



TDA7379

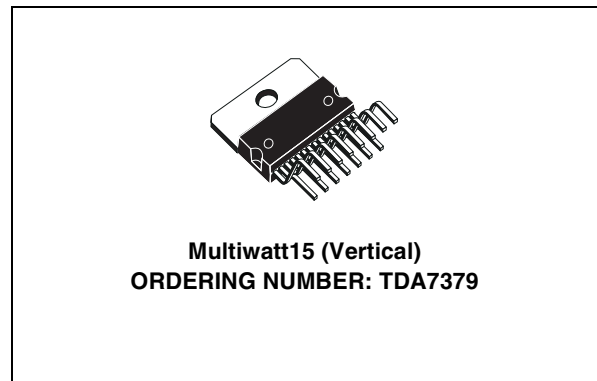
4 X 13 - 2 X 38W AUDIO POWER AMPLIFIER 2 X 13 + 1 X 38W AUDIO POWER AMPLIFIER

PRODUCT PREVIEW

- HIGH OUTPUT POWER CAPABILITY
 - 2 x 38W/4Ω @ 18V, 1KHz, 10%
 - 4 x 11W/4Ω @ 18V, 1KHz, 10%
 - 2 x 20W/8Ω @ 18V; 1KHz, 10%
 - 4 x 13W/2Ω @ 15V, 1KHz, 10%
 - 2 x 34W/8Ω @ 22V, 1kHz, 10%
- MINIMUM EXTERNAL COMPONENTS COUNT:
 - NO BOOTSTRAP CAPACITORS
 - NO BOUCHEROT CELLS
 - INTERNALLY FIXED GAIN (26dB BTL)
- ST-BY FUNCTION (CMOS COMPATIBLE)
- NO AUDIBLE POP DURING ST-BY OPERATIONS
- DIAGNOSTIC FACILITIES
 - CLIP DETECTOR
 - OUT TO GND SHORT
 - OUT TO V_S SHORT
 - SOFT SHORT AT TURN-ON
 - THERMAL SHUTDOWN PROXIMITY

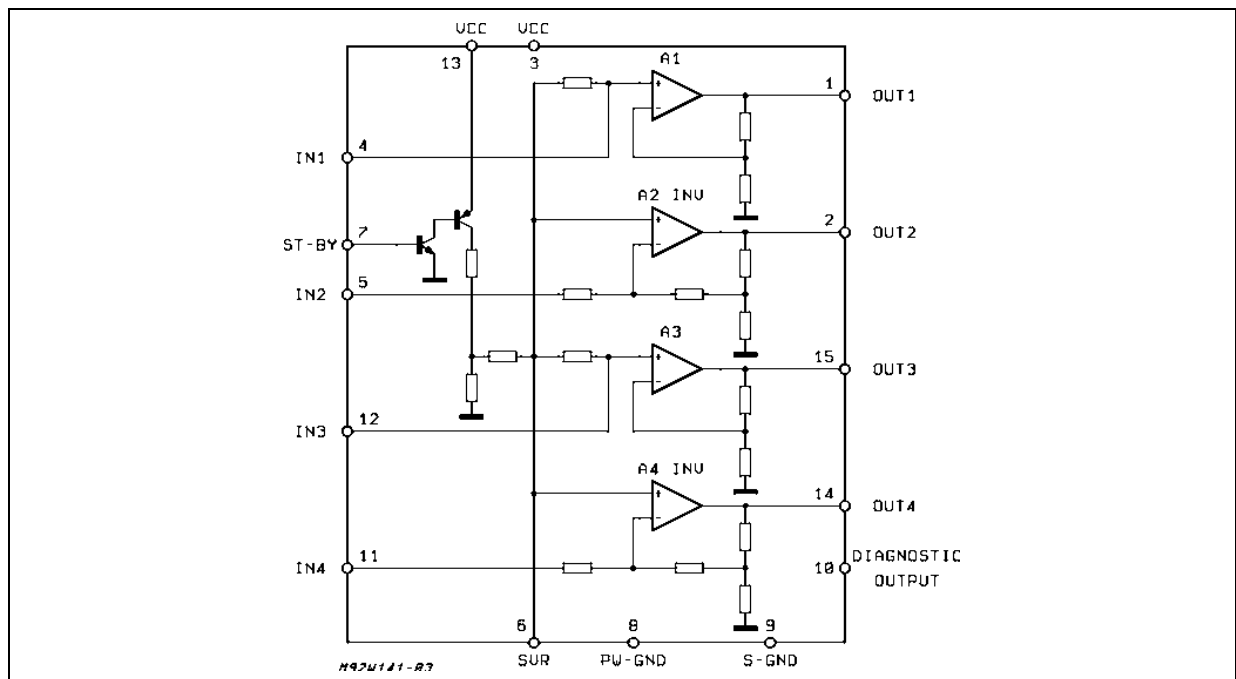
Protections:

