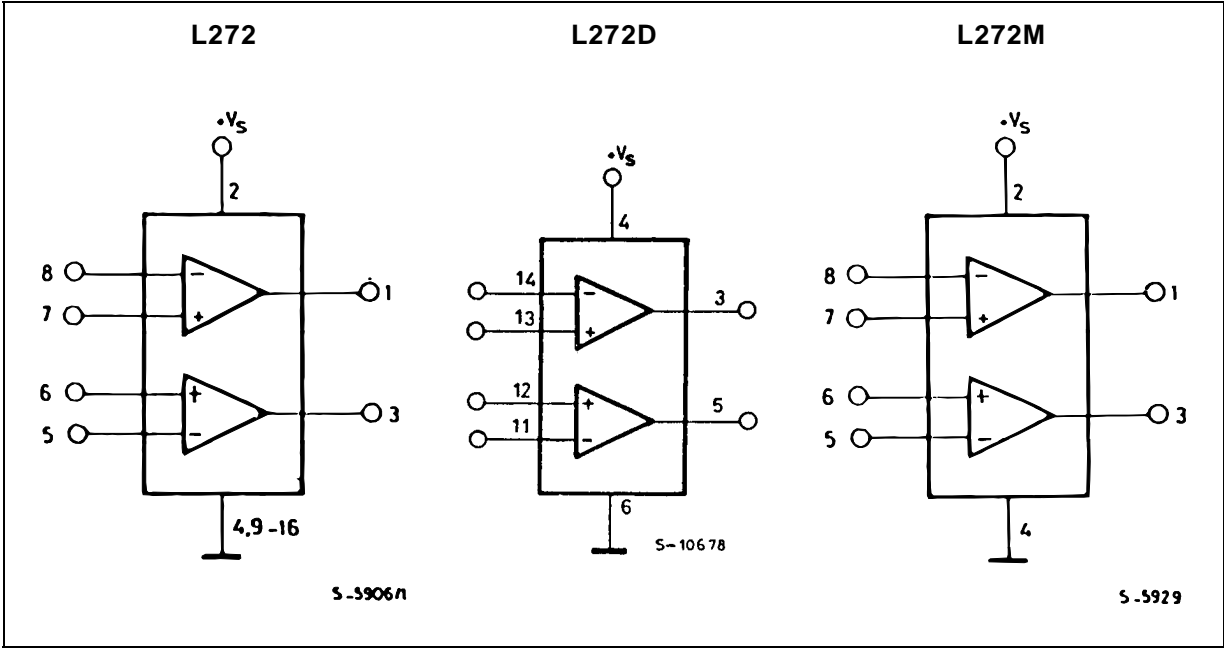
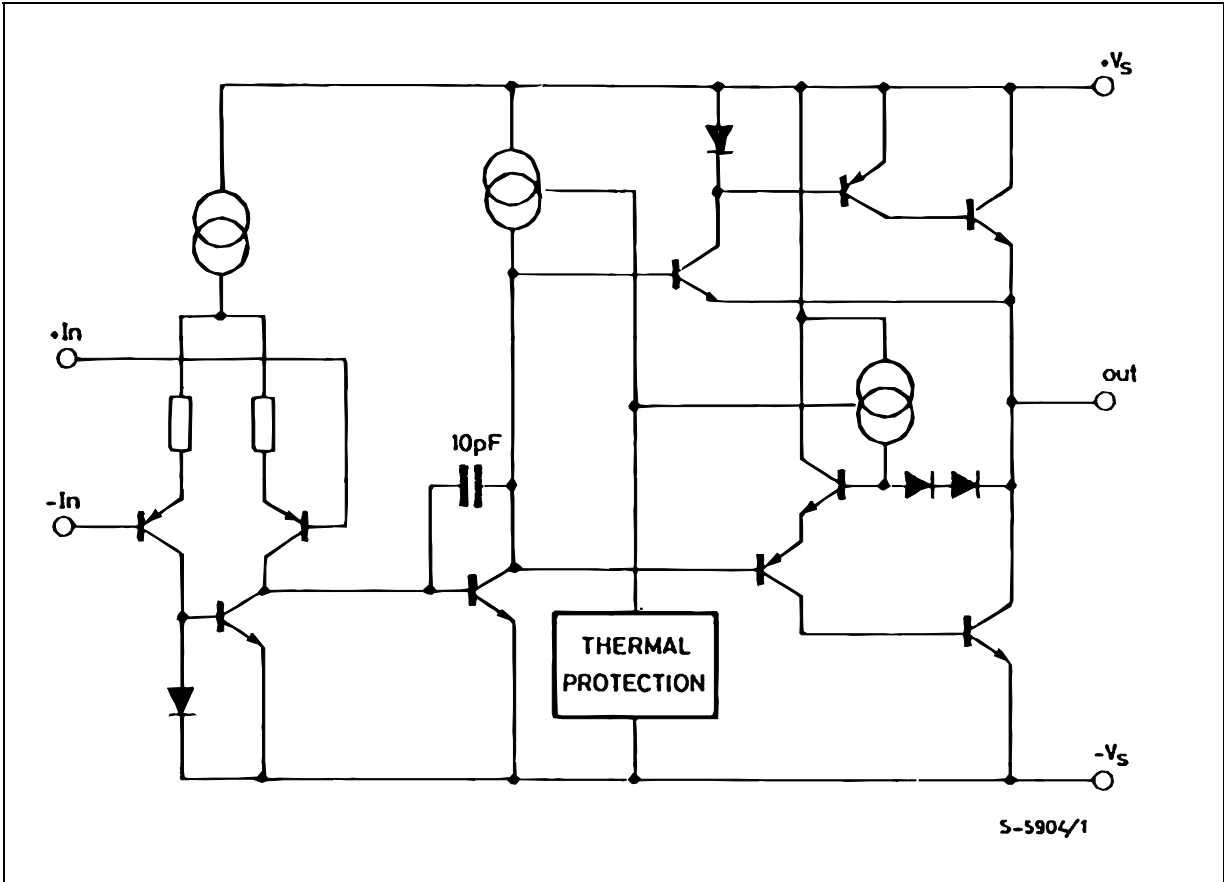


