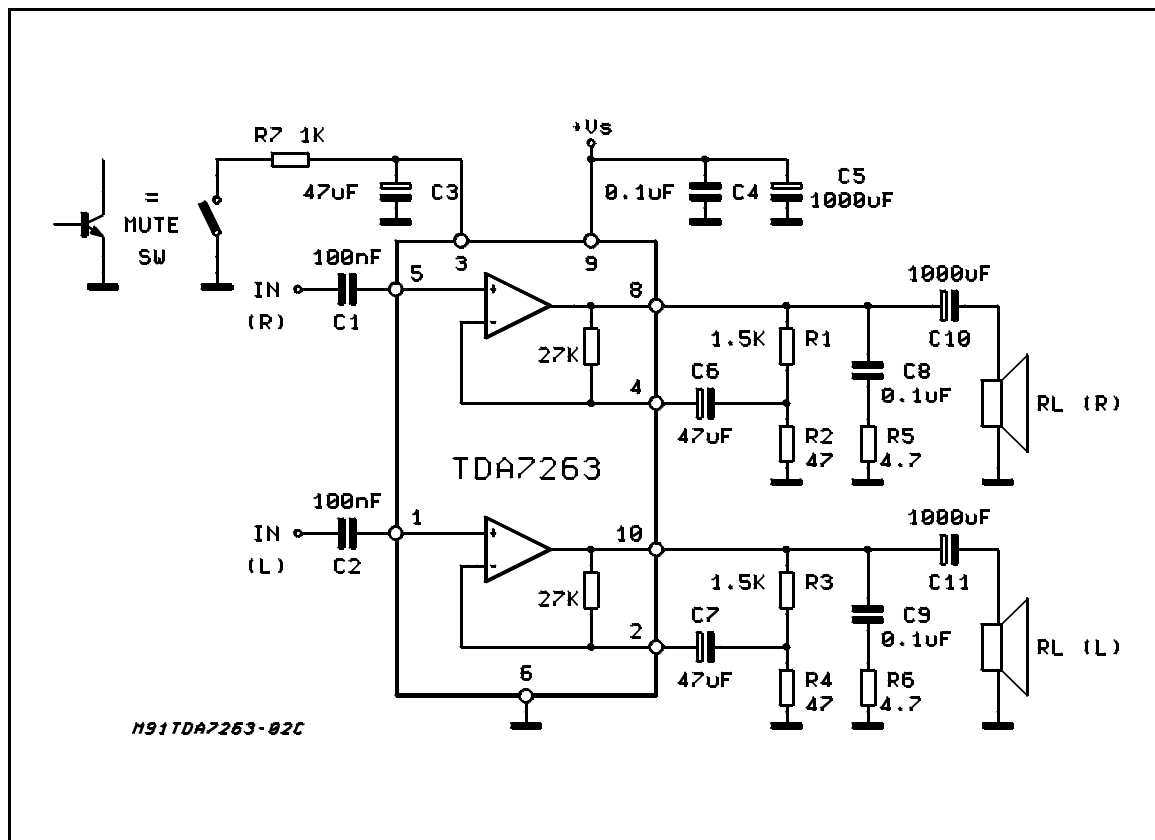
The TDA7263 is class AB dual audio power amplifier assembled in the new Clipwatt package, specially designed for high quality sound application as HI-FI music centers and stereo TV sets.



