

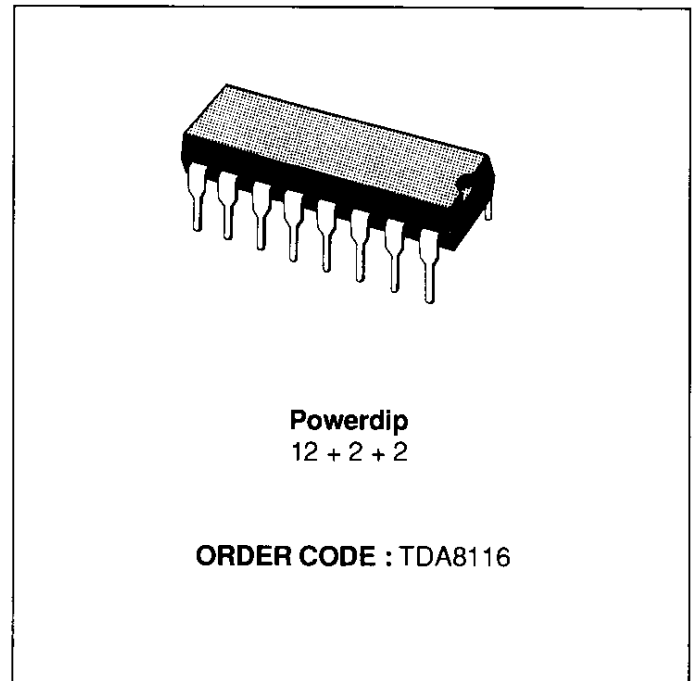
VIDEO HEAD SERVO CONTROLLER

- WIDE OPERATING VOLTAGE RANGE 6V to 14V
- HIGH CURRENT CAPABILITY UP TO 1A
- OUTPUT DC CURRENTS UP TO 0.4A
- TWO LOGICAL INPUTS FOR THE CODED COMMUNICATION SIGNAL
- LIMITED SLEW RATE OF THE OUTPUT VOLTAGE
- ANALOG INPUT WITH FIXED VOLTAGE GAIN
- INTEGRATED FLYBACK DIODES AT EACH OUTPUT
- THERMAL PROTECTION