BLOCK DIAGRAMS



SCHEMATIC DIAGRAM (one only)



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|----------------|---|-------------|------------------|
| V_s | Supply Voltage | 28 | V |
| V_i | Input Voltage | V_s | |
| V_i | Differential Input Voltage | $\pm V_s$ | |
| I_o | DC Output Current | 1 | A |
| I_p | Peak Output Current (non repetitive) | 1.5 | A |
| P_{tot} | Power Dissipation at: $T_{amb} = 80^\circ\text{C}$ (L272), $T_{amb} = 50^\circ\text{C}$ (L272M), $T_{case} = 90^\circ\text{C}$ (L272D) $T_{case} = 75^\circ\text{C}$ (L272) | 1.2 5 | W W |
| T_{op} | Operating Temperature Range (L272D) | - 40 to 85 | $^\circ\text{C}$ |
| T_{stg}, T_j | Storage and Junction Temperature | - 40 to 150 | $^\circ\text{C}$ |

THERMAL DATA

| Symbol | Parameter | Powerdip | SO16 | Minidip | Unit |
|---------------------|--|----------|-------|---------|--------------------|
| $R_{th\ j-case}$ | Thermal Resistance Junction-pins Max. | 15 | — | * 70 | $^\circ\text{C/W}$ |
| $R_{th\ j-amb}$ | Thermal Resistance Junction-ambient Max. | 70 | — | 100 | $^\circ\text{C/W}$ |
| $R_{th\ j-alumina}$ | Thermal Resistance Junction-alumina Max. | — | ** 50 | — | $^\circ\text{C/W}$ |

* Thermal resistance junction-pin 4

** Thermal resistance junctions-pins with the chip soldered on the middle of an alumina supporting substrate measuring 15x 20mm; 0.65mm thickness and infinite heatsink.

ELECTRICAL CHARACTERISTICS ($V_s = 24\text{V}$, $T_{amb} = 25^\circ\text{C}$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|----------|---------------------------------------|--|------|----------------|----------|------------------|
| V_s | Supply Voltage | | 4 | | 28 | V |
| I_s | Quiescent Drain Current | $V_O = \frac{V_s}{2}$ $V_s = 24\text{V}$ $V_s = 12\text{V}$ | | 8 7.5 | 12 11 | mA mA |
| I_b | Input Bias Current | | | 0.3 | 2.5 | μA |
| V_{os} | Input Offset Voltage | | | 15 | 60 | mV |
| I_{os} | Input Offset Current | | | 50 | 250 | nA |
| SR | Slew Rate | | | 1 | | V/ μs |
| B | Gain-bandwidth Product | | | 350 | | kHz |
| R_i | Input Resistance | | 500 | | | k Ω |
| G_v | O. L. Voltage Gain | $f = 100\text{Hz}$ $f = 1\text{kHz}$ | 60 | 70 50 | | dB dB |
| e_N | Input Noise Voltage | $B = 20\text{kHz}$ | | 10 | | μV |
| I_N | Input Noise Current | $B = 20\text{kHz}$ | | 200 | | pA |
| CRR | Common Mode Rejection | $f = 1\text{kHz}$ | 60 | 75 | | dB |
| SVR | Supply Voltage Rejection | $f = 100\text{Hz}$, $R_G = 10\text{k}\Omega$, $V_R = 0.5\text{V}$ $V_s = 24\text{V}$ $V_s = \pm 12\text{V}$ $V_s = \pm 6\text{V}$ | 54 | 70 62 56 | | dB |
| V_o | Output Voltage Swing | $I_p = 0.1\text{A}$ $I_p = 0.5\text{A}$ | 21 | 23 22.5 | | V V |
| C_s | Channel Separation | $f = 1\text{kHz}$; $R_L = 10\Omega$, $G_v = 30\text{dB}$ $V_s = 24\text{V}$ $V_s = \pm 6\text{V}$ | | 60 60 | | dB |
| d | Distortion | $f = 1\text{kHz}$, $G_v = 3\text{dB}$, $V_s = 24\text{V}$, $R_L = \infty$ | | 0.5 | | % |
| T_{sd} | Thermal Shutdown Junction Temperature | | | 145 | | $^\circ\text{C}$ |