Clipwatt11

ORDERING NUMBER:TDA7263

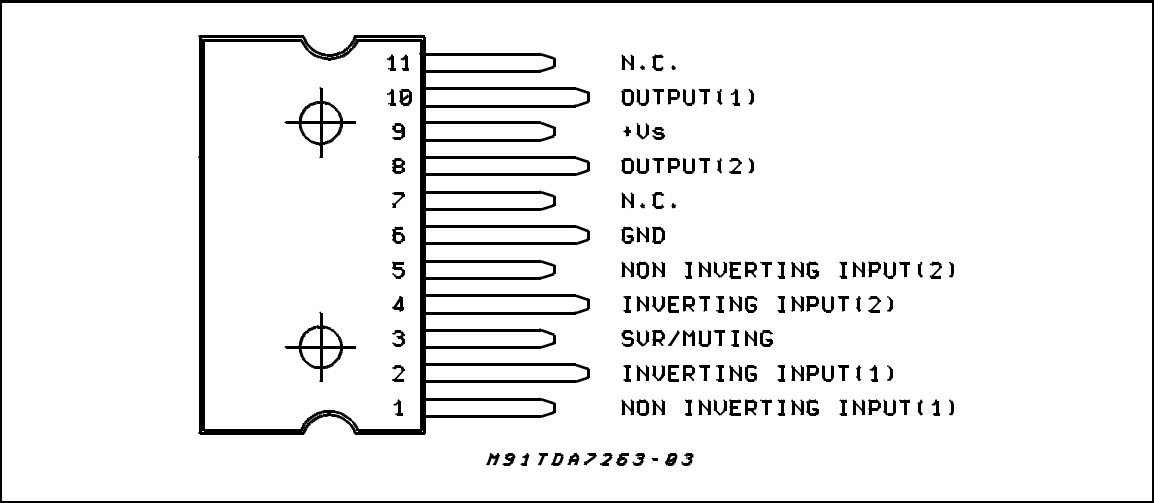
### TEST AND APPLICATION CIRCUIT



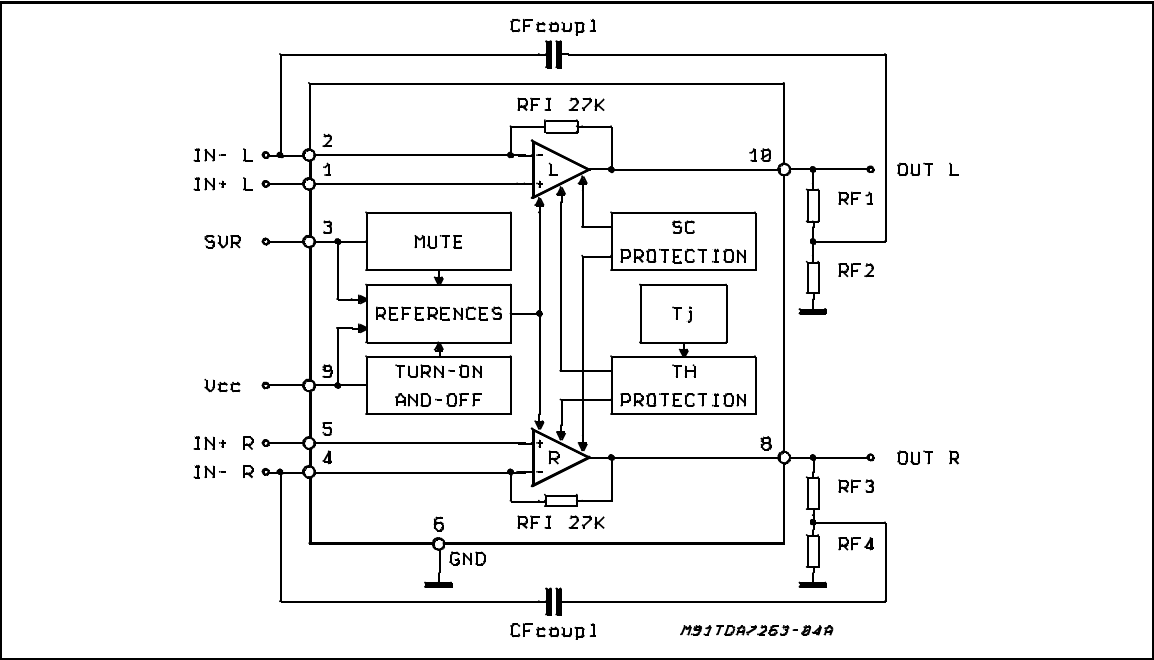
ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V <sub>S</sub>	Supply Voltage without Load	35	V
I <sub>O</sub>	Output Peak Current (repetitive f >20Hz)	2	A
P <sub>tot</sub>	Total Power Dissipation (T <sub>case</sub> = 70°C)	25	W
T <sub>op</sub>	Operating Temperature Range	0 to 70	°C
T <sub>stg,Tj</sub>	Storage & Junction Temperature	-40 to 150	°C

PIN CONNECTION (Top view)



BLOCK DIAGRAM



## THERMAL DATA

Symbol	Parameter	Value	Unit
$R_{th\ j-case}$	Thermal resistance junction to case	Max 3	°C/W