- OUPUT AC/DC SHORT CIRCUIT



- TO GND
- TO V_S
- ACROSS THE LOAD
- SOFT SHORT AT TURN-ON
- OVERRATING CHIP TEMPERATURE WITH SOFT THERMAL LIMITER
- FORTUITOUS OPEN GND
- REVERSED BATTERY
- ESD

BLOCK DIAGRAM



TDA7379

DESCRIPTION

The TDA7379 is a new technology class AB audio processor amplifier able to work either in DUAL BRIDGE or QUAD SINGLE ENDED configuration.

The exclusive fully complementary structure of the output stage and the internally fixed gain guarantee the highest power performances with extremely reduced component count. The on board clip detector simplifies gain compression operation. The fault diagnostic makes it possible to detect mistakes during the set assembly and wiring in the equipment.

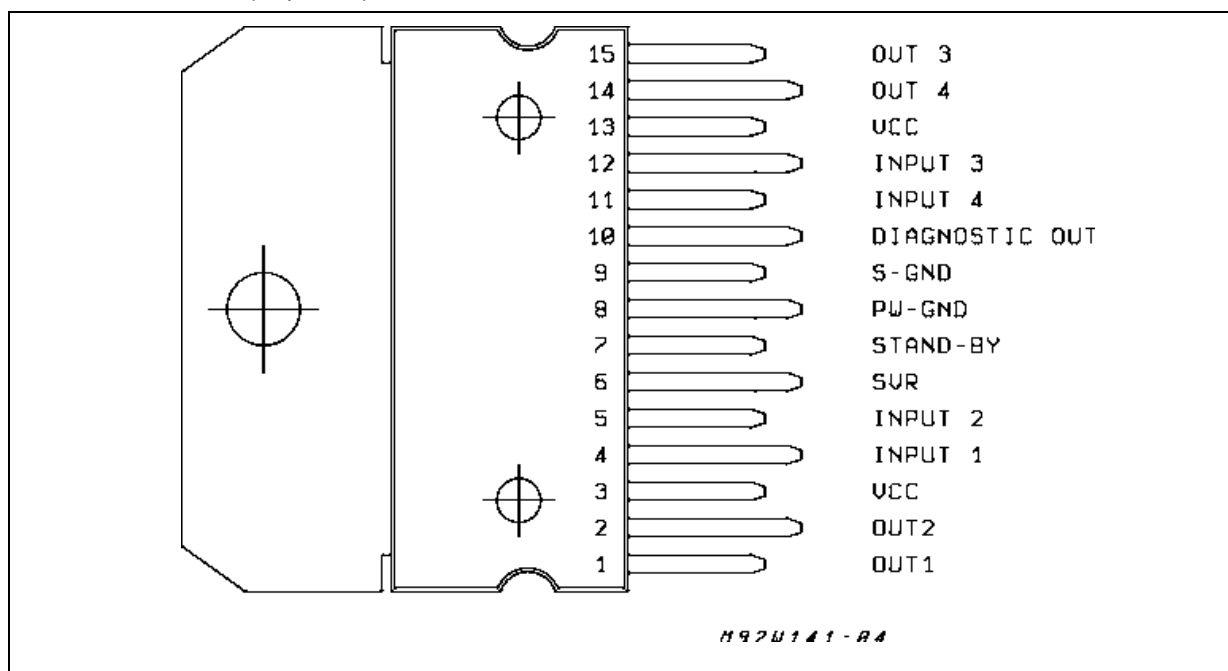
ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------------------------------|--|------------|------|
| V _s | Supply Voltage Idle mode (no signal) | 24 | V |
| | Supply Voltage operating | 22 | V |
| | Supply Voltage AC-DC-short safe | 20 | V |
| I _o | Output Peak Current (not repetitive t = 100µs) | 5 | A |
| I _o | Output Peak Current (repetitive f > 10Hz) | 4 | A |
| P _{tot} | Power Dissipation T _{case} = 85°C | 36 | W |
| T _{stg} , T _j | Storage and Junction Temperature | -40 to 150 | °C |

