



CD-ROM Drive Three-Channel Bridge (BTL) Driver

Overview

The LA6529M is a three-channel bridge (BTL) driver for CD-ROM drives.

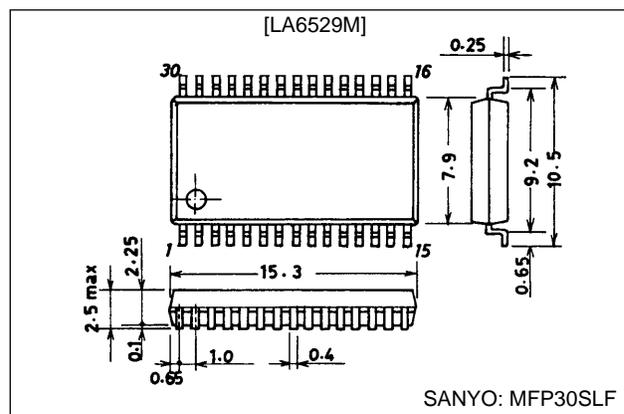
Functions and Features

- Three bridge-tied load (BTL) power amplifier channels
- I_O max: 1 A
- Muting circuit
- Thermal shutdown circuit

Package Dimension

unit: mm

3073A-MFP30SLF



Specifications

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

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC} max		14	V
	V_S max	Maximum rating for V_{S1} and V_{S2}	14	V
Maximum input voltage	V_{IN}	For the V_{IN1} through V_{IN3} input pins	13	V
Mute pin voltage	V_{Mute}		13	V
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	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings	Unit
Operating voltage 1	V_{CC}		4 to 13	V
Operating voltage 2-1	V_{S1}	The operating voltage for CH-U	4 to 13	V
Operating voltage 2-2	V_{S2}	The operating voltage for CH-V and CH-W	4 to 13	V