Figure 1 : Quiescent Current versus Supply Voltage

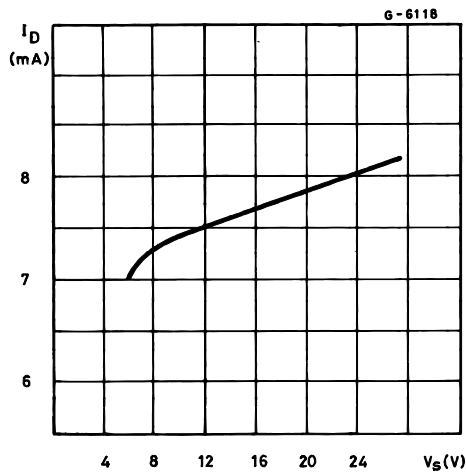


Figure 2 : Quiescent Drain Current versus Temperature

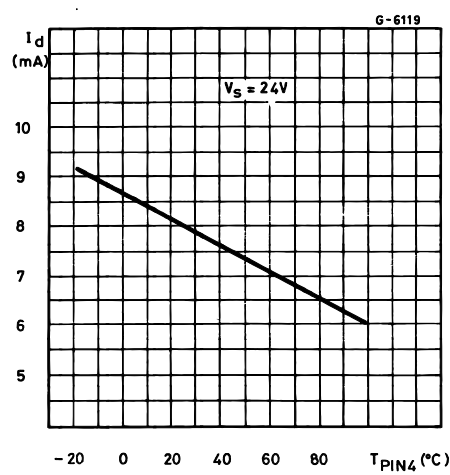


Figure 3 : Open Loop Voltage Gain

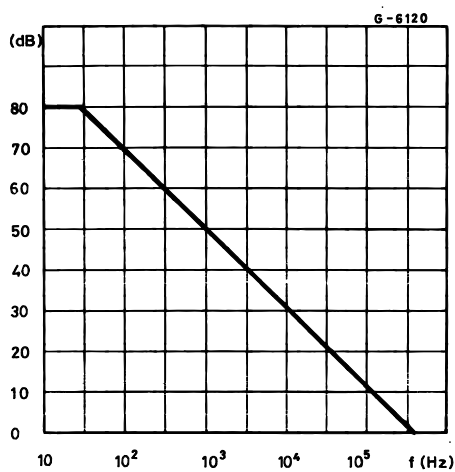


Figure 4 : Output Voltage Swing versus Load Current

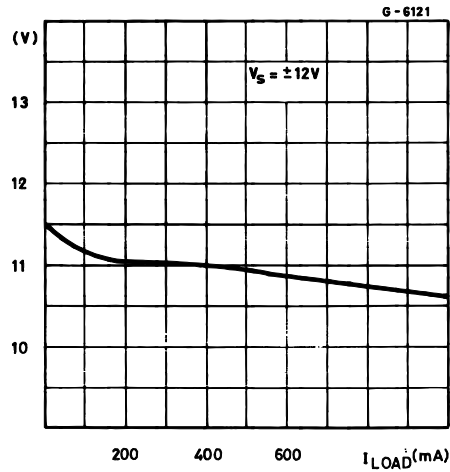


Figure 5 : Output Voltage Swing versus Load Current

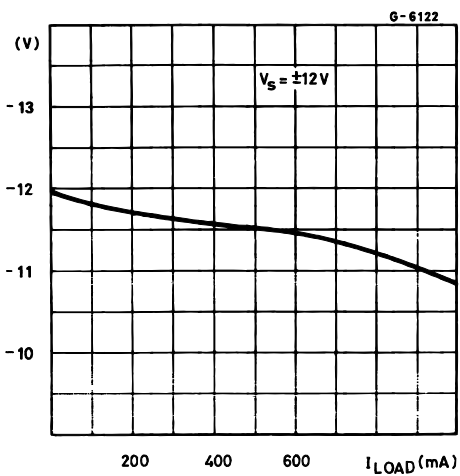


Figure 6 : Supply Voltage Rejection versus Frequency

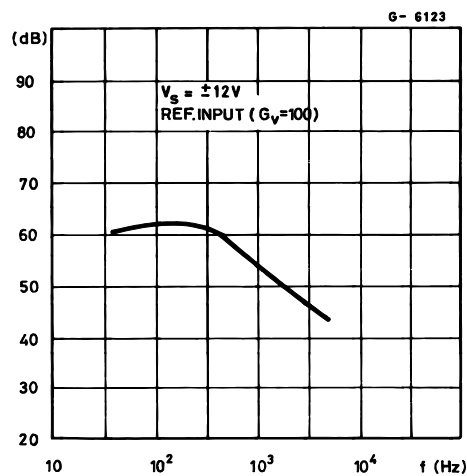
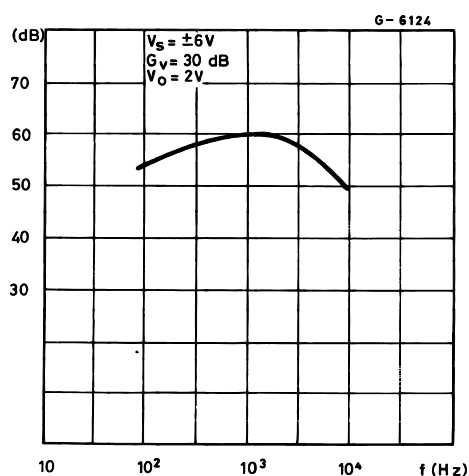
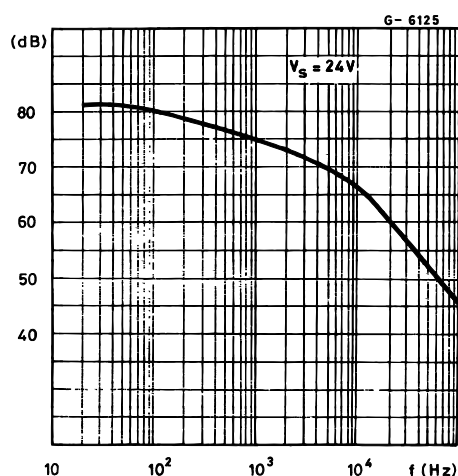


Figure 7 : Channel Separation versus Frequency**Figure 8 :** Common Mode Rejection versus Frequency**APPLICATION SUGGESTION****NOTE**

In order to avoid possible instability occurring into final stage the usual suggestions for the linear power stages are useful, as for instance :

- layout accuracy ;
- a 100nF capacitor connected between supply pins and ground ;
- boucherot cell (0.1 to $0.2 \mu F + 1 \Omega$ series) between

