PUSH-PULL FOUR CHANNEL DRIVER WITH DIODES

PRELIMINARY DATA

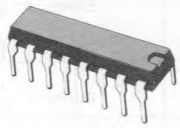
- 600mA OUTPUT CURRENT CAPABILITY PER CHANNEL
- 1.2A PEAK OUTPUT CURRENT (NON REPETITIVE) PER CHANNEL
- ENABLE FACILITY
- OVERTEMPERATURE PROTECTION
- LOGICAL "0" INPUT VILTAGE UP TO 1.5V (HIGH NOISE IMMUNITY)
- INTERNAL CLAMP DIODES

The L293D is a monolithic integrated high voltage, high current four channel driver designed to accept standard DTL or TTL logic levels and drive inductive loads (such as relays solenoides, DC and stepping motors) and switching power transistors.

To simplify use as two bridges each pair of channels is equipped with an enable input. A separate supply input is provided for the logic, allowing operation at a lower voltage and internal clamp diodes are included.

This device is suitable for use in switching applications at frequencies up to 5 kHz.

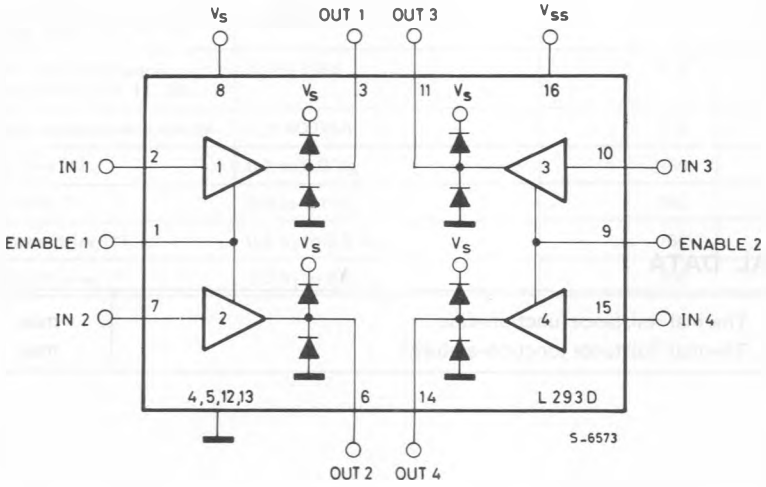
The L293D is assembled in a 16 lead plastic package which has 4 center pins connected together and used for heatsinking.



Powerdip 12+2+2

ORDERING NUMBER: L293D

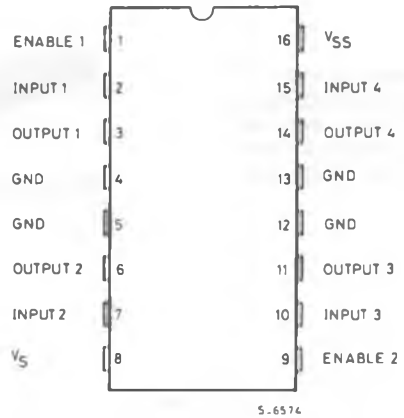
BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

V_S	Supply voltage	36	V
V_{SS}	Logic supply voltage	36	V
V_i	Input voltage	7	V
V_{en}	Enable voltage	7	V
I_o	Peak output current (100μs non repetitive)	1.2	A
P_{tot}	Total power dissipation at $T_{ground-pins}$ = 80°C	5	W
T_{stg}, T_j	Storage and junction temperature	-40 to 150	°C

CONNECTION DIAGRAM



THERMAL DATA

$R_{th\ j-case}$	Thermal resistance junction-case	max	14	°C/W
$R_{th\ j-amb}$	Thermal resistance junction-ambient	max	80	°C/W

ELECTRICAL CHARACTERISTICS (For each channel, V_s = 24V, V_{ss} = 5V, T_{amb} = 25°C, unless otherwise specified)

Parameter		Test condition	Min.	Typ.	Max.	Unit
V_s	Supply voltage (pin 8)		V_{ss}		36	V
V_{ss}	Logic supply voltage (pin 16)		4.5		36	V
I_s	Total quiescent supply current (pin 8)	V_i = L I_o = 0 V_{en} = H		2	6	mA
		V_i = H I_o = 0 V_{en} = H		16	24	
		V_{en} = L			4	
I_{ss}	Total quiescent logic supply current (pin 16)	V_i = L I_o = 0 V_{en} = H		44	60	mA
		V_i = H I_o = 0 V_{en} = H		16	22	
		V_{en} = L		16	24	
V_{IL}	Input low voltage (pin 2, 7, 10, 15)		-0.3		1.5	V
V_{IH}	Input high voltage (pin 2, 7, 10, 15)	$V_{ss} \leq 7V$	2.3		V_{ss}	V
		$V_{ss} > 7V$	2.3		7	
I_{IL}	Low voltage input current (pin 2, 7, 10, 15)	V_{IL} = 1.5V			-10	µA
I_{IH}	High voltage input current (pin 2, 7, 10, 15)	$2.3V \leq V_{IH} \leq V_{ss} - 0.6V$		30	100	µA
V_{enL}	Enable low voltage (pin 1, 9)		-0.3		1.5	V
V_{enH}	Enable high voltage (pin 1, 9)	$V_{ss} \leq 7V$	2.3		V_{ss}	V
		$V_{ss} > 7V$	2.3		7	
I_{enL}	Low voltage enable current current (pin 1, 9)	V_{enL} = 1.5V		-30	-100	µA
I_{enH}	High voltage enable current (pin 1, 9)	$2.3V \leq V_{enH} \leq V_{ss} - 0.6V$			± 10	µA
V_{CEsatH}	Source output saturation voltage (pins 3, 6, 11, 14)	I_o = - 0.6A		1.4	1.8	V
V_{CEsatL}	Sink output saturation voltage (pins 3, 6, 11, 14)	I_o = + 0.6A		1.2	1.8	V
V_F	Clamp diode forward voltage	I_o = 600 mA		1.3		V
t_r	Rise time (*)	0.1 to 0.9 V_o		250		ns
t_f	Fall time (*)	0.9 to 0.1 V_o		250		ns
t_{on}	Turn-on delay (*)	0.5 V_i to 0.5 V_o		750		ns
t_{off}	Turn-off delay (*)	0.5 V_i to 0.5 V_o		200		ns

*) See fig. 1

TRUTH TABLE (One channel)

INPUT	ENABLE (*)	OUTPUT
H	H	H
L	H	L
H	L	Z
L	L	Z

Z = High output impedance
(*) Relative to the considered channel

Fig. 1 – Switching Times