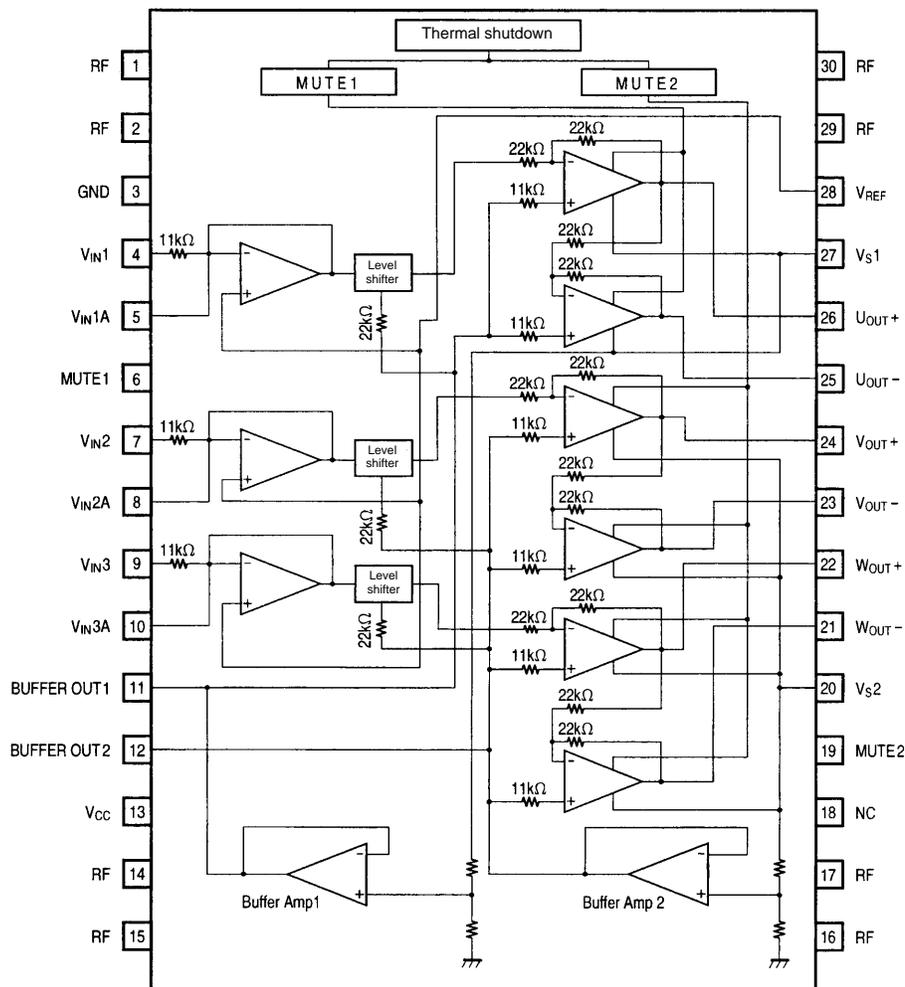
Note: $V_{CC} > V_{S1}, V_{S2}$

Electrical Characteristics at $T_a = 25^\circ\text{C}$, $V_{CC} = 12\text{ V}$, $V_{S1} = V_{S2} = 5\text{ V}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
V_{CC} no-load input current drain	I_{CC1}	All outputs on (Mute 1, 2: high *)	4	8	15	mA
	I_{CC2}	All outputs off (Mute 1, 2: low)	–	4	10	mA
V_{S1} no-load current drain	I_{S1-1}	CH-U: on (Mute 1: high *)	–	5	10	mA
	I_{S1-2}	CH-U: off (Mute 1: low)	–	–	2	mA
V_{S2} no-load current drain	I_{S2-1}	CH-V, CH-W: on (Mute 2: high *)	–	10	20	mA
	I_{S2-2}	CH-V, CH-W: off (Mute 2: low)	–	–	4	mA
Output offset voltage	V_{OF1} to V_{OF3}	The potential difference between the + and – sides for CH-U through CH-W	–50	–	+50	mV
Input voltage range	V_{IN}	The voltage range for V_{IN1} through V_{IN3} .	0.5	–	5	V
Buffer amplifier 1 output voltage	$V_{BUFFER1}$	The voltage difference with respect to 1/2 V_{S1}	–50	0	+50	mV
Buffer amplifier 2 output voltage	$V_{BUFFER2}$	The voltage difference with respect to 1/2 V_{S2}	–50	0	+50	mV
Output voltage (source)	V_{O1}	Output high, $I_O = 700\text{ mA}$, for + outputs	4.4	4.7	–	V
Output voltage (sink)	V_{O2}	Output low, $I_O = 700\text{ mA}$, for + outputs	–	0.3	0.6	V
Closed loop voltage gain	VG	Bridge amplifier	–	6	–	dB
Slew rate	SR		–	0.15	–	V/ μs
Mute on voltage	$V_{MUTE1, 2}$	The voltage applied to MUTE1 or MUTE2 when the output goes on.	–	1.5	2	V
Mute on current	$I_{MUTE1, 2}$	The MUTE1 or MUTE2 influx current when the output goes on.	–	6	10	μA

Note: * CH-U will be on when MUTE1 is high. CH-V and CH-W will be on when MUTE2 is high.

