



# LB1249

## Active-Low Input, 8-Unit, High-Current, Low-Saturation Driver

### Applications

- 4-phase stepping motor driver of 2 channels.
- Especially suited for X-Y axis plotter printer driver.
- High current, low saturation voltage general-purpose 8-unit driver (relay, LED, lamp solenoid, etc.).

### Features

- Low active input type.
- On-chip input protecting diodes.
- High current capacity (400mA) and low saturation voltage (0.5V max).
- On-chip spark killer diodes.
- Wide duty due to Pd of 3W max.

### Specifications

#### Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Maximum supply voltage	V <sub>CC1,2</sub>		-0.3 to +7.0	V
Output supply voltage	V <sub>OUT</sub>		-0.3 to +10.0	V
Input supply voltage	V <sub>IN</sub>	GND ≤ V <sub>IN</sub>	V <sub>DD</sub> -7.0 to V <sub>DD</sub> +15	V
Output current	I <sub>OUT</sub>	Per unit	400	mA
Spark killer diode forward current	I <sub>FSM</sub>	Pulse width ≤ 35ms, duty 5%	400	mA
GND pin current	I <sub>GND</sub>	Pulse width ≤ 35ms	3.4	A
Instantaneous current drain	I <sub>CCP</sub>	Pulse width ≤ 35ms, duty 5%	3.2	A
Allowable power dissipation	Pd max		3.0	W
Operating temperature	Topr		-20 to +75	°C
Storage temperature	Tstg		-40 to +125	°C

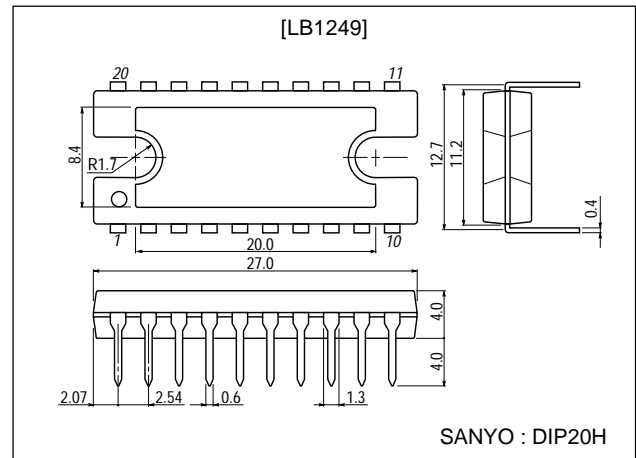
#### Allowable Operating Ranges at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Supply voltage	V <sub>CC1</sub>		2.3 to 6.0	V
	V <sub>DD</sub>		2.3 to 6.0	V
Input H-level voltage	V <sub>IH</sub>	GND ≤ V <sub>IN</sub> ; I <sub>OUT</sub> = 200mA	V <sub>DD</sub> - 6.0 to V <sub>DD</sub> - 2.3	V
Input L-level voltage	V <sub>IL</sub>	I <sub>OUT</sub> ≤ 100μA	V <sub>DD</sub> - 0.7 to V <sub>DD</sub> + 15	V

### Package Dimensions

unit:mm

3037A-DIP20H



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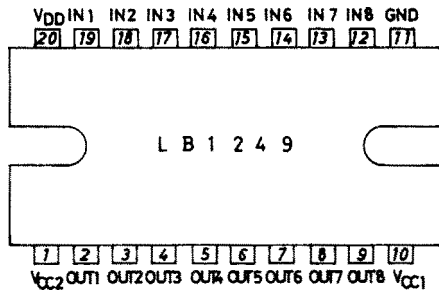
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110-8534 JAPAN

