

**SANYO**

No.4019

**LA6525M**

**Four-channel Bridge Driver  
for Compact Disc Players**

**OVERVIEW**

The LA6525M is a four-channel, high-current bridge driver IC with output muting. It features two dual-output 400 mA (max) and two dual-output 700 mA (max) channels, making it ideal for use in compact disc players.

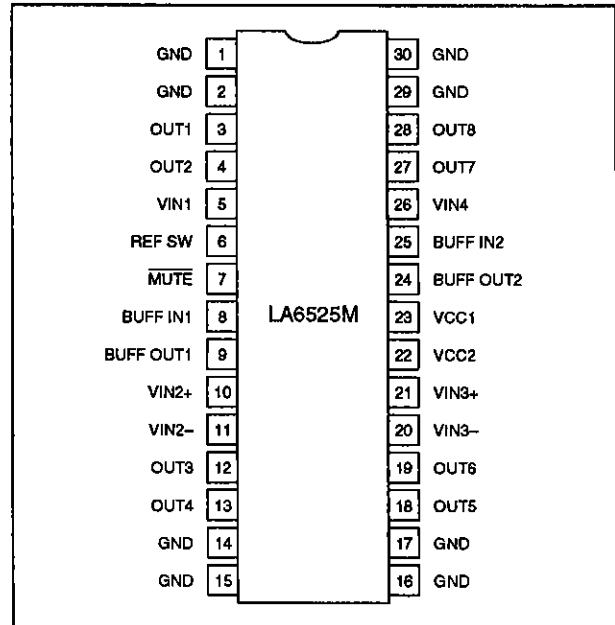
The LA6525M incorporates a reference voltage switch, a thermal protection circuit and two input buffer amplifiers in addition to the output driver amplifiers.

The LA6525M operates from a 5 V supply and is available in 30-pin MFPs.

**FEATURES**

- Four-channel bridge connection (BTL) power amplifier
- Output muting
- Two dual-output 400 mA (max) and two dual-output 700 mA (max) channels
- Reference voltage switch
- Thermal protection circuit
- Two input buffer amplifiers
- 5 V supply
- 30-pin MFP

