



LA6530M

2-channel Bridge Driver for CD and CD-ROMs

Overview

The LA6530M is a 2-channel bridge (BTL) driver which was developed for compact discs and CD-ROMs.

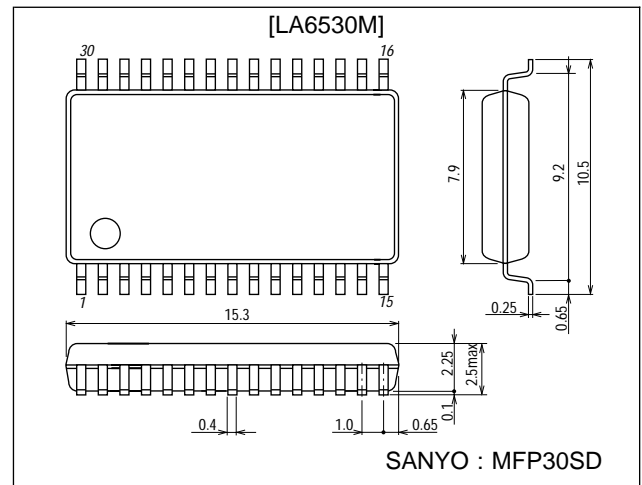
Features

- High output current (I_O max = 0.7 A).
- Wide operating voltage range (4 to 15 V).
- Small input bias current.

Package Dimensions

unit : mm

3073A-MFP30SD



Specifications

Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V_{CC} max		16	V
Differential input voltage	V_{ID}	Amplifier 2, amplifier 3	15	V
Common-mode input voltage	V_{ICM}	Amplifier 2, amplifier 3	15	V
Maximum input voltage	V_{INB}	Buffer amplifier	15	V
Mute pin maximum inflow current	I_M max		1.0	mA
Maximum output current	I_O max		0.7	A
Allowable power dissipation	P_d max		0.9	W
Operating temperature	T_{opr}		-20 to +75	$^\circ\text{C}$
Storage temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

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Operating Conditions at $T_a = 25\text{ }^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Recommended supply voltage	V_{CC}		5.0	V
Operating voltage range	$V_{CC\text{ op}}$		4.0 to 15.0	V
Recommended load resistance	R_L	Pin 11 to 20, pin 5 to 26	8.0	Ω

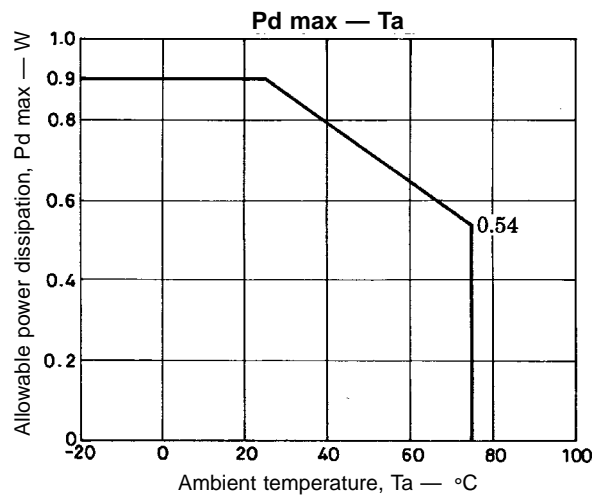
Electrical Characteristics at $T_a = 25\text{ }^\circ\text{C}$, $V_{CC} = 5.0\text{ V}$

Parameter	Symbol	Conditions	min	typ	max	Unit
No-load current drain	I_{CC1}	Mute off pins 7, 22 and 24 connected to GND	5	10	20	mA
	I_{CC2}	Mute on pins 7, 22 and 24 connected to GND	3	7	15	mA
	I_{CC3}	Mute off pins 7, 22 and 24 connected to $1/2 V_{CC}$	10	20	30	mA
	I_{CC4}	Mute on pins 7, 22 and 24 connected to $1/2 V_{CC}$	4	8	16	mA
Output offset voltage	V_{OF1}	OUT1-OUT2	-50		+50	mV
	V_{OF2}	OUT4-OUT3	-50		+50	mV
Input-output voltage difference	V_{BIO}	Buffer amplifier	-30		+30	mV
Input voltage range	V_{BICM}	Buffer amplifier	1.5	$V_{CC}-1.5$		V
Common-mode input voltage range	V_{ICM}	Amplifier 2, amplifier 3	1.0	$V_{CC}-1.5$		V
Input bias current	I_B			50	300	nA
Output voltage	V_O	8 Ω load between pins 11 — 20, 5 — 26	2.8	3.3		V
Bridge output voltage difference	V_{OD}	8 Ω load between pins 11 — 20, 5 — 26	1.8	2.2		V
Closed-circuit voltage gain	V_G	Specified Test Circuit, $f = 1\text{ kHz}$	30	38		dB
Mute on voltage	V_M			0.7		V
Mute pin inflow current	I_M			3.0		μA

*Thermal shutdown function built in.