THERMAL DATA

| Symbol | Parameter | Value | Unit |
|------------------------|-------------------------------------|---------|------|
| R _{th j-case} | Thermal Resistance Junction to case | Max 1.8 | °C/W |

PIN CONNECTION (Top view)



ELECTRICAL CHARACTERISTICS (Refer to the test circuit, $V_S = 15V$; $R_L = 4\Omega$; $f = 1KHz$; $T_{amb} = 25^\circ C$, unless otherwise specified).

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Unit |
|------------------|--|--|------|------|------|------------|
| V_S | Supply Voltage Range | | 8 | | 20 | V |
| I_d | Total Quiescent Drain Current | $R_L = \infty$ | | | 150 | mA |
| V_{OS} | Output Offset Voltage | | | | 150 | mV |
| P_O | Output Power | THD = 10%; $R_L = 4\Omega$ Bridge | 25 | 28 | | W |
| | | Single Ended | 6.5 | 7.5 | | W |
| | | Single Ended, $R_L = 2\Omega$ | | 13 | | W |
| P_O | Output Power | THD = 10%; $V_S = 18V$ Single Ended, $R_L = 4\Omega$ | | 11 | | W |
| | | BTL, $R_L = 4\Omega$ | | 38 | | W |
| | | THD=10%; $V_S = 22V$ Bridge, $R_L = 8\Omega$ Single Ended, $R_L = 4\Omega$ | | 20 | | W |
| THD | Distortion | $R_L = 4\Omega$ Single Ended, $P_O = 0.1$ to 4W | | 0.02 | | % |
| | | Bridge, $P_O = 0.1$ to 10W | | 0.03 | 0.3 | % |
| CT | Cross Talk | $f = 1KHz$ Single Ended | | 70 | | dB |
| | | $f = 10KHz$ Single Ended | | 60 | | dB |
| R_{IN} | Input Impedance | Single Ended | 20 | 30 | | K Ω |
| | | Bridge | 10 | 15 | | K Ω |
| G_V | Voltage Gain | Single Ended | 19 | 20 | 21 | dB |
| | | Bridge | 25 | 26 | 27 | dB |
| G_V | Voltage Gain Match | | | 0.5 | | dB |
| E_{IN} | Input Noise Voltage | $R_g = 0$; "A" weighted, S.E. Non Inverting Channels | | 2 | | μV |
| | | Inverting Channels | | 5 | | μV |
| | | Bridge $R_g = 0$; 22Hz to 22KHz | | 3.5 | | μV |
| SVR | Supply Voltage Rejection | $R_g = 0$; $f = 300Hz$ | 50 | | | dB |
| A_{SB} | Stand-by Attenuation | $P_O = 1W$ | 80 | 90 | | dB |
| I_{SB} | ST-BY Current Consumption | $V_{ST-BY} = 0$ to 1.5V | | | 100 | μA |
| V_{SB} | ST-BY In Threshold Voltage | | | | 1.5 | V |
| V_{SB} | ST-BY Out Threshold Voltage | | 3.5 | | | V |
| I_{pin7} | ST-BY Pin Current | Play Mode $V_{pin7} = 5V$ | | | 50 | μA |
| | | Max Driving Current Under Fault (*) | | | 5 | mA |
| $I_{cd\ off}$ | Clipping Detector Output Average Current | $d = 1\%$ (**) | | 90 | | μA |
| $I_{cd\ on}$ | Clipping Detector Output Average Current | $d = 5\%$ (**) | | 160 | | μA |
| $V_{sat\ pin10}$ | Voltage Saturation on pin 10 | Sink Current at Pin 10 = 1mA | | | 0.7 | V |