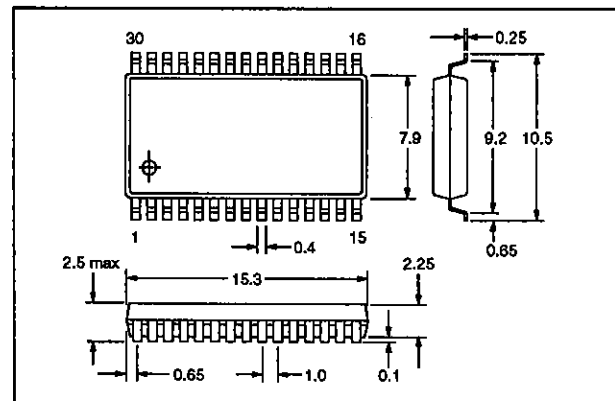
**PINOUT**



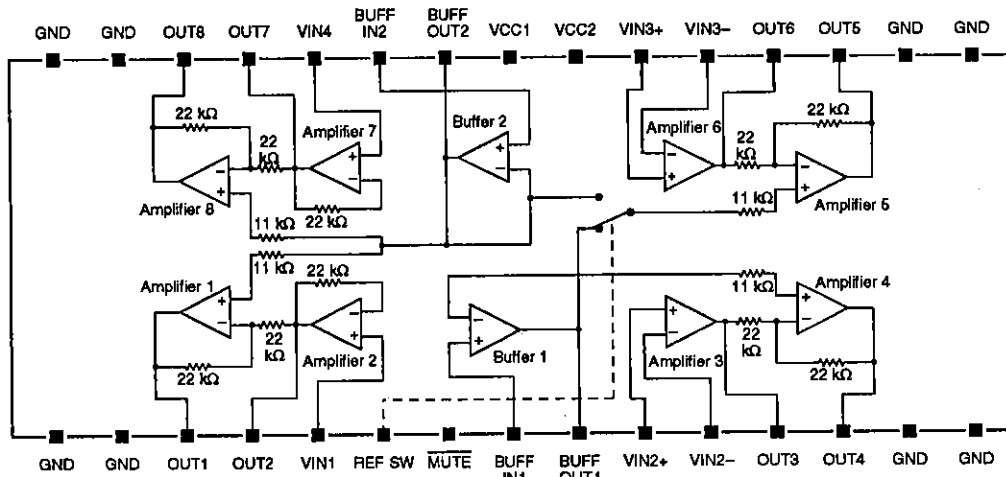
**PACKAGE DIMENSIONS**

Unit: mm

3073A-MFP30S



**BLOCK DIAGRAM**



**PIN DESCRIPTION**

Number	Name	Description
1, 2, 14 to 17, 29, 30	GND	Ground
3	OUT1	Amplifier 1 output. 700 mA (max) output current
4	OUT2	Amplifier 2 output. 700 mA (max) output current
5	VIN1	Amplifier 2 input
6	REF SW	Reference switch control input
7	MUTE	Mute control input
8	BUFF IN1	Buffer 1 input
9	BUFF OUT1	Buffer 1 output
10	VIN2+	Amplifier 3 non-inverting input
11	VIN2-	Amplifier 3 inverting input
12	OUT3	Amplifier 3 output. 400 mA (max) output current
13	OUT4	Amplifier 4 output. 400 mA (max) output current
18	OUT5	Amplifier 5 output. 400 mA (max) output current
19	OUT6	Amplifier 6 output. 400 mA (max) output current
20	VIN3-	Amplifier 6 inverting input
21	VIN3+	Amplifier 6 non-inverting input
22, 23	VCC2, VCC1	5 V supplies
24	BUFF OUT2	Buffer 2 output
25	BUFF IN2	Buffer 2 input
26	VIN4	Amplifier 7 input
27	OUT7	Amplifier 7 output. 700 mA (max) output current
28	OUT8	Amplifier 8 output. 700 mA (max) output current

## SPECIFICATIONS

### Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	$V_{CC}$	9	V
MUTE input voltage	$V_{MUTE}$	8	V
Differential input voltage	$V_{ID}$	8	V
Common-mode input voltage	$V_{ICM}$	8	V
Buffer amplifier input voltage	$V_{IB}$	8	V
Input voltage for all other inputs	$V_I$	8	V
Power dissipation	$P_D$	0.9	W
Operating temperature range	$T_{opr}$	-20 to 75	°C
Storage temperature range	$T_{stg}$	-55 to 150	°C

### Recommended Operating Conditions

$T_a = 25\text{ °C}$

Parameter	Symbol	Rating	Unit
Supply voltage	$V_{CC}$	5	V

### Electrical Characteristics

$V_{CC} = 5\text{ V}$ ,  $T_a = 25\text{ °C}$

Parameter	Symbol	Condition	Rating			Unit
			min	typ	max	
Supply current	$I_{CC}$	Mute is OFF. See note 1.	25	40	60	mA
		Mute is ON. See note 1.	5	9	20	
BUFF IN1 and BUFF IN2 input voltage	$V_{BICM}$		1.5	-	$V_{CC} - 1.5$	V
Mute turn-ON voltage	$V_{MUTE}$		-	2.2	-	V
Reference switch turn-ON voltage	$V_{REFSW}$		-	2.5	-	V
Input voltage for all other inputs	$V_{ICM}$		1.0	-	$V_{CC} - 1.5$	V
Bridge amplifier closed-loop voltage gain	$G_V$		-	6	-	dB
OUT1, OUT2, OUT7 and OUT8 output source voltage	$V_{O1}$	See note 2.	3.4	3.6	-	V
OUT1, OUT2, OUT7 and OUT8 output sink voltage	$V_{O2}$	See note 2.	-	1.0	1.4	V
OUT3, OUT4, OUT5 and OUT6 output source voltage	$V_{O3}$	See note 2.	2.8	3.4	-	V
OUT3, OUT4, OUT5 and OUT6 output sink voltage	$V_{O4}$	See note 2.	-	1.6	2.2	V
Amplifiers 3 and 6 output limiting voltage	$V_{OL}$		-	5	-	V
OUT1, OUT2, OUT7 and OUT8 output offset voltage	$V_{OFF1}$	See note 3.	-50	-	50	mV

## LA6525M

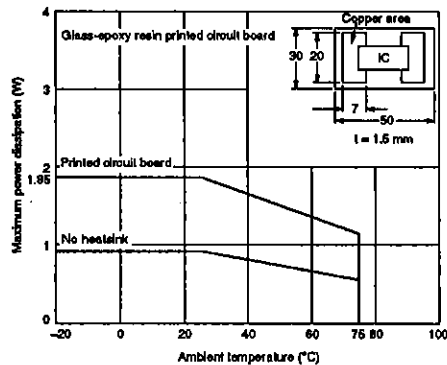
Parameter	Symbol	Condition	Rating			Unit
			min	typ	max	
OUT3 and OUT4 output offset voltage	$V_{OFF2}$	See note 3.	-30	-	30	mV
OUT5 and OUT6 output offset voltage	$V_{OFFa}$	Reference switch ON or OFF. See note 3.	-40	-	40	mV
Buffer 1 input-to-output voltage differential	$V_{BIO1}$		-30	-	30	mV
Buffer 2 input-to-output voltage differential	$V_{BIO2}$		0.5	0.6	0.8	V
Amplifier 2 input-to-output voltage differential	$V_{IO2}$		0.5	0.6	0.8	V
Amplifier 7 input-to-output voltage differential	$V_{IO7}$		0.5	0.6	0.8	V
VIN2+, VIN2-, VIN3+ and VIN3- input bias current	$I_B$	See note 4.	-	100	500	nA
Mute turn-ON current	$I_{MUTE}$		-	80	-	$\mu$ A
Reference switch turn-ON current	$I_{REFSW}$		-	26	-	$\mu$ A
OUT1 to OUT8 load resistance	$R_L$		-	8	-	$\Omega$

