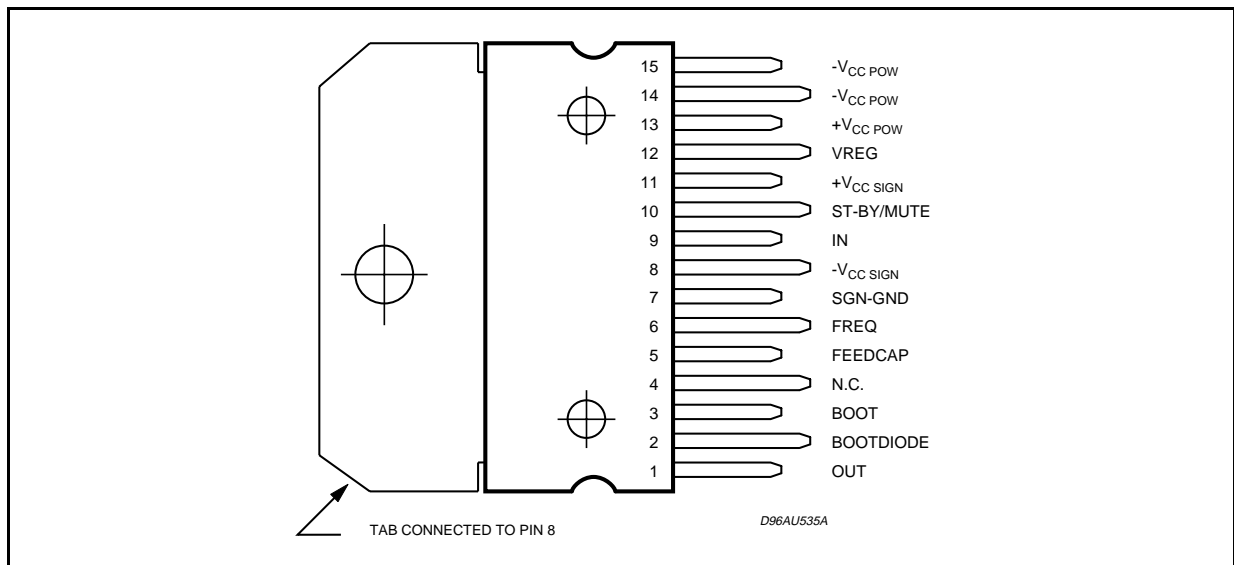


ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|----------------|--|------------|-------------|
| V_{CC} | DC Supply Voltage | ± 25 | V |
| P_{tot} | Power Dissipation $T_{case} = 70^{\circ}C$ | 35 | W |
| T_{stg}, T_j | Storage and Junction Temperature | -40 to 150 | $^{\circ}C$ |
| V_{FREQ} | Maximum Voltage Across RF (pin 6) | 8 | V |
| T_{op} | Operating Temperature Range | 0 to 70 | $^{\circ}C$ |
| ESD | Max ESD On Pins | ± 1.2 | KV |

PIN CONNECTION (Top view)



THERMAL DATA

| Symbol | Parameter | Typ. | Max. | Unit |
|------------------|----------------------------------|------|------|---------------|
| $R_{th\ j-case}$ | Thermal Resistance Junction-case | 1.8 | 2.5 | $^{\circ}C/W$ |

PIN FUNCTIONS

| N. | Name | Function |
|----|-----------------|--|
| 1 | OUT | PWM OUTPUT |
| 2 | BOOTDIODE | BOOTSTRAP DIODE ANODE |
| 3 | BOOT | BOOTSTRAP |
| 4 | NC | NOT CONNECTED |
| 5 | FEEDCAP | FEEDBACK INTEGRATING CAPACITOR |
| 6 | FREQ | SETTING FREQUENCY RESISTOR |
| 7 | SGN-GND | SIGNAL GROUND |
| 8 | $-V_{CC\ SIGN}$ | SIGNAL NEGATIVE SUPPLY |
| 9 | IN | INPUT |
| 10 | ST-BY/MUTE | CONTROL STATE PIN |
| 11 | $+V_{CC\ SIGN}$ | POSITIVE SIGNAL SUPPLY |
| 12 | VREG | INTERNAL VOLTAGE REGULATOR |
| 13 | $+V_{CC\ POW}$ | POSITIVE POWER SUPPLY |
| 14 | $-V_{CC\ POW}$ | NEGATIVE POWER SUPPLY (to be connected to pin 13 via CS) |
| 15 | $-V_{CC\ POW}$ | NEGATIVE POWER SUPPLY (to be connected to pin 13 via CS) |