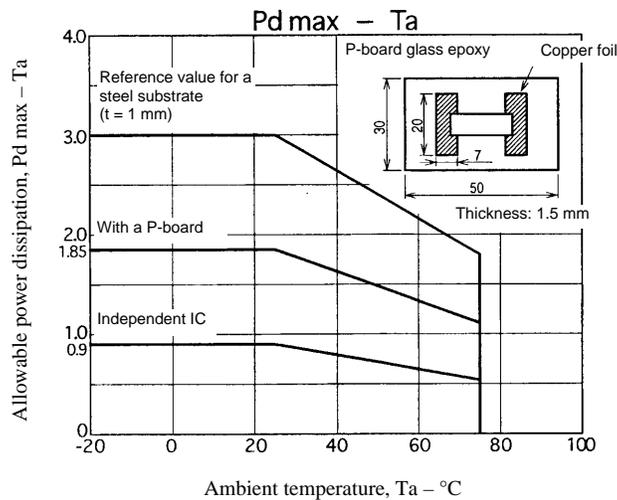
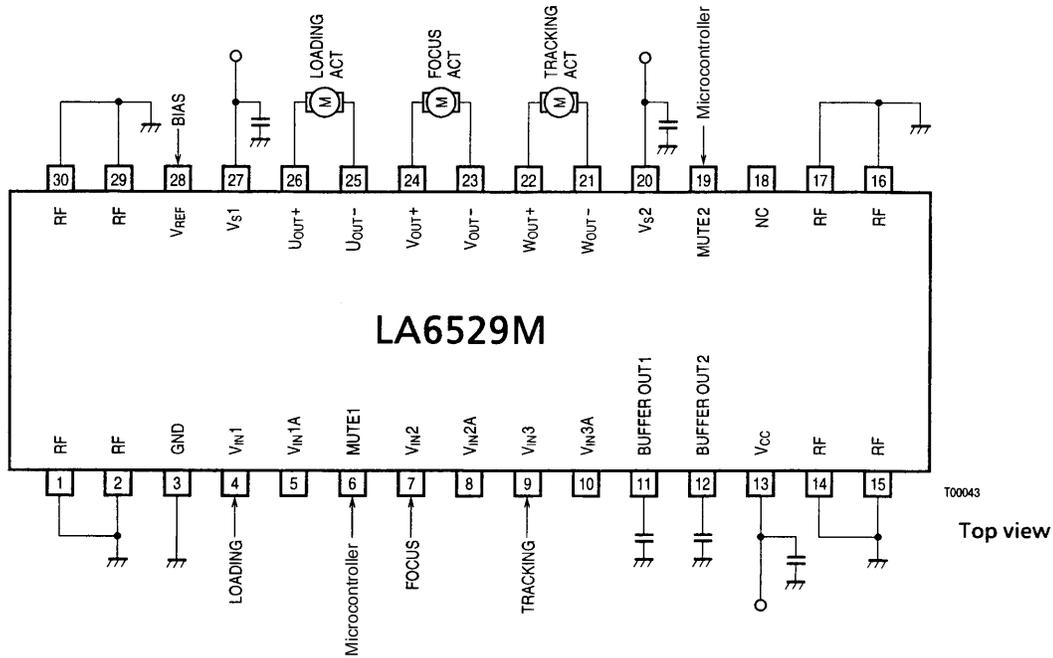
Block Diagram



Pin Functions

Pin No.	Pin	Function	Equivalent circuit
1, 2, 14, 15, 16, 17, 29, 30	RF	Substrate (minimum potential)	
3	GND	Ground	
4 5 7 8 9 10	V_{IN1} V_{IN1A} V_{IN2} V_{IN2A} V_{IN3} V_{IN3A}	CH-U input CH-U input (for gain adjustment) CH-V input CH-V input (for gain adjustment) CH-W input CH-W input (for gain adjustment)	<p style="text-align: right;">A07008</p>
6	MUTE1	Sets the CH-U output on or off.	
11	BUFFER OUT1	Buffer amplifier 1 output (1/2 V_{S1} : typical). Used as the reference voltage for the CH-U output stage.	
12	BUFFER OUT2	Buffer amplifier 2 output (1/2 V_{S1} : typical). Used as the reference voltage for the CH-V and CH-W output stages.	
13	V_{CC}	Power supply	
18	NC	Must be left open.	
19	MUTE2	Sets the CH-V and CH-W outputs on or off.	
20	V_{S2}	CH-V and CH-W output stage power supply	
21 22 23 24 25 26	W_{OUT-} W_{OUT+} V_{OUT-} V_{OUT+} U_{OUT-} U_{OUT+}	CH-W inverted output CH-W noninverted output CH-V inverted output CH-V noninverted output CH-U inverted output CH-U noninverted output	
27	V_{S1}	CH-U output stage power supply	
28	V_{REF}	Level shifter circuit reference voltage (common to all three channels)	

Sample Application Circuit



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