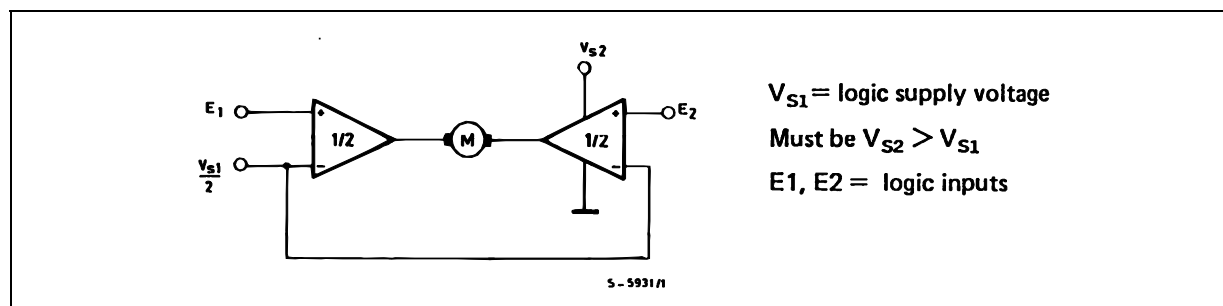
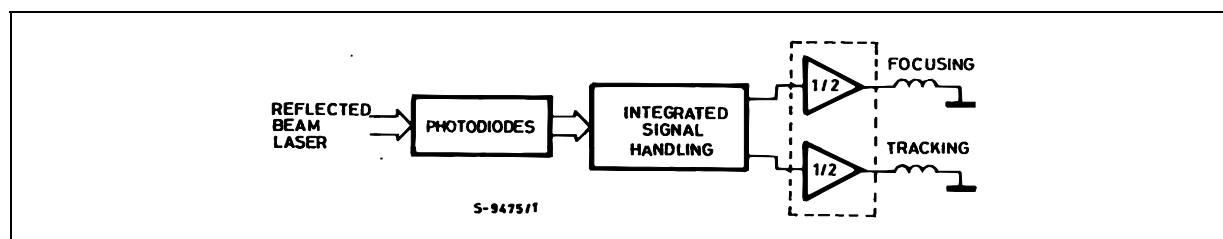
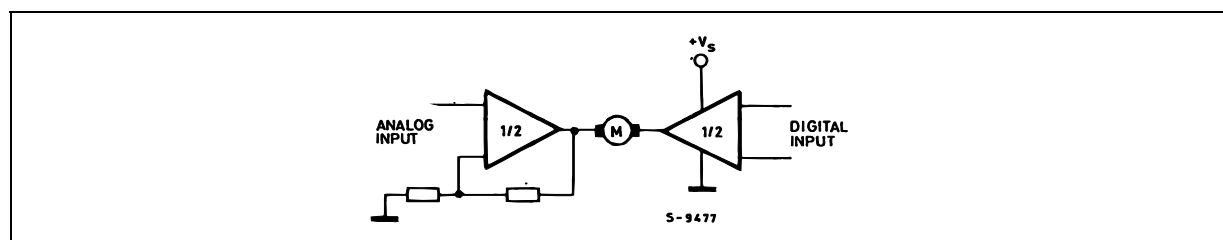
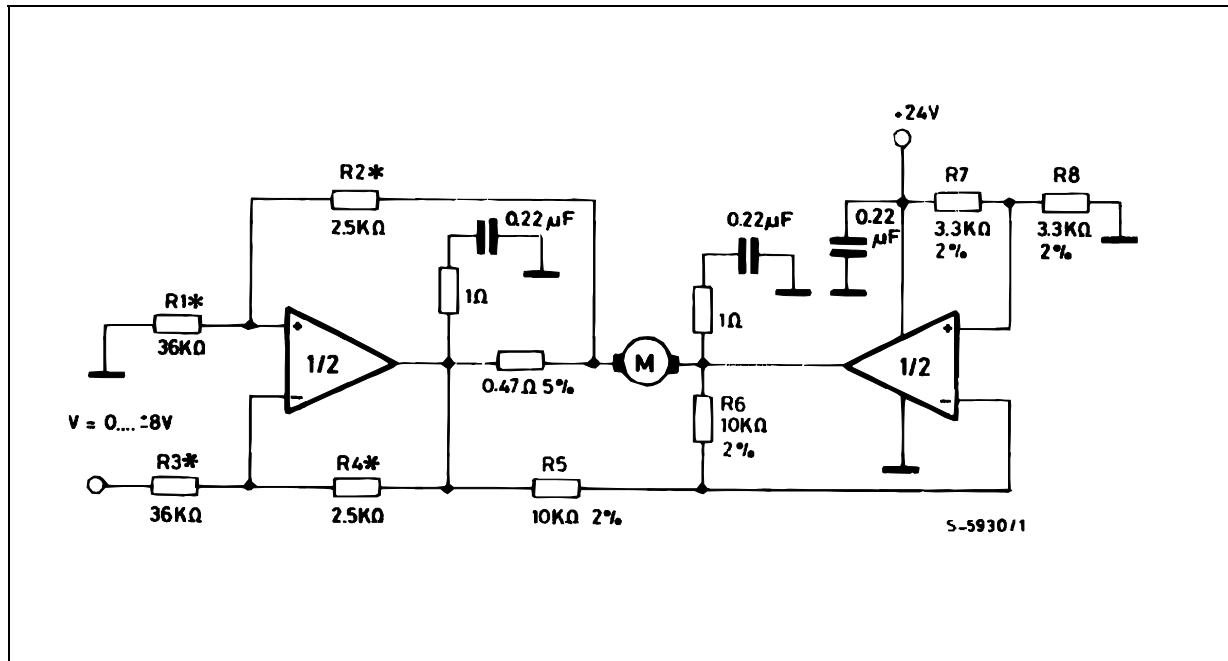
Figure 9 : Bidirectional DC Motor Control with μP Compatible Inputs**Figure 10 :** Servocontrol for Compact-disc**Figure 11 :** Capstan Motor Control in Video Recorders