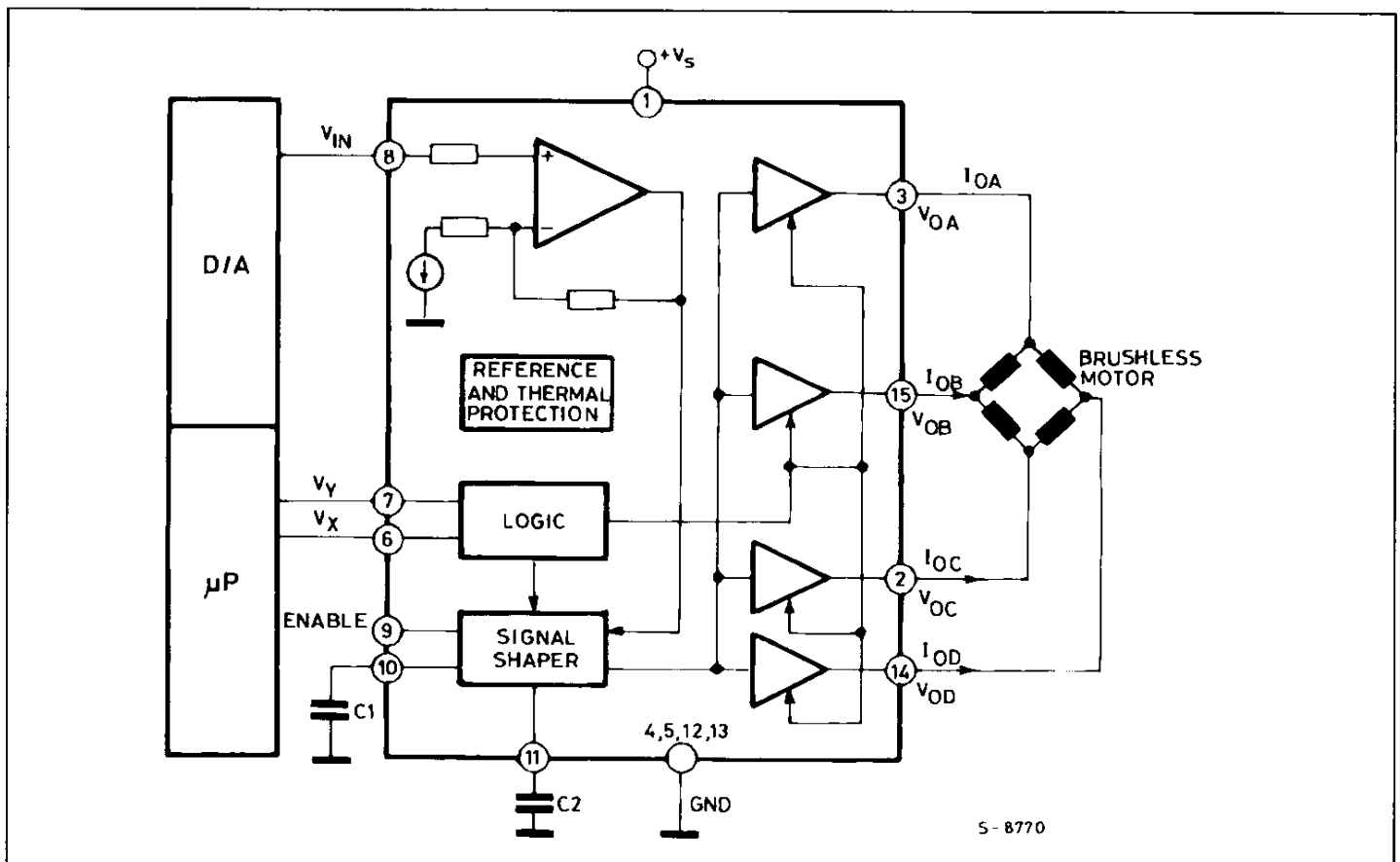
DESCRIPTION

The TDA8116 is a monolithic integrated circuit in bipolar technology.

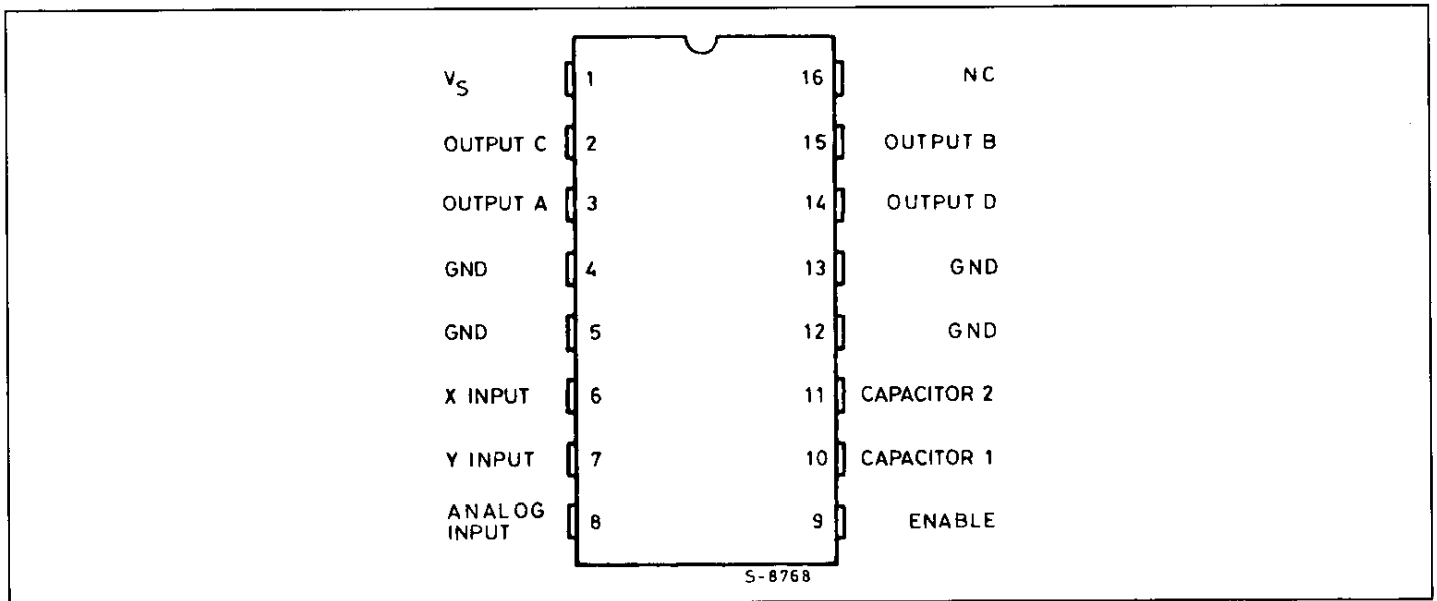
It is intended for driving a four phase brushless video head motor in microcomputer controlled servo systems.