ELECTRICAL CHARACTERISTICS (Refer to the test circuit, $V_{CC} = \pm 18V$; $R_L = 8\Omega$; $R_S = 50\Omega$; $R_F = 12K\Omega$; Demod.. filter $L = 60\mu H$, $C = 470nF$; $f = 1KHz$; $T_{amb} = 25^\circ C$ unless otherwise specified.)

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|---|---|----------|-------------------|----------|--------------------|
| V_S | Supply Range | | ± 10 | | ± 25 | V |
| I_q | Total Quiescent Current | $R_L = \infty$, no LC filter | | 35 | 55 | mA |
| V_{OS} | Output Offset Voltage | PLAY condition | -70 | -30 | 10 | mV |
| P_O | Output Power | THD = 10% THD = 1% | 15 10 | 18 13 | | W W |
| P_O | Output Power | $V_{CC} = \pm 15V$; $R_L = 4\Omega$ THD = 10% THD = 1% (*) | | 18 13 | | W W |
| P_D | Maximum Dissipated Power | $V_{CC} = \pm 18V$; $R_L = 8\Omega$; $R_f = 12K\Omega$ $P_O = 18W$ THD 10% | | 3.5 | | W |
| η | Efficiency $\equiv \frac{P_O}{P_O + P_D} \equiv \frac{P_O}{P_i}$ (**) | $V_{CC} = \pm 18V$; $R_L = 8\Omega$; $R_f = 12K\Omega$ $P_O = 18W$ THD 10% | | 85 | | % |
| THD | Total Harmonic Distortion | $R_L = 8\Omega$; $P_O = 1W$ | | 0.1 | | % |
| I_{max} | Overcurrent Protection Threshold | $R_L = 0$ | 3.5 | 5 | | A |
| T_j | Thermal Shut-down Junction Temperature | | | 150 | | $^\circ C$ |
| G_V | Closed Loop Gain | | 29 | 30 | 31 | dB |
| e_N | Total Input Noise | A Curve $f = 20Hz$ to $22KHz$ | | 7 12 | | μV μV |
| $V_{CCTOT MAX}$ | Maximum Total V_{CC} Protection | | 50 | | | V |
| R_i | Input Resistance | | 20 | 30 | | $k\Omega$ |
| SVR | Supply Voltage Rejection | $f = 100Hz$; $V_r = 0.5$ | 46 | 60 | | dB |
| T_r, T_f | Rising and Falling Time | | | 50 | | ns |
| R_{DSON} | Power Transistor on Resistance | | | 0.4 | | Ω |
| F_{SW-OP} | Switching Frequency Operative Range | | 100 | | 200 | KHz |
| F_{SW} | Switching Frequency | | 100 | 120 | 140 | KHz |
| B_F | Zero Signal Frequency Constant (***) | | | 1.4×10^9 | | Hz Ω |
| R_F | Frequency Controller Resistor Range (****) | | 7 | 12 | 14 | $K\Omega$ |
| MUTE & STAND-BY FUNCTIONS | | | | | | |
| V_{ST-BY} | Stand-by range | | | | 0.8 | V |
| V_{MUTE} | Mute Range | | 1.8 | | 2.5 | V |
| V_{PLAY} | Play Range (1) | | 4 | | | V |
| A_{MUTE} | Mute Attenuation | | 60 | 80 | | dB |
| I_{qST-BY} | Quiescent Current @ Stand-by | | | 3 | 5 | mA |