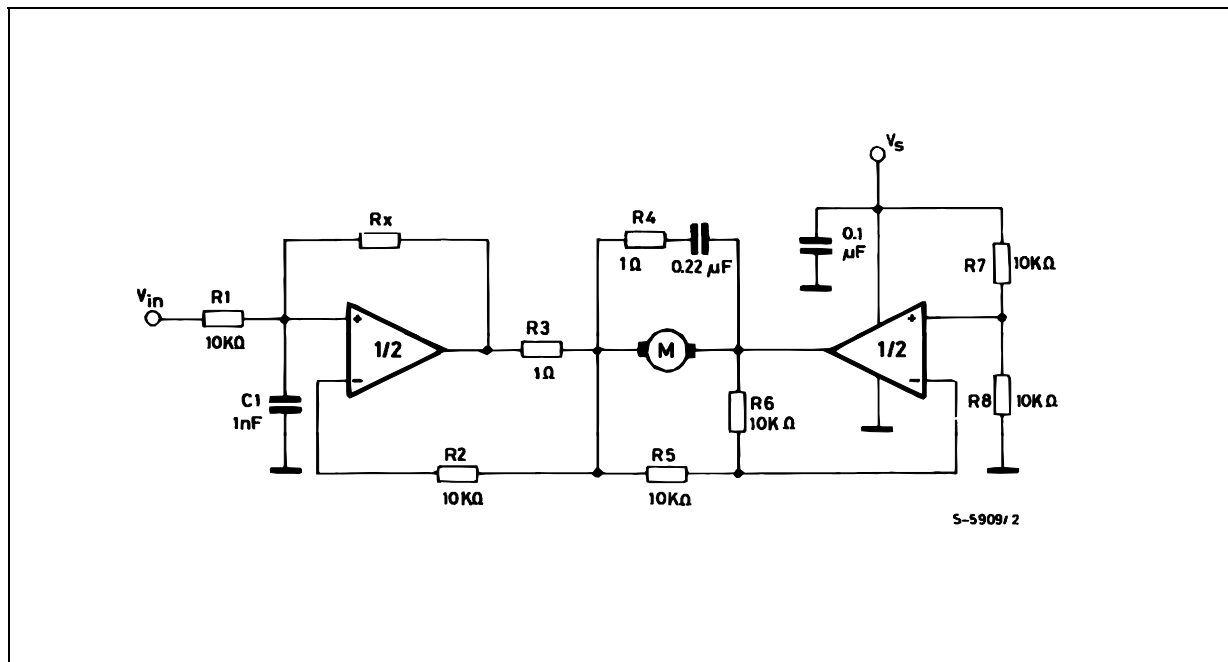
Figure 12 : Motor Current Control Circuit.

Note : The input voltage level is compatible with L291 (5-BIT D/A converter).

Figure 13 : Bidirectional Speed Control of DC Motors.

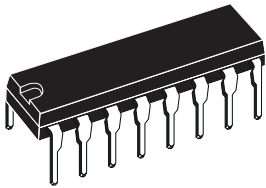
For circuit stability ensure that $R_X > \frac{2R_3 \cdot R_1}{R_M}$ where R_M = internal resistance of motor.

The voltage available at the terminals of the motor is $V_M = 2 \left(V_i \cdot \frac{V_s}{2} \right) + |R_o| \cdot I_M$ where $|R_o| = \frac{2R \cdot R_1}{R_X}$ and I_M is the motor current.