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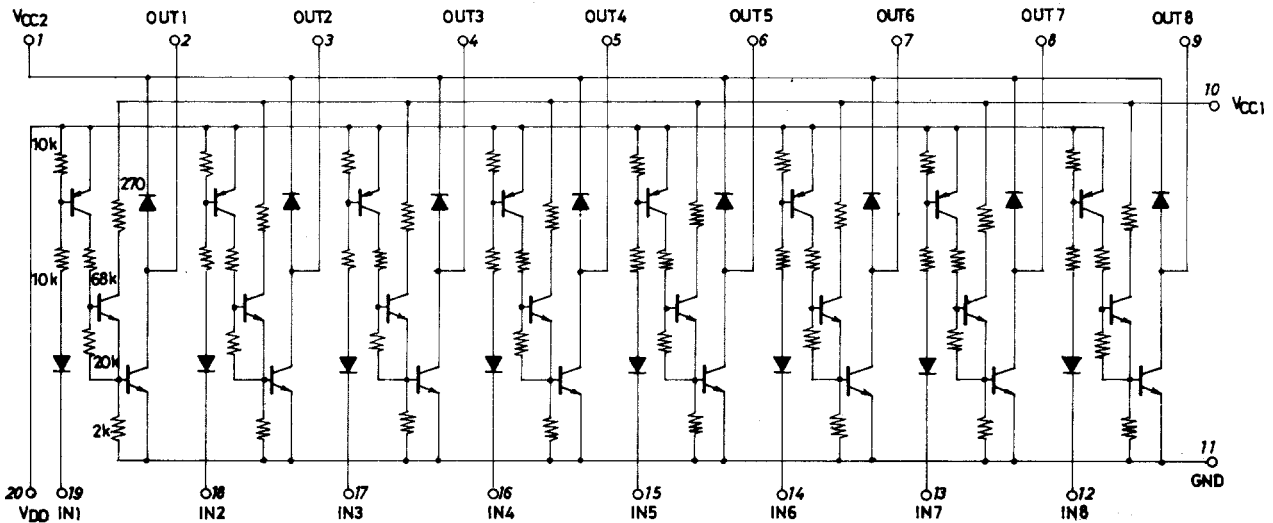
## Electrical Characteristics at $T_a = 25^\circ\text{C}$ , $V_{DD}=V_{CC1}=V_{CC}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Output voltage	$V_{OUT1}$	$V_{CC}=2.3\text{V}$ , $V_{IN}=V_{CC}-2.3\text{V}$ , $I_{OUT}=200\text{mA}$			0.4	V
	$V_{OUT2}$	$V_{CC}=3.5\text{V}$ , $V_{IN}=V_{CC}-3.0\text{V}$ , $I_{OUT}=200\text{mA}$			0.25	V
	$V_{OUT3}$	$V_{CC}=6.0\text{V}$ , $V_{IN}=V_{CC}-5.5\text{V}$ , $I_{OUT}=400\text{mA}$			0.5	V
Output sustain voltage	$V_{O(SUS)}$	$I_{OUT}=400\text{mA}$ , $t \leq 10\mu\text{s}$	10			V
Input current	$I_{IN}$	$V_{IN}=V_{CC}-6.0\text{V}$ , $I_{OUT}=0$	-1.0			mA
Supply leakage current	$I_{CC(OFF)}$	$V_{CC}=6.0\text{V}$ , $V_{IN}=V_{CC}$			20	$\mu\text{A}$
Output leakage current	$I_{OFF}$	$V_{OUT}=V_{CC}=6.0\text{V}$ , $V_{IN}=V_{CC}=-0.7\text{V}$			100	$\mu\text{A}$
Spark killer diode forward voltage	$V_{F(S)}$	$I_{F(S)}=400\text{mA}$			3.0	V
Spark killer diode reverse voltage	$I_{R(S)}$	$V_{OUT}=0\text{V}$ , $V_{CC2}=6.0\text{V}$			30	$\mu\text{A}$

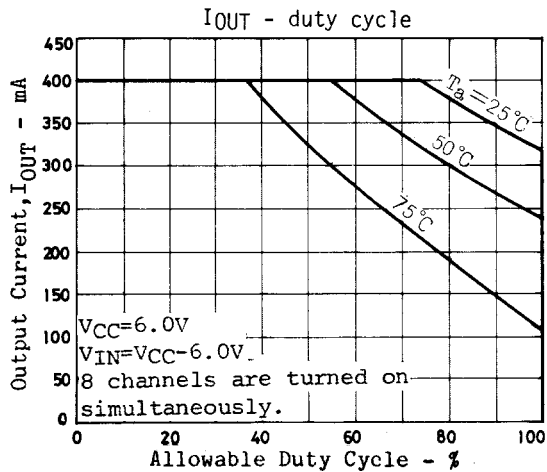
## Pin Assignment



## Equivalent Circuit



Unit (resistance:  $\Omega$ )



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