### Notes

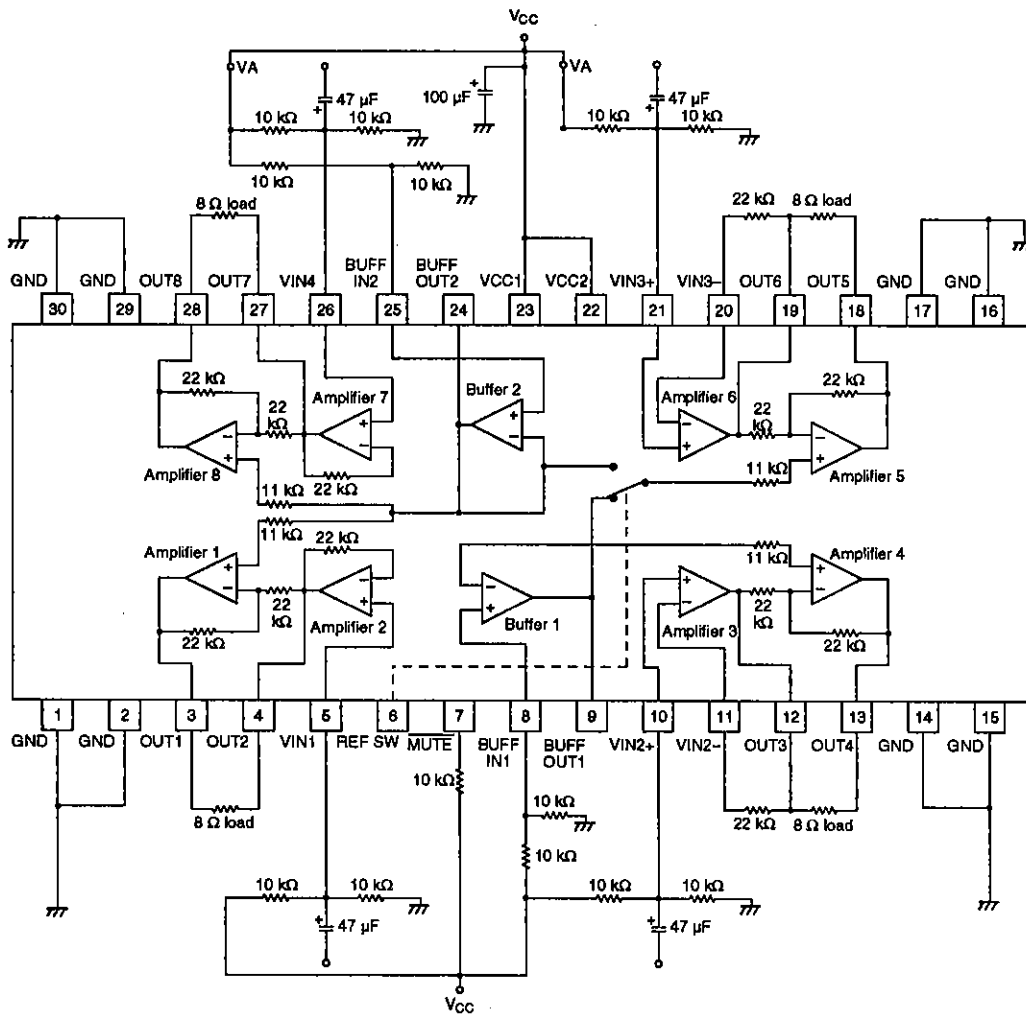
1. Amplifier non-inverting inputs are held at 0.5 V and amplifier inverting inputs are connected to outputs through a 22 k $\Omega$  resistor.
2. Output-to-ground voltage when an 8  $\Omega$  load is connected between a pair of bridge amplifier outputs.
3. Voltage differential between a pair of bridge amplifier outputs
4. Amplifier non-inverting input is connected to 0.5V<sub>CC</sub> through a 100 k $\Omega$  resistor, inverting input is connected to output through a 100 k $\Omega$  resistor. The current is determined from the voltage across the resistors.

### Typical Performance Characteristics

#### Maximum power dissipation vs. ambient temperature



## TYPICAL APPLICATION



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