**ELECTRICAL CHARACTERISTICS** (Refer to the stereo test and application circuit,  $V_S = 28V$ ;  $R_L = 8\Omega$ ;  $G_V = 30dB$ ;  $f = 1KHz$ ;  $T_{amb} = 25^\circ C$  unless otherwise specified.)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_S$	Supply Voltage		10		30	V
$V_O$	Quiescent Output Voltage			13.5		V
$I_q$	Total Quiescent Current			70	95	mA
$P_O$	Output Power (RMS)	$d = 10\%$ $T_{amb} = 85^\circ C$ $d = 1\%$	10	12 9.5		W W
$d$	Total Harmonic Distortion	$P_O = 1W$ , $f = 1kHz$ $f = 100Hz$ to $10kHz$ ; $P_O = 0.1$ to $8W$		0.02	0.2 0.5	%
$CT$	Cross Talk	$R_S = 10K\Omega$ ; $f = 1KHz$		70		dB
		$R_S = 10K\Omega$ ; $f = 10KHz$		60		dB
$R_i$	Input Resistance		100	200		$K\Omega$
$f_L$	Low Frequency Roll-off (-3dB)			40		Hz
$f_H$	High Frequency Roll-off (-3dB)			80		KHz
$e_N$	Total Input Noise Voltage	A Curve; $R_S = 10K\Omega$		1.5		mV
		$f = 22Hz$ to $22KHz$ ; $R_S = 10K\Omega$		3	10	$\mu V$
SVR	Supply Voltage Rejection (each channel)	$R_S = 10K\Omega$ ; $f = 100Hz$ ; $V_r = 0.5V$	45	60		dB
$T_j$	Thermal Shutdown Junction Temperature			145		°C
<b>MUTE FUNCTION</b>						
$V_{T\_MUTE}$	Mute Threshold		1	1.6		V
$V_{T\_PLAY}$	Play Threshold			4.5		V
$ATT_{AM}$	Mute Attenuation		70	100		dB
$I_{q\_MUTE}$	Quiescent Current @ Mute			7	10	mA

**TYPICAL CHARACTERISTICS** (referred to the typical Application Circuit,  $V_S = 28V$ ,  $R_L = 8\Omega$ , unless otherwise specified)

Figure 1: Output Power vs. Supply Voltage

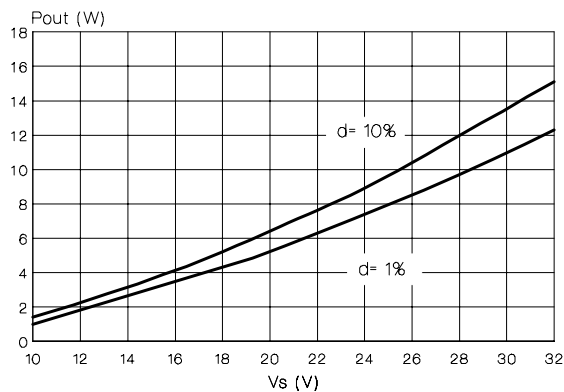
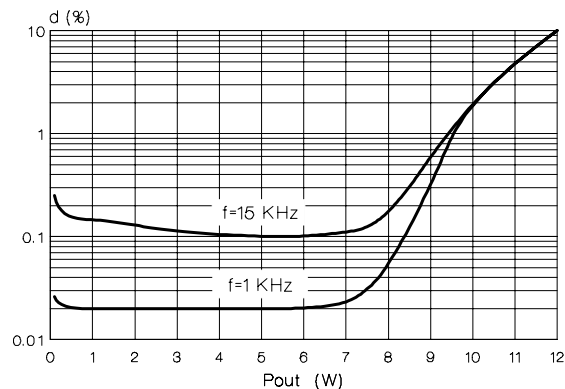
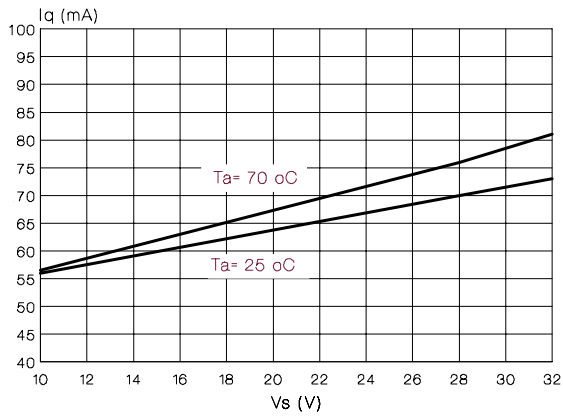


