Ordering number : EN7815A

SANYO Semiconductors
DATA SHEET

LA6261 — Monolithic Linear IC For Optical Disk Drive 6-Channel Driver (BTL: 4 channels, H bridge: 2 channels)

Overview

The LA6261 is a 6-channel driver IC that incorporates 4 channels of BTL output and 2 channels of H-bridge output. It is optimal for the actuator driver for CDs, MDs, and other optical disk drives.

Features

- Six power amplifier channels on a single chip (BTL: 4 channles, H-bridge: 2 channels)
- I_O max: 700mA (Each channel)
- Built-in level shifter circuits (BTL amplifier)
- Built-in thermal protection (thermal shutdown) circuit
- Separate power supply for H-bridge (2 channels)
- Onchip 3.3V regulator controller (uses an external output transistor)
- Adjustment pin for the H-bridge output

Specifications

Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC} max		14	V
Maximum output current	I_O max	for each of the channel 1 to 6	0.7	A
Maximum input voltage	$V_{IN}B$		13	V
MUTE pin voltage	V_{MUTE}		13	V
Allowable power dissipation	Pd max	Independent IC	0.8	W
		Mounted on the specified board *	2	W
Operating ambient temperature	Topr		-30 to +85	°C
Storage ambient temperature	Tstg		-55 to +150	°C

* Mounted on a specified board: 76.1mm×114.1mm×1.6mm, glass epoxy.

Recommended Operating Conditions at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V_{CC}		5.6 to 13	V

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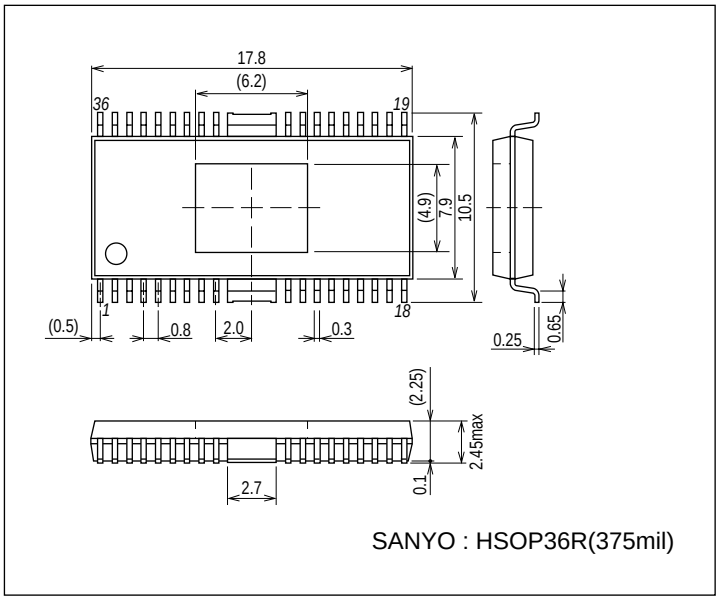
Electrical Characteristics at Ta = 25°C, $V_{CC}1 = V_{CC}2 = 8V$, $V_{REF} = 1.65V$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
All Blocks						
No-load current drain ON	I_{CC}-ON	All outputs on *1, FWD=REV=0V		30	50	mA
V_{REF} input voltage range	V_{REF}-IN		0.5		V_{CC}-1.5	V
BTL AMP						
Output offset voltage	V_{OFF}	BTL amplifier, the voltage difference between each channel outputs	-50		+50	mV
Input voltage range	V_{IN}	Applied to pins $V_{IN}1$ to $V_{IN}4$	0		V_{CC}	V
Output voltage	V_O	Voltage between V_O+ and V_O- for each channel when R_L=8Ω *2	4	5		V
Closed-circuit voltage gain	V_G	The gain from the input to the output		4		deg
MUTE ON voltage	V_{MT}ON	*3	2		SV_{CC}	V
MUTE OFF voltage	V_{MT}OFF	*3	0		0.5	V
Slew rate	SR	For the independent amplifier. Times 2 when between outputs *4		0.5		V/μs
H-bridge Block						
Output voltage	V_O-LOAD	Voltage between V_O+ and V_O- for each channel when R_L=10Ω	6.2	6.7		V
Input low level	V_{IN}-L		0		1	V
Input high level	V_{IN}-H		2		SV_{CC}	V
Output setting voltage	VCONT	Voltage between V_O+ and V_O- for each channel when VCONT=3V and R_L=10Ω		2.8		V
Regulator Block						
Output voltage	Vreg	I_L=100mA	3.05	3.3	3.55	V
Output load variation	ΔV_{RL}	I_L=0 to 200mA	-50	0	10	mV
Supply voltage variation	ΔVV_{CC}	V_{CC}=6 to 12V, I_L=100mA	-15	21	60	mV

