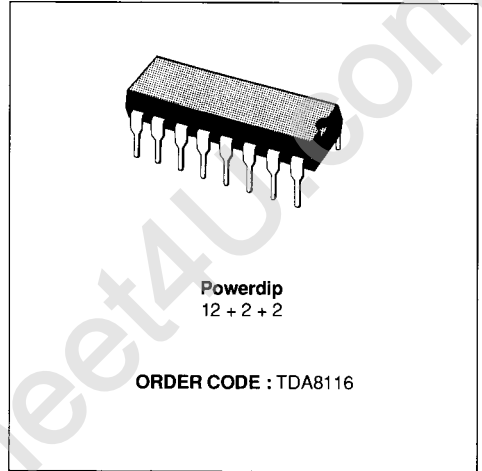


**VIDEO HEAD SERVO CONTROLLER**

- 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

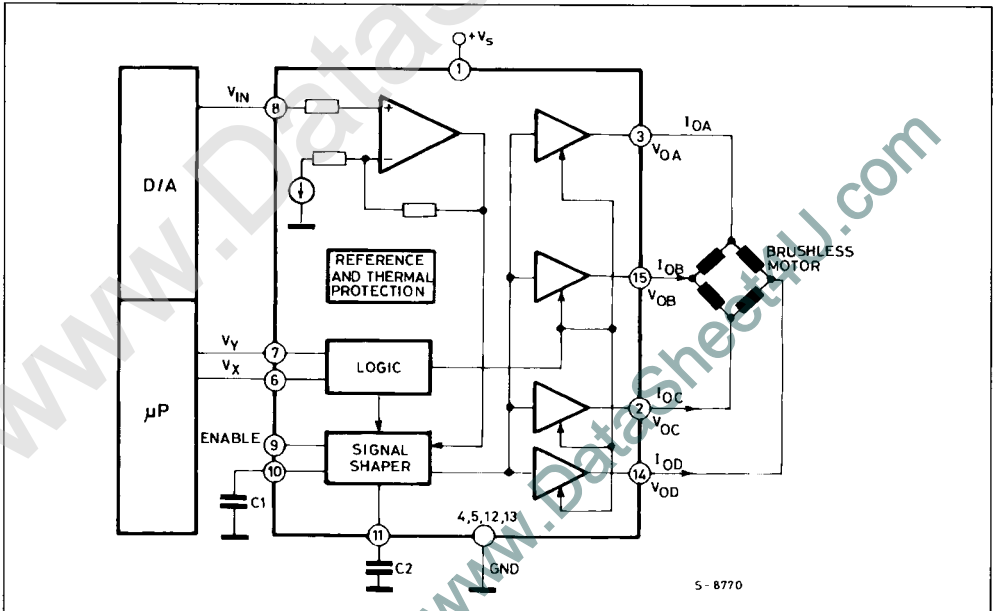


**DESCRIPTION**

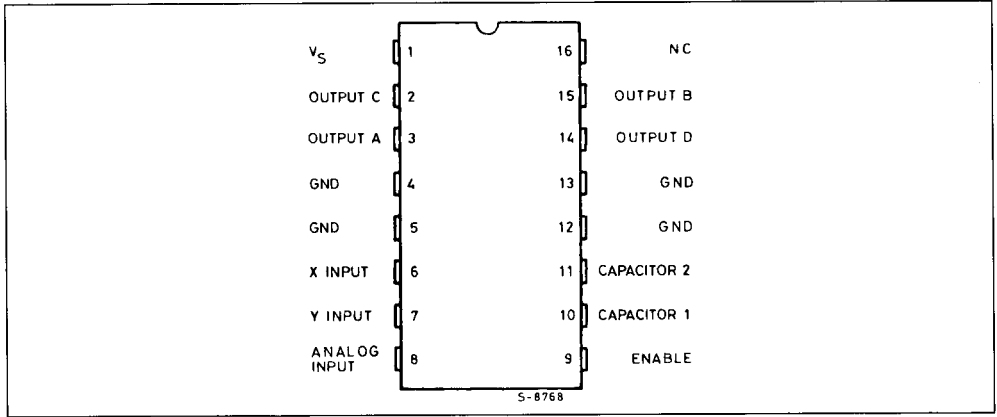
The TDA8116 is a monolithic integrated circuit in bipolar technology.

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	$\pm 0.4$	A
$I_{O}$	Pulse Output Current (during start)	$\pm 1$	A
$T_{JOP}$	Operating Junction Temperature	0 to 150	$^{\circ}C$
$T_{stg}$	Storage Junction Temperature	- 40 to 150	$^{\circ}C$
$V_{EN, IN, X, Y}$	Input Voltage	- 0.3 to 7	V
$P_{tot}$	Power Dissipation at $T_{case} = 80^{\circ}C$	5	W

THERMAL DATA

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

## PIN FUNCTION

N°	Name	Function
1	V <sub>S</sub>	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<sub>S</sub> < 14 V, T<sub>J</sub> = 25 °C, unless otherwise specified)

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

## TYPICAL WAVEFORMS