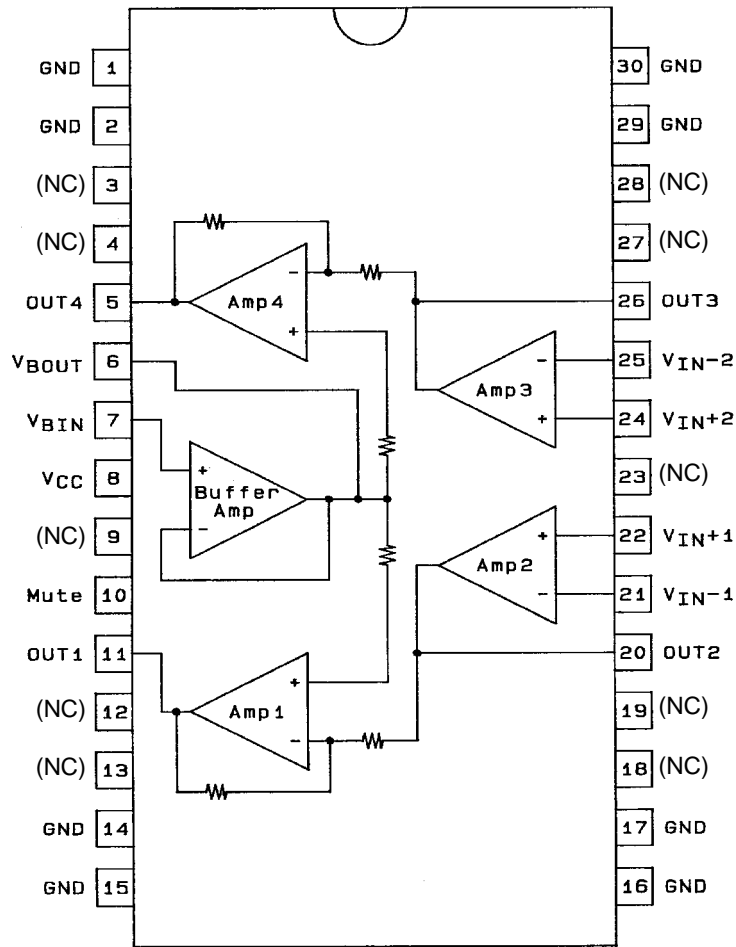
Notes:

- When the muting function is on, the OUT1 to OUT4 outputs are turned off and the buffer output is not turned off.
- This IC must be handled carefully owing to its susceptibility electrostatic discharge damage.



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Block Diagram and Pin Assignment



Do not use the NC pin.