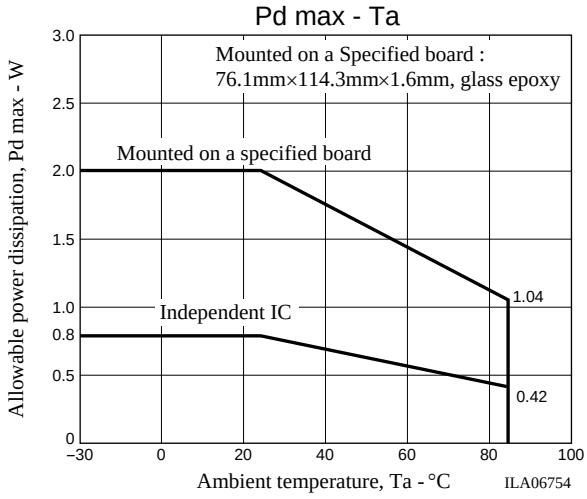
*1: The total current dissipation for SV_{CC}, $PV_{CC}1$, and $PV_{CC}2$ with no load
*2: Output in the saturated state
*3: When the MUTE pin is high, the BTL output will be on, and when low, the BTL output will be OFF (HI impedance).
*4: Design guarantee value

Package Dimensions

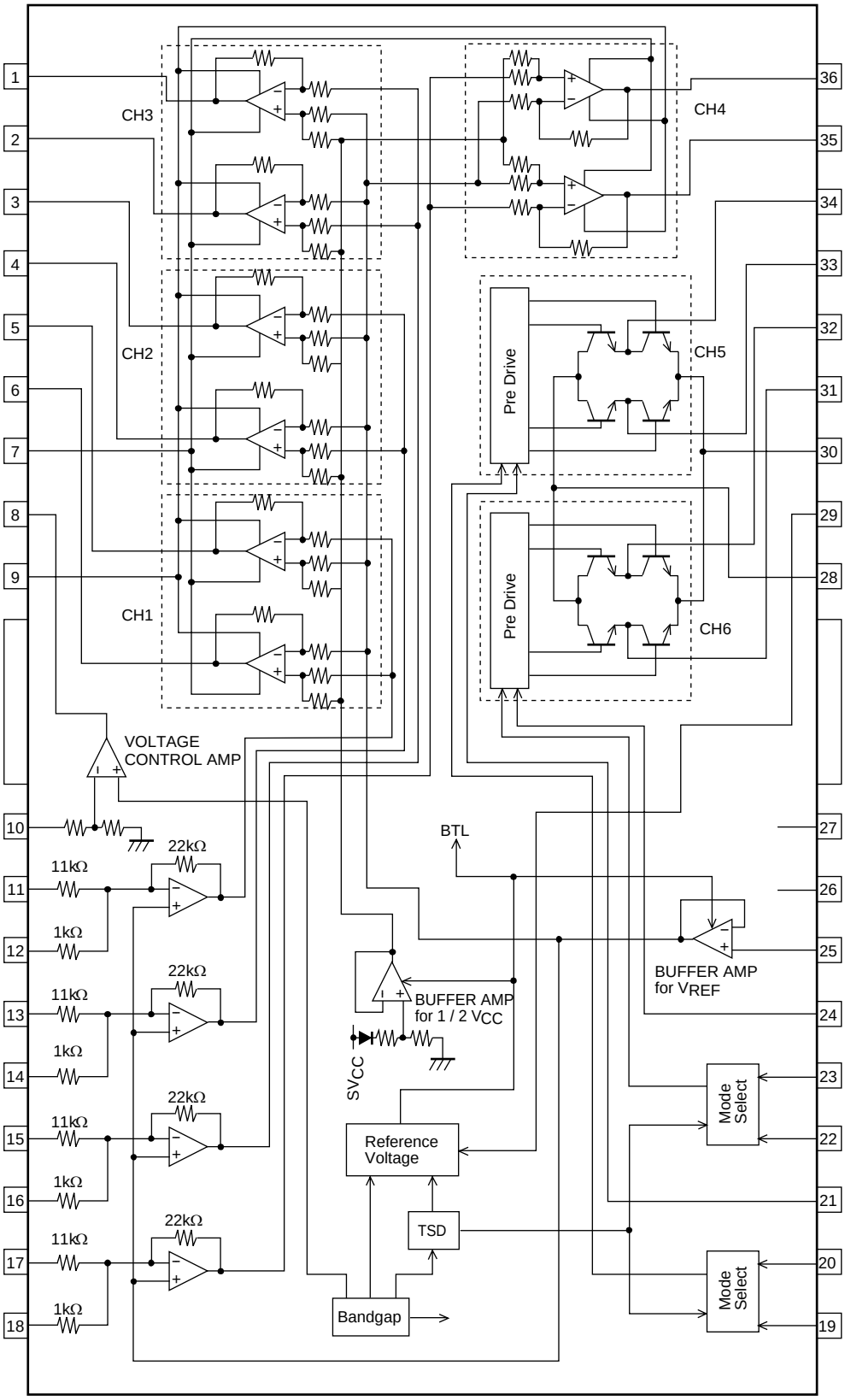
