



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

### Overview

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

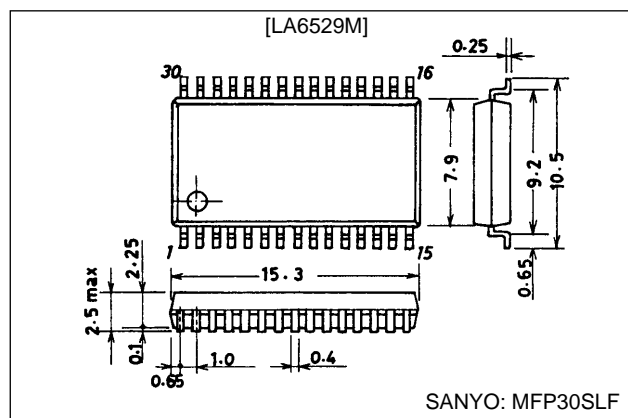
### Functions and Features

- 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

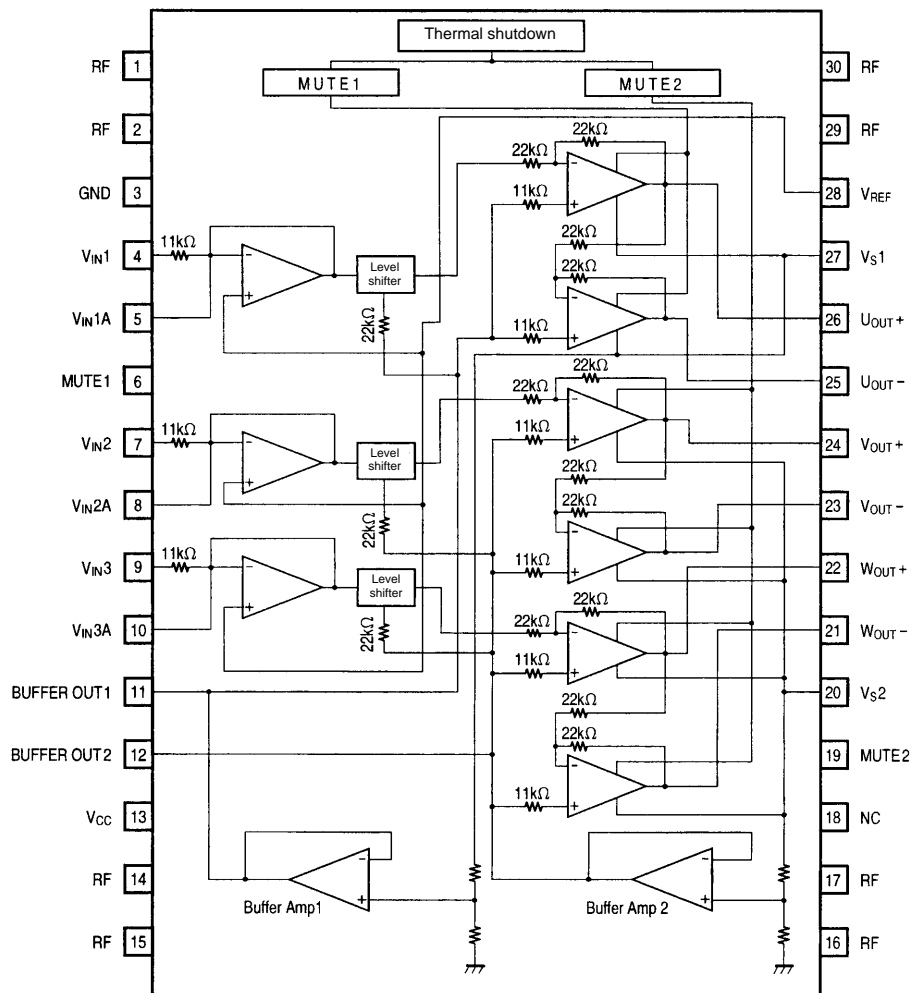
Note:  $V_{CC} > V_{S1}, V_{S2}$

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/ $\mu\text{s}$
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	$\mu\text{A}$

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

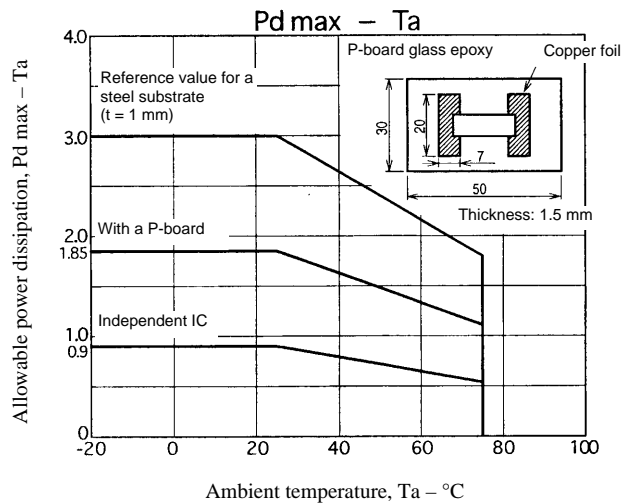
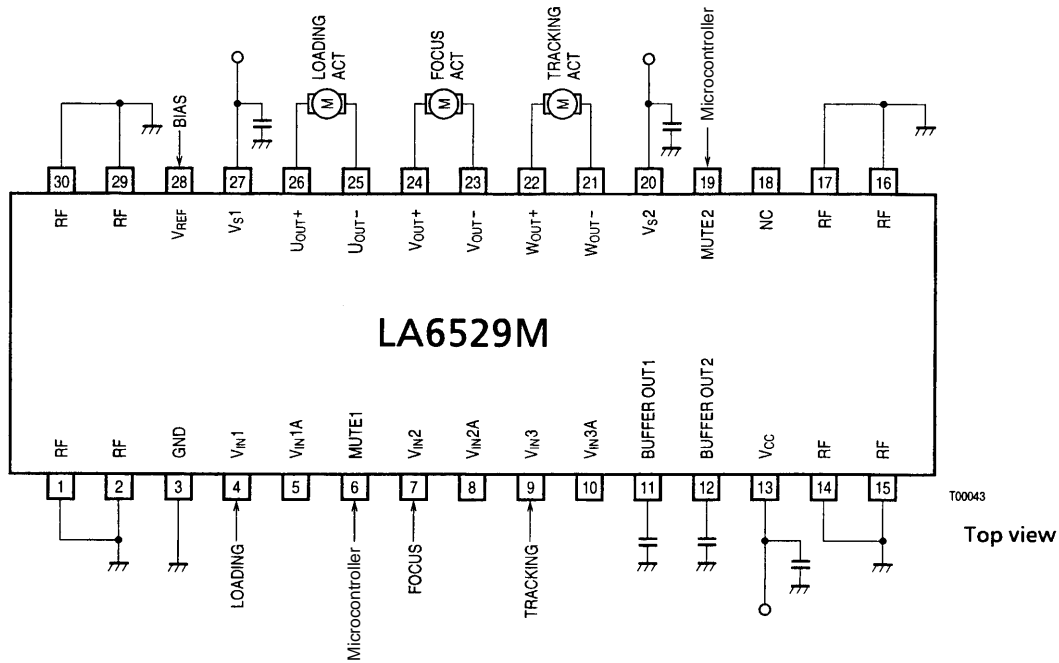
Block Diagram



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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