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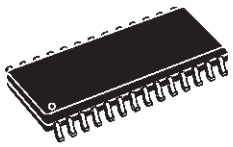
TDA7473

QUAD BTL DRIVER WITH VOLTAGE REGULATOR

- 4 BUILT-IN POWER BRIDGES (4 x 0.6A)
- NO EXTERNAL COMPONENTS
- SINGLE POWER SUPPLY
- WIDE SUPPLY VOLTAGE RANGE (6 TO 15V)
- 5V REGULATOR DRIVER FOR EXTERNAL PASS TRANSISTOR WITH FOLD-BACK SHORT CIRCUIT PROTECTION
- ADJUSTABLE REGULATOR (2.0 TO 3.6V @ 200mA) WITH SHORT CIRCUIT PROTECTION



SO28 (24+2+2)

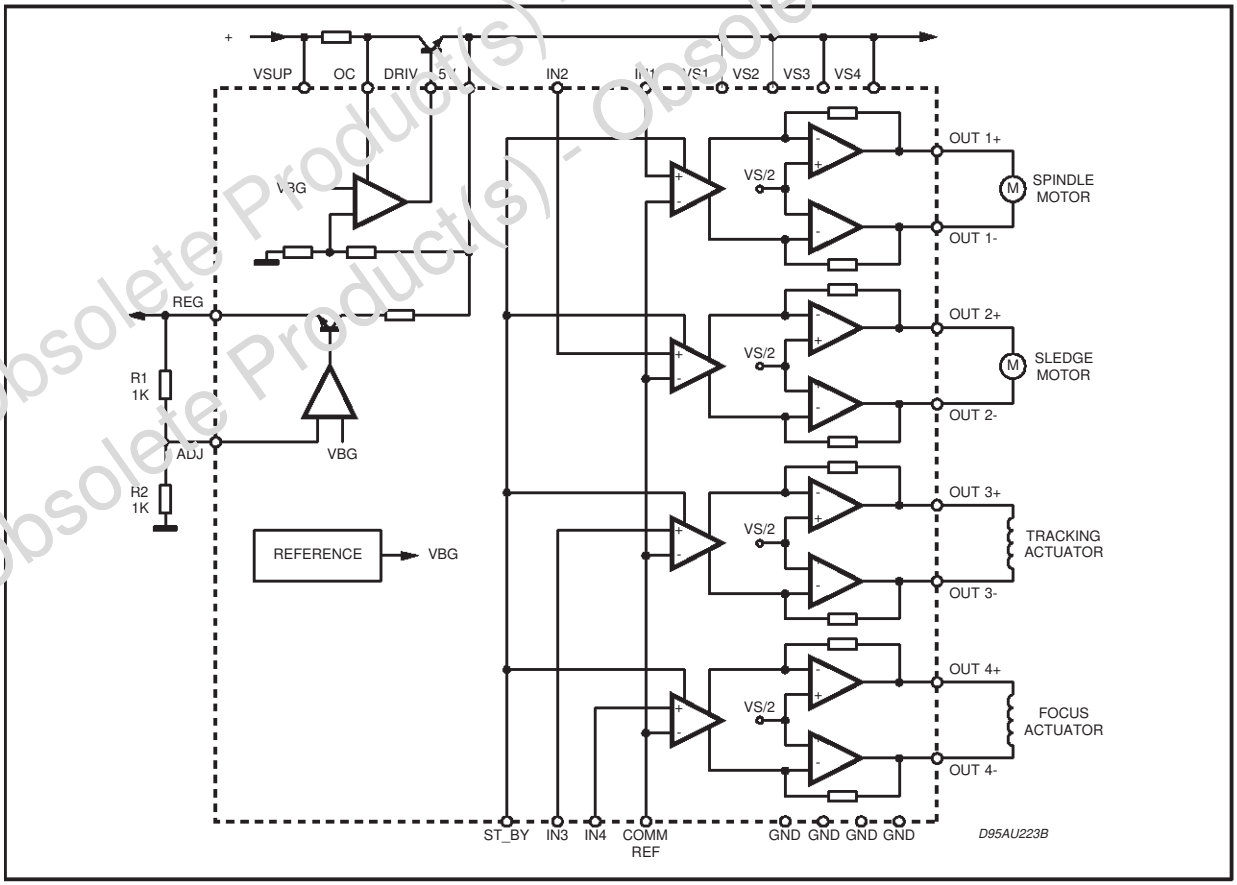
DESCRIPTION

This device is a quad power driver circuit in BTL configuration, intended for use as a power driver for servo systems with a single supply.

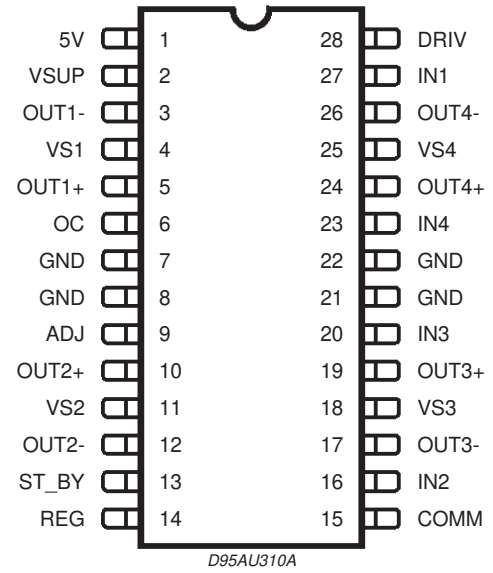
It's specially dedicated to compact disc players and it's capable of driving focus & tracking actuators sledge & spindle motors.