unit : mm (typ)
3251



SANYO : HSOP36R(375mil)



Block Diagram



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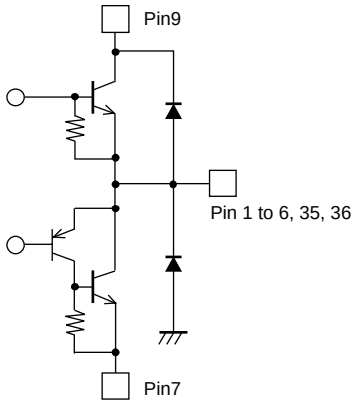
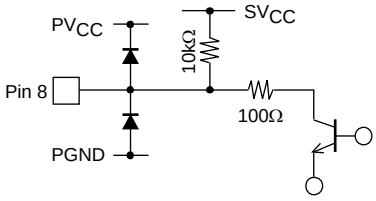
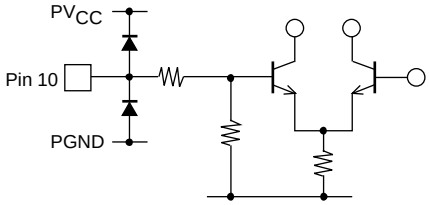
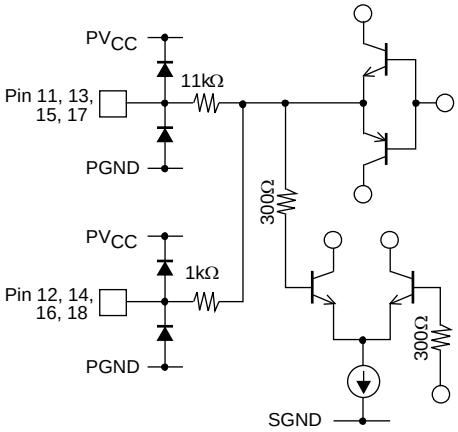
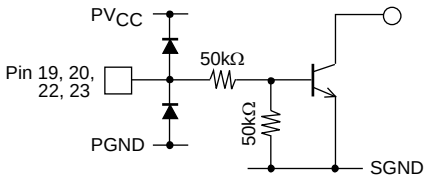
Pin Description