(*) See built-in S/C protection description

(**) Pin 10 Pulled-up to 5V with 10K Ω ; $R_L = 4\Omega$

STANDARD TEST AND APPLICATION CIRCUIT

Figure 1. Quad Stereo

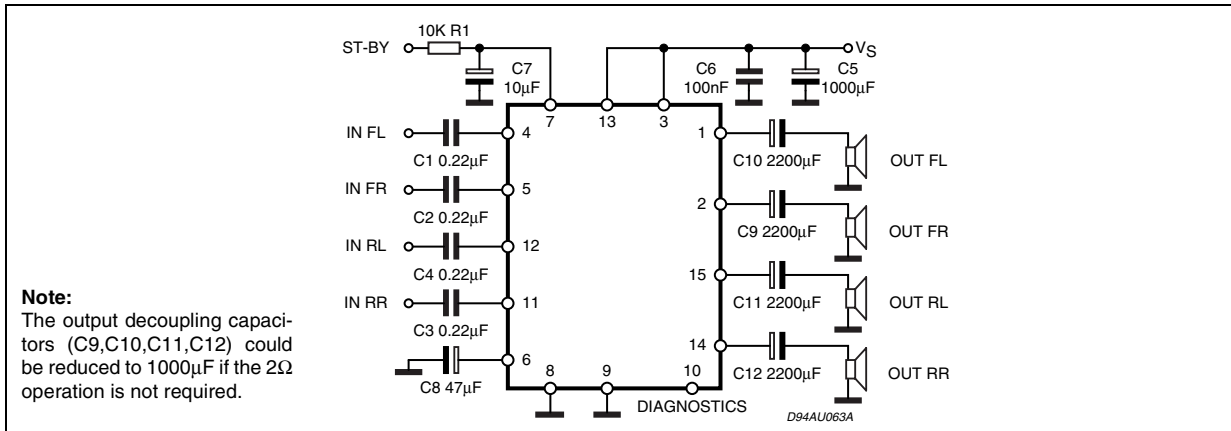


Figure 2. Double Bridge

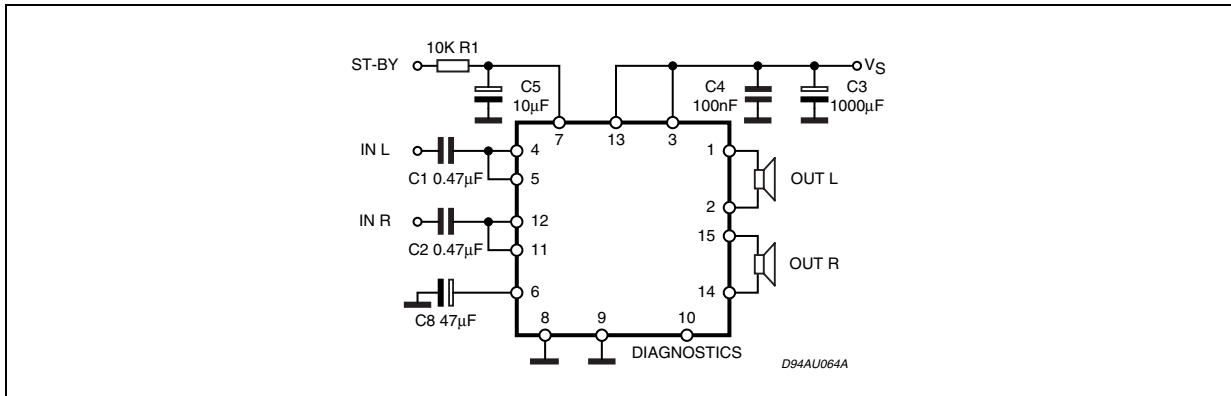


Figure 3. Stereo/Bridge

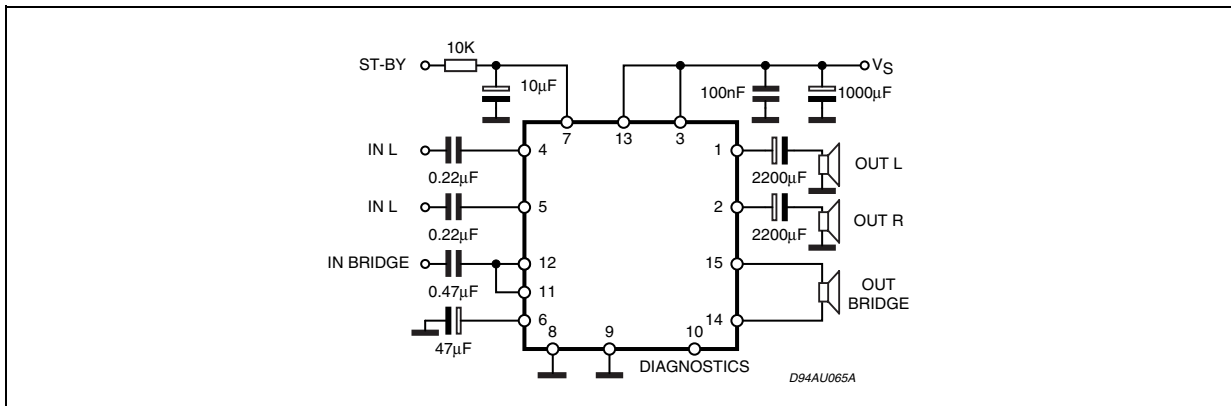


Figure 4. P.C. Board and Component Layout of the fig.1.