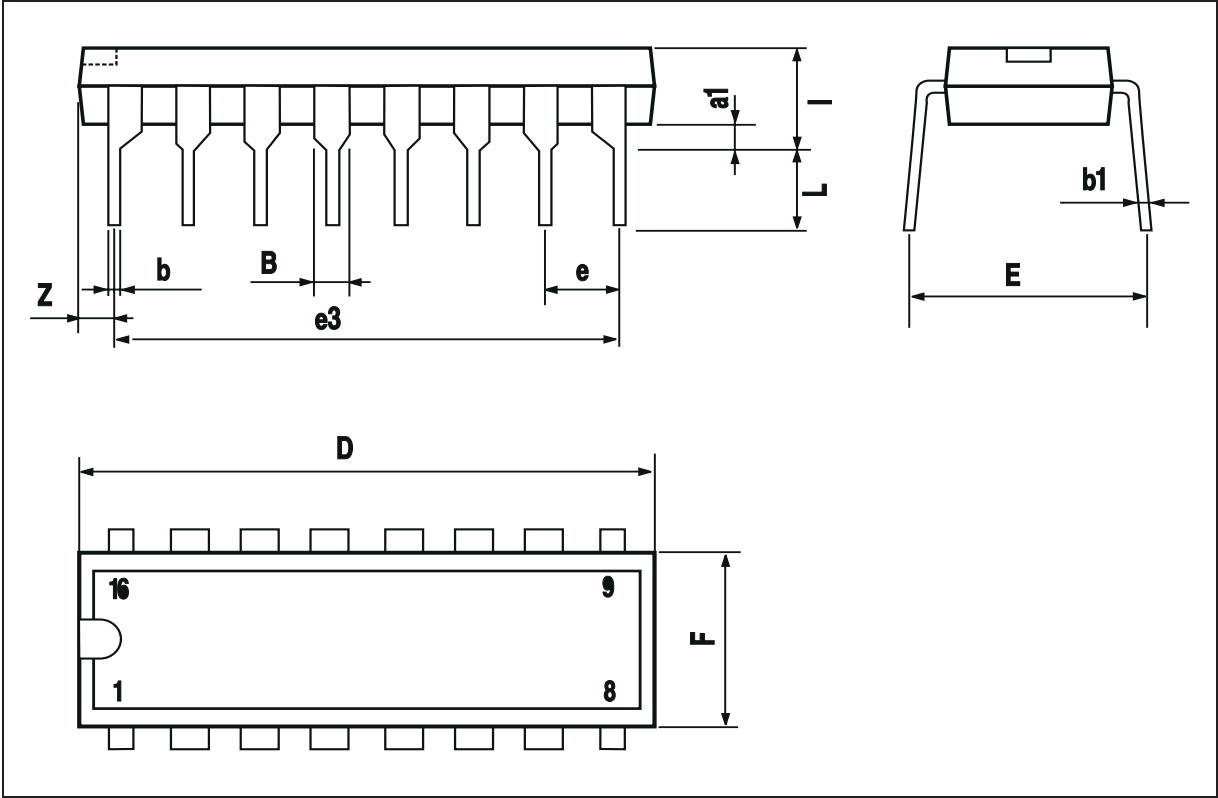


| DIM. | mm | | | inch | | |
|------|------|-------|------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| a1 | 0.51 | | | 0.020 | | |
| B | 0.85 | | 1.40 | 0.033 | | 0.055 |
| b | | 0.50 | | | 0.020 | |
| b1 | 0.38 | | 0.50 | 0.015 | | 0.020 |
| D | | | 20.0 | | | 0.787 |
| E | | 8.80 | | | 0.346 | |
| e | | 2.54 | | | 0.100 | |
| e3 | | 17.78 | | | 0.700 | |
| F | | | 7.10 | | | 0.280 |
| I | | | 5.10 | | | 0.201 |
| L | | 3.30 | | | 0.130 | |
| Z | | | 1.27 | | | 0.050 |

OUTLINE AND MECHANICAL DATA

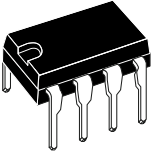


Powerdip 16