Top view

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Test Method

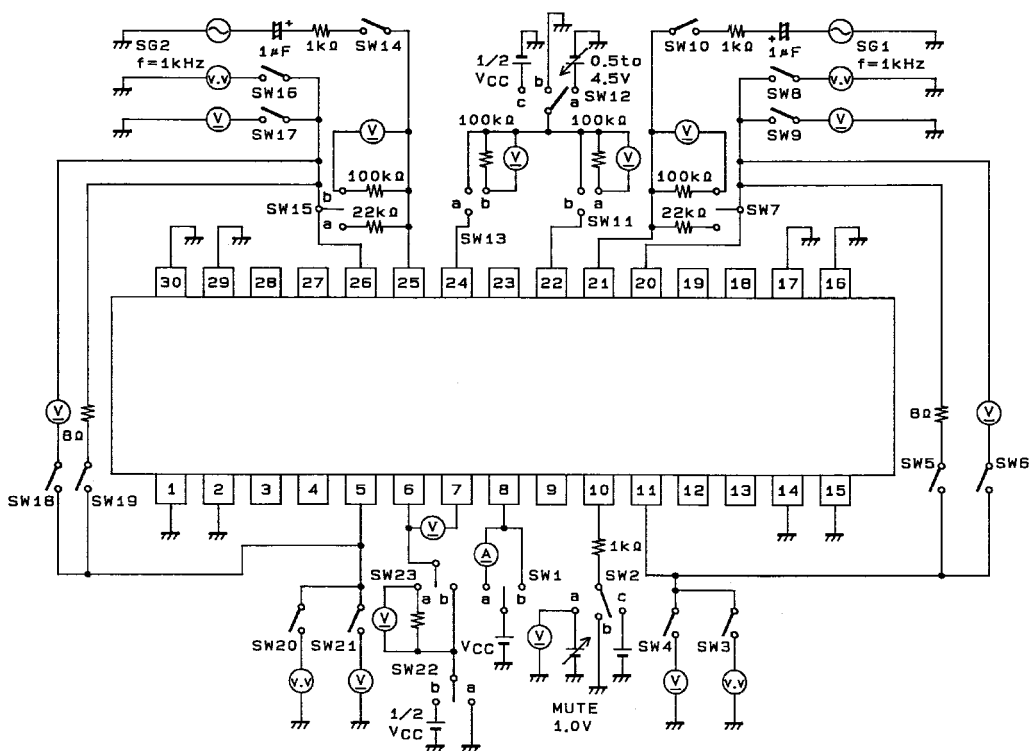
SW No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
I _{CC1}	a	b	OFF	OFF	OFF	OFF	b	OFF	OFF	OFF	b	b	a	OFF	a	OFF	OFF	OFF	OFF	OFF	OFF	a	b
I _{CC2}	a	c	OFF	OFF	OFF	OFF	b	OFF	OFF	OFF	b	b	a	OFF	a	OFF	OFF	OFF	OFF	OFF	OFF	a	b
I _{CC3}	a	b	OFF	OFF	OFF	OFF	b	OFF	OFF	OFF	b	c	a	OFF	a	OFF	OFF	OFF	OFF	OFF	OFF	b	b
I _{CC4}	a	c	OFF	OFF	OFF	OFF	b	OFF	OFF	OFF	b	c	a	OFF	a	OFF	OFF	OFF	OFF	OFF	OFF	b	b
V _{OF1,2}	b	b	OFF	OFF	OFF	ON	b	OFF	OFF	OFF	b	c	a	OFF	a	OFF	OFF	ON	OFF	OFF	OFF	b	b
V _{BIO}	b	b	OFF	OFF	OFF	ON	b	OFF	OFF	OFF	b	c	a	OFF	a	OFF	OFF	ON	OFF	OFF	OFF	b	b
I _B	b	b	OFF	OFF	OFF	OFF	a	OFF	OFF	OFF	a	c	b	OFF	b	OFF	OFF	OFF	OFF	OFF	OFF	b	a
V _O	b	b	OFF	ON	ON	OFF	b	OFF	ON	OFF	b	a	a	OFF	a	OFF	ON	OFF	ON	OFF	ON	b	b
V _{OD}	b	b	OFF	OFF	ON	ON	b	OFF	OFF	OFF	b	a	a	OFF	a	OFF	OFF	ON	ON	OFF	OFF	b	b
V _G	b	b	ON	OFF	OFF	OFF	a	ON	OFF	ON	b	c	a	ON	b	ON	OFF	OFF	OFF	ON	OFF	b	b
V _M	b	a	OFF	ON	OFF	OFF	b	OFF	ON	OFF	b	c	a	OFF	a	OFF	ON	OFF	OFF	OFF	ON	b	b

- For I_{CC1} to 4, measure the circuit current.
- For V_{OF1} and 2, measure the voltage between pins 11 and 20 and the voltage between pins 5 and 26.
- For V_{BIO}, measure the voltage between pins 7 and 6.
- For I_B, measure the voltage across the 100 kΩ resistor.
- For V_O, measure the voltage on pins 11, 20, 5 and 26 by switching the input pin voltage to 0.5 V and 4.5 V, respectively.
- For V_{OD}, measure the voltage between pins 11 and 20 and the voltage between pins 5 and 26.
- For V_G, measure the voltage on pins 11, 20, 5 and 26 at f = 1 kHz, and use the following formula:

$$VG = 20 \log V_O/V_1 \text{ dB.}$$
- V_M is the mute voltage when the mute voltage is varied and the output is turned off.

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Test Circuit



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