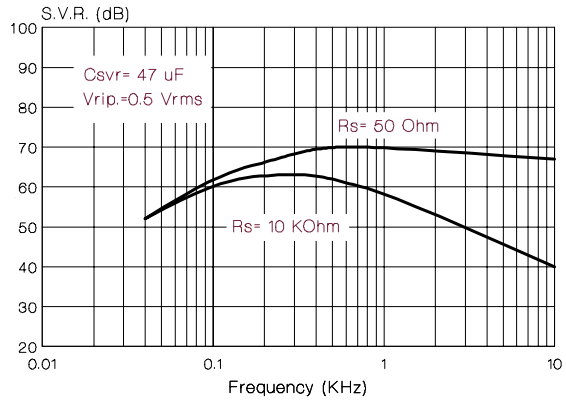
Figure 2: Distortion vs. Output Power



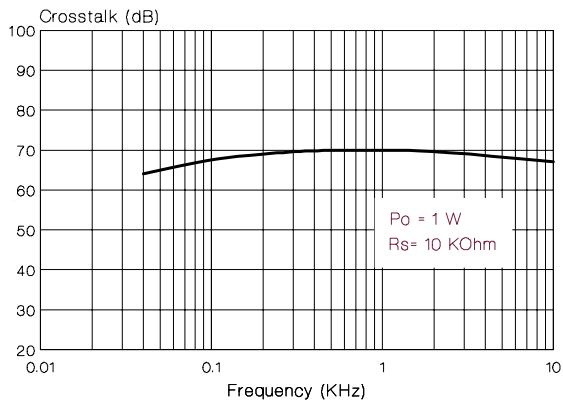
**Figure 3: Quiescent Current vs. Supply Voltage**



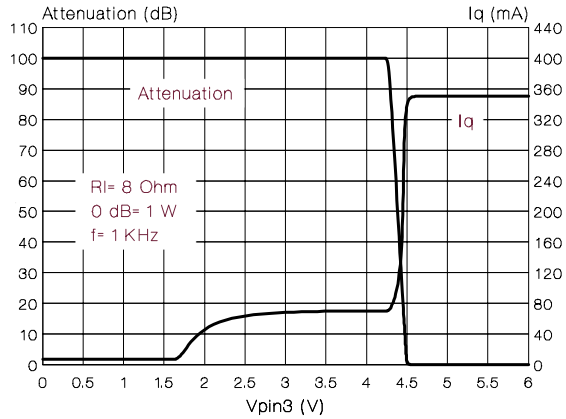
**Figure 4: Supply Voltage Rejection vs. Frequency**



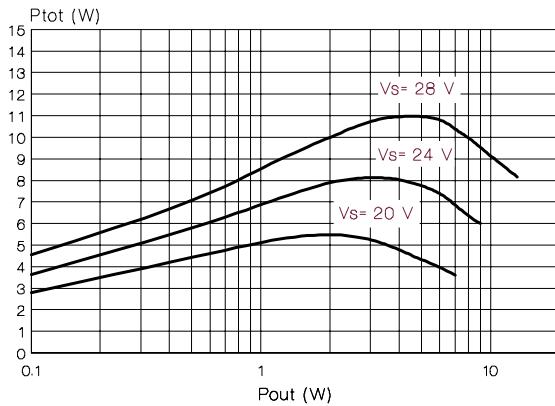
**Figure 5: Crosstalk vs. Frequency**



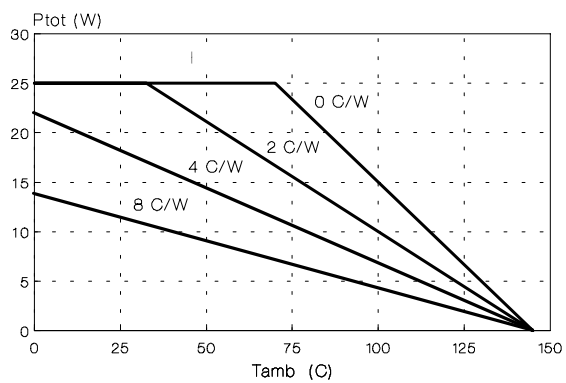
**Figure 6: Output Attenuation & Quiescent Current vs.  $V_{pin3}$**