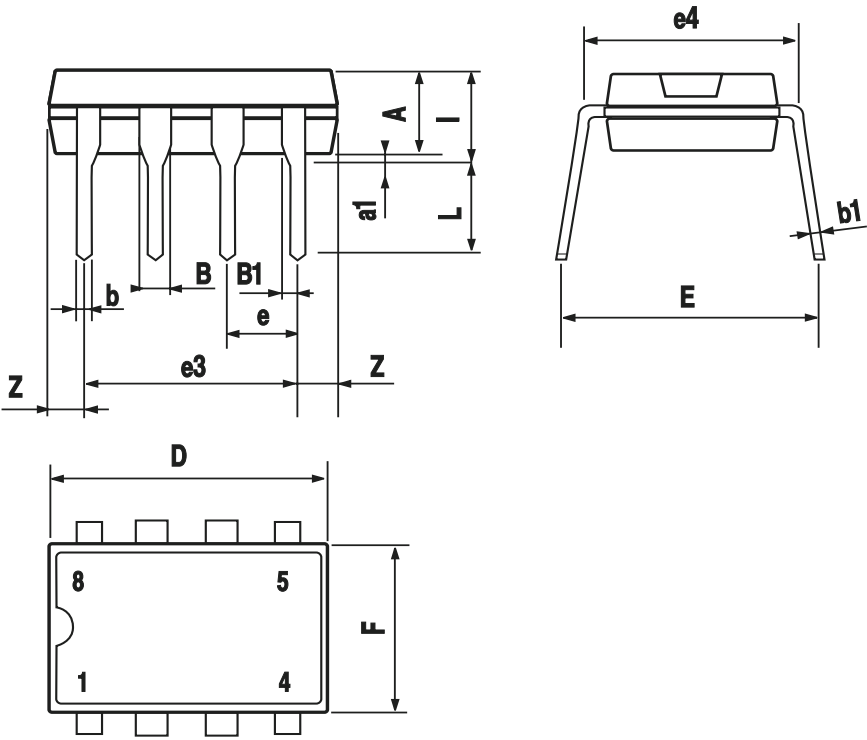


| DIM. | mm | | | inch | | |
|------|-------|------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | | 3.32 | | | 0.131 | |
| a1 | 0.51 | | | 0.020 | | |
| B | 1.15 | | 1.65 | 0.045 | | 0.065 |
| b | 0.356 | | 0.55 | 0.014 | | 0.022 |
| b1 | 0.204 | | 0.304 | 0.008 | | 0.012 |
| D | | | 10.92 | | | 0.430 |
| E | 7.95 | | 9.75 | 0.313 | | 0.384 |
| e | | 2.54 | | | 0.100 | |
| e3 | | 7.62 | | | 0.300 | |
| e4 | | 7.62 | | | 0.300 | |
| F | | | 6.6 | | | 0.260 |
| I | | | 5.08 | | | 0.200 |
| L | 3.18 | | 3.81 | 0.125 | | 0.150 |
| Z | | | 1.52 | | | 0.060 |