BLOCK DIAGRAM



CONNECTION DIAGRAM (top view)



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|--------------------|------------------------------------------------------|-------------|--------------------|
| V_S | Supply Voltage | - 0.3 to 18 | V |
| I_O | Output Current DC | ± 0.4 | A |
| I_O | Pulse Output Current (during start) | ± 1 | A |
| T_{JOP} | Operating Junction Temperature | 0 to 150 | $^{\circ}\text{C}$ |
| T_{stg} | Storage Junction Temperature | - 40 to 150 | $^{\circ}\text{C}$ |
| $V_{EN, IN, X, Y}$ | Input Voltage | - 0.3 to 7 | V |
| P_{tot} | Power Dissipation at $T_{case} = 80^{\circ}\text{C}$ | 5 | W |

THERMAL DATA

| | | | |
|------------------|-----------------------------------------|-----|-----------------------------|
| T_{JSTD} | Thermal Shut Down Threshold | 150 | $^{\circ}\text{C}$ |
| T_{JSDH} | Thermal Shut Down Hysteresis | 20 | $^{\circ}\text{C}$ |
| $R_{th\ j-case}$ | Thermal Resistance Junction-ground Pins | 14 | $^{\circ}\text{C}/\text{W}$ |
| $R_{th\ j-amb}$ | Thermal Resistance Junction-ambient | 80 | $^{\circ}\text{C}/\text{W}$ |

