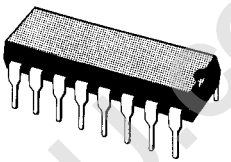
VIDEO HEAD SERVO CONTROLLER

- 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



Powerdip
12 + 2 + 2

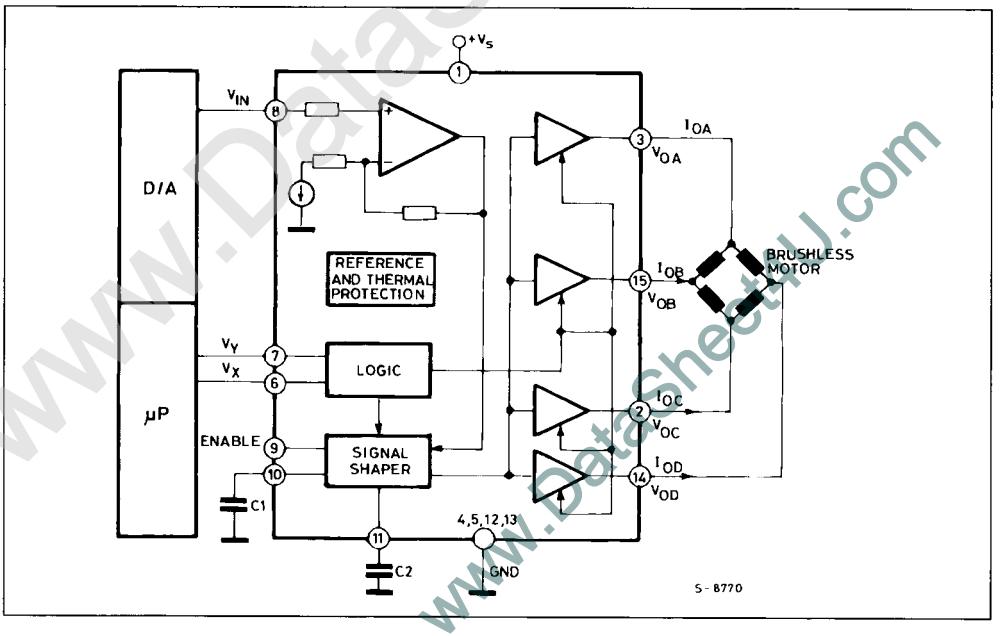
ORDER CODE : TDA8116

DESCRIPTION

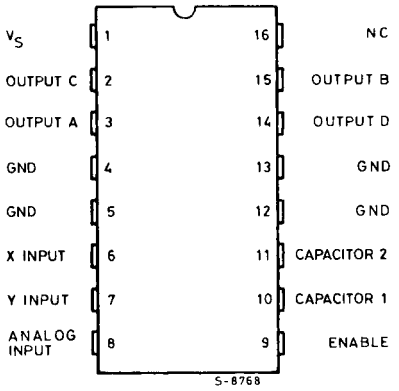
The TDA8116 is a monolithic integrated circuit in bipolar technology.

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	°C
T_{stg}	Storage Junction Temperature	– 40 to 150	°C
$V_{EN, IN, X, Y}$	Input Voltage	– 0.3 to 7	V
P_{tot}	Power Dissipation at T_{case} = 80 °C	5	W

THERMAL DATA

T_{JSTD}	Thermal Shut Down Threshold		150		°C
T_{JSDH}	Thermal Shut Down Hysteresis		20		°C
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-ground Pins			14	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient			80	°C/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 = 1 A 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 = 1 A 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_N	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
$\frac{dV_{out}}{d_t}$	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