*: The output LC filter must be changed to: $L = 30\mu H$; $C = 1\mu F$

** P_O = measured across the load using the following inductor:
COIL 58120 MPPA2 (magnetics) TURNS: 28 \varnothing 1mm

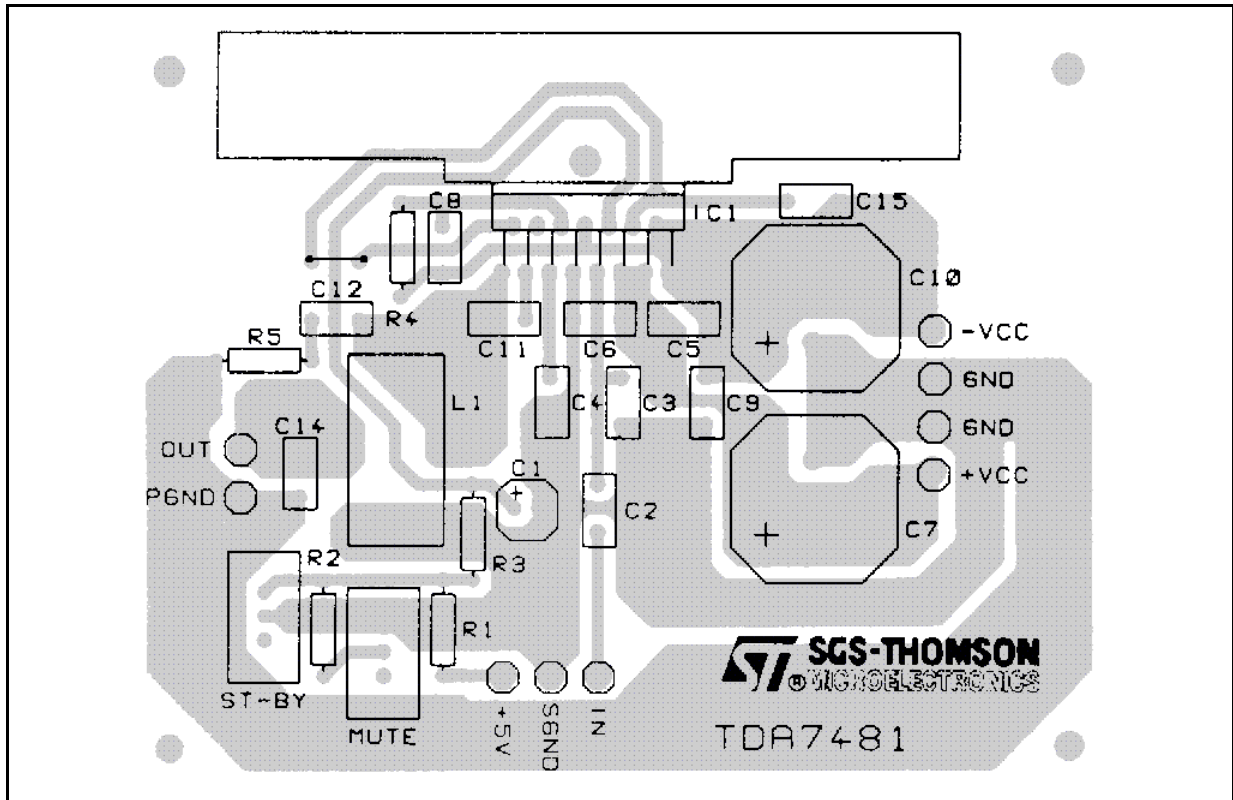
***: The zero-signal switching frequency can be obtained using the following expression: $F_{SW} = B_F/R_F$