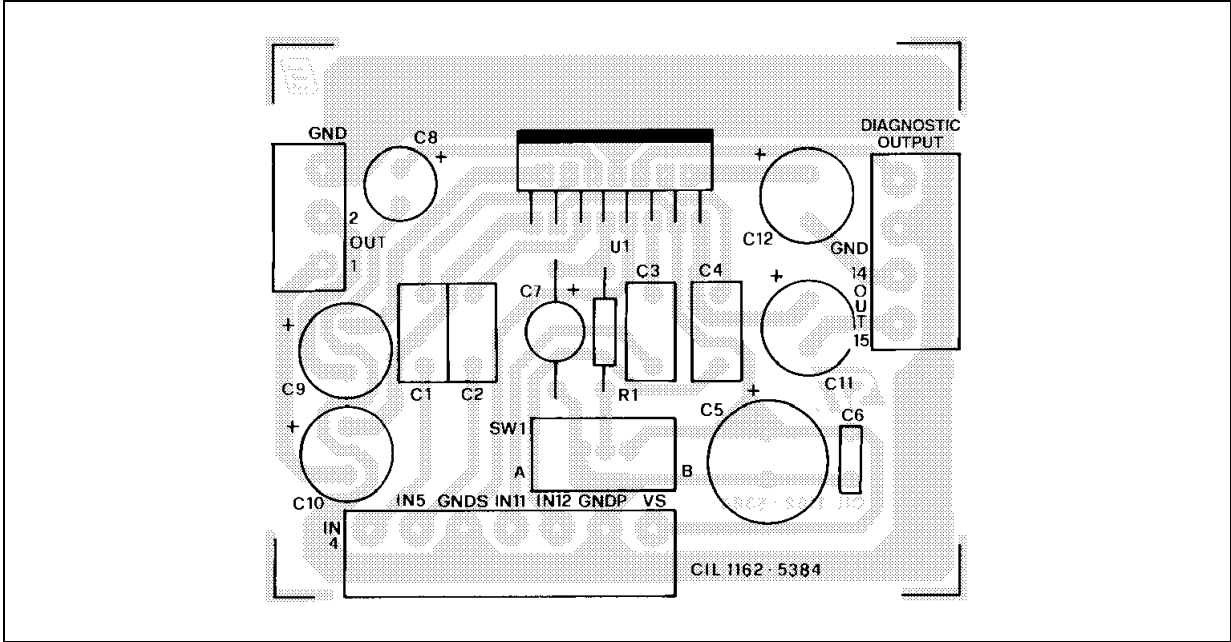
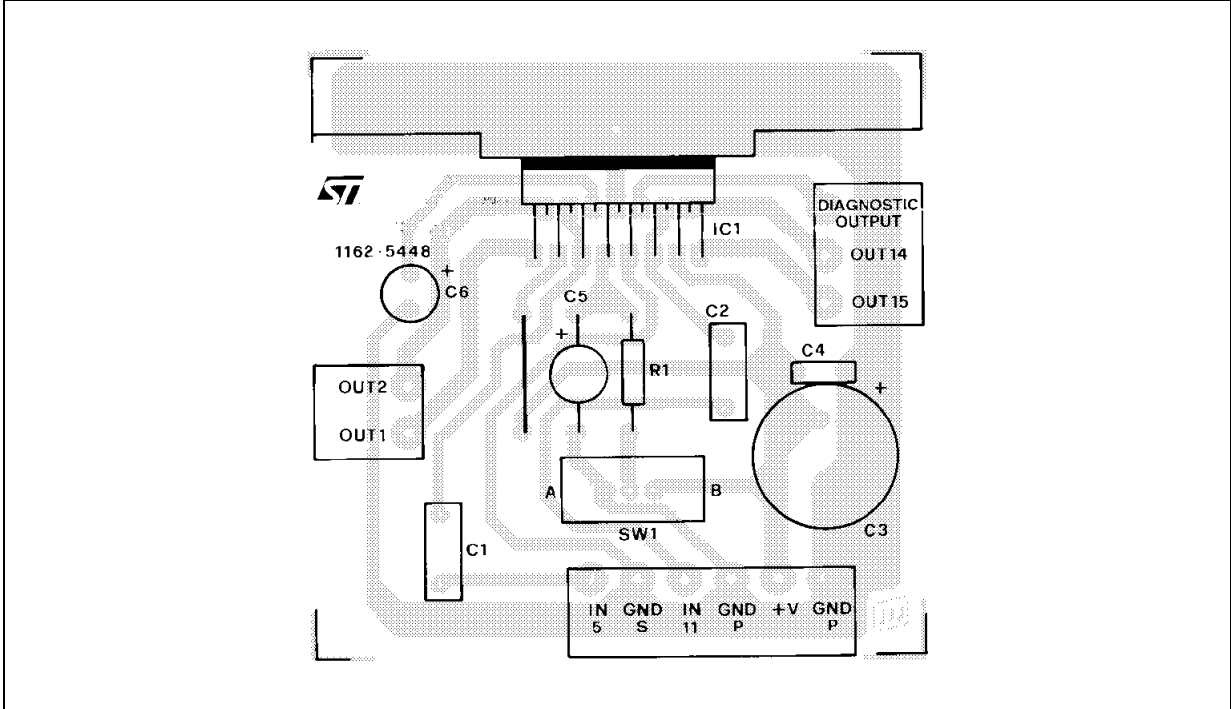
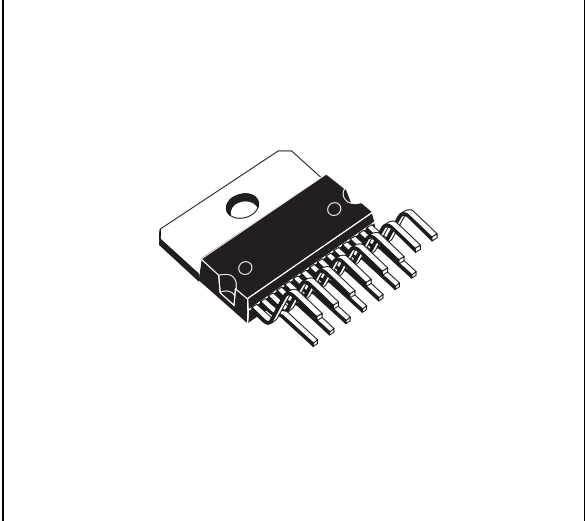