**Figure 7: Total Power Dissipation vs. Output Power**



**Figure 8: Maximum allowable Power dissipation vs. Ambient Temperature**



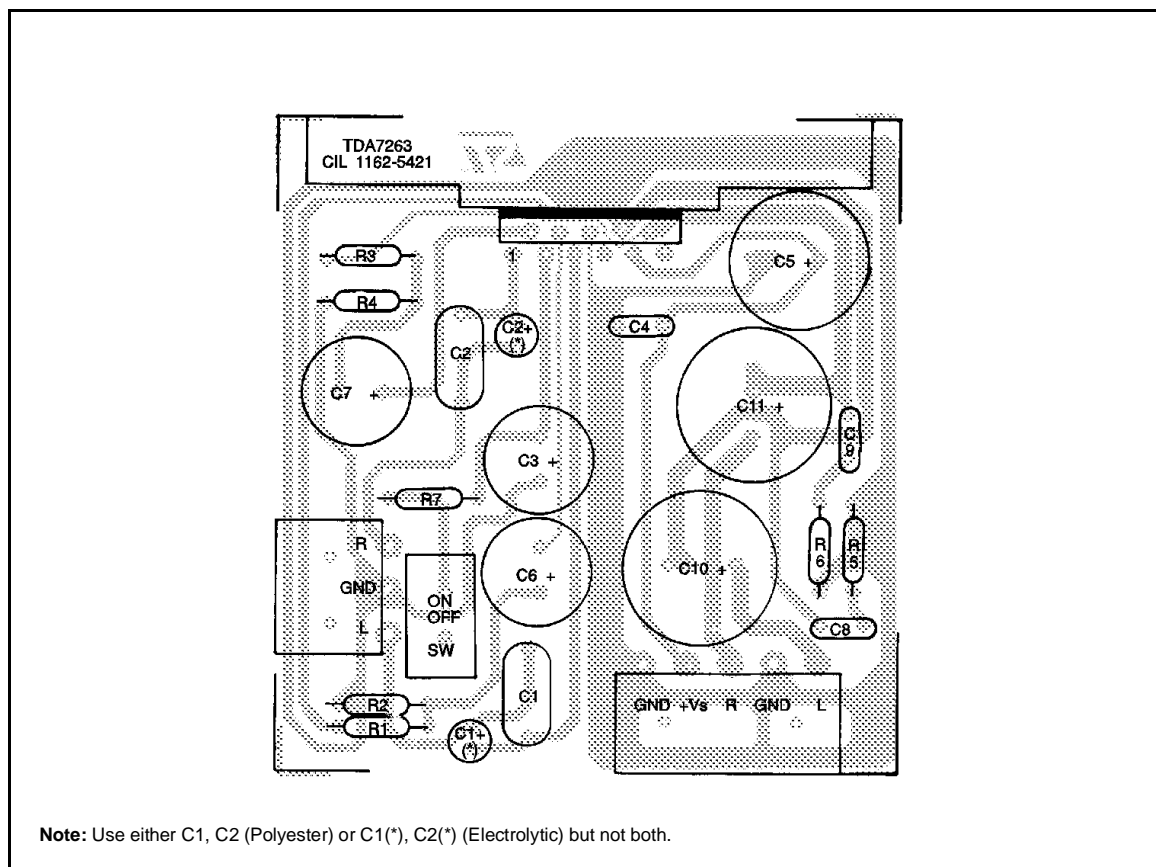
## APPLICATION SUGGESTION

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

Component	Recomm. Value	Purpose	Larger Than	Smaller Than
R1 and R3	1.5K $\Omega$	Close loop gain setting (*)	Increase of gain	Decrease of gain
R2 and R4	47 $\Omega$	Close loop gain setting (*)	Decrease of gain	Increase of gain
R5 and R6	4.7 $\Omega$	Frequency stability	Danger of oscillations	
C1 and C2	100nF	Input DC decoupling	Higher SVR	Higher low frequency cutoff
C3	47 $\mu$ F	- Ripple Rejection - Mute time constant	Increase of the Switch-on time	- Degradation of SVR - Worse turn-off pop by muting
C4	100nF	Supply Voltage Bypass		Danger of oscillations
C5	1000 $\mu$ F	Supply Voltage Bypass		
C6 and C7	47 $\mu$ F	Feedback input DC decoupling	Increase of the Switch-on time	Danger of Switch-on time
C8 and C9	0.1 $\mu$ F	Frequency stability		Danger of oscillations
C10 and C11	1000 $\mu$ F	Output DC decoupling		Higher low-frequency cut-off

(\*) Closed loop gain must be higher than 26dB

Figure 9: P.C. Board and Component Layout (1:1 scale)



### BUILT-IN PROTECTION SYSTEMS

#### THERMAL SHUT-DOWN

The presence of a thermal limiting circuit offers the following advantages:

- 1-an overload on the output (even if it is permanent), or an excessive ambient temperature can be easily withstood.
- 2-the heatsink can have a smaller factor of safety compared with that of a conventional circuit. There is no device damage in the case of excessive junction temperature; if for any reason the junction temperature increases up to 145°C. the thermal shutdown simply re-

duces the output power and therefore the power dissipation.