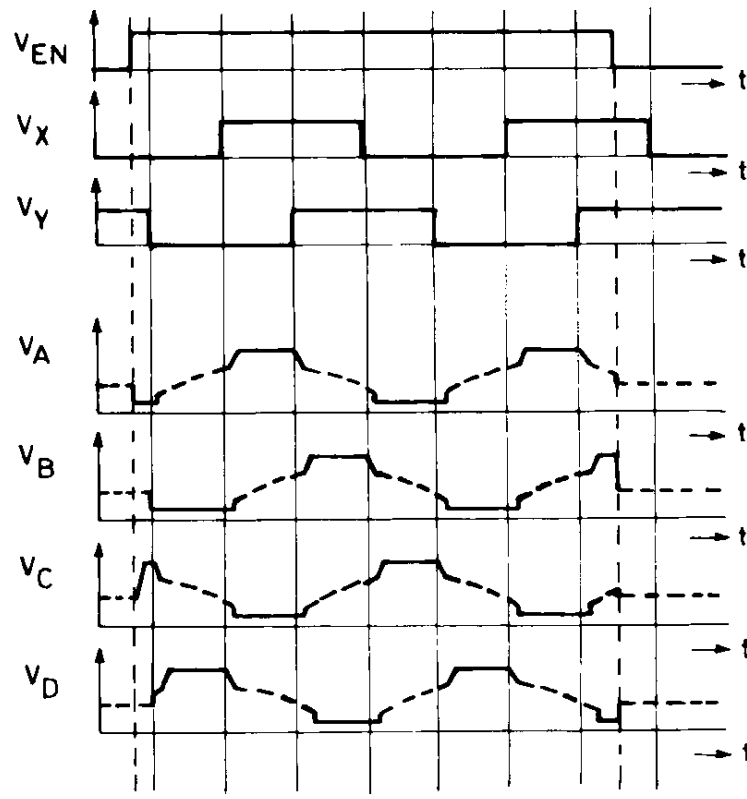
PIN FUNCTION

| N° | Name | Function |
|--------------|----------------|----------------------------------------------------------------------------------------------------------------|
| 1 | V _S | Supply Voltage Connection |
| 2 | OUTC | Push-pull Type Output for the C Phase |
| 3 | OUTA | Push-pull Type Output for the A Phase |
| 4, 5, 12, 13 | GND | Ground Connection |
| 6 | X INPUT | Commutation Signal X Input |
| 7 | Y INPUT | Commutation Signal Y Input |
| 8 | INPUT | Analog Control Signal Input |
| 9 | ENABLE | Enable input, with low level (< 1.5 V) at this pin the device outputs are set into TRISTATE. |
| 10, 11 | CAPACITOR 1, 2 | The shaping capacitors at these pins define the output signal shape of the A, C and B, D outputs respectively. |
| 14 | OUTD | Push-pull Type Output for the D Phase |
| 15 | OUTB | Push-pull Type Output for the B Phase |
| 16 | N.C. | No Connection at this Pin |

ELECTRICAL CHARACTERISTICS (6 V < V_S < 14 V, T_J = 25 °C, unless otherwise specified))

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------------|---------------------------------------|-------------------------------------------------|-------|----------|--------------------|--------|
| V _{Sop} | Operating Supply Voltage Range | | 6 | | 14 | V |
| V _{SO} | Source Stage Saturation Voltage | V _{IN} = 5 V I _O = 0.4 A | | 1.4 1 | 2 1.4 | V V |
| V _O | Sink Stage Saturation Voltage | V _{IN} = 5 V I _O = 0.4 A | | 1.4 1 | 2 1.4 | V V |
| A _V | Voltage Gain | V _{IN} = 1 V R _L = 50 Ω | 2.5 | 2.75 | 3.0 | V |
| V _{INth} | Input Voltage Threshold | | 0.6 | 0.7 | 0.8 | V |
| I _{IN} | Input Current | V _{IN} = 5 V | - 5 | - 1 | + 5 | μA |
| V _{IN} | Input Voltage Operating Voltage Range | | 0 | | V _S - 1 | V |
| V _{X,Y High} | Control Input HIGH Level | | 1.7 | 2.4 | 7 | V |
| I _{X,Y High} | Control Input HIGH Current | V _{IN} = 5 V | | | 20 | μA |
| V _{X,Y Low} | Control Input LOW Level | | 0.3 | | 0.8 | V |
| I _{X,Y Low} | Control Input LOW Current | V _{IN} = 0.4 V | - 20 | | 20 | μA |
| V _{EN Low} | Enable Input LOW Level | | - 0.3 | | 1.5 | V |
| V _{EN High} | Enable Input HIGH Level | | 2.4 | | 7 | V |
| I _{EN Low} | Enable Input LOW Current | V _{EN} = 0 V | | - 20 | - 40 | μA |
| I _{EN High} | Enable Input HIGH Current | V _{EN} = 5 V | | 1 | | μA |
| VH _{X, Y, EN} | Control and Enable Inputs Hysteresis | | | 150 | | mV |
| $\frac{dV_{out}}{dt}$ | Output Voltage Slope | C _{1,2} = 10 nF | | 6 | | V/ms |
| I _{OST} | Starting Output Current | V _{IN} = 5 V V _S = 12 V | | | 1 | A |
| I _S | Quiescent Supply Current | V _{IN} = 0 | | 3 | 5 | mA |
| I _S | Supply Current | V _{IN} = 5 V | | 8 | 15 | mA |

TYPICAL WAVEFORMS



S-8769