OUTLINE AND
MECHANICAL DATA



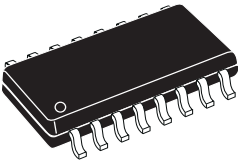
Minidip



| DIM. | mm | | | inch | | |
|-------|------------|------|------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | | | 1.75 | | | 0.069 |
| a1 | 0.1 | | 0.25 | 0.004 | | 0.009 |
| a2 | | | 1.6 | | | 0.063 |
| b | 0.35 | | 0.46 | 0.014 | | 0.018 |
| b1 | 0.19 | | 0.25 | 0.007 | | 0.010 |
| C | | 0.5 | | | 0.020 | |
| c1 | 45° (typ.) | | | | | |
| D (1) | 9.8 | | 10 | 0.386 | | 0.394 |
| E | 5.8 | | 6.2 | 0.228 | | 0.244 |
| e | | 1.27 | | | 0.050 | |
| e3 | | 8.89 | | | 0.350 | |
| F (1) | 3.8 | | 4 | 0.150 | | 0.157 |
| G | 4.6 | | 5.3 | 0.181 | | 0.209 |
| L | 0.4 | | 1.27 | 0.016 | | 0.050 |
| M | | | 0.62 | | | 0.024 |
| S | 8° (max.) | | | | | |

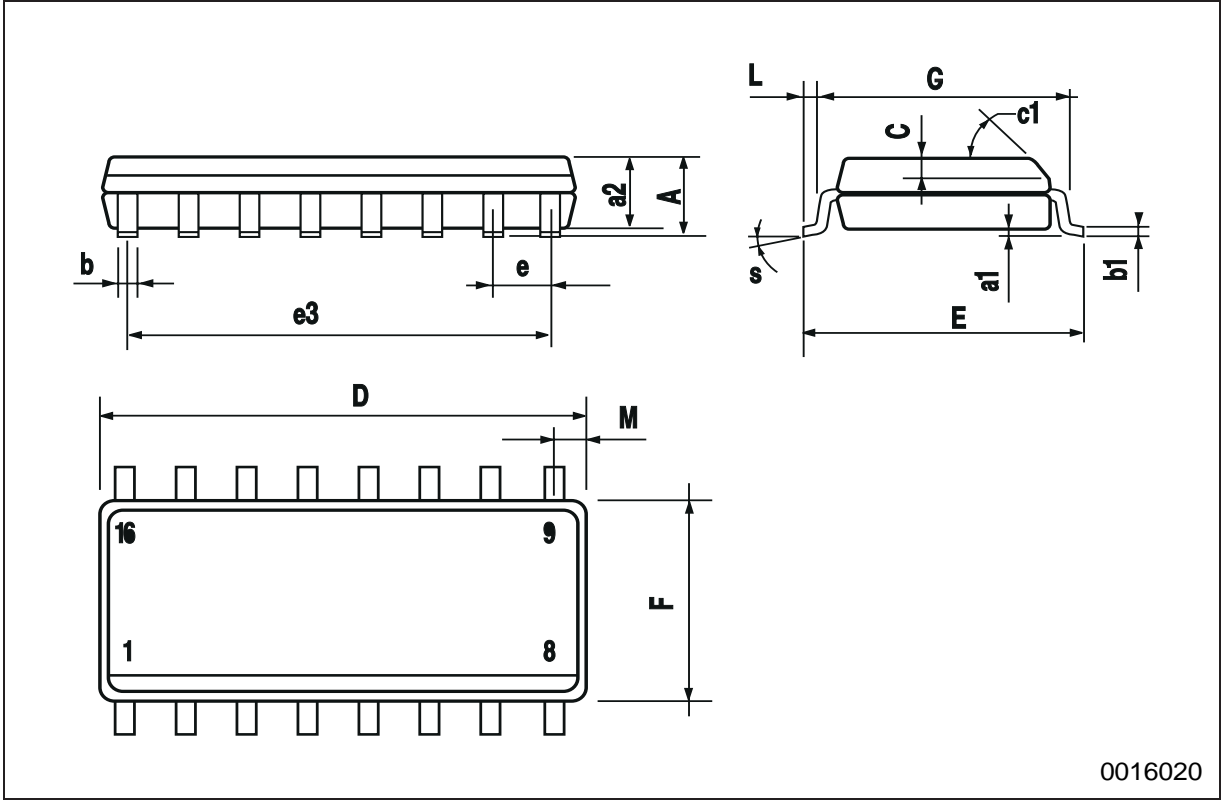
OUTLINE AND MECHANICAL DATA

Weight: 0.20gr



SO16 Narrow

(1) D and F do not include mold flash or protrusions. Mold flash or protrusions shall not exceed 0.15mm (.006inch).



0016020



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