Figure 5. P.C. Board and Component Layout of the fig.2

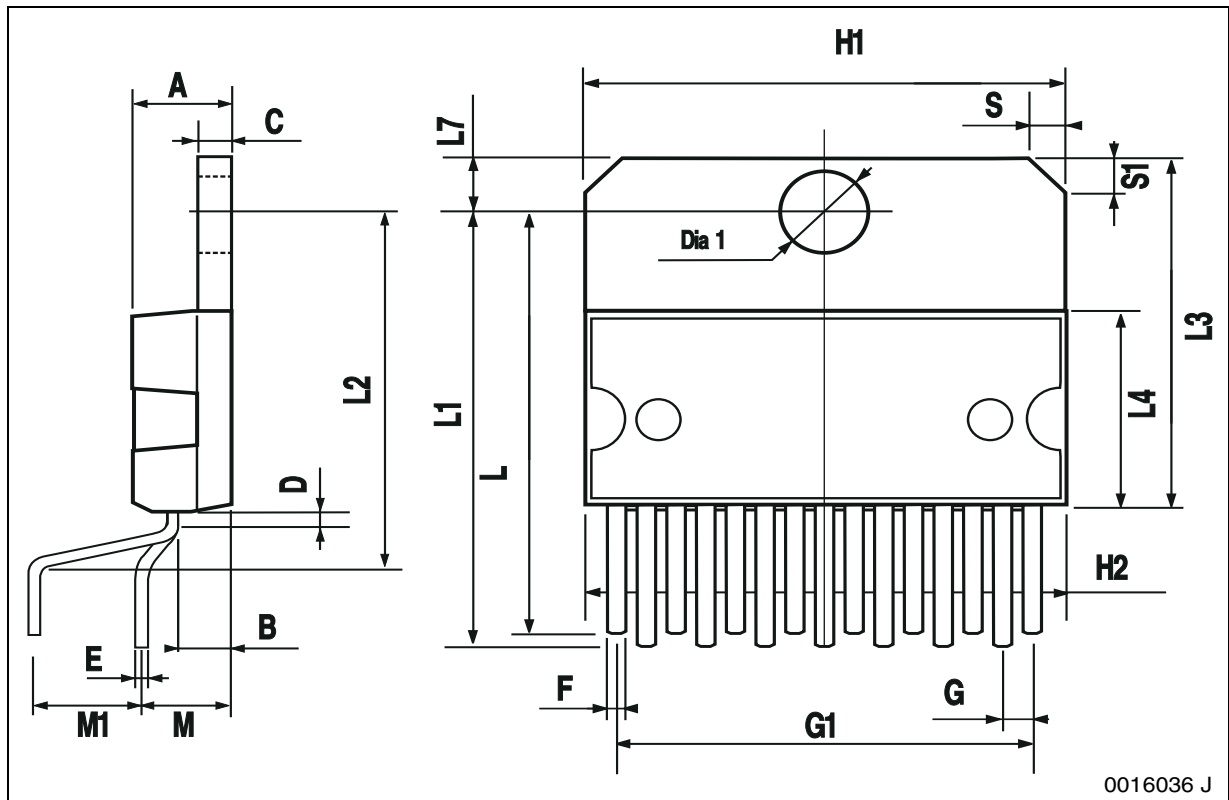


| DIM. | mm | | | inch | | |
|------|-------|-------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A5 | | | | | | 0.197 |
| B | | | 2.65 | | | 0.104 |
| C | | | 1.6 | | | 0.063 |
| D | | 1 | | | 0.039 | |
| E | 0.49 | | 0.55 | 0.019 | | 0.022 |
| F | 0.66 | | 0.75 | 0.026 | | 0.030 |
| G | 1.02 | 1.27 | 1.52 | 0.040 | 0.050 | 0.060 |
| G1 | 17.53 | 17.78 | 18.03 | 0.690 | 0.700 | 0.710 |
| H1 | 19.6 | | | 0.772 | | |
| H2 | | | 20.2 | | | 0.795 |
| L | 21.9 | 22.2 | 22.5 | 0.862 | 0.874 | 0.886 |
| L1 | 21.7 | 22.1 | 22.5 | 0.854 | 0.87 | 0.886 |
| L2 | 17.65 | | 18.1 | 0.695 | | 0.713 |
| L3 | 17.25 | 17.5 | 17.75 | 0.679 | 0.689 | 0.699 |
| L4 | 10.3 | 10.7 | 10.9 | 0.406 | 0.421 | 0.429 |
| L7 | 2.65 | | 2.9 | 0.104 | | 0.114 |
| M | 4.25 | 4.55 | 4.85 | 0.167 | 0.179 | 0.191 |
| M1 | 4.73 | 5.08 | 5.43 | 0.186 | 0.200 | 0.214 |
| S | 1.9 | | 2.6 | 0.075 | | 0.102 |
| S1 | 1.9 | | 2.6 | 0.075 | | 0.102 |
| Dia1 | 3.65 | | 3.85 | 0.144 | | 0.152 |

OUTLINE AND MECHANICAL DATA



Multiwatt15 (Vertical)



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