****: The maximum value of R_F is related to the maximum possible value for the voltage drop on R_F itself

(1) for $V_{IO} > 5.2V$, an input impedance of $10K\Omega$ is to be considered

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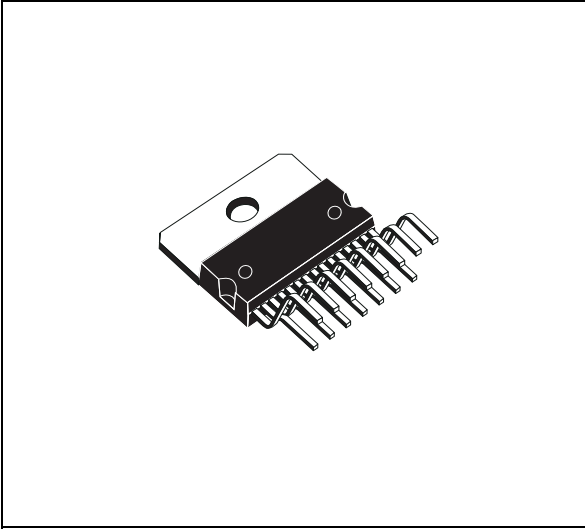
Figure 2: Recommended P.C. Board and Component Layout of the Circuit of Figure 1 (1.25:1 scale)



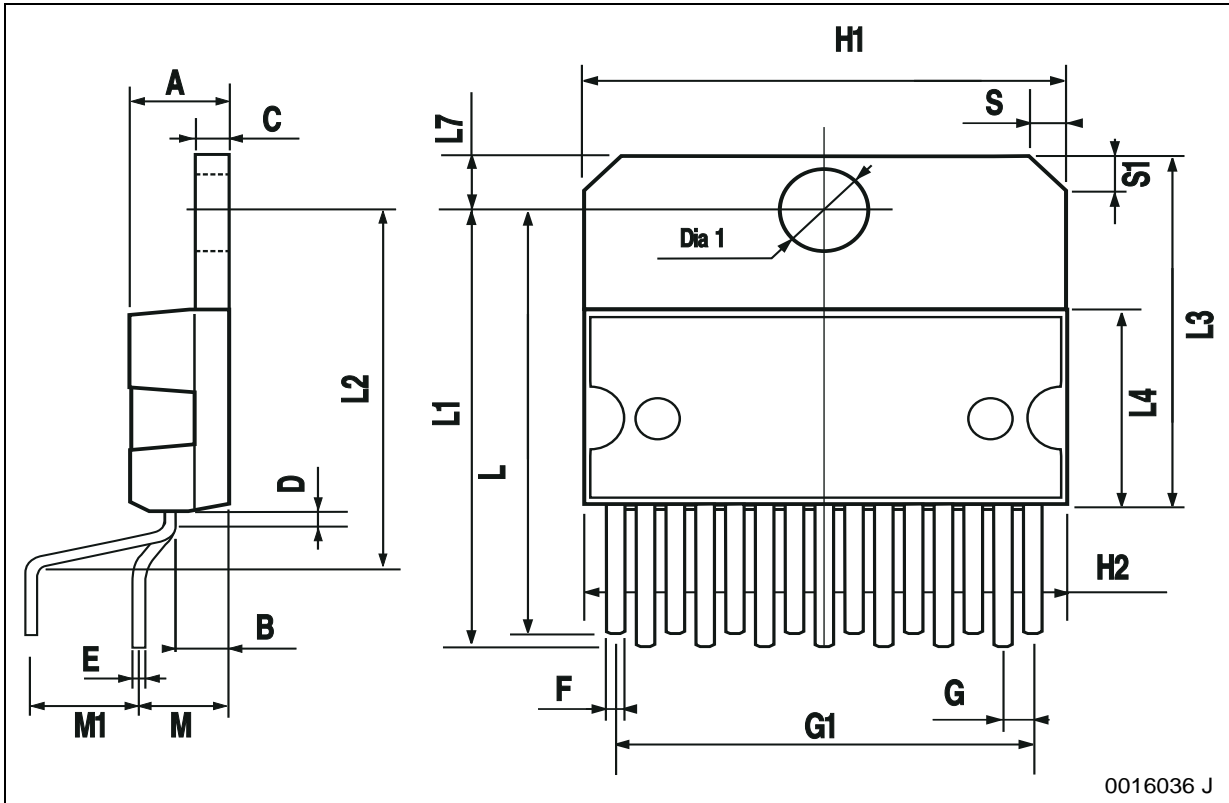
Note: Capacitor C5 must be as close as possible to device's pins 16 and 17

| 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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