Pin No.	Pin Name	Description	Equivalent Circuit Diagram
1	V_O3+	Channel 3 (BTL) output (+)	
2	V_O3-	Channel 3 (BTL) output (-)	
3	V_O2+	Channel 2 (BTL) output (+)	
4	V_O2-	Channel 2 (BTL) output (-)	
5	V_O1+	Channel 1 (BTL) output (+)	
6	V_O1-	Channel 1 (BTL) output (-)	
7	PGND	Power system ground for channels 1 to 4 (BTL)	
9	$PV_{CC}1$	Power system power supply for channels 1 to 4 (BTL) (shorted to SV_{CC})	
35	V_O4+	Channel 4 (BTL) output (+)	
36	V_O4-	Channel 4 (BTL) output (-)	
8	REGIN	Regulator (to the base of the external PNP transistor)	
10	REGOUT	Regulator (to the collector of the external PNP transistor)	
11	$V_{IN}1$	Channel 1 input	
12	$V_{IN}1G$	Channel 1 input (gain adjustment)	
13	$V_{IN}2$	Channel 2 input	
14	$V_{IN}2G$	Channel 2 input (gain adjustment)	
15	$V_{IN}3$	Channel 3 input	
16	$V_{IN}3G$	Channel 3 input (gain adjustment)	
17	$V_{IN}4$	Channel 4 input	
18	$V_{IN}4G$	Channel 4 input (gain adjustment)	
19	FWD5	Channel 5 output direction switching (FWD), H-bridge logic input	
20	REV5	Channel 5 output direction switching (REV), H-bridge logic input	
22	FWD6	Channel 6 output direction switching (FWD), H-bridge logic input	
23	REV6	Channel 6 output direction switching (REV), H-bridge logic input	

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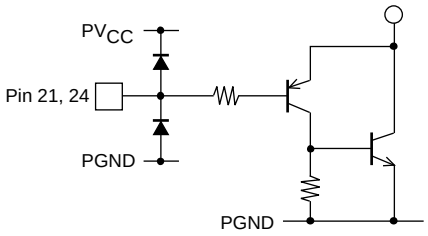
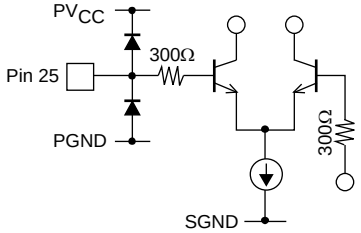
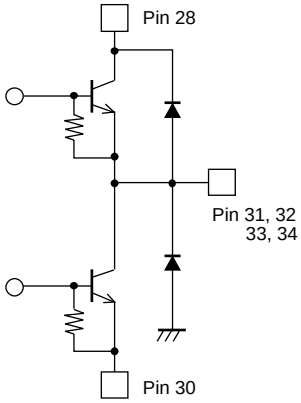
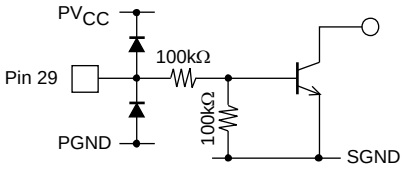
Pin No.	Pin Name	Description	Equivalent Circuit Diagram
21 24	VCONT5 VCONT6	Channel 5 output voltage setting Channel 6 output voltage setting	
25	V_{REF}IN	Reference voltage input	
28 30 31 32 33 34	PV_{CC}2 PGND2 V_O6+ V_O6- V_O5+ V_O5-	Power system power supply for for channels 5 and 6 (H-bridge) Power system ground for channels 5 and 6 (H-bridge) Channel 6 (H-bridge) output (+) Channel 6 (H-bridge) output (-) Channel 5 (H-bridge) output (+) Channel 5 (H-bridge) output (-)	
29	MUTE	BTL mute signal input	
26	SGND	Signal system ground	
27	SV_{CC}	Signal system power supply (shorted to PV_{CC}1)	

Truth Table

INPUT		OUTPUT	
FWD5(6)	REV5(6)	V_O5(6)+	V_O5(6)-
L	L	Z	Z
L	H	H	L
H	L	L	H
H	H	L	L

*Z: HI-Impedance

Sample Application Circuit