The regulators are mainly used to have a 5V supply for the power part and a lower programmable voltage for the logic circuits.

Figure 1: Quad BTL Power Bridges + Multifunction Regulators.



PIN CONNECTION (Top view)



PIN FUNCTIONS

N. Pin	Name	Description
1	5V	5V regulated input
2	VSUP	Positive power supply (battery)
3	OUT1-	1.st channel negative output
4	VS1	1.st channel power supply
5	OUT1+	1.st channel positive output
6	OC	Overcurrent sense input
7	GND	Ground
8	GND	Ground
9	ADJ	Regulated voltage adjust input
10	OUT2+	2.nd channel positive output
11	VS2	2.nd channel power supply
12	OUT2_	2.nd channel negative output
13	ST_BY	Stand_by
14	REG	Regulated voltage output
15	COMM	Common negative input
16	IN2	Positive input for the 2.nd channel
17	OUT3-	3.rd channel negative output
18	VS3	3.rd channel power supply
19	OUT3+	3.rd channel positive output
20	IN3	Positive input for the 3.rd channel
21	GND	Ground
22	GND	Ground
23	IN4	Positive input for the 4.th channel
24	OUT4+	4.th channel positive output
25	VS4	4.th channel power supply
26	OUT4-	4.th channel negative output
27	IN1	Positive input for the 1.st channel
28	DRIV	Pass transistor driver

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{SUP}	DC Supply Voltage	18	V
V_S	Channel Power Supply	6	V
T_{OP}	Operating Temperature Range	-25 to 80	°C
T_J	Maximum Junction Temperature	150	°C

THERMAL DATA

Symbol	Parameter		Value	Unit
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction to Ambient	Max.	50 (*)	°C/W
$R_{th\ j\text{-}pins}$	Thermal Resistance Junction to Pins	Typ.	17	°C/W

(*) with 6cm^2 of copper heatsink on board.

ELECTRICAL CHARACTERISTICS (@ V_{SUP} = 6V, T_{amb} = 25°C, unless otherwise specified.)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_{SUP}	Supply Voltage		6		15	V
	Maximum Power Dissipation (1)			1.5		W
	Quiescent current (2) from V_S	$V_{(pin\ 4,\ 11,\ 18,\ 25)}$ = 5V		20	35	mA
	Quiescent current (2) from 5V	$V_{(pin\ 1)}$ = 5V, R2 = ∞		1.8	2.5	mA
	Quiescent current (2) from V_{SUP}	V_{SUP} = 15V		1.3	2.5	mA
		V_{SUP} = 6V		1	2	mA
	Stand-by current from 5V (pin 1)	$V_{(pin\ 1)}$ = 5V, R2 = ∞		1.2	2	mA
	Stand-by current from V_{SUP}	V_{SUP} = 15V		0.4	0.8	mA
		V_{SUP} = 6V		0.3	0.6	mA
CHANNELS BTL						
	Peak output current for channels		0.6			A
V_{SAT}	VSAT HIGH SIDE	I = 0.6A; V_S = 5V		1.3	1.6	A
	VSAT LOW SIDE	I = 0.6A; V_S = 5V		0.7	0.9	A
	Output voltage swing peak-to-peak	V_S = 5V, I_{out} = 0.6A	5.5	6		Vpp
	Voltage gain for channels		25.5	26.5	27.5	dB
	Channels output offset voltage		-180	-50	100	mV
VST-BY	Channel St-By Threshold	Active --> St-By	0.65 V_{reg}	0.75 V_{reg}	0.85 V_{reg}	V
		St-By --> Active		0.50 V_{reg}		V
REGULATORS						
V_{5V}	Vpin 1	I_{out} = 0.2A	4.85	5.05	5.25	V
	Min drop 5V --> REG	I_{out} = 0.2A		1.2	1.3	V
I_{DRIV}	Output current from DRIV for pass-transistor driving		50	100		mA
	Output current from DRIV in stand-by		20	50	80	mA
	DROP V_{SUP} --> DRIV	I_{DRIV} = 20mA		0.2	0.25	V
	Threshold voltage for overcurr. protection (VSUP - OC)	V_{SUP} = 6V	190	230	270	mV
		V_{SUP} = 12V	120	160	200	mV
		V_{SUP} = 15V	80	100	120	mV
V_{REG}	Regulator Voltage	R1, R2 = 1KΩ	2.45	2.53	2.65	V
	Min REG voltage (settable)			1.8	2	V
	Max REG voltage (settable)		3.6	3.8		V
	Output current from REG in Stand-by	R1, R2 = 1KΩ	20			mA

(1) @ T_{amb} = 70°C, on board 6cm^2 copper heatsink
(2) INx = COMM; no loads on the regulators outputs
(3) Device is active when St-By = Low

SO28 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			2.65			0.104
a1	0.1		0.3	0.004		0.012
b	0.35		0.49	0.014		0.019
b1	0.23		0.32	0.009		0.013
C		0.5			0.020	
c1	45° (typ.)					
D	17.7		18.1	0.697		0.713
E	10		10.65	0.394		0.419
e		1.27			0.050	
e3		16.51			0.65	
F	7.4		7.6	0.291		0.299
L	0.4		1.27	0.016		0.050
S	8° (max.)