The maximum allowable power dissipation depends upon the thermal resistance junction-ambient. Figure 8 shows the dissipable power as a function of ambient temperature for different heatsink thermal resistance.

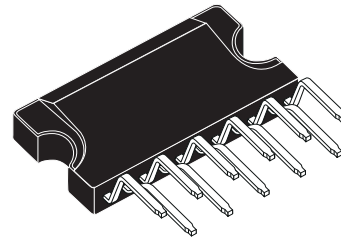
#### SHORT CIRCUIT (AC CONDITIONS)

The TDA7263 can withstand accidental short circuits across the speaker made by a wrong connection during normal play operation.

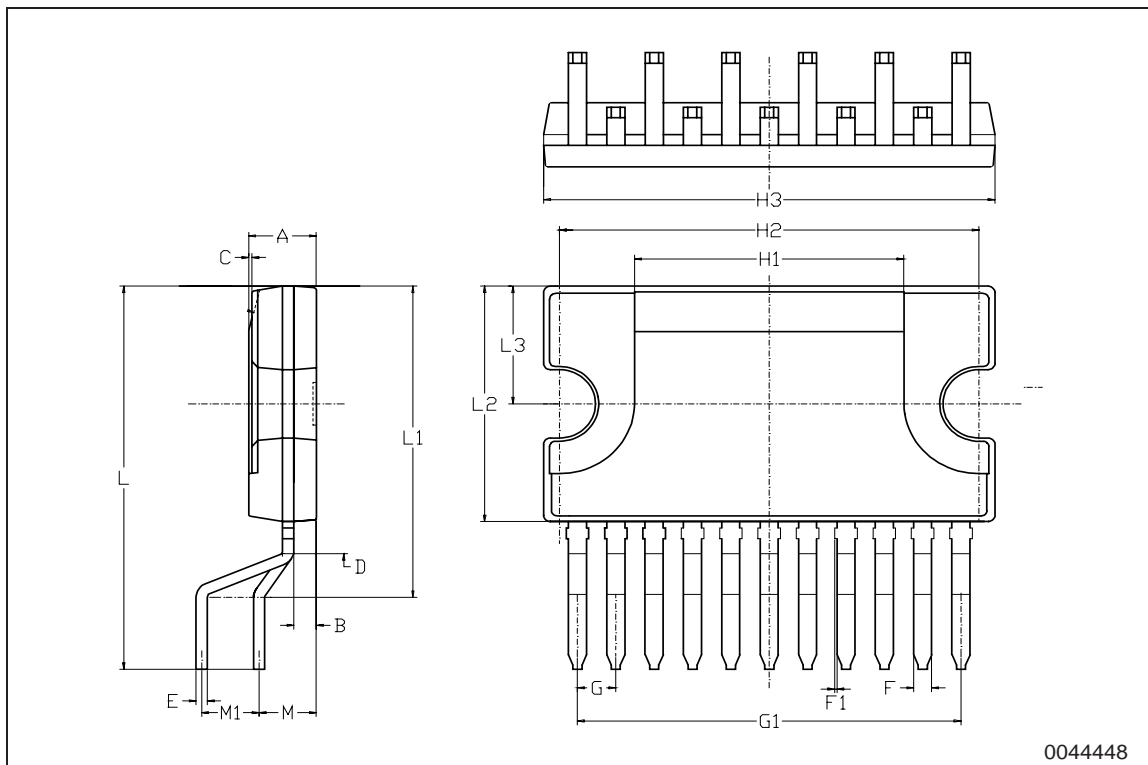
DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			3.2			0.126
B			1.05			0.041
C		0.15			0.006	
D		1.5			0.059	
E	0.49		0.55	0.019		0.002
F	0.77	0.8	0.88	0.030	0.031	0.035
F1			0.15			0.006
G	1.57	1.7	1.83	0.062	0.067	0.072
G1	16.87	17	17.13	0.664	0.669	0.674
H1		12			0.480	
H2		18.6			0.732	
H3	19.85			0.781		
L		17.9			0.700	
L1		14.55			0.580	
L2	10.7	11	11.2	0.421	0.433	0.441
L3		5.5			0.217	
M		2.54			0.100	
M1		2.54			0.100	

## OUTLINE AND MECHANICAL DATA

Weight: 1.80gr



**Clipwatt11**



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